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MSPN GMBH

Märkische Stanz-Partner



[**stanz**normalien]

[**standard**diecomponents]

2021

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Märkische Stanz-Partner

[stanznormalien] 2021

Änderungen vorbehalten!
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[standarddiecomponents] 2021

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Wegweiser
Guide

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STANZNORMALIEN / STANDARD DIE COMPONENTS

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Ein „Klick“ auf Artikelbezeichnung, Bestell-Nummer oder Seite im vorangestellten Inhaltsverzeichnis bringt Sie zum gewünschten Artikel.

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Ein „Klick“ auf Foto, Artikelbezeichnung, Bestell-Nummer oder Seite im Inhaltsverzeichnis des Registers bringt Sie unmittelbar zum gewünschten Artikel im Katalog.

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[säulengestelle]
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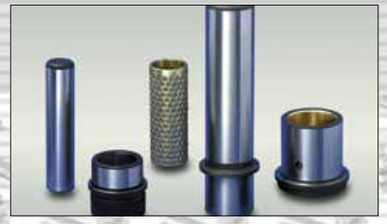

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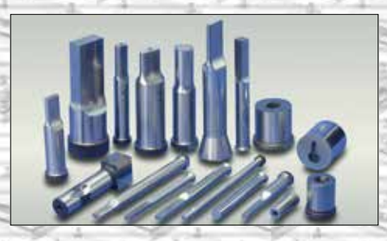
[FS]



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[11.03.2020]

[11.03.2020]

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Modular systems of interchangeable bushings with leader pin centering, straight, with ball guide	FS 380/3	FS.9

[11.03.2020]

Inhalt Katalog [Stanznormalien] (GB)

Content Catalogue [Standard die components] (GB)

STANZNORMALIEN / STANDARD DIE COMPONENTS

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Modular systems of interchangeable bushings with leader pin centering with collar, with HALCO interchangeable bushing/ball guide	FS 381/2	FS.11
Modular systems of interchangeable bushings with leader pin centering with collar, with ball guide	FS 381/3	FS.12
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Modular systems of interchangeable bushings with leader pin centering with flange, with HALCO interchangeable bushing/ball guide	FS 382/2	FS.14
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Punches trumpet head, shouldered shank	SE 751	SE.19
Punches trumpet head, shouldered shank with spring ejector	SE 754	SE.20

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Artikel Article	Best.-Nr. Order no.	Seite Page
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X / Y / Z		
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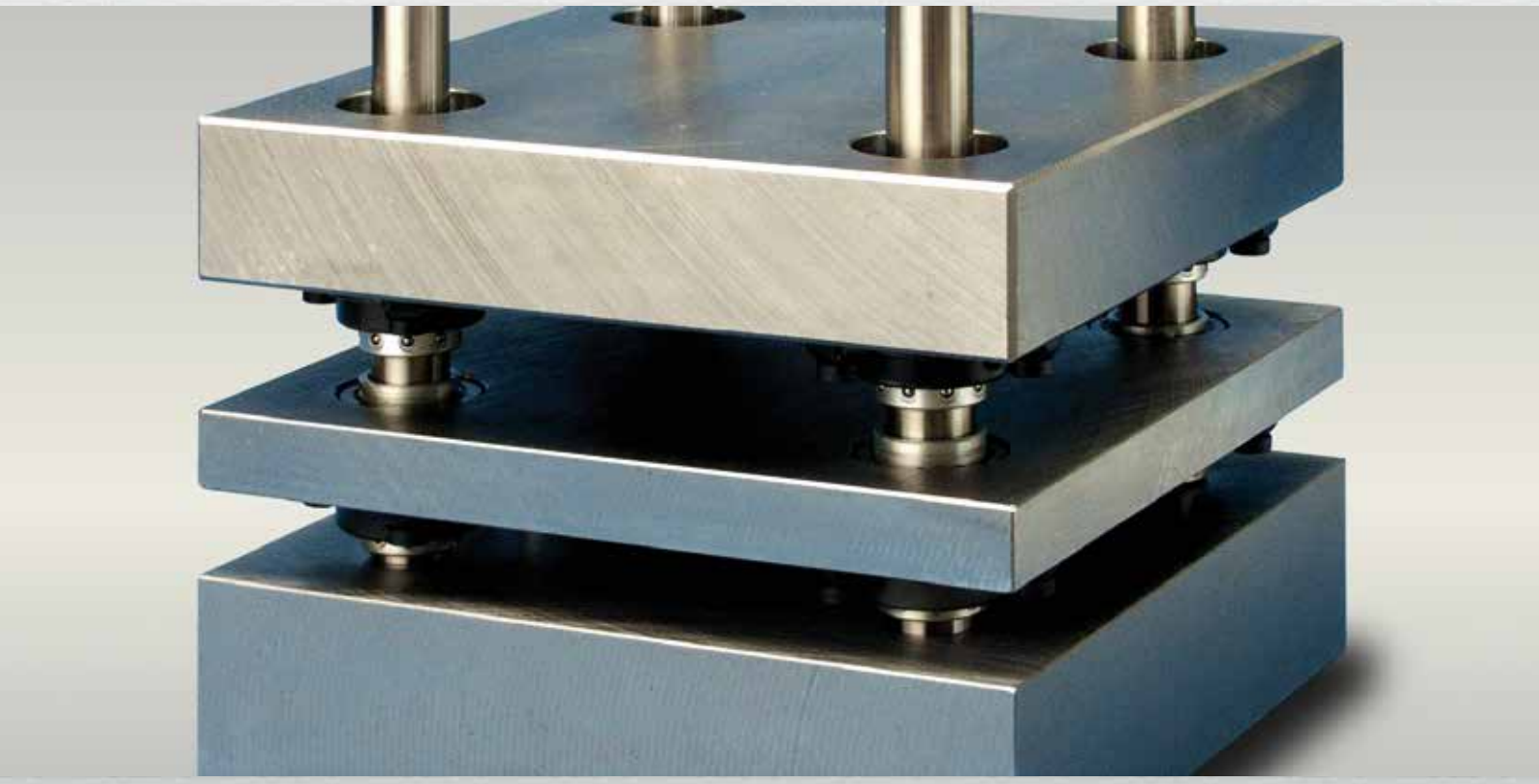
MSP GMBH

Märkische Stanz-Partner



[**säulen**gestelle]

[**die**sets]

Stand / Revision Status 30.10.2020

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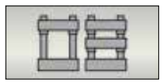
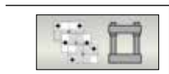
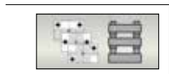
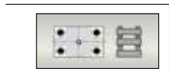
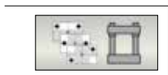
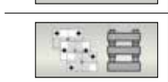
	2 Platten, 2 Säulen, Typ A-C-D	2 plates, 2 leader pins, types A-C-D	SG 2 .	SG. 5 - 8
	2 Platten, 4 Säulen, Typ Q	2 plates, 4 leader pins, type Q	SG 2 Q	SG. 13 - 16
	3 Platten, 2 Säulen, Typ A-C-D	3 plates, 2 leader pins, types A-C-D	SG 3 .	SG. 9 - 12
	3 Platten, 4 Säulen, Typ Q	3 plates, 4 leader pins, type Q	SG 3 Q	SG. 17 - 20
	2 Platten, 2 Säulen, Typ A-C-D M-Line	2 plates, 2 leader pins, types A-C-D M-Line	SG 2 . RM	SG. 26 - 29
	2 Platten, 4 Säulen, Typ Q M-Line	2 plates, 4 leader pins, type Q M-Line	SG 2 Q RM	SG. 34 - 37
	3 Platten, 2 Säulen, Typ A-C-D M-Line	3 plates, 2 leader pins, types A-C-D M-Line	SG 3 . RM	SG. 30 - 33
	3 Platten, 4 Säulen, Typ Q M-Line	3 plates, 4 leader pins, type Q M-Line	SG 3 Q RM	SG. 38 - 41

	Großstahlplatten	XXL - Steel plates	Best.-Nr. Order no.	Seite Page
	Großstahlplatten und Stahl-Schweiß-Konstruktionen mit Sonderbearbeitung	XXL - Steel plates and welded units with additional work / secondary operation		SG. 43 - 46

[01.07.2020]

[01.07.2020]

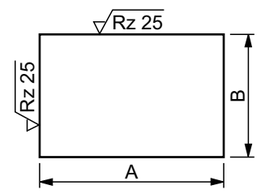
Toleranzangaben für Säulengestelle aus Stahl

Tolerance - information regarding steel die sets

SÄULENGESTELLE / DIE SETS

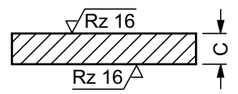
Mat.: C45

Toleranz Außenmaße / Tolerance of length and width



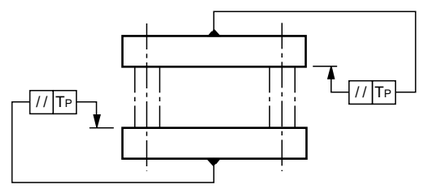
A x B +0,06 –0,06

Toleranz Plattenstärke / Tolerance of thickness



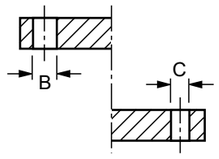
C ± 2

Parallelität der Flächenpaare / Parallelism of two surfaces



TP = 0,012 / 100 mm

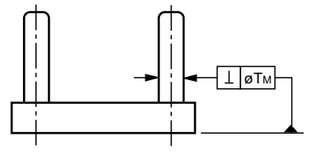
Bohrungstoleranzen / Hole tolerances



B = Aufnahmebohrung Buchse/ Mounting hole for bushing:
FS 468 = K7
FS 4 . . = H6
FS 6 . . = H6
FS 7 . . = H6

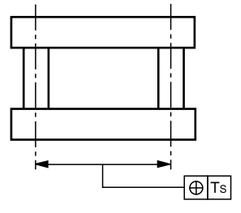
C = Aufnahmebohrung Säule/ Mounting hole for leader pin:
FS 420 = R7
FS 419 = JS6
FS 400/403 = H6

Winkelgenauigkeit der Führungssäulen / Angular accuracy of leader pins



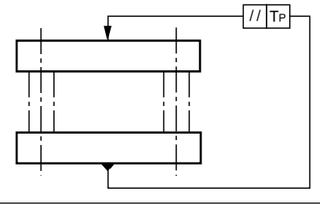
TM = 0,012 / 100 mm

Toleranz Systemabstände / Tolerance of dimensions between leader-pin (and bushing) - holes



TS = ± 0,010

Planparallelität im zusammengebauten Zustand / Parallelism after mounting



TP = 0,015 / 100 mm

[SG]

Säulen-Buchsen-Kombination für 2-Plattengestelle

Combination of leader-pin and -bushing in 2-plate-die-sets

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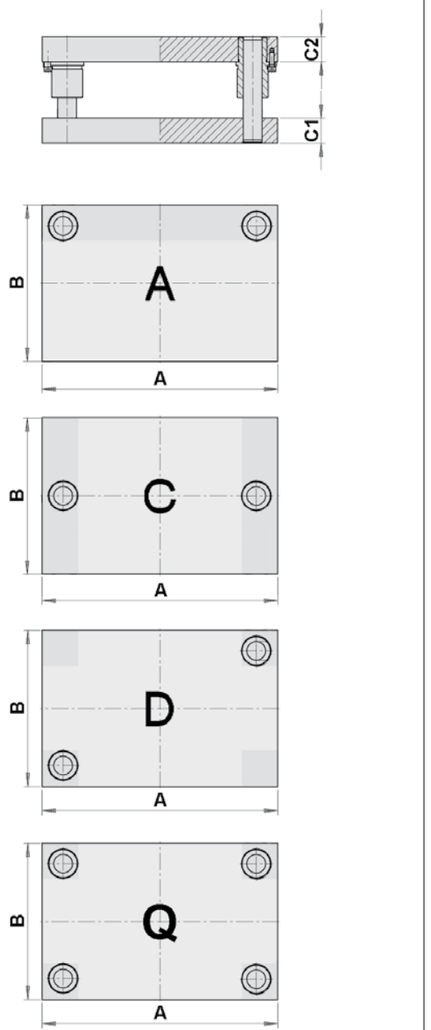
MSPN

Bestellbeispiel / Order-example

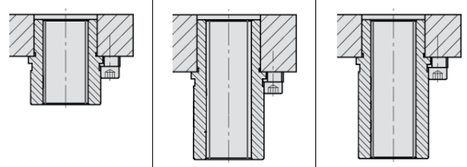
2 C	643	P	41	Z
Gestelltyp Type of die set	Kataloggröße Catalog sizes	Säulentyp Type of leader pin	Buchsentyp Type of bushing	Position der Haltestücke Position of holding clamps

Gestelltyp / Type of die set



Buchsentyp / Type of bushing

Sinterbuchse
Leader pin bushing, sintered

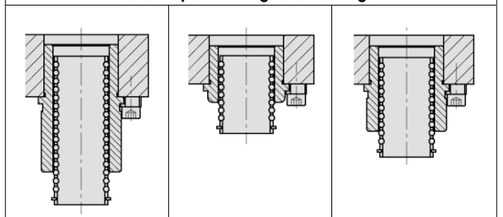


FS 741	FS 751	FS 755
46	47	48

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated

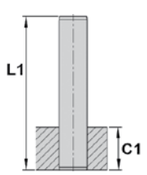
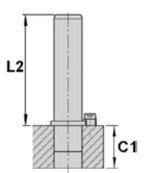
FS 641	FS 651	FS 655
41	42	43

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

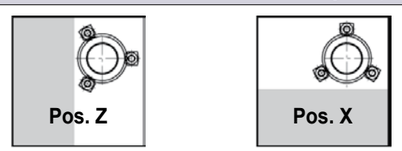


FS 453 + FS 425	FS 457 + FS 425	FS 458 + FS 425
51	52	53

Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel- säule mit Bund Leader pin with collar
	
FS 420	FS 419
P	R

Position der Haltestücke / Position of holding clamps



[01.07.2020]

[01.07.2020]

Säulen-Buchsen-Kombination für 3-Plattengestelle

Combination of leader-pin and -bushing in 3-plate-die-sets

zertifiziert ISO 9001 for you Cert

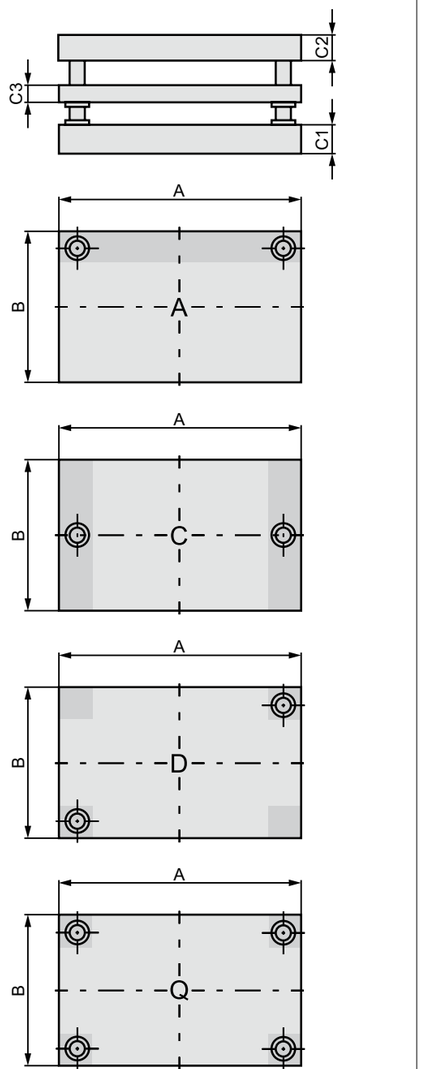
MSPN

[SG]

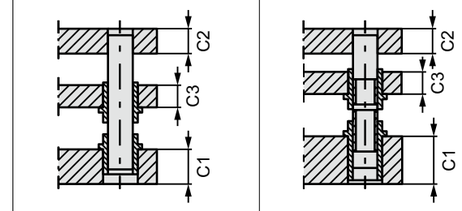
Bestellbeispiel / Order-example

3 C	643	P	71	Z
Gestelltyp Type of die set	Kataloggröße Catalog sizes	Säulentyp Type of leader pin	Buchsentyp Type of bushing	Position der Haltestücke Position of holding clamps

Gestelltyp / Type of die set

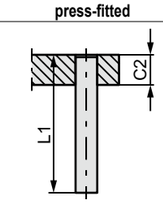
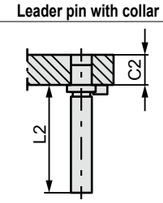


Buchsentyp / Type of bushing

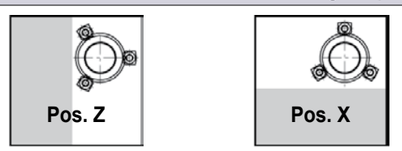


Sinterbuchse **Leader pin bushing, sintered**	
C1 = FS 741 C3 = FS 731	C1 = FS 732 C3 = FS 731
88	87
Stahlbuchse mit Bronzeplattierung **Leader pin bushing, bronze plated**	
C1 = FS 641 C3 = FS 631	C1 = FS 632 C3 = FS 631
71	72
Stahlbuchse mit Ms-Käfig **Leader pin bushing with ball cage**	
C1 = FS 458 + FS 425 C3 = FS 457 + FS 425	C1 = FS 453 + FS 425 C3 = FS 457 + FS 425
91	92

Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel- säule mit Bund Leader pin with collar
	
FS 420	FS 419
P	R

Position der Haltestücke / Position of holding clamps



Bestellbeispiel Sondergrößen

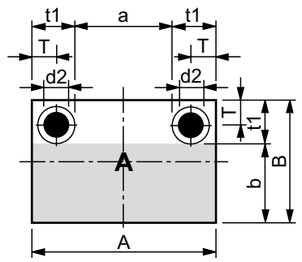
Order-example specials

Position Position	Platten-maße Plate length and width	Platten-stärke Plate thickness			Säulentyp in C1 oder C2* Type of leader pin in C1 or C2*		Buchsentyp in C1 oder C2** Type of bushing in C1 or C2**		Buchsentyp in C3 Type of bushing in C3		Haltestück-position Position of holding clamps
	A x B	C1	C2	C3	FS ...	d1 x l	FS ...	d x l	FS ...	d x l	
Q	610 x 494	78	48	38	420	40/42 x 250	632	40/42 x 67	631	40/42 x 51	X

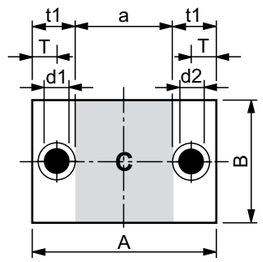
* = Säulentyp in C1 oder C2 bitte angeben. / Please fill in type of leader pin in C1 or C2.
** = Buchsentyp in C1 oder C2 bitte angeben. / Please fill in type of bushing in C1 or C2.

Arbeitsflächen / Working areas

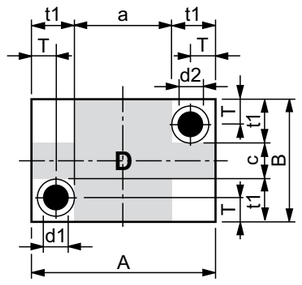
b = B - t1



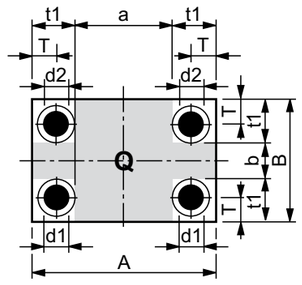
a = A - (2 x t1)



a = A - (2 x t1)
c = B - (2 x t1)

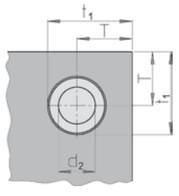


a = A - (2 x t1)
b = B - (2 x t1)



Zylindrische Führungsbuchsen

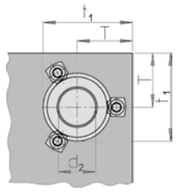
Leader pin bushings, cylindrical



d_1/d_2	T	t_1
18/19	25	40
24/25	29	46
30/32	37	60
40/42	45	74
50/52	52	87
63	–	–
80	–	–

Führungsbuchsen mit Bund

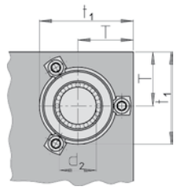
Leader pin bushings, with collar



d_1/d_2	T	t_1
18/19	32	49
24/25	37	59
30/32	44	71
40/42	49	81
50/52	57	97
63	64	117
80	73	135

Führungsbuchsen mit Bund für Kugelführung

Leader pin bushings, with collar for ball-bearings



d_1/d_2	T	t_1
18/19	35	55
24/25	40	65
30/32	48	79
40/42	53	89
50/52	61	105
63	–	–
80	–	–

[01.07.2020]

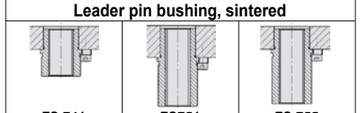
[01.07.2020]

Säulengestelle aus Stahl, 2 Platten, 2 Säulen, Typ A-C-D

Steel die sets, 2 plates, 2 posts, types A-C-D

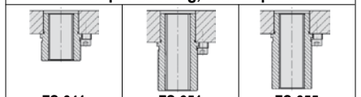
Buchsentyp / Type of bushing

Sinterbuchse
Leader pin bushing, sintered



FS 741	FS751	FS 755
46	47	48

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



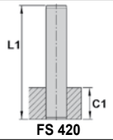
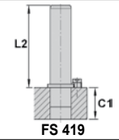
FS 641	FS 651	FS 655
41	42	43

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

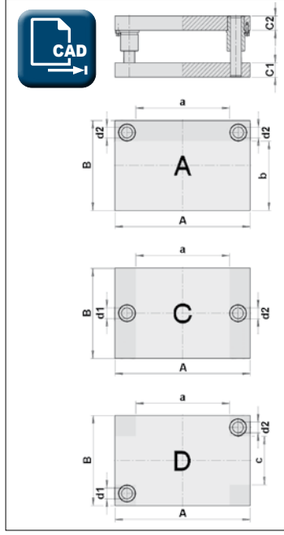


FS 453 + FS 425	FS 457 + FS 425	FS 458 + FS 425
51	52	53

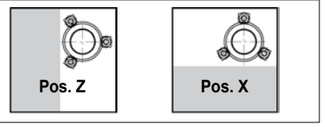
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



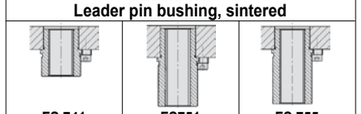
Größe / Size	A x B	Abmessungen / Dimensions: Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area: a x B	b x A	c x A	46 41 a x B	46 41 b x A	46 41 c x A	47 42 a x B	47 42 b x A	47 42 c x A	48 43 a x B	48 43 b x A	48 43 c x A	Gewicht / Weight [kg]
601	125 X 125	28	23	–	18/19	130	100	–													7,0
602		28	28	–		140	110	–													7,7
603		38	28	–		150	110	100													8,9
604	160 X 125	28	23	–	18/19	130	100	–													8,8
605		28	28	–		140	110	–													9,6
606		38	28	–		150	110	100													11,2
607	160 X 160	28	23	–	18/19	130	100	–													11,0
608		28	28	–		140	110	–													12,0
609		38	28	–		150	110	100													14,0
610	200 X 125	28	23	–	18/19	130	100	–													10,8
611		28	28	–		140	110	–													11,8
612		38	28	–		150	110	100													13,7
613	200 X 160	33	28	–	24/25	150	110	–													16,4
614		33	33	–		160	120	–													17,6
615		48	38	–		180	130	120													22,6
616	200 X 200	33	28	–	24/25	150	110	–													20,2
617		33	33	–		160	120	–													21,8
618		48	38	–		180	130	120													28,0
619	250 X 125	33	28	–	24/25	150	110	–													16,0
620		33	33	–		160	120	–													17,3
621		48	38	–		180	130	120													22,1
622	250 X 160	33	28	–	24/25	150	110	–													20,2
623		33	33	–		160	120	–													21,8
624		48	38	–		180	130	120													28,0
625	250 X 200	33	28	–	24/25	150	110	–													25,0
626		33	33	–		160	120	–													27,0
627		48	38	–		180	130	120													34,8
628	250 X 250	38	33	–	30/32	160	120	–													36,4
629		38	38	–		170	130	–													38,8
630		48	38	–		180	130	120													43,7

Säulengestelle aus Stahl, 2 Platten, 2 Säulen, Typ A-C-D

Steel die sets, 2 plates, 2 posts, types A-C-D

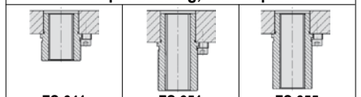
Buchsentyp / Type of bushing

Sinterbuchse
Leader pin bushing, sintered



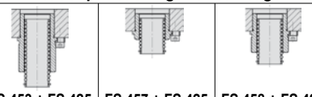
FS 741	FS751	FS 755
46	47	48

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



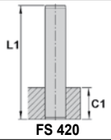
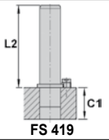
FS 641	FS 651	FS 655
41	42	43

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

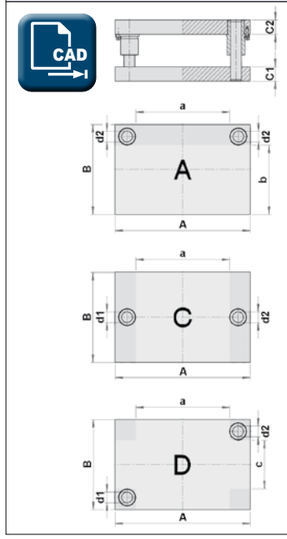


FS 453 + FS 425	FS 457 + FS 425	FS 458 + FS 425
51	52	53

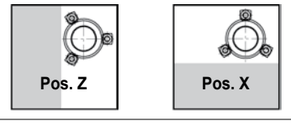
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area a X B	b X A	c X A	46 41 a X B	47 42 b X A	48 43 c X A	51 a X B	52 b X A	53 c X A	Gewicht / Weight [kg]
631	300 X 160	33	28	–	24/25	150	110	–				182 X 160	101 X 300	42 X 300	170 X 160	95 X 300	30 X 300	24,0
632		33	33	–		160	120	–										25,9
633		48	38	–		180	130	120										33,4
634	300 X 200	33	28	–	24/25	150	110	–				182 X 200	141 X 300	82 X 300	170 X 200	135 X 300	70 X 300	29,8
635		33	33	–		160	120	–										32,1
636		48	38	–		180	130	120										41,5
637	300 X 250	38	33	–	30/32	160	120	–				158 X 250	179 X 300	108 X 300	142 X 250	171 X 300	92 X 300	43,3
638		38	38	–		170	130	–										46,3
639		48	38	–		180	130	120										52,5
640	300 X 300	38	33	–	30/32	160	120	–				158 X 300	229 X 300	158 X 300	142 X 300	221 X 300	142 X 300	52,0
641		38	38	–		170	130	–										55,5
642		48	38	–		180	130	120										62,5
643	350 X 200	33	28	–	24/25	150	110	–				232 X 200	141 X 350	82 X 350	220 X 200	135 X 350	70 X 350	34,6
644		33	33	–		160	120	–										37,3
645		48	38	–		180	130	120										48,3
646	350 X 250	38	33	–	30/32	160	120	–				208 X 250	179 X 350	108 X 350	192 X 250	171 X 350	92 X 350	50,5
647		38	38	–		170	130	–										54,0
648		48	38	–		180	130	120										61,0
649	350 X 300	48	38	–	40/42	190	140	–				188 X 300	219 X 350	138 X 350	172 X 300	211 X 350	122 X 350	74,0
650		48	48	–		200	150	–										82,5
651		58	48	–		210	150	140										90,5
652	350 X 350	48	38	–	40/42	190	140	–				188 X 350	269 X 350	188 X 350	172 X 350	261 X 350	172 X 350	86,0
653		48	48	–		200	150	–										95,5
654		58	48	–		210	150	140										105,0
655	400 X 200	33	28	–	24/25	150	110	–				282 X 200	141 X 400	82 X 400	270 X 200	135 X 400	70 X 400	39,4
656		33	33	–		160	120	–										42,5
657		48	38	–		180	130	120										55,0
658	400 X 250	38	33	–	30/32	160	120	–				258 X 250	179 X 400	108 X 400	242 X 250	171 X 400	92 X 400	57,5
659		38	38	–		170	130	–										61,5
660		48	38	–		180	130	120										69,0

[01.07.2020]

[01.07.2020]

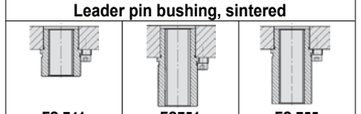
Säulengestelle aus Stahl, 2 Platten, 2 Säulen, Typ A-C-D

Steel die sets, 2 plates, 2 posts, types A-C-D

SÄULENGESTELLE / DIE SETS

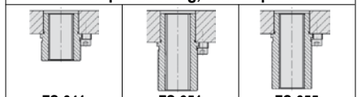
Buchsentyp / Type of bushing

Sinterbuchse
Leader pin bushing, sintered



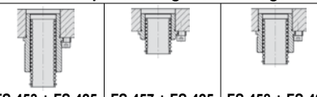
FS 741	FS751	FS 755
46	47	48

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



FS 641	FS 651	FS 655
41	42	43

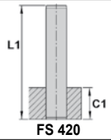
Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

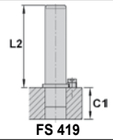


FS 453 + FS 425	FS 457 + FS 425	FS 458 + FS 425
51	52	53

Säulentyp / Type of leader pin

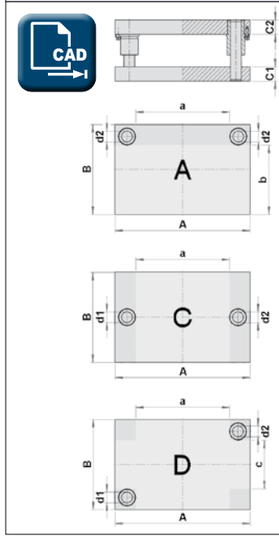
eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar



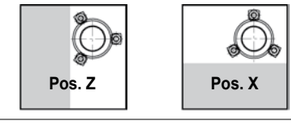


FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



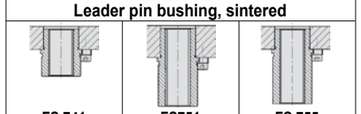
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area a X B	b X A	c X A	46 41 a X B	47 42 b X A	48 43 c X A	51 a X B	52 b X A	53 c X A	Gewicht / Weight [kg]
661	400 X 300	48	38	–	40/42	190	140	–				238 X 300	219 X 400	138 X 400	222 X 300	211 X 400	122 X 400	84,0
662		48	48	–		200	150	–										93,5
663		58	48	–		210	150	140										103,0
664	400 X 350	48	38	–	40/42	190	140	–				238 X 350	269 X 400	188 X 400	222 X 350	261 X 400	172 X 400	97,5
665		48	48	–		200	150	–										109,0
666		58	48	–		210	150	140										120,0
667	400 X 400	48	38	–	40/42	190	140	–				238 X 400	319 X 400	238 X 400	222 X 400	311 X 400	222 X 400	111,0
668		48	48	–		200	150	–										124,0
669		58	48	–		210	150	140										137,0
670	500 X 250	38	33	–	30/32	160	120	–				358 X 250	179 X 500	108 X 500	342 X 250	171 X 500	92 X 500	73,0
671		38	38	–		170	130	–										78,0
672		48	38	–		180	130	120										87,5
673	500 X 300	48	38	–	40/42	190	140	–				338 X 300	219 X 500	138 X 500	322 X 300	211 X 500	122 X 500	105,0
674		48	48	–		200	150	–										116,0
675		58	48	–		210	150	140										128,0
676	500 X 350	48	38	–	40/42	190	140	–				338 X 350	269 X 500	188 X 500	322 X 350	261 X 500	172 X 500	122,0
677		48	48	–		200	150	–										135,0
678		58	48	–		210	150	140										149,0
679	500 X 400	48	38	–	40/42	190	140	–				338 X 400	319 X 500	238 X 500	322 X 400	311 X 500	222 X 500	138,0
680		48	48	–		200	150	–										154,0
681		58	48	–		210	150	140										170,0
682	500 X 500	58	48	–	50/52	220	160	–				306 X 500	403 X 500	306 X 500	290 X 500	395 X 500	290 X 500	213,0
683		58	58	–		230	170	–										233,0
684		68	58	–		240	170	160										252,0
685	600 X 300	58	48	–	50/52	220	160	–				406 X 300	203 X 600	106 X 600	390 X 300	195 X 600	90 X 600	155,0
686		58	58	–		230	170	–										169,0
687		68	58	–		240	170	160										183,0
688	600 X 350	58	48	–	50/52	220	160	–				406 X 350	253 X 600	156 X 600	390 X 350	245 X 600	140 X 600	180,0
689		58	58	–		230	170	–										196,0
690		68	58	–		240	170	160										213,0

Säulengestelle aus Stahl, 2 Platten, 2 Säulen, Typ A-C-D

Steel die sets, 2 plates, 2 posts, types A-C-D

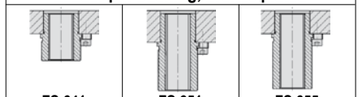
Buchsentyp / Type of bushing

Sinterbuchse
Leader pin bushing, sintered



FS 741	FS751	FS 755
46	47	48

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



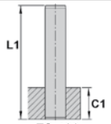
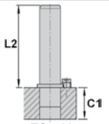
FS 641	FS 651	FS 655
41	42	43

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

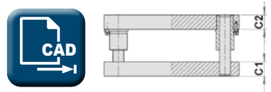


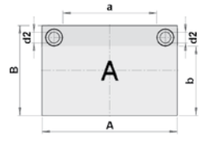
FS 453 + FS 425	FS 457 + FS 425	FS 458 + FS 425
51	52	53

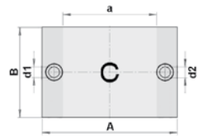
Säulentyp / Type of leader pin

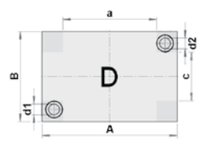
eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set

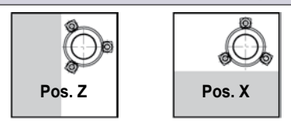








Position der Haltestücke / Position of holding clamps



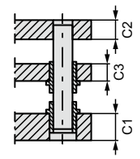
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 46 41 a X B	47 42 b X A	48 43 c X A	51 a X B	52 b X A	53 c X A	Gewicht / Weight [kg]
691	600 X 400	58	48	–	50/52	220	160	–	406 X 400	303 X 600	206 X 600	390 X 400	295 X 600	190 X 600	205,0
692		58	58	–		230	170	–							224,0
693		68	58	–		240	170	160							242,0
694	600 X 500	58	48	–	50/52	220	160	–	406 X 500	403 X 600	306 X 600	390 X 500	395 X 600	290 X 600	254,0
695		58	58	–		230	170	–							278,0
696		68	58	–		240	170	160							302,0
697	600 X 600	58	48	–	50/52	220	160	–	406 X 600	503 X 600	406 X 600	390 X 600	495 X 600	390 X 600	305,0
698		58	58	–		230	170	–							333,0
699		68	58	–		240	170	160							361,0
700	700 X 350	58	48	–	50/52	220	160	–	506 X 350	253 X 700	156 X 700	490 X 350	245 X 700	140 X 700	209,0
701		58	58	–		230	170	–							228,0
702		68	58	–		240	170	160							247,0
703	700 X 400	58	48	–	50/52	220	160	–	506 X 400	303 X 700	206 X 700	490 X 400	295 X 700	190 X 700	238,0
704		58	58	–		230	170	–							260,0
705		68	58	–		240	170	160							282,0
706	700 X 500	58	48	–	50/52	220	160	–	506 X 500	403 X 700	306 X 700	490 X 500	395 X 700	290 X 700	296,0
707		58	58	–		230	170	–							324,0
708		68	58	–		240	170	160							351,0
709	700 X 600	58	48	–	50/52	220	160	–	506 X 600	503 X 700	406 X 700	490 X 600	495 X 700	390 X 700	354,0
710		58	58	–		230	170	–							388,0
711		68	58	–		240	170	160							420,0
712	800 X 400	58	48	–	50/52	220	160	–	606 X 400	303 X 800	206 X 800	590 X 400	295 X 800	190 X 800	271,0
713		58	58	–		230	170	–							296,0
714		68	58	–		240	170	160							321,0
715	800 X 500	58	48	–	50/52	220	160	–	606 X 500	403 X 800	306 X 800	590 X 500	395 X 800	290 X 800	338,0
716		58	58	–		230	170	–							369,0
717		68	58	–		240	170	160							400,0
718	800 X 600	58	48	–	50/52	220	160	–	606 X 600	503 X 800	406 X 800	590 X 600	495 X 800	390 X 800	404,0
719		58	58	–		230	170	–							442,0
720		68	58	–		240	170	160							480,0

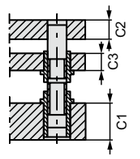
[01.07.2020]

Säulengestelle aus Stahl, 3 Platten, 2 Säulen, Typ A-C-D

Steel die sets, 3 plates, 2 posts, types A-C-D

Buchsentyp / Type of bushing





Sinterbuchse
Leader pin bushing, sintered

C1: FS 741 C3: FS 731	C1: FS 732 C3: FS 731
88	87

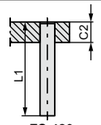
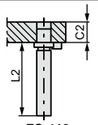
Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated

C1: FS 641 C3: FS 631	C1: FS 632 C3: FS 631
71	72

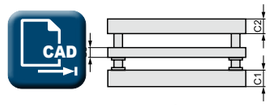
Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

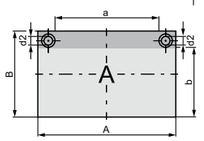
C1: FS 458 + FS 425 C3: FS 457 + FS 425	C1: FS 453 + FS 425 C3: FS 457 + FS 425
91	92

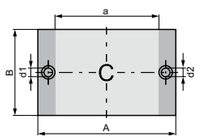
Säulentyp / Type of leader pin

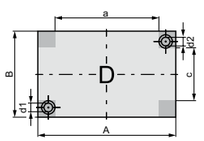
eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set

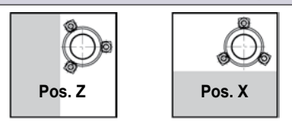








Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 88 71 a X B	87 72 b X A	c X A	91 a X B	92 b X A	c X A	Gewicht / Weight [kg]
601	125 X 125	28	23	18	18/19	140	120	–	27 X 125	76 X 125	27 X 125	70 X 125			9,4
602		38	28			160	130	–							11,2
603		38	38			170	130	120							12,4
604	160 X 125	28	23	18	18/19	140	120	–	62 X 125	76 X 160	27 X 160	50 X 125	70 X 160		11,7
605		38	28			160	130	–							14,2
606		38	38			170	130	120							15,8
607	160 X 160	28	23	18	18/19	140	120	–	62 X 160	111 X 160	62 X 160	50 X 160	105 X 160	50 X 160	14,8
608		38	28			160	130	–							17,8
609		38	38			170	130	120							19,8
610	200 X 125	28	23	18	18/19	140	120	–	102 X 125	76 X 200	27 X 200	90 X 125	70 X 200		14,4
611		38	28			160	130	–							17,4
612		38	38			170	130	120							19,4
613	200 X 160	33	28	23	24/25	160	130	–	82 X 160	101 X 200	42 X 200	70 X 160	95 X 200		22,3
614		48	38			190	150	–							28,4
615		48	48			200	150	140							30,9
616	200 X 200	33	28	23	24/25	160	130	–	82 X 200	141 X 200	82 X 200	70 X 200	135 X 200	70 X 200	27,5
617		48	38			190	150	–							35,2
618		48	48			200	150	140							38,4
619	250 X 125	33	28	23	24/25	160	130	–	132 X 125	66 X 250		120 X 125	60 X 250		21,8
620		48	38			190	150	–							27,8
621		48	48			200	150	140							30,2
622	250 X 160	33	28	23	24/25	160	130	–	132 X 160	101 X 250	42 X 250	120 X 160	95 X 250		27,5
623		48	38			190	150	–							35,2
624		48	48			200	150	140							38,4
625	250 X 200	33	28	23	24/25	160	130	–	132 X 200	141 X 250	82 X 250	120 X 200	135 X 250	70 X 250	34,2
626		48	38			190	150	–							43,8
627		48	48			200	150	140							47,7
628	250 X 250	38	33	28	30/32	170	140	–	108 X 250	179 X 250	108 X 250	92 X 250	171 X 250	92 X 250	50,5
629		48	38			190	150	–							57,5
630		48	48			200	150	140							62,5

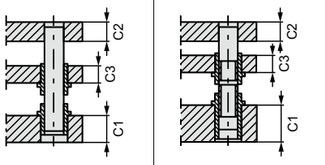
[01.07.2020]

Säulengestelle aus Stahl, 3 Platten, 2 Säulen, Typ A-C-D

Steel die sets, 3 plates, 2 posts, types A-C-D

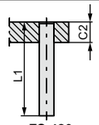
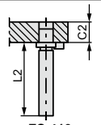
zertifiziert ISO 9001 for you Cert

Buchsentyp / Type of bushing

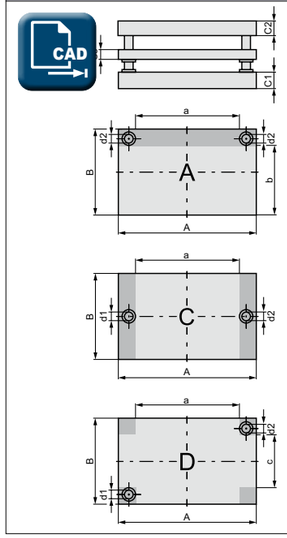


Sinterbuchse Leader pin bushing, sintered	
C1: FS 741 C3: FS 731	C1: FS 732 C3: FS 731
88	87
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 641 C3: FS 631	C1: FS 632 C3: FS 631
71	72
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 458 + FS 425 C3: FS 457 + FS 425	C1: FS 453 + FS 425 C3: FS 457 + FS 425
91	92

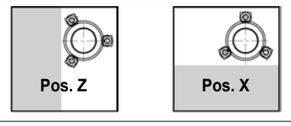
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



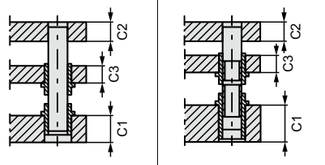
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area a X B	b X A	c X A	88 71 a X B	88 71 b X A	88 71 c X A	87 72 a X B	87 72 b X A	87 72 c X A	91 a X B	91 b X A	91 c X A	92 a X B	92 b X A	92 c X A	Gewicht / Weight [kg]
631	300 X 160	33	28	23	24/25	160	130	–				182 X 160	101 X 300	42 X 300	170 X 160	95 X 300								32,8
632		48	38			190	150	–																42,1
633		48	48			200	150	140																45,9
634	300 X 200	33	28	23	24/25	160	130	–				182 X 200	141 X 300	82 X 300	170 X 200	135 X 300	76 X 300							40,7
635		48	38			190	150	–																52,5
636		48	48			200	150	140																57,5
637	300 X 250	38	33	28	30/32	170	140	–				158 X 250	179 X 300	108 X 300	142 X 250	171 X 300	92 X 300							60,0
638		48	38			190	150	–																69,0
639		48	48			200	150	140																74,5
640	300 X 300	38	33	28	30/32	170	140	–				158 X 300	229 X 300	158 X 300	142 X 300	221 X 300	142 X 300							71,5
641		48	38			190	150	–																82,5
642		48	48			200	150	140																89,5
643	350 X 200	33	28	23	24/25	160	130	–				232 X 200	141 X 350	82 X 350	220 X 200	135 X 350	70 X 350							47,3
644		48	38			190	150	–																60,5
645		48	48			200	150	140																66,5
646	350 X 250	38	33	28	30/32	170	140	–				208 X 250	179 X 350	108 X 350	192 X 250	171 X 350	92 X 350							69,5
647		48	38			190	150	–																80,0
648		48	48			200	150	140																87,0
649	350 X 300	48	38	33	40/42	200	160	–				188 X 300	219 X 350	138 X 350	172 X 300	211 X 350	122 X 350							101,0
650		58	48			220	170	–																118,0
651		58	58			230	170	160																126,0
652	350 X 350	48	38	33	40/42	200	160	–				188 X 350	269 X 350	188 X 350	172 X 350	261 X 350	172 X 350							118,0
653		58	48			220	170	–																137,0
654		58	58			230	170	160																147,0
655	400 X 200	33	28	23	24/25	160	130	–				282 X 200	141 X 400	82 X 400	270 X 200	135 X 400	70 X 400							54,0
656		48	38			190	150	–																69,5
657		48	48			200	150	130																75,0
658	400 X 250	38	33	28	30/32	170	140	–				258 X 250	179 X 400	108 X 400	242 X 250	171 X 400	92 X 400							79,5
659		48	38			190	150	–																91,0
660		48	48			200	150	140																99,0

[01.07.2020]

[01.07.2020]

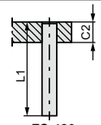
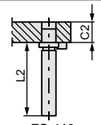
Säulengestelle aus Stahl, 3 Platten, 2 Säulen, Typ A-C-D
Steel die sets, 3 plates, 2 posts, types A-C-D
SÄULENGESTELLE / DIE SETS
[SG]

Buchsentyp / Type of bushing

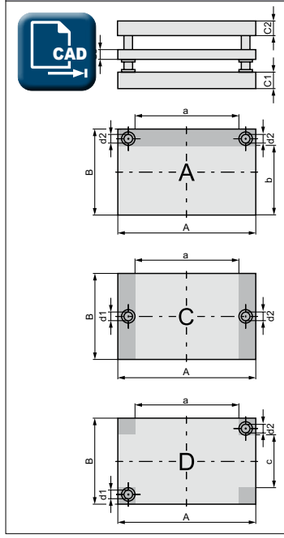


Sinterbuchse Leader pin bushing, sintered	
C1: FS 741 C3: FS 731	C1: FS 732 C3: FS 731
88	87
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 641 C3: FS 631	C1: FS 632 C3: FS 631
71	72
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 458 + FS 425 C3: FS 457 + FS 425	C1: FS 453 + FS 425 C3: FS 457 + FS 425
91	92

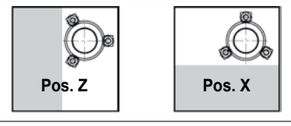
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps

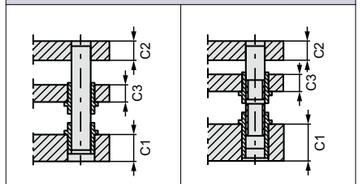


Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area a X B	b X A	c X A	88 71 a X B	88 71 b X A	88 71 c X A	87 72 a X B	87 72 b X A	87 72 c X A	91 a X B	91 b X A	91 c X A	92 a X B	92 b X A	92 c X A	Gewicht / Weight [kg]
661	400 X 300	48	38	33	40/42	200	160	–				238 X 300	219 X 400	138 X 400	222 X 300	211 X 400	122 X 400							115,0
662		58	48			220	170	–																134,0
663		58	58			230	170	160																144,0
664	400 X 350	48	38	33	40/42	200	160	–				238 X 350	269 X 400	188 X 400	222 X 350	261 X 400	172 X 400							134,0
665		58	48			220	170	–																156,0
666		58	58			230	170	160																167,0
667	400 X 400	48	38	33	40/42	200	160	–				238 X 400	319 X 400	238 X 400	222 X 400	311 X 400	222 X 400							153,0
668		58	48			220	170	–																178,0
669		58	58			230	170	160																190,0
670	500 X 250	38	33	28	30/32	170	140	–				358 X 250	179 X 500	108 X 500	342 X 250	171 X 500	92 X 500							99,0
671		48	38			190	150	–																114,0
672		48	48			200	150	140																124,0
673	500 X 300	48	38	33	40/42	200	160	–				338 X 300	219 X 500	138 X 500	322 X 300	211 X 500	122 X 500							143,0
674		58	48			220	170	–																167,0
675		58	58			230	170	160																179,0
676	500 X 350	48	38	33	40/42	200	160	–				338 X 350	269 X 500	188 X 500	322 X 350	261 X 500	172 X 500							167,0
677		58	48			220	170	–																194,0
678		58	58			230	170	160																208,0
679	500 X 400	48	38	33	40/42	200	160	–				338 X 400	319 X 500	238 X 500	322 X 400	311 X 500	222 X 500							190,0
680		58	48			220	170	–																222,0
681		58	58			230	170	160																237,0
682	500 X 500	58	48	38	50/52	230	180	–				306 X 500	403 X 500	306 X 500	290 X 500	395 X 500	290 X 500							287,0
683		68	58			250	200	–																327,0
684		68	68			260	200	180																346,0
685	600 X 300	58	48	38	50/52	230	180	–				406 X 300	203 X 600	106 X 600	390 X 300	195 X 600	90 X 600							208,0
686		68	58			250	200	–																237,0
687		68	68			260	200	180																251,0
688	600 X 350	58	48	38	50/52	230	180	–				406 X 350	253 X 600	156 X 600	390 X 350	245 X 600	140 X 600							242,0
689		68	58			250	200	–																275,0
690		68	68			260	200	180																292,0

Säulengestelle aus Stahl, 3 Platten, 2 Säulen, Typ A-C-D

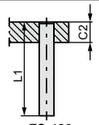
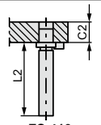
Steel die sets, 3 plates, 2 posts, types A-C-D

Buchsentyp / Type of bushing

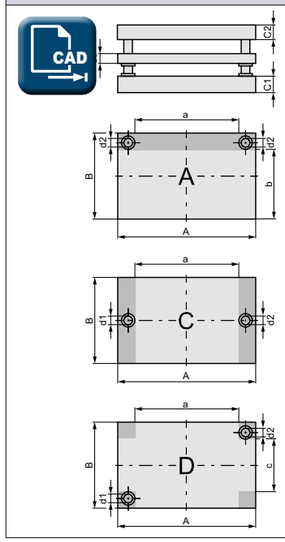


Sinterbuchse Leader pin bushing, sintered	
C1: FS 741 C3: FS 731	C1: FS 732 C3: FS 731
88	87
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 641 C3: FS 631	C1: FS 632 C3: FS 631
71	72
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 458 + FS 425 C3: FS 457 + FS 425	C1: FS 453 + FS 425 C3: FS 457 + FS 425
91	92

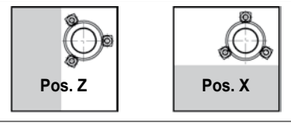
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 88 71 a X B	b X A	c X A	87 72 a X B	b X A	c X A	91 a X B	92 b X A	c X A	Gewicht / Weight [kg]
691	600 X 400	58	48	38	50/52	230	180	–				406 X 400	303 X 600	206 X 600	390 X 400	295 X 600	190 X 600	276,0
692		68	58			250	200	–										314,0
693		68	68			260	200	180										333,0
694	600 X 500	58	48	38	50/52	230	180	–				406 X 500	403 X 600	306 X 600	390 X 500	395 X 600	290 X 600	344,0
695		68	58			250	200	–										391,0
696		68	68			260	200	180										415,0
697	600 X 600	58	48	38	50/52	230	180	–				406 X 600	503 X 600	406 X 600	390 X 600	495 X 600	390 X 600	412,0
698		68	58			250	200	–										468,0
699		68	68			260	200	180										497,0
700	700 X 350	58	48	38	50/52	230	180	–				506 X 350	253 X 700	156 X 700	490 X 350	245 X 700	140 X 700	282,0
701		68	58			250	200	–										320,0
702		68	68			260	200	180										340,0
703	700 X 400	58	48	38	50/52	230	180	–				506 X 400	303 X 700	206 X 700	490 X 400	295 X 700	190 X 700	321,0
704		68	58			250	200	–										365,0
705		68	68			260	200	180										387,0
706	700 X 500	58	48	38	50/52	230	180	–				506 X 500	403 X 700	306 X 700	490 X 500	395 X 700	290 X 700	400,0
707		68	58			250	200	–										455,0
708		68	68			260	200	180										483,0
709	700 X 600	58	48	38	50/52	230	180	–				506 X 600	503 X 700	406 X 700	490 X 600	495 X 700	390 X 700	480,0
710		68	58			250	200	–										545,0
711		68	68			260	200	180										579,0
712	800 X 400	58	48	38	50/52	230	180	–				606 X 400	303 X 800	206 X 800	590 X 400	295 X 800	190 X 800	366,0
713		68	58			250	200	–										417,0
714		68	68			260	200	180										442,0
715	800 X 500	58	48	38	50/52	230	180	–				606 X 500	403 X 800	306 X 800	590 X 500	395 X 800	290 X 800	457,0
716		68	58			250	200	–										520,0
717		68	68			260	200	180										551,0
718	800 X 600	58	48	38	50/52	230	180	–				606 X 600	503 X 800	406 X 800	590 X 600	495 X 800	390 X 800	547,0
719		68	58			250	200	–										623,0
720		68	68			260	200	180										661,0

[01.07.2020]

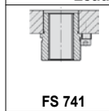
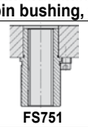
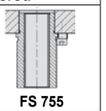
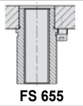
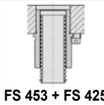
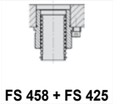
[01.07.2020]

Säulengestelle aus Stahl, 2 Platten, 4 Säulen, Typ Q

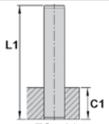
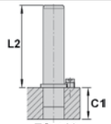
Steel die sets, 2 plates, 4 posts, type Q

SÄULENGESTELLE / DIE SETS

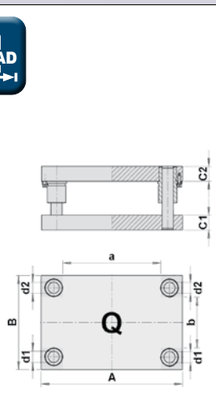
Buchsentyp / Type of bushing

Sinterbuchse Leader pin bushing, sintered		
		
FS 741	FS751	FS 755
46	47	48
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated		
		
FS 641	FS 651	FS 655
41	42	43
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage		
		
FS 453 + FS 425	FS 457 + FS 425	FS 458 + FS 425
51	52	53

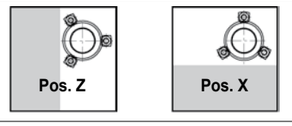
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 46 41 a X B	b X A	c X A	47 42 a X B	b X A	c X A	48 43 a X B	b X A	c X A	51 a X B	52 b X A	53 c X A	Gewicht / Weight [kg]
601	125 X 125	28	23	–	18/19	130	100	–				27 X 125	27 X 125								7,8
602		28	28	–		140	110	–													8,4
603		38	28	–		150	110	100													9,7
604	160 X 125	28	23	–	18/19	130	100	–				62 X 125	27 X 160					50 X 125			9,5
605		28	28	–		140	110	–													10,4
606		38	28	–		150	110	100													11,9
607	160 X 160	28	23	–	18/19	130	100	–				62 X 160	62 X 160					50 X 160	50 X 160		11,9
608		28	28	–		140	110	–													12,8
609		38	28	–		150	110	100													14,8
610	200 X 125	28	23	–	18/19	130	100	–				102 X 125	27 X 200					90 X 125			11,5
611		28	28	–		140	110	–													12,5
612		38	28	–		150	110	100													14,5
613	200 X 160	28	23	–	18/19	130	100	–				102 X 160	62 X 200					90 X 160	50 X 200		14,3
614		28	28	–		140	110	–													15,6
615		38	28	–		150	110	100													18,1
616	200 X 200	28	23	–	18/19	130	100	–				102 X 200	102 X 200					90 X 200	90 X 200		17,5
617		28	28	–		140	110	–													19,1
618		38	28	–		150	110	100													22,3
619	250 X 125	28	23	–	18/19	130	100	–				152 X 125	27 X 250					140 X 125			14,0
620		28	28	–		140	110	–													15,3
621		38	28	–		150	110	100													17,7
622	250 X 160	28	23	–	18/19	130	100	–				152 X 160	60 X 250					140 X 160	50 X 250		17,5
623		28	28	–		140	110	–													19,1
624		38	28	–		150	110	100													22,3
625	250 X 200	33	28	–	24/25	150	110	–				132 X 200	82 X 250					120 X 200	70 X 250		26,0
626		33	33	–		160	120	–													27,9
627		48	38	–		180	130	120													35,8
628	250 X 250	33	28	–	24/25	150	110	–				132 X 250	132 X 250					120 X 250	120 X 250		32,0
629		33	33	–		160	120	–													34,4
630		48	38	–		170	130	120													44,2

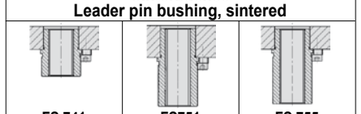
[SG]

Säulengestelle aus Stahl, 2 Platten, 4 Säulen, Typ Q

Steel die sets, 2 plates, 4 posts, type Q

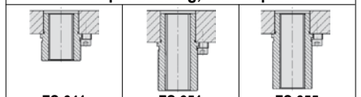
Buchsentyp / Type of bushing

Sinterbuchse
Leader pin bushing, sintered



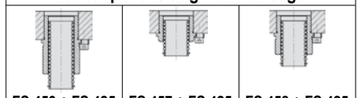
FS 741	FS751	FS 755
46	47	48

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



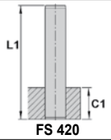
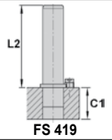
FS 641	FS 651	FS 655
41	42	43

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage



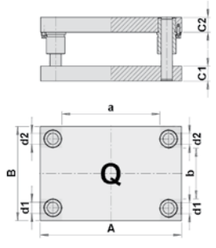
FS 453 + FS 425	FS 457 + FS 425	FS 458 + FS 425
51	52	53

Säulentyp / Type of leader pin

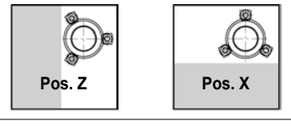
eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set





Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area a X B	b X A	c X A	46 41 a X B	47 42 b X A	48 43 c X A	51 a X B	52 b X A	53 c X A	Gewicht / Weight [kg]
631	300 X 160	33	28	–	24/25	150	110	–				182 X 160	42 X 300		170 X 160	30 X 300		25,0
632		33	33	–		160	120	–										26,9
633		48	38	–		180	130	120										34,4
634	300 X 200	33	28	–	24/25	150	110	–				182 X 200	82 X 300		170 X 200	70 X 300		30,8
635		33	33	–		160	120	–										33,1
636		48	38	–		180	130	120										42,5
637	300 X 250	38	33	–	30/32	160	120	–				158 X 250	108 X 300		142 X 250	92 X 300		44,8
638		38	38	–		170	130	–										47,8
639		48	38	–		180	130	120										54,0
640	300 X 300	38	33	–	30/32	160	120	–				158 X 300	158 X 300		142 X 300	142 X 300		53,5
641		38	38	–		170	130	–										57,0
642		48	38	–		180	130	120										64,0
643	350 X 200	33	28	–	24/25	150	110	–				232 X 200	82 X 350		220 X 200	70 X 350		35,6
644		33	33	–		160	120	–										38,3
645		48	38	–		180	130	120										49,3
646	350 X 250	38	33	–	30/32	160	120	–				208 X 250	108 X 350		192 X 250	92 X 350		52,5
647		38	38	–		170	130	–										55,5
648		48	38	–		180	130	120										62,0
649	350 X 300	38	33	–	30/32	160	120	–				208 X 300	158 X 350		192 X 300	142 X 350		61,5
650		38	38	–		170	130	–										66,0
651		48	38	–		180	130	120										74,0
652	350 X 350	38	33	–	30/32	160	120	–				208 X 350	208 X 350		192 X 350	192 X 350		71,5
653		38	38	–		170	130	–										76,5
654		48	38	–		180	130	120										86,0
655	400 X 200	33	28	–	24/25	150	110	–				282 X 200	82 X 400		270 X 200	70 X 400		40,4
656		33	33	–		160	120	–										43,5
657		48	38	–		180	130	120										56,0
658	400 X 250	38	33	–	30/32	160	120	–				258 X 250	108 X 400		242 X 250	92 X 400		59,0
659		38	38	–		170	130	–										63,0
660		48	38	–		180	130	120										70,5

[01.07.2020]

Säulengestelle aus Stahl, 2 Platten, 4 Säulen, Typ Q

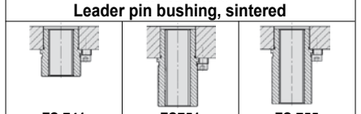
Steel die sets, 2 plates, 4 posts, type Q

SÄULENGESTELLE / DIE SETS

[SG]

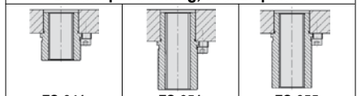
Buchsentyp / Type of bushing

Sinterbuchse
Leader pin bushing, sintered



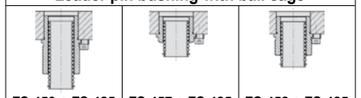
FS 741	FS751	FS 755
46	47	48

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



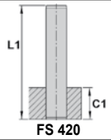
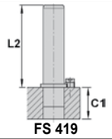
FS 641	FS 651	FS 655
41	42	43

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage



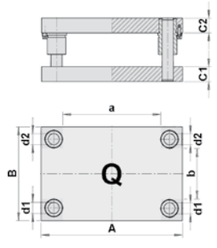
FS 453 + FS 425	FS 457 + FS 425	FS 458 + FS 425
51	52	53

Säulentyp / Type of leader pin

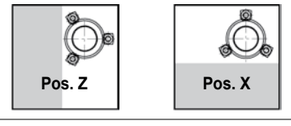
eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set





Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area a X B	b X A	c X A	46 41 a X B	47 42 b X A	48 43 c X A	51 a X B	52 b X A	53 c X A	Gewicht / Weight [kg]
661	400 X 300	48	38	–	40/42	190	140	–				238 X 300	138 X 400		222 X 300	122 X 400		87,0
662		48	48	–		200	150	–										96,5
663		58	48	–		210	150	140										106,0
664	400 X 350	48	38	–	40/42	190	140	–				238 X 350	188 X 400		222 X 350	172 X 400		101,0
665		48	48	–		200	150	–										112,0
666		58	48	–		210	150	140										123,0
667	400 X 400	48	38	–	40/42	190	140	–				238 X 400	238 X 400		222 X 400	222 X 400		114,0
668		48	48	–		200	150	–										127,0
669		58	48	–		210	150	140										140,0
670	500 X 250	38	33	–	30/32	160	120	–				358 X 250	108 X 500		342 X 250	92 X 500		73,0
671		38	38	–		170	130	–										78,0
672		48	38	–		180	130	120										87,5
673	500 X 300	48	38	–	40/42	190	140	–				338 X 300	138 X 500		322 X 300	122 X 500		108,0
674		48	48	–		200	150	–										119,0
675		58	48	–		210	150	140										131,0
676	500 X 350	48	38	–	40/42	190	140	–				338 X 350	188 X 500		322 X 350	172 X 500		125,0
677		48	48	–		200	150	–										138,0
678		58	48	–		210	150	140										152,0
679	500 X 400	48	38	–	40/42	190	140	–				338 X 400	238 X 500		322 X 400	222 X 500		141,0
680		48	48	–		200	150	–										157,0
681		58	48	–		210	150	140										173,0
682	500 X 500	48	38	–	40/42	190	140	–				338 X 500	338 X 500		322 X 500	322 X 500		175,0
683		48	48	–		200	150	–										195,0
684		58	48	–		210	150	140										214,0
685	600 X 300	48	38	–	40/42	190	140	–				438 X 300	138 X 600		422 X 300	122 X 600		128,0
686		48	48	–		200	150	–										142,0
687		58	48	–		210	150	140										156,0
688	600 X 350	48	38	–	40/42	190	140	–				438 X 350	188 X 600		422 X 350	172 X 600		148,0
689		48	48	–		200	150	–										165,0
690		58	48	–		210	150	140										181,0

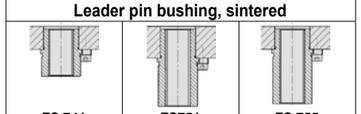
[01.07.2020]

Säulengestelle aus Stahl, 2 Platten, 4 Säulen, Typ Q

Steel die sets, 2 plates, 4 posts, type Q

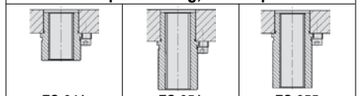
Buchsentyp / Type of bushing

Sinterbuchse
Leader pin bushing, sintered



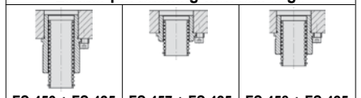
FS 741	FS751	FS 755
46	47	48

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



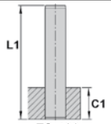
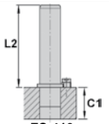
FS 641	FS 651	FS 655
41	42	43

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage



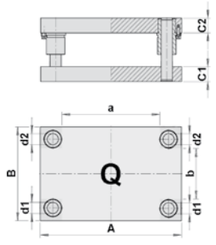
FS 453 + FS 425	FS 457 + FS 425	FS 458 + FS 425
51	52	53

Säulentyp / Type of leader pin

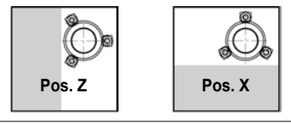
eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set





Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area: a X B / b X A / c X A	46 41 a X B	46 41 b X A	46 41 c X A	47 42 a X B	47 42 b X A	47 42 c X A	48 43 a X B	48 43 b X A	48 43 c X A	51 a X B	51 b X A	51 c X A	52 a X B	52 b X A	52 c X A	53 a X B	53 b X A	53 c X A	Gewicht / Weight [kg]
691	600 X 400	48	38	–	40/42	190	140	–				438 X 400	238 X 600					422 X 400	222 X 600									168,0
692		48	48	–		200	150	–																				187,0
693		58	48	–		210	150	140																				206,0
694	600 X 500	58	48	–	50/52	220	160	–				406 X 500	306 X 600					390 X 500	290 X 600									259,0
695		58	58	–		230	170	–																				283,0
696		68	58	–		240	170	160																				306,0
697	600 X 600	58	48	–	50/52	220	160	–				406 X 600	406 X 600					390 X 600	390 X 600									309,0
698		58	58	–		230	170	–																				337,0
699		68	58	–		240	170	160																				365,0
700	700 X 350	48	38	–	40/42	190	140	–				538 X 350	188 X 700					522 X 350	172 X 700									172,0
701		48	48	–		200	150	–																				191,0
702		58	48	–		210	150	140																				210,0
703	700 X 400	58	48	–	50/52	220	160	–				506 X 400	206 X 700					490 X 400	190 X 700									242,0
704		58	58	–		230	170	–																				264,0
705		68	58	–		240	170	160																				286,0
706	700 X 500	58	48	–	50/52	220	160	–				506 X 500	306 X 700					490 X 500	290 X 700									300,0
707		58	58	–		230	170	–																				328,0
708		68	58	–		240	170	160																				356,0
709	700 X 600	58	48	–	50/52	220	160	–				506 X 600	406 X 700					490 X 600	390 X 700									359,0
710		58	58	–		230	170	–																				392,0
711		68	58	–		240	170	160																				425,0
712	800 X 400	58	48	–	50/52	220	160	–				606 X 400	206 X 800					590 X 400	190 X 800									276,0
713		58	58	–		230	170	–																				301,0
714		68	58	–		240	170	160																				326,0
715	800 X 500	58	48	–	50/52	220	160	–				606 X 500	306 X 800					590 X 500	290 X 800									342,0
716		58	58	–		230	170	–																				374,0
717		68	58	–		240	170	160																				405,0
718	800 X 600	58	48	–	50/52	220	160	–				606 X 600	406 X 800					590 X 600	390 X 800									409,0
719		58	58	–		230	170	–																				447,0
720		68	58	–		240	170	160																				484,0

[01.07.2020]

[01.07.2020]

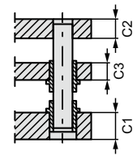
Säulengestelle aus Stahl, 3 Platten, 4 Säulen, Typ Q

Steel die sets, 3 plates, 4 posts, type Q

SÄULENGESTELLE / DIE SETS

[SG]

Buchsentyp / Type of bushing



Sinterbuchse
Leader pin bushing, sintered

C1: FS 741 C3: FS 731	C1: FS 732 C3: FS 731
88	87

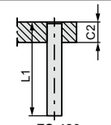
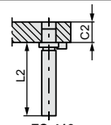
Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated

C1: FS 641 C3: FS 631	C1: FS 632 C3: FS 631
71	72

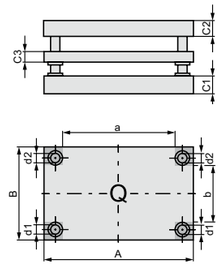
Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

C1: FS 458 + FS 425 C3: FS 457 + FS 425	C1: FS 453 + FS 425 C3: FS 457 + FS 425
91	92

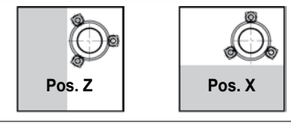
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps

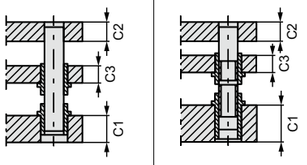


Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area: a X B / b X A / c X A	88 71 a X B	88 71 b X A	88 71 c X A	87 72 a X B	87 72 b X A	87 72 c X A	91 a X B	91 b X A	91 c X A	92 a X B	92 b X A	92 c X A	Gewicht / Weight [kg]
601	125 X 125	28	23	18	18/19	140	120	–					27 X 125	27 X 125								10,0
602		38	28			160	130	–														11,8
603		38	38			170	130	120														13,1
604	160 X 125	28	23	18	18/19	140	120	–					62 X 125	27 X 160								12,4
605		38	28			160	130	–														14,2
606		38	38			170	130	120														16,3
607	160 X 160	28	23	18	18/19	140	120	–					62 X 160	62 X 160		50 X 160	50 X 160					15,4
608		38	28			160	130	–														18,4
609		38	38			170	130	120														20,4
610	200 X 125	28	23	18	18/19	140	120	–					102 X 125	27 X 200		90 X 125						15,1
611		38	28			160	130	–														18,0
612		38	38			170	130	120														20,0
613	200 X 160	28	23	18	18/19	140	120	–					102 X 160	62 X 200		90 X 160	50 X 200					18,9
614		38	28			160	130	–														22,6
615		38	38			170	130	120														25,2
616	200 X 200	28	23	18	18/19	140	120	–					102 X 200	102 X 200		90 X 200	90 X 200					23,2
617		38	28			160	130	–														27,9
618		38	38			170	130	120														31,1
619	250 X 125	28	23	18	18/19	140	120	–					152 X 125	27 X 250		140 X 125						18,5
620		38	28			160	130	–														22,1
621		38	38			170	130	120														24,6
622	250 X 160	28	23	18	18/19	140	120	–					152 X 160	60 X 250		140 X 160	50 X 250					23,2
623		38	28			160	130	–														27,9
624		38	38			170	130	120														31,1
625	250 X 200	33	28	23	24/25	160	130	–					132 X 200	82 X 250		120 X 200	70 X 250					35,0
626		48	38			190	150	–														44,8
627		48	48			200	150	140														48,7
628	250 X 250	33	28	23	24/25	160	130	–					132 X 250	132 X 250		120 X 250	120 X 250					43,2
629		48	38			190	150	–														55,5
630		48	48			200	150	140														60,5

Säulengestelle aus Stahl, 3 Platten, 4 Säulen, Typ Q

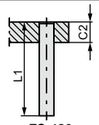
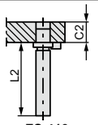
Steel die sets, 3 plates, 4 posts, type Q

Buchsentyp / Type of bushing

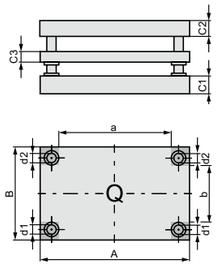


Sinterbuchse Leader pin bushing, sintered	
C1: FS 741 C3: FS 731	C1: FS 732 C3: FS 731
88	87
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 641 C3: FS 631	C1: FS 632 C3: FS 631
71	72
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 458 + FS 425 C3: FS 457 + FS 425	C1: FS 453 + FS 425 C3: FS 457 + FS 425
91	92

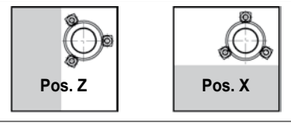
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area a X B	b X A	c X A	88 71 a X B	87 72 b X A	c X A	91 a X B	92 b X A	c X A	Gewicht / Weight [kg]
631	300 X 160	33	28	23	24/25	160	130	–				182 X 160	42 X 300		170 X 160	30 X 300		33,7
632		48	38			190	150	–										43,1
633		48	48			200	150	140										46,9
634	300 X 200	33	28	23	24/25	160	130	–				182 X 200	82 X 300		170 X 200	70 X 300		41,6
635		48	38			190	150	–										53,5
636		48	48			200	150	140										58,5
637	300 X 250	38	33	28	30/32	170	140	–				158 X 250	108 X 300		142 X 250	92 X 300		61,5
638		48	38			190	150	–										70,5
639		48	48			200	150	140										76,0
640	300 X 300	38	33	28	30/32	170	140	–				158 X 300	158 X 300		142 X 300	142 X 300		73,0
641		48	38			190	150	–										83,5
642		48	48			200	150	140										90,5
643	350 X 200	33	28	23	24/25	160	130	–				232 X 200	82 X 350		220 X 200	70 X 350		48,2
644		48	38			190	150	–										62,0
645		48	48			200	150	140										67,5
646	350 X 250	38	33	28	30/32	170	140	–				208 X 250	108 X 350		192 X 250	92 X 350		71,0
647		48	38			190	150	–										81,5
648		48	48			200	150	140										88,5
649	350 X 300	38	33	28	30/32	170	140	–				208 X 300	158 X 350		192 X 300	142 X 350		85,0
650		48	38			190	150	–										97,0
651		48	48			200	150	140										105,0
652	350 X 350	38	33	28	30/32	170	140	–				208 X 350	208 X 350		192 X 350	192 X 350		98,5
653		48	38			190	150	–										113,0
654		48	48			200	150	140										123,0
655	400 X 200	33	28	23	24/25	160	130	–				282 X 200	82 X 400		270 X 200	70 X 400		55,0
656		48	38			190	150	–										70,5
657		48	48			200	150	130										77,0
658	400 X 250	38	33	28	30/32	170	140	–				258 X 250	108 X 400		242 X 250	92 X 400		81,0
659		48	38			190	150	–										92,5
660		48	48			200	150	140										101,0

[01.07.2020]

[01.07.2020]

Säulengestelle aus Stahl, 3 Platten, 4 Säulen, Typ Q

Steel die sets, 3 plates, 4 posts, type Q

SÄULENGESTELLE / DIE SETS

[SG]

Buchsentyp / Type of bushing

Sinterbuchse
Leader pin bushing, sintered

C1: FS 741
C3: FS 731

C1: FS 732
C3: FS 731

88

87

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated

C1: FS 641
C3: FS 631

C1: FS 632
C3: FS 631

71

72

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

C1: FS 458 + FS 425
C3: FS 457 + FS 425

C1: FS 453 + FS 425
C3: FS 457 + FS 425

91

92

Säulentyp / Type of leader pin

eingepresst
press-fitted

Schnellwechselsäule mit Bund
Leader pin, with collar

FS 420

FS 419

P

R

Gestelltyp / Type of die set

Position der Haltestücke / Position of holding clamps

Pos. Z

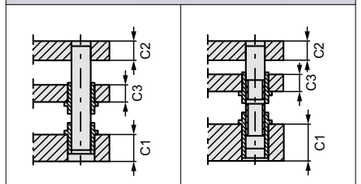
Pos. X

Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area a X B	b X A	c X A	88 71 a X B	87 72 b X A	c X A	91 a X B	92 b X A	c X A	Gewicht / Weight [kg]
661	400 X 300	48	38	33	40/42	200	160	–				238 X 300	138 X 400		222 X 300	122 X 400		118,0
662		58	48			220	170	–										137,0
663		58	58			230	170	160										147,0
664	400 X 350	48	38	33	40/42	200	160	–				238 X 350	188 X 400		222 X 350	172 X 400		137,0
665		58	48			220	170	–										159,0
666		58	58			230	170	160										170,0
667	400 X 400	48	38	33	40/42	200	160	–				238 X 400	238 X 400		222 X 400	222 X 400		156,0
668		58	48			220	170	–										181,0
669		58	58			230	170	160										194,0
670	500 X 250	38	33	28	30/32	170	140	–				358 X 250	108 X 500		342 X 250	92 X 500		100,0
671		48	38			190	150	–										115,0
672		48	48			200	150	140										125,0
673	500 X 300	48	38	33	40/42	200	160	–				338 X 300	138 X 500		322 X 300	122 X 500		146,0
674		58	48			220	170	–										170,0
675		58	58			230	170	160										182,0
676	500 X 350	48	38	33	40/42	200	160	–				338 X 350	188 X 500		322 X 350	172 X 500		170,0
677		58	48			220	170	–										197,0
678		58	58			230	170	160										211,0
679	500 X 400	48	38	33	40/42	200	160	–				338 X 400	238 X 500		322 X 400	222 X 500		193,0
680		58	48			220	170	–										225,0
681		58	58			230	170	160										240,0
682	500 X 500	48	38	33	40/42	200	160	–				338 X 500	338 X 500		322 X 500	322 X 500		240,0
683		58	48			220	170	–										279,0
684		58	58			230	170	160										299,0
685	600 X 300	48	38	33	40/42	200	160	–				438 X 300	138 X 600		422 X 300	122 X 600		174,0
686		58	48			220	170	–										203,0
687		58	58			230	170	160										217,0
688	600 X 350	48	38	33	40/42	200	160	–				438 X 350	188 X 600		422 X 350	172 X 600		202,0
689		58	48			220	170	–										235,0
690		58	58			230	170	160										252,0

Säulengestelle aus Stahl, 3 Platten, 4 Säulen, Typ Q

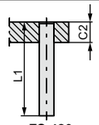
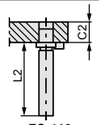
Steel die sets, 3 plates, 4 posts, type Q

Buchsentyp / Type of bushing

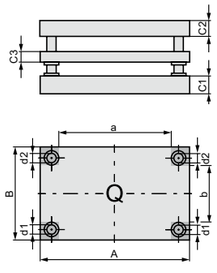


Sinterbuchse Leader pin bushing, sintered	
C1: FS 741 C3: FS 731	C1: FS 732 C3: FS 731
88	87
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 641 C3: FS 631	C1: FS 632 C3: FS 631
71	72
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 458 + FS 425 C3: FS 457 + FS 425	C1: FS 453 + FS 425 C3: FS 457 + FS 425
91	92

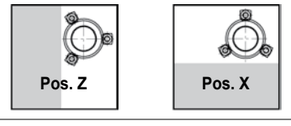
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 420	FS 419
P	R

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area a X B	b X A	c X A	88 71 a X B	87 72 b X A	c X A	91 a X B	92 b X A	c X A	Gewicht / Weight [kg]
691	600 X 400	48	38	33	40/42	200	160	–				438 X 400	238 X 600		422 X 400	222 X 600		230,0
692		58	48			220	170	–										268,0
693		58	58			230	170	160										287,0
694	600 X 500	58	48	38	50/52	230	180	–				406 X 500	306 X 600		390 X 500	290 X 600		348,0
695		68	58			250	200	–										395,0
696		68	68			260	200	180										419,0
697	600 X 600	58	48	38	50/52	230	180	–				406 X 600	406 X 600		390 X 600	390 X 600		416,0
698		68	58			250	200	–										473,0
699		68	68			260	200	180										501,0
700	700 X 350	48	38	33	40/42	200	160	–				538 X 350	188 X 700		522 X 350	172 X 700		235,0
701		58	48			220	170	–										274,0
702		58	58			230	170	160										293,0
703	700 X 400	58	48	38	50/52	230	180	–				506 X 400	206 X 700		490 X 400	190 X 700		326,0
704		68	58			250	200	–										370,0
705		68	68			260	200	180										392,0
706	700 X 500	58	48	38	50/52	230	180	–				506 X 500	306 X 700		490 X 500	290 X 700		405,0
707		68	58			250	200	–										460,0
708		68	68			260	200	180										487,0
709	700 X 600	58	48	38	50/52	230	180	–				506 X 600	406 X 700		490 X 600	390 X 700		484,0
710		68	58			250	200	–										540,0
711		68	68			260	200	180										583,0
712	800 X 400	58	48	38	50/52	230	180	–				606 X 400	206 X 800		590 X 400	190 X 800		371,0
713		68	58			250	200	–										421,0
714		68	68			260	200	180										447,0
715	800 X 500	58	48	38	50/52	230	180	–				606 X 500	306 X 800		590 X 500	290 X 800		461,0
716		68	58			250	200	–										524,0
717		68	68			260	200	180										556,0
718	800 X 600	58	48	38	50/52	230	180	–				606 X 600	406 X 800		590 X 600	390 X 800		552,0
719		68	58			250	200	–										627,0
720		68	68			260	200	180										665,0

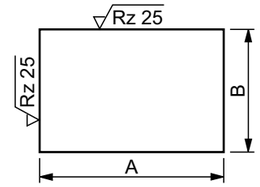
[01.07.2020]

Toleranzangaben für Säulengestelle aus Stahl, M-Line

Tolerance - information regarding steel die sets, M-Line

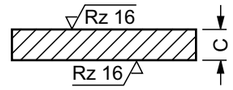
Mat.: C45

Toleranz Außenmaße /
Tolerance of length and width



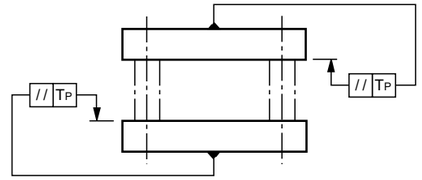
A x B +0,06 –0,06

Toleranz Plattenstärke /
Tolerance of thickness



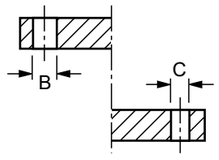
C ± 2

Parallelität der Flächenpaare /
Parallelism of two surfaces



TP = 0,012 / 100 mm

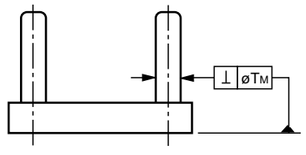
Bohrungstoleranzen /
Hole tolerances



B = Aufnahmebohrung Buchse/ Mounting hole for bushing:
FS 4 . . = H6
FS 6 . . = H6

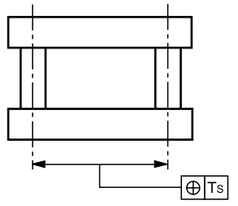
C = Aufnahmebohrung Säule/ Mounting hole for leader pin:
FS 320 = R7
FS 319 = JS6

Winkelgenauigkeit der Führungssäulen /
Angular accuracy of leader pins



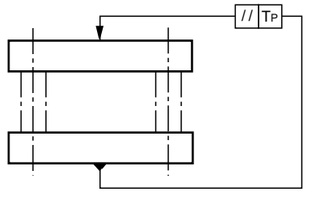
TM = 0,012 / 100 mm

Toleranz Systemabstände /
Tolerance of dimensions between leader-pin (and bushing) - holes



TS = ± 0,010

Planparallelität im zusammengebauten Zustand /
Parallelism after mounting



TP = 0,015 / 100 mm

[01.07.2020]

Säulen-Buchsen-Kombination für 2-Plattengestelle, M-Line

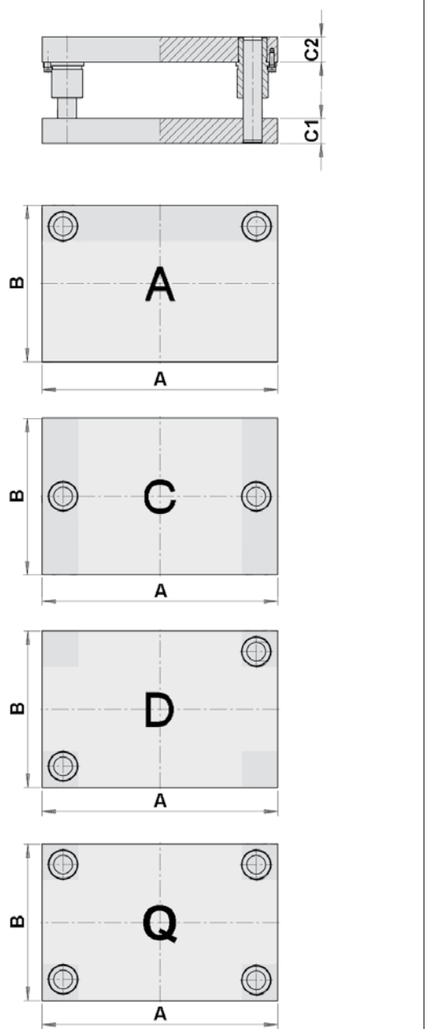
Combination of leader-pin and -bushing in 2-plate-die-sets, M-Line

zertifiziert ISO 9001 for you Cert

Bestellbeispiel / Order-example

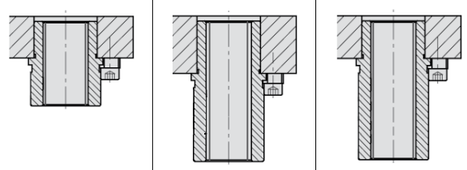
2 C	343	IEP	141	Z
Gestelltyp Type of die set	Kataloggröße Catalog sizes	Säulentyp Type of leader pin	Buchsentyp Type of bushing	Position der Haltestücke Position of holding clamps

Gestelltyp / Type of die set



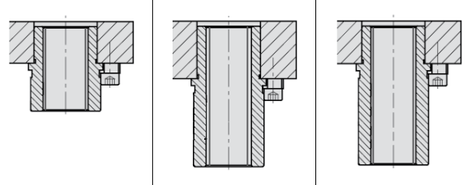
Buchsentyp / Type of bushing

Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated



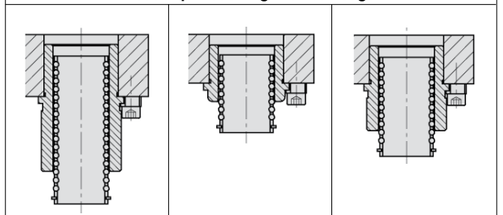
FS 330 RM	FS 340 RM	FS 350 RM
141	142	143

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



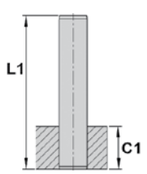
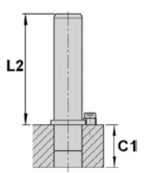
FS 331	FS 351	FS 355
131	132	133

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

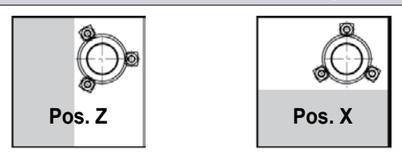


FS 353 + FS 325	FS 357 + FS 325	FS 358 + FS 325
151	152	153

Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel- säule mit Bund Leader pin with collar
	
FS 320	FS 319
IEP	IER

Position der Haltestücke / Position of holding clamps



[01.07.2020]

Säulen-Buchsen-Kombination für 3-Plattengestelle, M-Line

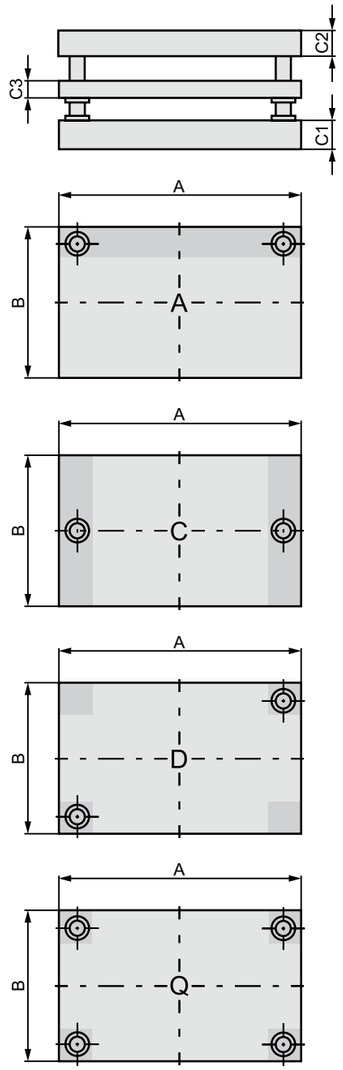
Combination of leader-pin and -bushing in 3-plate-die-sets, M-Line

zertifiziert ISO 9001 for you Cert

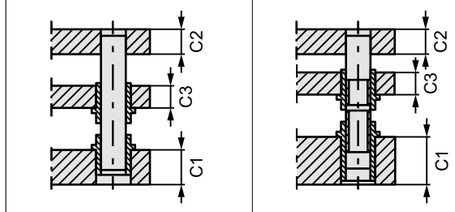
Bestellbeispiel / Order-example

3 C	343	IEP	182	Z
Gestelltyp Type of die set	Kataloggröße Catalog sizes	Säulentyp Type of leader pin	Buchsentyp Type of bushing	Position der Haltestücke Position of holding clamps

Gestelltyp / Type of die set



Buchsentyp / Type of bushing



Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated

C1 = FS 340 RM C3 = FS 330 RM	C1 = FS 350 RM C3 = FS 330 RM
182	183

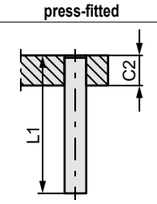
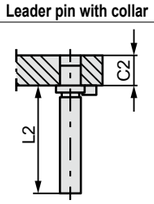
Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated

C1 = FS 351 C3 = FS 331	C1 = FS 355 C3 = FS 331
172	173

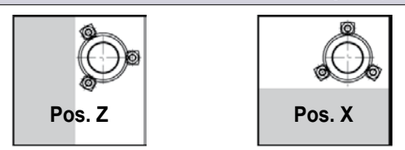
Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

C1 = FS 358 + FS 325 C3 = FS 357 + FS 325	C1 = FS 353 + FS 325 C3 = FS 357 + FS 325
192	193

Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel- säule mit Bund Leader pin with collar
	
FS 420	FS 419
IEP	IER

Position der Haltestücke / Position of holding clamps



[01.07.2020]

Bestellbeispiel Sondergrößen, M-Line

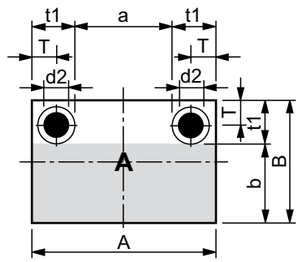
Order-example specials, M-Line

Position Position	Platten-maße Plate length and width	Platten-stärke Plate thickness			Säulentyp in C1 oder C2* Type of leader pin in C1 or C2*		Buchsentyp in C1 oder C2** Type of bushing in C1 or C2**		Buchsentyp in C3 Type of bushing in C3		Haltestück-position Position of holding clamps
	A x B	C1	C2	C3	FS ...	d1 x l	FS ...	d x l	FS ...	d x l	
Q	610 x 494	78	48	38	320	40/42 x 250	351	40/42 x 67	331	40/42 x 51	X

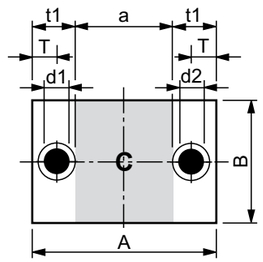
* = Säulentyp in C1 oder C2 bitte angeben. / Please fill in type of leader pin in C1 or C2.
** = Buchsentyp in C1 oder C2 bitte angeben. / Please fill in type of bushing in C1 or C2.

Arbeitsflächen / Working areas

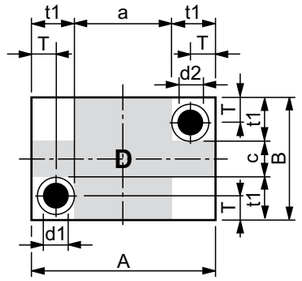
b = B - t1



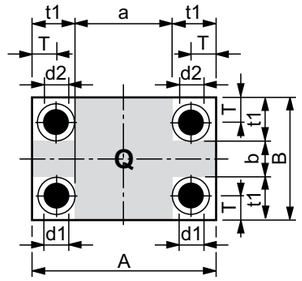
a = A - (2 x t1)



a = A - (2 x t1)
c = B - (2 x t1)

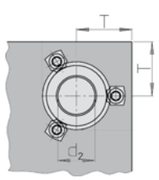


a = A - (2 x t1)
b = B - (2 x t1)



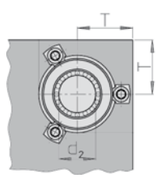
Führungsbuchsen mit Bund

Leader pin bushings, with collar



d_1/d_2	T
19/20	35
24/25	40
30/32	43,5
38/40	51
48/50	57
60/63	68
80	76

Führungsbuchsen mit Bund für Kugelführung
Leader pin bushings, with collar for ball-bearings



d_1/d_2	T
19/20	35
24/25	40
30/32	43,5
38/40	51
48/50	57
60/63	68
80	76

[01.07.2020]

[01.07.2020]

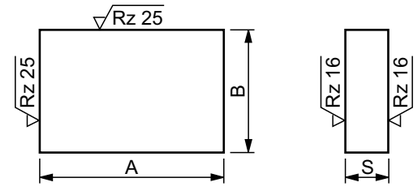
Größen Systemplatten, M-Line

Sizes systemplates, M-Line

[SG]

Mat.: C45

Toleranz Außenmaße /
Tolerance of length and width



A x B +0,06 –0,06

S ± 2

Parallelität S / Parallelism S: 0,012 / 100 mm

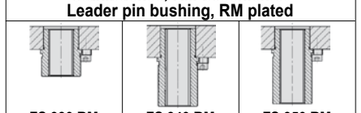
A x B	S							
	18	23	28	33	38	48	58	68
125 x 125	●	●	●		●			
160 x 125	●	●	●		●			
160 x 160	●	●	●		●			
200 x 125	●	●	●		●			
200 x 160	●	●	●	●	●	●		
200 x 200	●	●	●	●	●	●		
250 x 125	●	●	●	●	●	●		
250 x 160	●	●	●	●	●	●		
250 x 200		●	●	●	●	●		
250 x 250		●	●	●	●	●		
300 x 160		●	●	●	●	●		
300 x 200		●	●	●	●	●		
300 x 250			●	●	●	●		
300 x 300			●	●	●	●		
350 x 200		●	●	●	●	●		
350 x 250			●	●	●	●		
350 x 300			●	●	●	●	●	
350 x 350			●	●	●	●	●	
400 x 200		●	●	●	●	●		
400 x 250			●	●	●	●		
400 x 300				●	●	●	●	
400 x 350				●	●	●	●	
400 x 400				●	●	●	●	
500 x 250			●	●	●	●		
500 x 300				●	●	●	●	
500 x 350				●	●	●	●	
500 x 400				●	●	●	●	
500 x 500				●	●	●	●	●
600 x 300				●	●	●	●	●
600 x 350				●	●	●	●	●
600 x 400				●	●	●	●	●
600 x 500					●	●	●	●
600 x 600					●	●	●	●
700 x 350				●	●	●	●	●
700 x 400					●	●	●	●
700 x 500					●	●	●	●
700 x 600					●	●	●	●
800 x 400					●	●	●	●
800 x 500					●	●	●	●
800 x 600					●	●	●	●

Säulengest. a. Stahl, 2 Platten, 2 Säulen, Typ A-C-D, M-Line

Steel die sets, 2 plates, 2 posts, types A-C-D, M-Line

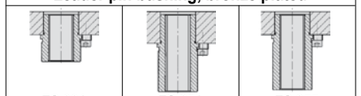
Buchsentyp / Type of bushing

Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated



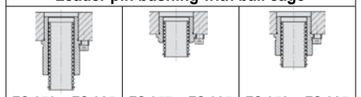
FS 330 RM	FS 340 RM	FS 350 RM
141	142	143

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



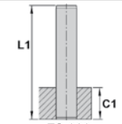
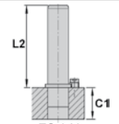
FS 331	FS 351	FS 355
131	132	133

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

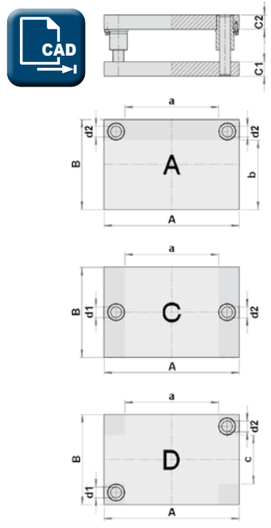


FS 353 + FS 325	FS 357 + FS 325	FS 358 + FS 325
151	152	153

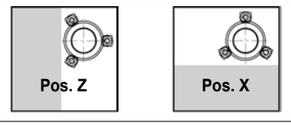
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



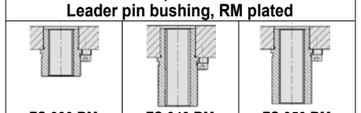
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 141 131 a X B	b X A	c X A	142 132 a X B	b X A	c X A	143 133 a X B	b X A	c X A	151 a X B	152 b X A	153 c X A	Gewicht / Weight [kg]
301	125 X 125	28	23	–	19/20	125	100	–				15 X 120	70 X 125	15 X 125		70 X 125					7,0
302		28	28	–		140	112	–													7,7
303		38	28	–		160	112	–													8,9
304	160 X 125	28	23	–	19/20	125	100	–				50 X 125	70 X 160	15 X 160	50 X 125	70 X 160					8,8
305		28	28	–		140	112	–													9,6
306		38	28	–		160	112	–													11,2
307	160 X 160	28	23	–	19/20	125	100	–				50 X 160	105 X 160	50 X 160	50 X 160	105 X 160	50 X 160				11,0
308		28	28	–		140	112	–													12,0
309		38	28	–		160	112	–													14,0
310	200 X 125	28	23	–	19/20	125	100	–				90 X 125	70 X 200	15 X 200	90 X 125	70 X 200					10,8
311		28	28	–		140	112	–													11,8
312		38	28	–		160	112	–													13,7
313	200 X 160	33	28	–	24/25	140	112	–				72 X 160	96 X 200	32 X 200	70 X 160	95 X 200	32 X 200				16,4
314		33	33	–		160	125	–													17,6
315		48	38	–		180	140	–													22,6
316	200 X 200	33	28	–	24/25	140	112	–				72 X 200	136 X 200	72 X 200	72 X 200	136 X 200	72 X 200				20,2
317		33	33	–		160	125	–													21,8
318		48	38	–		180	140	–													28,0
319	250 X 125	33	28	–	24/25	140	112	–				122 X 125	61 X 250		122 X 125	61 X 250					16,0
320		33	33	–		160	125	–													17,3
321		48	38	–		180	140	–													22,1
322	250 X 160	33	28	–	24/25	140	112	–				122 X 160	96 X 250	32 X 250	122 X 160	96 X 250	32 X 250				20,2
323		33	33	–		160	125	–													21,8
324		48	38	–		180	140	–													28,0
325	250 X 200	33	28	–	24/25	140	112	–				122 X 200	136 X 250	72 X 250	122 X 200	136 X 250	72 X 250				25,0
326		33	33	–		160	125	–													27,0
327		48	38	–		180	140	–													34,8
328	250 X 250	38	33	–	30/32	160	125	–				106 X 250	178 X 250	106 X 250	106 X 250	178 X 250	106 X 250				36,4
329		38	38	–		180	140	–													38,8
330		48	38	–		180	140	–													43,7

[01.07.2020]

[01.07.2020]

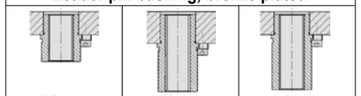
Säulengest. a. Stahl, 2 Platten, 2 Säulen, Typ A-C-D, M-Line
Steel die sets, 2 plates, 2 posts, types A-C-D, M-Line
SÄULENGESTELLE / DIE SETS
[SG]

Buchsentyp / Type of bushing
Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated



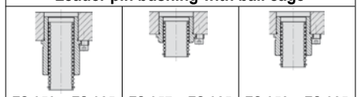
FS 330 RM	FS 340 RM	FS 350 RM
141	142	143

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



FS 331	FS 351	FS 355
131	132	133

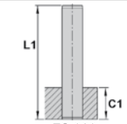
Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

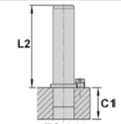


FS 353 + FS 325	FS 357 + FS 325	FS 358 + FS 325
151	152	153

Säulentyp / Type of leader pin

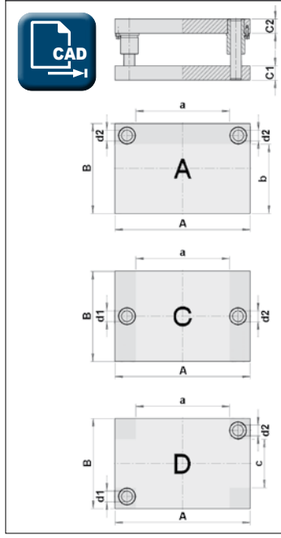
eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar



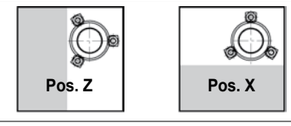


FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



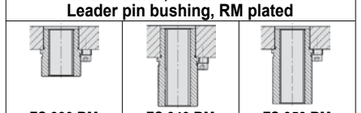
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 141 131 a X B	b X A	c X A	142 132 a X B	b X A	c X A	143 133 a X B	b X A	c X A	151 a X B	152 b X A	153 c X A	Gewicht / Weight [kg]
331	300 X 160	33	28	–	24/25	140	112	–				172 X 160	96 X 300	32 X 300	172 X 160	96 X 300	32 X 300				24,0
332		33	33	–		160	126	–													25,9
333		48	38	–		180	140	–													33,4
334	300 X 200	33	28	–	24/25	140	112	–				172 X 200	136 X 300	72 X 300	172 X 200	136 X 300	72 X 300				29,8
335		33	33	–		160	125	–													32,1
336		48	38	–		180	140	–													41,5
337	300 X 250	38	33	–	30/32	160	125	–				156 X 250	178 X 300	106 X 300	156 X 250	178 X 300	106 X 300				43,3
338		38	38	–		180	140	–													46,3
339		48	38	–		180	140	–													52,5
340	300 X 300	38	33	–	30/32	160	125	–				156 X 300	228 X 300	156 X 300	156 X 300	228 X 300	156 X 300				52,0
341		38	38	–		180	140	–													55,5
342		48	38	–		180	140	–													62,5
343	350 X 200	33	28	–	24/25	140	112	–				222 X 200	136 X 350	72 X 350	222 X 200	136 X 350	72 X 350				34,6
344		33	33	–		160	125	–													37,3
345		48	38	–		180	140	–													48,3
346	350 X 250	38	33	–	30/32	160	125	–				206 X 250	178 X 350	106 X 350	206 X 250	178 X 350	106 X 350				50,5
347		38	38	–		180	140	–													54,0
348		48	38	–		180	140	–													61,0
349	350 X 300	48	38	–	38/40	180	140	–				182 X 300	216 X 350	132 X 350	182 X 300	216 X 350	132 X 350				74,0
350		48	48	–		200	160	–													82,5
351		58	48	–		224	160	–													90,5
352	350 X 350	48	38	–	38/40	180	140	–				182 X 350	266 X 350	182 X 350	182 X 350	266 X 350	182 X 350				86,0
353		48	48	–		200	160	–													95,5
354		58	48	–		224	160	–													105,0
355	400 X 200	33	28	–	24/25	140	112	–				272 X 200	136 X 400	72 X 400	272 X 200	136 X 400	72 X 400				39,4
356		33	33	–		160	125	–													42,5
357		48	38	–		180	140	–													55,0
358	400 X 250	38	33	–	30/32	160	125	–				256 X 250	178 X 400	106 X 400	256 X 250	178 X 400	106 X 400				57,5
359		38	38	–		180	140	–													61,5
360		48	38	–		180	140	–													69,0

Säulengest. a. Stahl, 2 Platten, 2 Säulen, Typ A-C-D, M-Line

Steel die sets, 2 plates, 2 posts, types A-C-D, M-Line

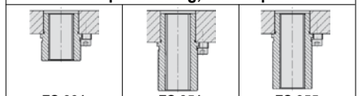
Buchsentyp / Type of bushing

Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated



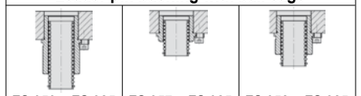
FS 330 RM	FS 340 RM	FS 350 RM
141	142	143

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



FS 331	FS 351	FS 355
131	132	133

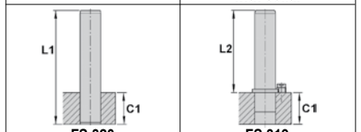
Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage



FS 353 + FS 325	FS 357 + FS 325	FS 358 + FS 325
151	152	153

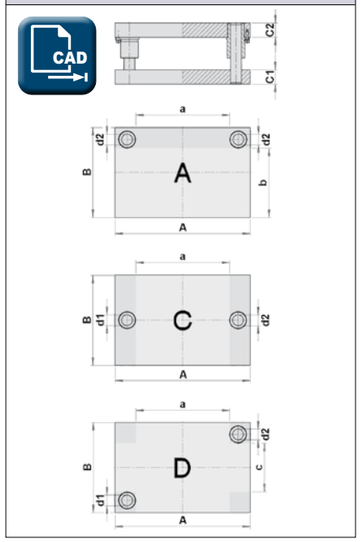
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar

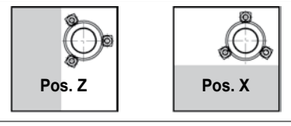


FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



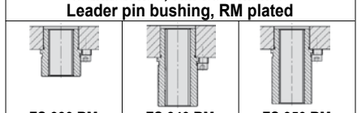
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 141 131 a X B	b X A	c X A	142 132 a X B	b X A	c X A	143 133 a X B	b X A	c X A	151 a X B	b X A	c X A	152 a X B	b X A	c X A	153 a X B	b X A	c X A	Gewicht / Weight [kg]
361	400 X 300	48	38	–	38/40	180	140	–				232 X 300	216 X 400	132 X 400	232 X 300	216 X 400	132 X 400										84,0
362		48	48	–		200	160	–																			93,5
363		58	48	–		224	160	–																			103,0
364	400 X 350	48	38	–	38/40	180	140	–				232 X 350	266 X 400	182 X 400	232 X 350	266 X 400	182 X 400										97,5
365		48	48	–		200	160	–																			109,0
366		58	48	–		224	160	–																			120,0
367	400 X 400	48	38	–	38/40	180	140	–				232 X 400	316 X 400	232 X 400	232 X 400	316 X 400	232 X 400										111,0
368		48	48	–		200	160	–																			124,0
369		58	48	–		224	160	–																			137,0
370	500 X 250	38	33	–	30/32	160	125	–				356 X 250	178 X 500	106 X 500	356 X 250	178 X 500	106 X 500										73,0
371		38	38	–		180	140	–																			78,0
372		48	38	–		180	140	–																			87,5
373	500 X 300	48	38	–	38/40	180	140	–				332 X 300	216 X 500	132 X 500	332 X 300	216 X 500	132 X 500										105,0
374		48	48	–		200	160	–																			116,0
375		58	48	–		224	160	–																			128,0
376	500 X 350	48	38	–	38/40	180	140	–				332 X 350	266 X 500	182 X 500	332 X 350	266 X 500	182 X 500										122,0
377		48	48	–		200	160	–																			135,0
378		58	48	–		224	160	–																			149,0
379	500 X 400	48	38	–	38/40	180	140	–				332 X 400	316 X 500	232 X 500	332 X 400	316 X 500	232 X 500										138,0
380		48	48	–		200	160	–																			154,0
381		58	48	–		224	160	–																			170,0
382	500 X 500	58	48	–	48/50	224	160	–				306 X 500	403 X 500	306 X 500	306 X 500	403 X 500	306 X 500										213,0
383		58	58	–		250	180	–																			233,0
384		68	58	–		250	180	–																			252,0
385	600 X 300	58	48	–	48/50	224	160	–				406 X 300	203 X 600	106 X 600	406 X 300	203 X 600	106 X 600										155,0
386		58	58	–		250	180	–																			169,0
387		68	58	–		250	180	–																			183,0
388	600 X 350	58	48	–	48/50	224	160	–				406 X 350	253 X 600	156 X 600	406 X 350	253 X 600	156 X 600										180,0
389		58	58	–		250	180	–																			196,0
390		68	58	–		250	180	–																			213,0

[01.07.2020]

[01.07.2020]

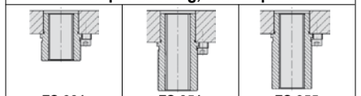
Säulengest. a. Stahl, 2 Platten, 2 Säulen, Typ A-C-D, M-Line
Steel die sets, 2 plates, 2 posts, types A-C-D, M-Line
SÄULENGESTELLE / DIE SETS
[SG]

Buchsentyp / Type of bushing
Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated



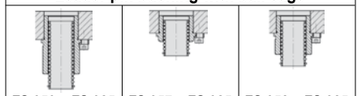
FS 330 RM	FS 340 RM	FS 350 RM
141	142	143

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



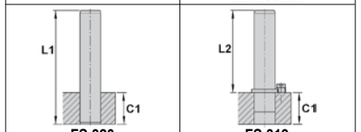
FS 331	FS 351	FS 355
131	132	133

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage



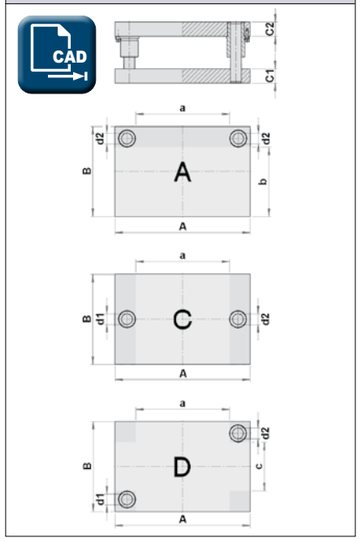
FS 353 + FS 325	FS 357 + FS 325	FS 358 + FS 325
151	152	153

Säulentyp / Type of leader pin
eingepresst
press-fitted
Schnellwechsel-säule mit Bund
Leader pin, with collar

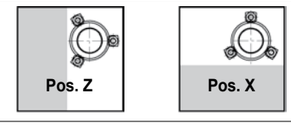


FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps

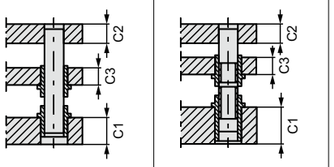


Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 141 131 a X B	b X A	c X A	142 132 a X B	b X A	c X A	143 133 a X B	b X A	c X A	151 a X B	b X A	c X A	152 a X B	b X A	c X A	153 a X B	b X A	c X A	Gewicht / Weight [kg]
391	600 X 400	58	48	–	48/50	224	180	–				406 X 400	303 X 600	206 X 600	406 X 400	303 X 600	206 X 600										205,0
392		58	58	–		250	180	–																			224,0
393		68	58	–		250	180	–																			242,0
394	600 X 500	58	48	–	48/50	224	160	–				406 X 500	403 X 600	306 X 600	406 X 500	403 X 600	306 X 600										254,0
395		58	58	–		250	180	–																			278,0
396		68	58	–		250	180	–																			302,0
397	600 X 600	58	48	–	48/50	224	160	–				406 X 600	503 X 600	406 X 600	406 X 600	503 X 600	406 X 600										305,0
398		58	58	–		234	180	–																			333,0
399		68	58	–		250	180	–																			361,0
400	700 X 350	58	48	–	48/50	224	160	–				506 X 350	253 X 700	156 X 700	506 X 350	253 X 700	156 X 700										209,0
401		58	58	–		250	180	–																			228,0
402		68	58	–		250	180	–																			247,0
403	700 X 400	58	48	–	48/50	224	160	–				506 X 400	303 X 700	206 X 700	506 X 400	303 X 700	206 X 700										238,0
404		58	58	–		250	180	–																			260,0
405		68	58	–		250	180	–																			282,0
406	700 X 500	58	48	–	48/50	224	160	–				506 X 500	403 X 700	306 X 700	506 X 500	403 X 700	306 X 700										296,0
407		58	58	–		250	180	–																			324,0
408		68	58	–		250	180	–																			351,0
409	700 X 600	58	48	–	48/50	224	160	–				506 X 600	503 X 700	406 X 700	506 X 600	503 X 700	406 X 700										354,0
410		58	58	–		250	180	–																			388,0
411		68	58	–		250	180	–																			420,0
412	800 X 400	58	48	–	48/50	224	160	–				606 X 400	303 X 800	206 X 800	606 X 400	303 X 800	206 X 800										271,0
413		58	58	–		250	180	–																			296,0
414		68	58	–		250	180	–																			321,0
415	800 X 500	58	48	–	48/50	224	160	–				606 X 500	403 X 800	306 X 800	606 X 500	403 X 800	306 X 800										338,0
416		58	58	–		250	180	–																			369,0
417		68	58	–		250	180	–																			400,0
418	800 X 600	58	48	–	48/50	224	160	–				606 X 600	503 X 800	406 X 800	606 X 600	503 X 800	406 X 800										404,0
419		58	58	–		250	180	–																			442,0
420		68	58	–		250	180	–																			480,0

Säulengest. a. Stahl, 3 Platten, 2 Säulen, Typ A-C-D, M-Line

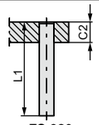
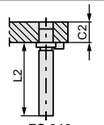
Steel die sets, 3 plates, 2 posts, types A-C-D, M-Line

Buchsentyp / Type of bushing

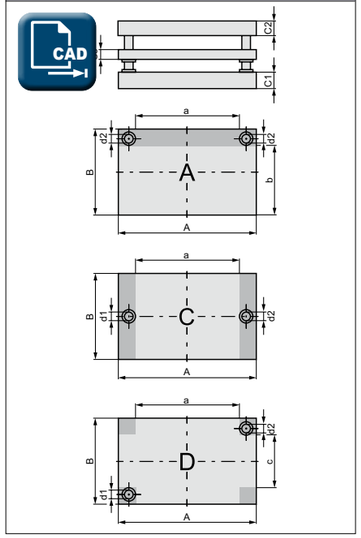


Stahlbuchse, RM-beschichtet Leader pin bushing, RM plated	
C1: FS 340 RM C3: FS 330 RM	C1: FS 350 RM C3: FS 330 RM
182	183
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 351 C3: FS 331	C1: FS 355 C3: FS 331
172	173
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 358 + FS 325 C3: FS 357 + FS 325	C1: FS 353 + FS 325 C3: FS 357 + FS 325
192	193

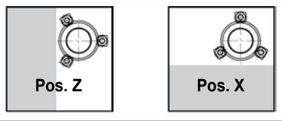
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 182 172 183 173 a X B	b X A	c X A	192 a X B	b X A	193 c X A	Gewicht / Weight [kg]
301	125 X 125	28	23	23	19/20	140	125	–	15 X 125	70 X 125	15 X 125	15 X 125	70 X 125	15 X 125	9,4
302		38	28			160	140	–							11,2
303		38	38			180	140	–							12,4
304	160 X 125	28	23	23	19/20	140	125	–	50 X 125	70 X 160	15 X 160	50 X 125	70 X 160	15 X 160	11,7
305		38	28			160	140	–							14,2
306		38	38			180	140	–							15,8
307	160 X 160	28	23	23	19/20	140	125	–	50 X 160	105 X 160	50 X 160	50 X 160	105 X 160	50 X 160	14,8
308		38	28			160	140	–							17,8
309		38	38			180	140	–							19,8
310	200 X 125	28	23	23	19/20	140	125	–	90 X 125	70 X 200	15 X 200	90 X 125	70 X 200	15 X 200	14,4
311		38	28			160	140	–							17,4
312		38	38			180	140	–							19,4
313	200 X 160	33	28	23	24/25	160	125	–	72 X 160	96 X 200	32 X 200	72 X 160	96 X 200	32 X 200	22,3
314		48	38			180	160	–							28,4
315		48	48			200	160	–							30,9
316	200 X 200	33	28	23	24/25	160	125	–	72 X 200	136 X 200	72 X 200	72 X 200	136 X 200	72 X 200	27,5
317		48	38			180	160	–							35,2
318		48	48			200	160	–							38,4
319	250 X 125	33	28	23	24/25	160	125	–	122 X 125	61 X 250		122 X 125	61 X 250		21,8
320		48	38			180	160	–							27,8
321		48	48			200	160	–							30,2
322	250 X 160	33	28	23	24/25	160	125	–	122 X 160	96 X 250	32 X 250	122 X 160	96 X 250	32 X 250	27,5
323		48	38			180	160	–							35,2
324		48	48			200	160	–							38,4
325	250 X 200	33	28	23	24/25	160	125	–	122 X 200	136 X 250	72 X 250	122 X 200	136 X 250	72 X 250	34,2
326		48	38			180	160	–							43,8
327		48	48			200	160	–							47,7
328	250 X 250	38	33	33	30/32	180	125	–	106 X 250	178 X 250	106 X 250	106 X 250	178 X 250	106 X 250	50,5
329		48	38			200	160	–							57,5
330		48	48			200	160	–							62,5

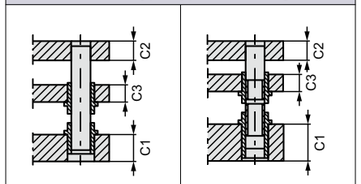
[01.07.2020]

Säulengest. a. Stahl, 3 Platten, 2 Säulen, Typ A-C-D, M-Line

Steel die sets, 3 plates, 2 posts, types A-C-D, M-Line

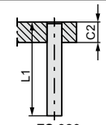
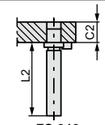
SÄULENGESTELLE / DIE SETS

Buchsentyp / Type of bushing

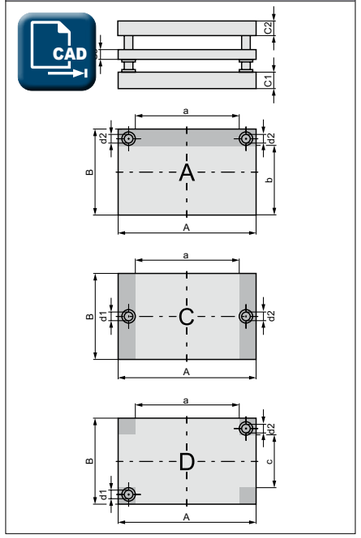


Stahlbuchse, RM-beschichtet Leader pin bushing, RM plated	
C1: FS 340 RM C3: FS 330 RM	C1: FS 350 RM C3: FS 330 RM
182	183
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 351 C3: FS 331	C1: FS 355 C3: FS 331
172	173
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 358 + FS 325 C3: FS 357 + FS 325	C1: FS 353 + FS 325 C3: FS 357 + FS 325
192	193

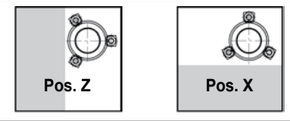
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



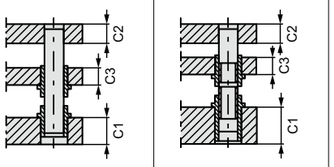
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 182 172 183 173 a X B	b X A	c X A	192 a X B	b X A	193 c X A	Gewicht / Weight [kg]
331	300 X 160	33	28	23	24/25	160	125	–	172 X 160	96 X 300	32 X 300	172 X 160	96 X 300	32 X 300	32,8
332		48	38			180	160	–							42,1
333		48	48			200	160	–							45,9
334	300 X 200	33	28	23	24/25	160	125	–	172 X 200	136 X 300	72 X 300	172 X 200	136 X 300	72 X 300	40,7
335		48	38			180	160	–							52,5
336		48	48			200	160	–							57,5
337	300 X 250	38	33	33	30/32	180	140	–	156 X 250	178 X 300	106 X 300	156 X 250	178 X 300	106 X 300	60,0
338		48	38			200	160	–							69,0
339		48	48			200	160	–							74,5
340	300 X 300	38	33	33	30/32	180	140	–	156 X 300	228 X 300	156 X 300	156 X 300	228 X 300	156 X 300	71,5
341		48	38			200	160	–							82,5
342		48	48			200	160	–							89,5
343	350 X 200	33	28	23	24/25	160	125	–	222 X 200	136 X 350	72 X 350	222 X 200	136 X 350	72 X 350	47,3
344		48	38			180	160	–							60,5
345		48	48			200	160	–							66,5
346	350 X 250	38	33	33	30/32	180	140	–	206 X 250	178 X 350	106 X 350	206 X 250	178 X 350	106 X 350	69,5
347		48	38			200	160	–							80,0
348		48	48			200	160	–							87,0
349	350 X 300	48	38	38	38/40	200	160	–	182 X 300	216 X 350	132 X 350	182 X 300	216 X 350	132 X 350	101,0
350		58	48			224	180	–							118,0
351		58	58			250	180	–							126,0
352	350 X 350	48	38	38	38/40	200	160	–	182 X 350	266 X 350	182 X 350	182 X 350	266 X 350	182 X 350	118,0
353		58	48			224	180	–							137,0
354		58	58			250	180	–							147,0
355	400 X 200	33	28	23	24/25	160	125	–	272 X 200	136 X 400	72 X 400	272 X 200	136 X 400	72 X 400	54,0
356		48	38			180	160	–							69,5
357		48	48			200	160	–							75,0
358	400 X 250	38	33	33	30/32	180	125	–	256 X 250	178 X 400	106 X 400	256 X 250	178 X 400	106 X 400	79,5
359		48	38			200	160	–							91,0
360		48	48			200	160	–							99,0

[01.07.2020]

Säulengest. a. Stahl, 3 Platten, 2 Säulen, Typ A-C-D, M-Line

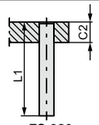
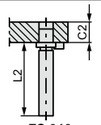
Steel die sets, 3 plates, 2 posts, types A-C-D, M-Line

Buchsentyp / Type of bushing

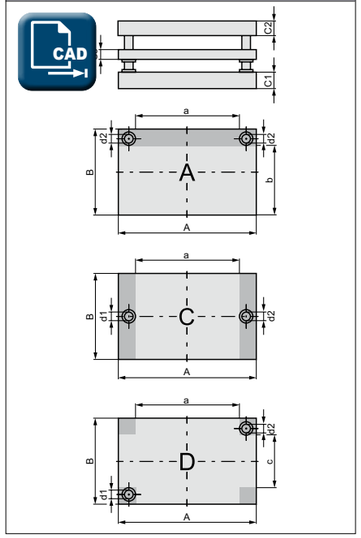


Stahlbuchse, RM-beschichtet Leader pin bushing, RM plated	
C1: FS 340 RM C3: FS 330 RM	C1: FS 350 RM C3: FS 330 RM
182	183
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 351 C3: FS 331	C1: FS 355 C3: FS 331
172	173
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 358 + FS 325 C3: FS 357 + FS 325	C1: FS 353 + FS 325 C3: FS 357 + FS 325
192	193

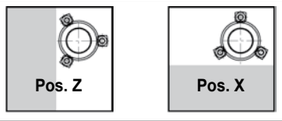
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 182 172 a X B	b X A	c X A	183 173 a X B	b X A	c X A	192 a X B	b X A	193 c X A	Gewicht / Weight [kg]
361	400 X 300	48	38	38	38/40	200	160	–				232 X 300	216 X 400	132 X 400	232 X 300	216 X 400	132 X 400	115,0
362		58	48			224	180	–										134,0
363		58	58			250	180	–										144,0
364	400 X 350	48	38	38	38/40	200	160	–				232 X 350	266 X 400	182 X 400	232 X 350	266 X 400	182 X 400	134,0
365		58	48			224	180	–										156,0
366		58	58			250	180	–										167,0
367	400 X 400	48	38	38	38/40	200	160	–				232 X 400	316 X 400	232 X 400	232 X 400	316 X 400	232 X 400	153,0
368		58	48			224	180	–										178,0
369		58	58			250	180	–										190,0
370	500 X 250	38	33	33	30/32	180	140	–				356 X 250	178 X 500	106 X 500	356 X 250	178 X 500	106 X 500	99,0
371		48	38			200	160	–										114,0
372		48	48			200	160	–										124,0
373	500 X 300	48	38	38	38/40	200	160	–				332 X 300	216 X 500	132 X 500	332 X 300	216 X 500	132 X 500	143,0
374		58	48			224	180	–										167,0
375		58	58			250	180	–										179,0
376	500 X 350	48	38	38	38/40	200	160	–				332 X 350	266 X 500	182 X 500	332 X 350	266 X 500	182 X 500	167,0
377		58	48			224	180	–										194,0
378		58	58			250	180	–										208,0
379	500 X 400	48	38	38	38/40	200	160	–				332 X 400	316 X 500	232 X 500	332 X 400	316 X 500	232 X 500	190,0
380		58	48			224	180	–										222,0
381		58	58			250	180	–										237,0
382	500 X 500	58	48	48	48/50	224	180	–				306 X 500	403 X 500	306 X 500	306 X 500	403 X 500	306 X 500	287,0
383		68	58			250	200	–										327,0
384		68	68			280	200	–										346,0
385	600 X 300	58	48	48	48/50	224	180	–				406 X 300	203 X 600	106 X 600	406 X 300	203 X 600	106 X 600	208,0
386		68	58			250	200	–										237,0
387		68	68			280	200	–										251,0
388	600 X 350	58	48	48	48/50	224	180	–				406 X 350	253 X 600	156 X 600	406 X 350	253 X 600	156 X 600	242,0
389		68	58			250	200	–										275,0
390		68	68			280	200	–										292,0

[01.07.2020]

[01.07.2020]

Säulengest. a. Stahl, 3 Platten, 2 Säulen, Typ A-C-D, M-Line

Steel die sets, 3 plates, 2 posts, types A-C-D, M-Line

SÄULENGESTELLE / DIE SETS

[SG]

Buchsentyp / Type of bushing

Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated

C1: FS 340 RM
C3: FS 330 RM

C1: FS 350 RM
C3: FS 330 RM

182

183

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated

C1: FS 351
C3: FS 331

C1: FS 355
C3: FS 331

172

173

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

C1: FS 358 + FS 325
C3: FS 357 + FS 325

C1: FS 353 + FS 325
C3: FS 357 + FS 325

192

193

Säulentyp / Type of leader pin

eingepresst
press-fitted

Schnellwechsel-säule mit Bund
Leader pin, with collar

FS 320

FS 319

IEP

IER

Gestelltyp / Type of die set

Position der Haltestücke / Position of holding clamps

Pos. Z

Pos. X

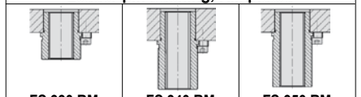
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 182 172 a X B	b X A	c X A	183 173 a X B	b X A	c X A	192 a X B	b X A	193 c X A	Gewicht / Weight [kg]
391	600 X 400	58	48	48	48/50	224	180	–				406 X 400	303 X 600	206 X 600	406 X 400	303 X 600	206 X 600	276,0
392		68	58			250	200	–										314,0
393		68	68			280	200	–										333,0
394	600 X 500	58	48	48	48/50	224	180	–				406 X 500	403 X 600	306 X 600	406 X 500	403 X 600	306 X 600	344,0
395		68	58			250	200	–										391,0
396		68	68			280	200	–										415,0
397	600 X 600	58	48	48	48/50	224	180	–				406 X 600	503 X 600	406 X 600	406 X 600	503 X 600	406 X 600	412,0
398		68	58			250	200	–										468,0
399		68	68			280	200	–										497,0
400	700 X 350	58	48	48	48/50	224	180	–				506 X 350	253 X 700	156 X 700	506 X 350	253 X 700	156 X 700	282,0
401		68	58			250	200	–										320,0
402		68	68			280	200	–										340,0
403	700 X 400	58	48	48	48/50	224	180	–				506 X 400	303 X 700	206 X 700	506 X 400	303 X 700	206 X 700	321,0
404		68	58			250	200	–										365,0
405		68	68			280	200	–										387,0
406	700 X 500	58	48	48	48/50	224	180	–				506 X 500	403 X 700	306 X 700	506 X 500	403 X 700	306 X 700	400,0
407		68	58			250	200	–										455,0
408		68	68			280	200	–										483,0
409	700 X 600	58	48	48	48/50	224	180	–				506 X 600	503 X 700	406 X 700	506 X 600	503 X 700	406 X 700	480,0
410		68	58			250	200	–										545,0
411		68	68			280	200	–										579,0
412	800 X 400	58	48	48	48/50	224	180	–				606 X 400	303 X 800	206 X 800	606 X 400	303 X 800	206 X 800	366,0
413		68	58			250	200	–										417,0
414		68	68			280	200	–										442,0
415	800 X 500	58	48	48	48/50	224	180	–				606 X 500	403 X 800	306 X 800	606 X 500	403 X 800	306 X 800	457,0
416		68	58			250	200	–										520,0
417		68	68			280	200	–										551,0
418	800 X 600	58	48	48	48/50	224	180	–				606 X 600	503 X 800	406 X 800	606 X 600	503 X 800	406 X 800	547,0
419		68	58			250	200	–										623,0
420		68	68			280	200	–										661,0

Säulengest. a. Stahl, 2 Platten, 4 Säulen, Typ Q, M-Line

Steel die sets, 2 plates, 4 posts, type Q, M-Line

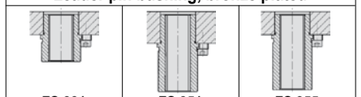
Buchsentyp / Type of bushing

Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated



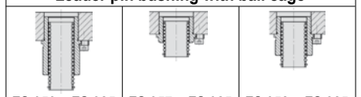
FS 330 RM	FS 340 RM	FS 350 RM
141	142	143

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



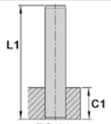
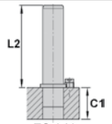
FS 331	FS 351	FS 355
131	132	133

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage



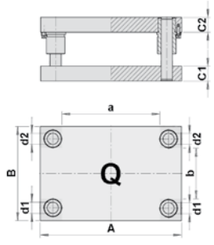
FS 353 + FS 325	FS 357 + FS 325	FS 358 + FS 325
151	152	153

Säulentyp / Type of leader pin

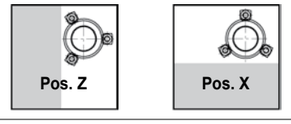
eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set





Position der Haltestücke / Position of holding clamps



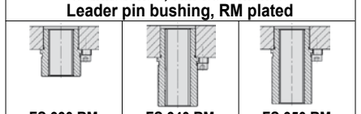
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area: 141 131 a X B	b X A	c X A	142 132 a X B	b X A	c X A	143 133 a X B	b X A	c X A	151 a X B	b X A	c X A	152 a X B	b X A	c X A	153 a X B	b X A	c X A	Gewicht / Weight [kg]
301	125 X 125	28	23	–	19/20	125	100	–				15 X 125	15 X 125														7,8
302		28	28	–		140	112	–																			8,4
303		38	28	–		160	112	–																			9,7
304	160 X 125	28	23	–	19/20	125	100	–				50 X 125	15 X 160		50 X 125												9,5
305		28	28	–		140	112	–																			10,4
306		38	28	–		150	112	–																			11,9
307	160 X 160	28	23	–	19/20	125	100	–				50 X 160	50 X 160		50 X 160	50 X 160											11,9
308		28	28	–		140	112	–																			12,8
309		38	28	–		160	112	–																			14,8
310	200 X 125	28	23	–	19/20	125	100	–				90 X 125	15 X 200		90 X 125												11,5
311		28	28	–		140	112	–																			12,5
312		38	28	–		160	112	–																			14,5
313	200 X 160	28	23	–	19/20	125	100	–				90 X 160	50 X 200		90 X 160	50 X 200											14,3
314		28	28	–		140	112	–																			15,6
315		38	28	–		160	112	–																			18,1
316	200 X 200	28	23	–	19/20	125	100	–				90 X 200	90 X 200		90 X 200	90 X 200											17,5
317		28	28	–		140	112	–																			19,1
318		38	28	–		160	112	–																			22,3
319	250 X 125	28	23	–	19/20	125	100	–				140 X 125	15 X 250		140 X 125												14,0
320		28	28	–		140	112	–																			15,3
321		38	28	–		160	112	–																			17,7
322	250 X 160	28	23	–	19/20	125	100	–				140 X 160	50 X 250		140 X 160	50 X 250											17,5
323		28	28	–		140	112	–																			19,1
324		38	28	–		160	112	–																			22,3
325	250 X 200	33	28	–	24/25	160	112	–				122 X 200	72 X 250		122 X 200	70 X 250											26,0
326		33	33	–		160	125	–																			27,9
327		48	38	–		180	140	–																			35,8
328	250 X 250	33	28	–	24/25	160	112	–				122 X 250	122 X 250		122 X 250	120 X 250											32,0
329		33	33	–		160	125	–																			34,4
330		48	38	–		180	140	–																			44,2

[01.07.2020]

[01.07.2020]

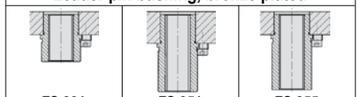
Säulengest. a. Stahl, 2 Platten, 4 Säulen, Typ Q, M-Line
Steel die sets, 2 plates, 4 posts, type Q, M-Line
SÄULENGESTELLE / DIE SETS
[SG]

Buchsentyp / Type of bushing
Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated



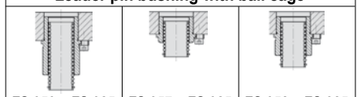
FS 330 RM	FS 340 RM	FS 350 RM
141	142	143

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



FS 331	FS 351	FS 355
131	132	133

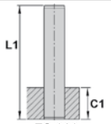
Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

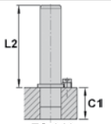


FS 353 + FS 325	FS 357 + FS 325	FS 358 + FS 325
151	152	153

Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar

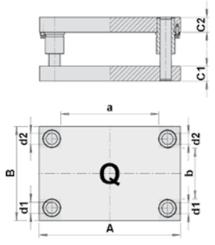




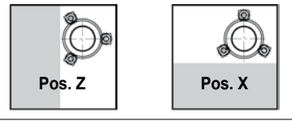
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set





Position der Haltestücke / Position of holding clamps



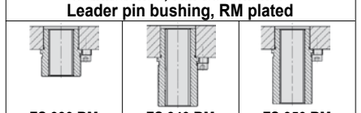
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area: 141 131 a X B	b X A	c X A	142 132 a X B	b X A	c X A	143 133 a X B	b X A	c X A	151 a X B	b X A	c X A	152 a X B	b X A	c X A	153 a X B	b X A	c X A	Gewicht / Weight [kg]
331	300 X 160	33	28	–	24/25	160	112	–				172 X 160	32 X 300		172 X 160	32 X 300											25,0
332		33	33	–		160	125	–																			26,9
333		48	38	–		180	140	–																			34,4
334	300 X 200	33	28	–	24/25	160	112	–				172 X 200	72 X 300		172 X 200	72 X 300											30,8
335		33	33	–		160	125	–																			33,1
336		48	38	–		180	140	–																			42,5
337	300 X 250	38	33	–	30/32	160	125	–				156 X 250	106 X 300		156 X 250	106 X 300											44,8
338		38	38	–		180	140	–																			47,8
339		48	38	–		180	140	–																			54,0
340	300 X 300	38	33	–	30/32	160	125	–				156 X 300	156 X 300		156 X 300	156 X 300											53,5
341		38	38	–		180	140	–																			57,0
342		48	38	–		180	130	–																			64,0
343	350 X 200	33	28	–	24/25	160	112	–				222 X 200	72 X 350		222 X 200	72 X 350											35,6
344		33	33	–		160	125	–																			38,3
345		48	38	–		180	140	–																			49,3
346	350 X 250	38	33	–	30/32	160	125	–				206 X 250	106 X 350		206 X 250	106 X 350											52,5
347		38	38	–		180	140	–																			55,5
348		48	38	–		180	140	–																			62,0
349	350 X 300	38	33	–	30/32	160	125	–				206 X 300	206 X 350		206 X 300	206 X 350											61,5
350		38	38	–		180	140	–																			66,0
351		48	38	–		180	140	–																			74,0
352	350 X 350	38	33	–	30/32	160	125	–				206 X 350	206 X 350		206 X 350	206 X 350											71,5
353		38	38	–		180	140	–																			76,5
354		48	38	–		180	140	–																			86,0
355	400 X 200	33	28	–	24/25	160	112	–				272 X 200	72 X 400		272 X 200	72 X 400											40,4
356		33	33	–		160	125	–																			43,5
357		48	38	–		180	140	–																			56,0
358	400 X 250	38	33	–	30/32	160	125	–				256 X 250	106 X 400		256 X 250	106 X 400											59,0
359		38	38	–		180	140	–																			63,0
360		48	38	–		180	140	–																			70,5

Säulengest. a. Stahl, 2 Platten, 4 Säulen, Typ Q, M-Line

Steel die sets, 2 plates, 4 posts, type Q, M-Line

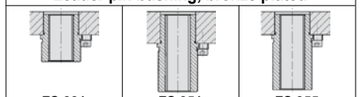
Buchsentyp / Type of bushing

Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated



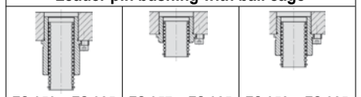
FS 330 RM	FS 340 RM	FS 350 RM
141	142	143

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



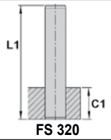
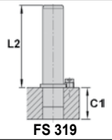
FS 331	FS 351	FS 355
131	132	133

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage

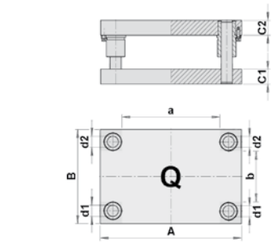


FS 353 + FS 325	FS 357 + FS 325	FS 358 + FS 325
151	152	153

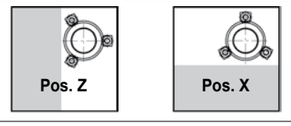
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechselsäule mit Bund Leader pin, with collar
	
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



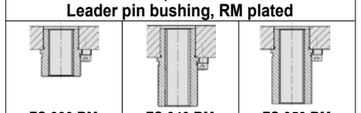
Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 141 131 a X B	b X A	c X A	142 132 a X B	b X A	c X A	143 133 a X B	b X A	c X A	151 a X B	b X A	c X A	152 a X B	b X A	c X A	153 a X B	b X A	c X A	Gewicht / Weight [kg]
361	400 X 300	48	38	–	38/40	180	140	–				232 X 300	132 X 400		232 X 300	132 X 400											87,0
362		48	48	–		200	160	–																			96,5
363		58	48	–		224	160	–																			106,0
364	400 X 350	48	38	–	38/40	180	140	–				232 X 350	182 X 400		232 X 350	182 X 400											101,0
365		48	48	–		200	160	–																			112,0
366		58	48	–		224	160	–																			123,0
367	400 X 400	48	38	–	38/40	180	140	–				232 X 400	232 X 400		232 X 400	232 X 400											114,0
368		48	48	–		200	160	–																			127,0
369		58	48	–		224	160	–																			140,0
370	500 X 250	38	33	–	30/32	160	125	–				356 X 250	106 X 500		356 X 250	106 X 500											73,0
371		38	38	–		180	140	–																			78,0
372		48	38	–		180	140	–																			87,5
373	500 X 300	48	38	–	38/40	180	140	–				332 X 300	132 X 500		332 X 300	132 X 500											108,0
374		48	48	–		200	160	–																			119,0
375		58	48	–		224	160	–																			131,0
376	500 X 350	48	38	–	38/40	180	140	–				332 X 350	182 X 500		332 X 350	182 X 500											125,0
377		48	48	–		200	160	–																			138,0
378		58	48	–		224	160	–																			152,0
379	500 X 400	48	38	–	38/40	180	140	–				332 X 400	232 X 500		332 X 400	232 X 500											141,0
380		48	48	–		200	160	–																			157,0
381		58	48	–		224	160	–																			173,0
382	500 X 500	48	38	–	38/40	180	140	–				332 X 500	332 X 500		332 X 500	332 X 500											175,0
383		48	48	–		200	160	–																			195,0
384		58	48	–		224	160	–																			214,0
385	600 X 300	48	38	–	38/40	180	140	–				432 X 300	132 X 600		432 X 300	132 X 600											128,0
386		48	48	–		200	160	–																			142,0
387		58	48	–		224	160	–																			156,0
388	600 X 350	48	38	–	38/40	180	140	–				432 X 350	182 X 600		432 X 350	182 X 600											148,0
389		48	48	–		200	160	–																			165,0
390		58	48	–		224	160	–																			181,0

[01.07.2020]

[01.07.2020]

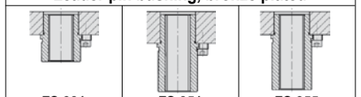
Säulengest. a. Stahl, 2 Platten, 4 Säulen, Typ Q, M-Line
Steel die sets, 2 plates, 4 posts, type Q, M-Line
SÄULENGESTELLE / DIE SETS
[SG]

Buchsentyp / Type of bushing
Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated



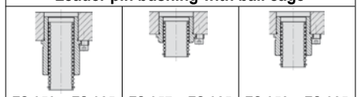
FS 330 RM	FS 340 RM	FS 350 RM
141	142	143

Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated



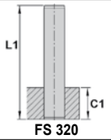
FS 331	FS 351	FS 355
131	132	133

Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage



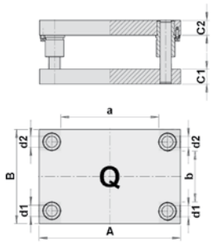
FS 353 + FS 325	FS 357 + FS 325	FS 358 + FS 325
151	152	153

Säulentyp / Type of leader pin
eingepresst
press-fitted
Schnellwechselsäule mit Bund
Leader pin, with collar

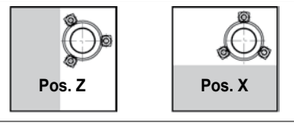


FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps

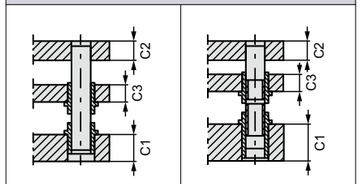


Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 141 131 a X B	b X A	c X A	142 132 a X B	b X A	c X A	143 133 a X B	b X A	c X A	151 a X B	b X A	c X A	152 a X B	b X A	c X A	153 a X B	b X A	c X A	Gewicht / Weight [kg]
391	600 X 400	48	38	–	38/40	180	140	–				432 X 400	232 X 600		432 X 400	232 X 600											168,0
392		48	48	–		200	160	–																			187,0
393		58	48	–		224	160	–																			206,0
394	600 X 500	58	48	–	48/50	224	160	–				406 X 500	306 X 600		406 X 500	306 X 600											259,0
395		58	58	–		250	180	–																			283,0
396		68	58	–		250	180	–																			306,0
397	600 X 600	58	48	–	48/50	224	160	–				406 X 600	406 X 600		406 X 600	406 X 600											309,0
398		58	58	–		250	180	–																			337,0
399		68	58	–		250	180	–																			365,0
400	700 X 350	48	38	–	38/40	180	140	–				532 X 350	182 X 700		532 X 350	182 X 700											172,0
401		48	48	–		200	160	–																			191,0
402		58	48	–		224	160	–																			210,0
403	700 X 400	58	48	–	48/50	224	160	–				506 X 400	206 X 700		506 X 400	206 X 700											242,0
404		58	58	–		250	180	–																			264,0
405		68	58	–		250	180	–																			286,0
406	700 X 500	58	48	–	48/50	224	160	–				506 X 500	306 X 700		506 X 500	306 X 700											300,0
407		58	58	–		250	180	–																			328,0
408		68	58	–		250	180	–																			356,0
409	700 X 600	58	48	–	48/50	224	160	–				506 X 600	406 X 700		506 X 600	406 X 700											359,0
410		58	58	–		250	180	–																			392,0
411		68	58	–		250	180	–																			425,0
412	800 X 400	58	48	–	48/50	224	160	–				606 X 400	206 X 800		606 X 400	206 X 800											276,0
413		58	58	–		250	180	–																			301,0
414		68	58	–		250	180	–																			326,0
415	800 X 500	58	48	–	48/50	224	160	–				606 X 500	306 X 800		606 X 500	306 X 800											342,0
416		58	58	–		250	180	–																			374,0
417		68	58	–		250	180	–																			405,0
418	800 X 600	58	48	–	48/50	224	160	–				606 X 600	406 X 800		606 X 600	406 X 800											409,0
419		58	58	–		250	180	–																			447,0
420		68	58	–		250	180	–																			484,0

Säulengest. a. Stahl, 3 Platten, 4 Säulen, Typ Q, M-Line

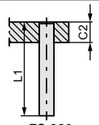
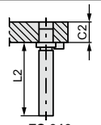
Steel die sets, 3 plates, 4 posts, type Q, M-Line

Buchsentyp / Type of bushing

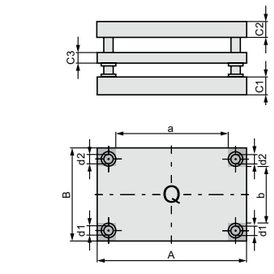


Stahlbuchse, RM-beschichtet Leader pin bushing, RM plated	
C1: FS 340 RM C3: FS 330 RM	C1: FS 350 RM C3: FS 330 RM
182	183
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 351 C3: FS 331	C1: FS 355 C3: FS 331
172	173
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 358 + FS 325 C3: FS 357 + FS 325	C1: FS 353 + FS 325 C3: FS 357 + FS 325
192	193

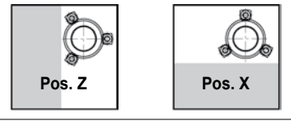
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 182 172 a X B	b X A	c X A	183 173 a X B	b X A	c X A	192 a X B	b X A	193 c X A	Gewicht / Weight [kg]
301	125 X 125	28	23	23	19/20	140	125	–				15 X 125	15 X 125		15 X 125	15 X 125		10,0
302		38	28			160	140	–										11,8
303		38	38			180	140	–										13,1
304	160 X 125	28	23	23	19/20	140	125	–				50 X 125	15 X 160		50 X 125	15 X 160		12,4
305		38	28			160	140	–										14,2
306		38	38			180	140	–										16,3
307	160 X 160	28	23	23	19/20	140	125	–				50 X 160	50 X 160		50 X 160	50 X 160		15,4
308		38	28			160	140	–										18,4
309		38	38			180	140	–										20,4
310	200 X 125	28	23	23	19/20	140	125	–				90 X 125	15 X 200		90 X 125	15 X 200		15,1
311		38	28			160	140	–										18,0
312		38	38			180	140	–										20,0
313	200 X 160	28	23	23	19/20	140	125	–				90 X 160	50 X 200		90 X 160	50 X 200		18,9
314		38	28			160	140	–										22,6
315		38	38			180	140	–										25,2
316	200 X 200	28	23	23	19/20	140	125	–				90 X 200	90 X 200		90 X 200	90 X 200		23,2
317		38	28			160	140	–										27,9
318		38	38			180	140	–										31,1
319	250 X 125	28	23	23	19/20	140	125	–				140 X 125	15 X 250		140 X 125	15 X 250		18,5
320		38	28			160	140	–										22,1
321		38	38			180	140	–										24,6
322	250 X 160	28	23	23	19/20	140	125	–				140 X 160	50 X 250		140 X 160	50 X 250		23,2
323		38	28			160	140	–										27,9
324		38	38			180	140	–										31,1
325	250 X 200	33	28	23	24/25	160	125	–				122 X 200	72 X 250		122 X 200	72 X 250		35,0
326		48	38			180	160	–										44,8
327		48	48			200	160	–										48,7
328	250 X 250	33	28	23	24/25	160	125	–				122 X 250	122 X 250		122 X 250	122 X 250		43,2
329		48	38			180	160	–										55,5
330		48	48			200	160	–										60,5

[01.07.2020]

[01.07.2020]

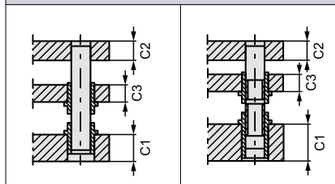
Säulengest. a. Stahl, 3 Platten, 4 Säulen, Typ Q, M-Line

Steel die sets, 3 plates, 4 posts, type Q, M-Line

SÄULENGESTELLE / DIE SETS

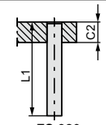
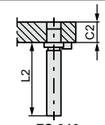
[SG]

Buchsentyp / Type of bushing

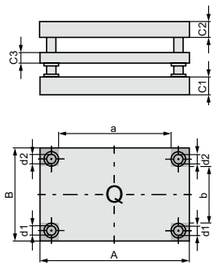


Stahlbuchse, RM-beschichtet Leader pin bushing, RM plated	
C1: FS 340 RM C3: FS 330 RM	C1: FS 350 RM C3: FS 330 RM
182	183
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 351 C3: FS 331	C1: FS 355 C3: FS 331
172	173
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 358 + FS 325 C3: FS 357 + FS 325	C1: FS 353 + FS 325 C3: FS 357 + FS 325
192	193

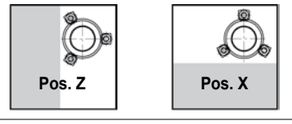
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps

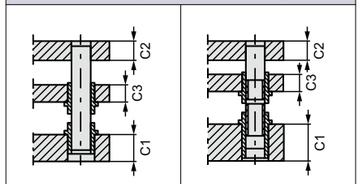


Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 182 172 a X B	b X A	c X A	183 173 a X B	b X A	c X A	192 a X B	b X A	193 c X A	Gewicht / Weight [kg]
331	300 X 160	33	28	23	24/25	160	125	–				172 X 160	32 X 300		172 X 160	32 X 300		33,7
332		48	38			180	140	–										43,1
333		48	48			200	140	–										46,9
334	300 X 200	33	28	23	24/25	160	125	–				172 X 200	72 X 300		172 X 200	72 X 300		41,6
335		48	38			180	140	–										53,5
336		48	48			200	140	–										58,5
337	300 X 250	38	33	33	30/32	180	140	–				156 X 250	106 X 300		152 X 250	106 X 300		61,5
338		48	38			200	160	–										70,5
339		48	48			200	160	–										76,0
340	300 X 300	38	33	33	30/32	180	140	–				156 X 300	156 X 300		156 X 300	156 X 300		73,0
341		48	38			200	160	–										83,5
342		48	48			200	160	–										90,5
343	350 X 200	33	28	23	24/25	160	125	–				222 X 200	72 X 350		222 X 200	72 X 350		48,2
344		48	38			180	160	–										62,0
345		48	48			200	160	–										67,5
346	350 X 250	38	33	33	30/32	180	140	–				206 X 250	106 X 350		206 X 250	106 X 350		71,0
347		48	38			200	160	–										81,5
348		48	48			200	160	–										88,5
349	350 X 300	38	33	33	30/32	180	140	–				206 X 300	156 X 350		206 X 300	156 X 350		85,0
350		48	38			200	160	–										97,0
351		48	48			200	160	–										105,0
352	350 X 350	38	33	33	30/32	180	140	–				206 X 350	206 X 350		206 X 350	206 X 350		98,5
353		48	38			200	160	–										113,0
354		48	48			200	160	–										123,0
355	400 X 200	33	28	23	24/25	160	125	–				272 X 200	72 X 400		272 X 200	72 X 400		55,0
356		48	38			180	140	–										70,5
357		48	48			200	140	–										77,0
358	400 X 250	38	33	33	30/32	180	140	–				256 X 250	106 X 400		256 X 250	106 X 400		81,0
359		48	38			200	160	–										92,5
360		48	48			200	160	–										101,0

Säulengest. a. Stahl, 3 Platten, 4 Säulen, Typ Q, M-Line

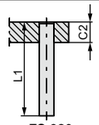
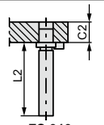
Steel die sets, 3 plates, 4 posts, type Q, M-Line

Buchsentyp / Type of bushing

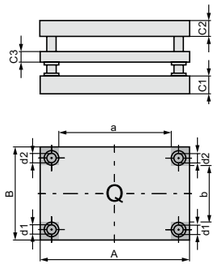


Stahlbuchse, RM-beschichtet Leader pin bushing, RM plated	
C1: FS 340 RM C3: FS 330 RM	C1: FS 350 RM C3: FS 330 RM
182	183
Stahlbuchse mit Bronzeplattierung Leader pin bushing, bronze plated	
C1: FS 351 C3: FS 331	C1: FS 355 C3: FS 331
172	173
Stahlbuchse mit Ms-Käfig Leader pin bushing with ball cage	
C1: FS 358 + FS 325 C3: FS 357 + FS 325	C1: FS 353 + FS 325 C3: FS 357 + FS 325
192	193

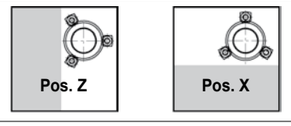
Säulentyp / Type of leader pin

eingepresst press-fitted	Schnellwechsel-säule mit Bund Leader pin, with collar
	
FS 320	FS 319
IEP	IER

Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 182 172 183 173 a X B	b X A	c X A	a X B	b X A	c X A	192 a X B	193 b X A	c X A	Gewicht / Weight [kg]
361	400 X 300	48	38	38	38/40	200	160	–				232 X 300	132 X 400		232 X 300	132 X 400		118,0
362		58	48			224	180	–										137,0
363		58	58			250	180	–										147,0
364	400 X 350	48	38	38	38/40	200	160	–				232 X 350	182 X 400		232 X 350	182 X 400		137,0
365		58	48			224	180	–										159,0
366		58	58			250	180	–										170,0
367	400 X 400	48	38	38	38/40	200	160	–				232 X 400	232 X 400		232 X 400	232 X 400		156,0
368		58	48			224	180	–										181,0
369		58	58			250	180	–										194,0
370	500 X 250	38	33	33	30/32	180	140	–				356 X 250	106 X 500		356 X 250	106 X 500		100,0
371		48	38			200	160	–										115,0
372		48	48			200	160	–										125,0
373	500 X 300	48	38	38	38/40	200	160	–				332 X 300	132 X 500		332 X 300	132 X 500		146,0
374		58	48			224	180	–										170,0
375		58	58			250	180	–										182,0
376	500 X 350	48	38	38	38/40	200	160	–				332 X 350	182 X 500		332 X 350	182 X 500		170,0
377		58	48			224	180	–										197,0
378		58	58			250	180	–										211,0
379	500 X 400	48	38	38	38/40	200	160	–				332 X 400	232 X 500		332 X 400	232 X 500		193,0
380		58	48			224	180	–										225,0
381		58	58			250	180	–										240,0
382	500 X 500	48	38	38	38/40	200	160	–				332 X 500	332 X 500		332 X 500	332 X 500		240,0
383		58	48			224	180	–										279,0
384		58	58			250	180	–										299,0
385	600 X 300	48	38	38	38/40	200	160	–				432 X 300	132 X 600		432 X 300	132 X 600		174,0
386		58	48			224	180	–										203,0
387		58	58			250	180	–										217,0
388	600 X 350	48	38	38	38/40	200	160	–				432 X 350	182 X 600		432 X 350	182 X 600		202,0
389		58	48			224	180	–										235,0
390		58	58			250	180	–										252,0

[01.07.2020]

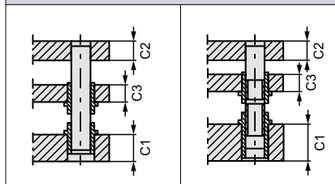
[01.07.2020]

Säulengest. a. Stahl, 3 Platten, 4 Säulen, Typ Q, M-Line

Steel die sets, 3 plates, 4 posts, type Q, M-Line

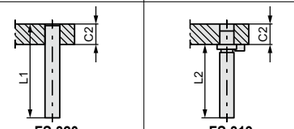
SÄULENGESTELLE / DIE SETS

Buchsentyp / Type of bushing

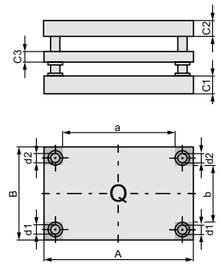


Stahlbuchse, RM-beschichtet
Leader pin bushing, RM plated
C1: FS 340 RM
C3: FS 330 RM
C1: FS 350 RM
C3: FS 330 RM
182
183
Stahlbuchse mit Bronzeplattierung
Leader pin bushing, bronze plated
C1: FS 351
C3: FS 331
C1: FS 355
C3: FS 331
172
173
Stahlbuchse mit Ms-Käfig
Leader pin bushing with ball cage
C1: FS 358 + FS 325
C3: FS 357 + FS 325
C1: FS 353 + FS 325
C3: FS 357 + FS 3CAD25
192
193

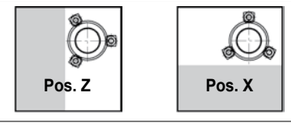
Säulentyp / Type of leader pin
eingepresst
press-fitted
Schnellwechsel-säule mit Bund
Leader pin, with collar



FS 320
FS 319
IEP
IER
Gestelltyp / Type of die set



Position der Haltestücke / Position of holding clamps



Größe / Size	A X B	Platten-stärke Plate thickness C1	C2	C3	Ø d1/d2	Säulen-länge Length of leader pin L1	L2	L3	Arbeitsflächen / Working area 182 172 183 173 a X B	b X A	c X A	a X B	b X A	c X A	192 a X B	193 b X A	c X A	Gewicht / Weight [kg]
391	600 X 400	48	38	38	38/40	200	160	–				432 X 400	232 X 600		432 X 400	232 X 600		230,0
392		58	48			224	180	–										268,0
393		58	58			250	180	–										287,0
394	600 X 500	58	48	48	48/50	224	180	–				406 X 500	306 X 600		406 X 500	306 X 600		348,0
395		68	58			250	200	–										395,0
396		68	68			280	200	–										419,0
397	600 X 600	58	48	48	48/50	224	180	–				406 X 600	406 X 600		406 X 600	406 X 600		416,0
398		68	58			250	200	–										473,0
399		68	68			280	200	–										501,0
400	700 X 350	48	38	48	38/40	200	160	–				532 X 350	182 X 700		532 X 350	182 X 700		235,0
401		58	48			224	180	–										274,0
402		58	58			250	180	–										293,0
403	700 X 400	58	48	48	48/50	224	180	–				506 X 400	206 X 700		506 X 400	206 X 700		326,0
404		68	58			250	200	–										370,0
405		68	68			280	200	–										392,0
406	700 X 500	58	48	48	48/50	224	180	–				506 X 500	306 X 700		506 X 500	306 X 700		405,0
407		68	58			250	200	–										460,0
408		68	68			280	200	–										487,0
409	700 X 600	58	48	48	48/50	224	180	–				506 X 600	406 X 700		506 X 600	406 X 700		484,0
410		68	58			250	200	–										540,0
411		68	68			280	200	–										583,0
412	800 X 400	58	48	48	48/50	224	180	–				606 X 400	206 X 800		606 X 400	206 X 800		371,0
413		68	58			250	200	–										421,0
414		68	68			280	200	–										447,0
415	800 X 500	58	48	48	48/50	224	180	–				606 X 500	306 X 800		606 X 500	306 X 800		461,0
416		68	58			250	200	–										524,0
417		68	68			280	200	–										556,0
418	800 X 600	58	48	48	48/50	224	180	–				606 X 600	406 X 800		606 X 600	406 X 800		552,0
419		68	58			250	200	–										627,0
420		68	68			280	200	–										665,0

[SG]

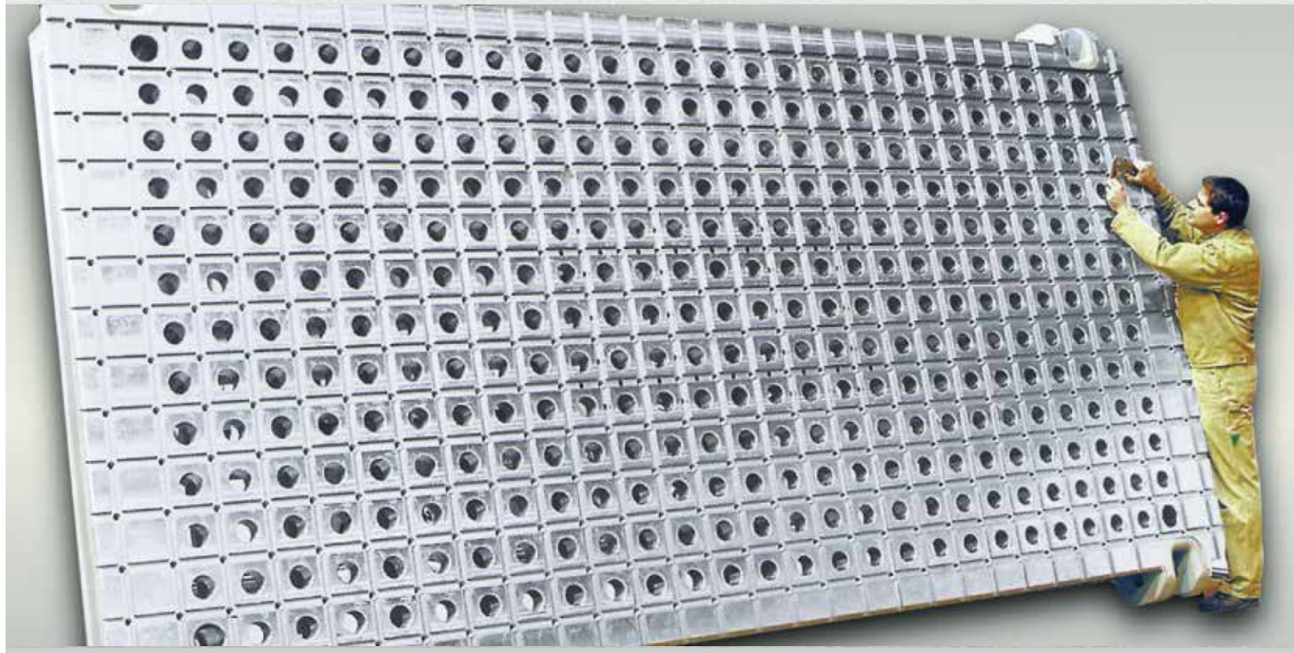
Notizen

Notes

[01.07.2020]

MSPN GMBH

Märkische Stanz-Partner

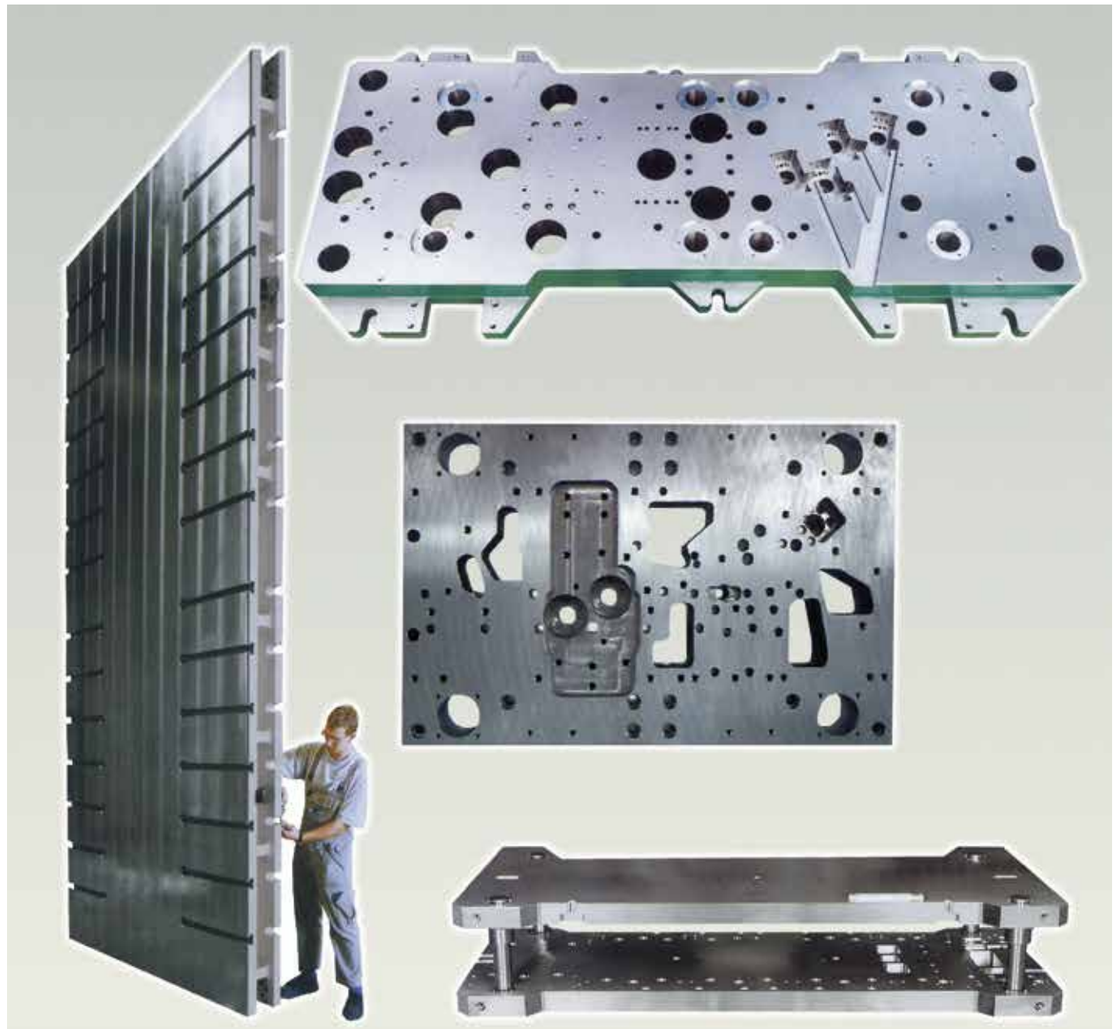


[**stanz**normalien]

Großstahlplatten und Stahl-Schweiß-
Konstruktionen mit Sonderbearbeitungen

[**standard**diecomponents]

XXL - Steel plates and welded units
with additional work / secondary operation



CNC - Brennschneiden CNC - flame cutting	Materiallager ST 52-3, Blechdicken 10 – 600 mm Stock ST 52-3, sheet thickness 10 – 600 mm	
Glühen Annealing	Abmessungen 6.000 x 3.000 x 2.000 mm, bis 25 t Stückgewicht Dimensions 6.000 x 3.000 x 2.000 mm, up to 25 t unit weight	
Stahlkies strahlen Steel shot blasting	Abmessungen 6.000 x 3.000 x 2.000 mm, bis 25 t Stückgewicht Dimensions 6.000 x 3.000 x 2.000 mm, up to 25 t unit weight	
Richten Flattening	Abmessungen 6.000 x 3.000 x 2.000 mm, bis 25 t Stückgewicht Dimensions 6.000 x 3.000 x 2.000 mm, up to 25 t unit weight	
Farbgebung - Grundierung Coloring - priming	Abmessungen 6.000 x 3.000 x 2.000 mm, bis 25 t Stückgewicht Dimensions 6.000 x 3.000 x 2.000 mm, up to 25 t unit weight	
CNC - Diskusschleifen CNC - rotary grinding	Verfahrweg Travelling distance	4.000 x 1.250 x 300 mm
CNC - Feinschleifen CNC - finish grinding	Verfahrweg Travelling distance	3.000 x 1.600 x 600 mm

[01.07.2020]

[01.07.2020]

Großstahlplatten und Stahl-Schweiß-Konstruktionen
XXL - Steel plates and welded units
SÄULENGESTELLE / DIE SETS
[SG]



CNC - Lehrenbohren CNC - jig boring	Verfahrweg Travelling distance	3.000 x 1.600 x 600 mm
CNC - Portalfräsen CNC - portal milling	Verfahrweg Travelling distance	7.000 x 3.000 x 1.400 mm
CNC - Fräsen und Bohren CNC - milling and -drilling	Verfahrweg Travelling distance	4.900 x 2.400 x 800 mm
CNC - Portalmessen CNC - portal measuring	Verfahrweg Travelling distance	3.000 x 1.600 x 800 mm
CNC - Tieflochbohren CNC - gun drilling	Durchmesser 30 – 120 mm / Diameter 30 – 120 mm bis 1.500 mm als Sacklochbohrung / Blind holes up to 1.500 mm deep bis 3.000 mm als Durchgangsbohrung / Through holes up to 3.000 mm long	

Die Herstellung/Bearbeitung der Produkte erfolgt nach Kundenzeichnung oder nach CAD-Datei im DXF-, DWG-, IGES- , VDA- oder Catia-Format. /
Basis for the manufacuring process are drawings supplied by the customer, printed or as DXF-, DWG-, IGES-, VDA- or Catia - CAD - data files.

zertifiziert ISO 9001 for you Cert

MSPN GMBH

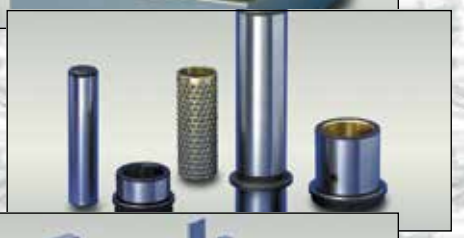
Märkische Stanz-Partner

[lieferprogramm] [productrange]



[säulengestelle]
in Standard- und Sonder-Abmessungen ab 125 x 125 mm bis 3.000 x 6.000 mm

[diesets]
in standard and custom sizes between 125 x 125 mm up to 3.000 x 6.000 mm



[führungssysteme]
in den verschiedensten Ausführungen

[guidingsystems]
available in various designs



[schneidelemente]
mit unterschiedlichsten Schneidgeometrien

[cuttingelements]
with countless cutting-tip geometries



[technischeHilfsmittel]
umfangreiche Auswahl von Schrauben bis zu kleinen Schiebern

[generaldiecomponents]
huge selection ranging from screws to small cam units



[federelemente]
umfassendes Programm an ISO-, Elastomer- und ähnlichen Federn

[springs]
extensive program of ISO-, elastomer- and similar springs



[nitrocylGasdruckfedern]
umfangreiches Programm für unterschiedliche Anwendungen

[nitrocylGasSprings]
large program for all commonly used applications



[hysonStickstoffSysteme]
große Auswahl aus dem Programm eines der Weltmarktführer

[hysonNitrogenSystems]
huge program from one of the world market leaders

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Jüngerstrasse 17 • D-58515 Lüdenscheid
Tel.: +49 (0) 23 51 / 6 61 07-0 • Fax: +49 (0) 23 51 / 6 61 07-77
e-mail: mail@maerkische-stanz-partner.de • www.maerkische-stanz-partner.de

Es gelten unsere allgemeinen Verkaufs- und Lieferbedingungen, die wir Ihnen auf Nachfrage gerne zusenden.
Our general terms and conditions, which we gladly provide / send on your request, apply at all times.

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MSP GMBH

Märkische Stanz-Partner



[führungssysteme]
[guidingsystems]

Stand / Revision Status 30.10.2020

Inhalt Katalog 1: Stanznormalien (D)
Content Catalogue 1: Standard die components (D)

STANZNORMALIEN / STANDARD DIE COMPONENTS

Artikel Article	Best.-Nr. Order no.	Seite Page
A		
Aufwerferstifte, gehärtet, DIN 1530 A – ISO 6750	TH 750	TH.9
Auswerferstifte, DIN 1530 Form D	TH 75[illegible]	TH.[illegible]0

Ein „Klick“ auf Artikelbezeichnung, Bestell-Nummer oder Seite im vorangestellten Inhaltsverzeichnis bringt Sie zum gewünschten Artikel.

„Clicking“ on the Article name, the Order- or Page-no. in the main table of contents opens the corresponding article-page.

Inhalt
Content

SCHNEIDELEMENTE / CUTTING ELEMENTS

	Schneidstempel	Punches	Best.-Nr. Order no.	Seite Page
	Schneidstempel DIN 9861, Form D, HSS	Punches DIN 9861, Form D, HSS	SE 775	SE.1 SE.[illegible]

Ein „Klick“ auf Foto, Artikelbezeichnung, Bestell-Nummer oder Seite im Inhaltsverzeichnis des Registers bringt Sie unmittelbar zum gewünschten Artikel im Katalog.

„Clicking“ on the Photo, the Article name, the Order- or Page-no. in any register‘s table of contents opens the corresponding article-page.

Ein „Klick“ auf das CAD-Logo bringt Sie zu den CAD-Daten des gewünschten Artikels im CADENAS-Downloadportal.

„Clicking“ on the CAD-logo leads you to the CAD-file(s) of the corresponding article within the Cadenas down-load-portal.

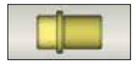
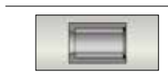
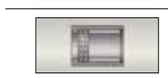
Ein „Klick“ auf das MAIL-Logo generiert eine an die Märkischen Stanz-Partner adressierte e-mail, mit der Normbezeichnung des gewünschten Artikels in der Betreffzeile.

„Clicking“ on the MAIL-logo generates an e-mail addres-sed to the Stanz-Partners, showing the requested article in the subject heading.

Ein „Klick“ auf das RETURN-Logo unten auf jeder Katalogseite bringt Sie zurück auf das Inhaltsverzeichnis des entsprechenden Registers.

„Clicking“ on the RETURN-logo at the bottom of each catalog-page opens that specific register‘s table of contents.

[06.05.2020]

	Führungselemente, M-Line	Guidingelemente, M-Line	Best.-Nr. Order no.	Seite Page
				
	Führungsbuchsen mit Bund, Kugelführung, M-Line, kurzer Bund	Leader pin bushings, with collar, ball bearing, M-Line, short headed	FS 357	FS.16
	Führungsbuchsen mit Bund, Kugelführung, M-Line, langer Bund	Leader pin bushings, with collar, ball bearing, M-Line, long headed	FS 353 FS 358	FS.16
	Führungsbuchsen mit Bund, Stahl/Bronze, M-Line, kurzer Bund	Leader pin bushings, with collar, steel/bronze, M-Line, short headed	FS 331	FS.4
	Führungsbuchsen mit Bund, Stahl/Bronze, M-Line, langer Bund	Leader pin bushings, with collar, steel/bronze, M-Line, long headed	FS 351 FS 355	FS.4
	Führungsbuchsen mit Bund, Stahlführung, M-Line, kurzer Bund RM-beschichtet	Leader pin bushings, with collar, steel, M-Line, short headed RM-coated	FS 330 RM	FS.3
	Führungsbuchsen mit Bund, Stahlführung, M-Line, langer Bund RM-beschichtet	Leader pin bushings, with collar, steel, M-Line, long headed RM-coated	FS 340 RM FS 350 RM	FS.3
	Führungsbuchsen mit Festschmierstoff- ringen, M-Line, kurzer Bund	Leader pin bushings with self lubricating graphite rings, M-Line, short headed	FS 375	FS.5
	Führungsbuchsen mit Festschmierstoff- ringen, M-Line, langer Bund	Leader pin bushings with self lubricating graphite rings, M-Line, long headed	FS 371 FS 374	FS.5
	Führungssäulen, zylindrisch, zum Einpressen, M-Line	Leader pins, cylindrical, for press fitting, M-Line	FS 320	FS.1
	Haltescheiben für Bundsäulen- befestigung	Holding discs	FS 398	FS.18
	Haltestücke	Holding clamps	FS 395 / A - D	FS.18
	Kugelkäfige aus Messing, M-Line	Ball cages, brass, M-Line	FS 325	FS.17
	Schnellwechsel-Führungssäulen mit Bund, M-Line	Quick change leader pins with collar, M-Line	FS 319	FS.2
	Wechselbuchsen-Systeme mit Säulen- zentrierung, glatt, mit HALCO	Modular System of interchangeable bu- shings with leader pin centering, straight, with HALCO	FS 380/1	FS.7
	Wechselbuchsen-Systeme mit Säulen- zentrierung, glatt, mit HALCO/Kugelführung	Modular System of interchangeable bu- shings with leader pin centering, straight, with HALCO/ball guide	FS 380/2	FS.8
	Wechselbuchsen-Systeme mit Säulen- zentrierung, glatt, mit Kugelführung	Modular System of interchangeable bu- shings with leader pin centering, straight, with ball guide	FS 380/3	FS.9
	Wechselbuchsen-Systeme mit Säulen- zentrierung mit Bund, mit HALCO	Modular System of interchangeable bushings with leader pin centering with collar, with HALCO	FS 381/1	FS.10
	Wechselbuchsen-Systeme mit Säulen- zentrierung mit Bund, mit HALCO/Kugelführung	Modular System of interchangeable bushings with leader pin centering with collar, with HALCO/ball guide	FS 381/2	FS.11
	Wechselbuchsen-Systeme mit Säulen- zentrierung mit Bund, mit Kugelführung	Modular System of interchangeable bushings with leader pin centering with collar, with ball guide	FS 381/3	FS.12
	Wechselbuchsen-Systeme mit Säulen- zentrierung mit Flansch, mit HALCO	Modular System of interchangeable bushings with leader pin centering with flange, with HALCO	FS 382/1	FS.13

[FS]

	Führungselemente, M-Line	Guidingelements, M-Line	Best.-Nr. Order no.	Seite Page
	Wechselbuchsen-Systeme mit Säulenzentrierung mit Flansch, mit HALCO/Kugelführung	Modular System of interchangeable bushings with leader pin centering with flange, with HALCO/ball guide	FS 382/2	FS.14
	Wechselbuchsen-Systeme mit Säulenzentrierung mit Flansch, mit Kugelführung	Modular System of interchangeable bushings with leader pin centering with flange, with ball guide	FS 382/3	FS.15

	Führungssäulen	Leader pins	Best.-Nr. Order no.	Seite Page
	Führungssäulen für Großwerkzeuge nach DIN 9833	Leader pins for large dies, DIN 9833	FS 410 FS 412	FS.21 FS.22
	Führungssäulen, zylindrisch, zum Einpressen, nach DIN 9825	Leader pins, cylindrical, for press fitting, DIN 9825	FS 420	FS.19
	Schnellwechsel-Führungssäulen mit Bund	Quick change leader pins with collar	FS 419	FS.20

	Führungsbuchsen	Leader pin bushings	Best.-Nr. Order no.	Seite Page
	Führungsbuchsen mit Bund, Bronze beschichtet, kurzer Bund	Leader pin bushings, with collar, bronze plated, short headed	FS 631 FS 632	FS.26 FS.27
	Führungsbuchsen mit Bund, Bronze beschichtet, langer Bund	Leader pin bushings, with collar, bronze plated, long headed	FS 641, FS 651 FS 655	FS.26 FS.27
	Führungsbuchsen mit Bund, Gleitschicht Sintermetall, kurzer Bund	Leader pin bushings, with collar, sinter-metal plated, short headed	FS 731 FS 732	FS.24 FS.25
	Führungsbuchsen mit Bund, Gleitschicht Sintermetall, langer Bund	Leader pin bushings, with collar, sinter-metal plated, long headed	FS 741, FS 751 FS 755	FS.24 FS.25
	Führungsbuchsen mit Bund, Kugelführung	Leader pin bushings, with collar, for ball bearing application	FS 457, FS 458 FS 453	FS.28
	Führungsbuchsen mit Bund, Stahlführung, kurzer Bund RM-beschichtet	Leader pin bushings, with collar, steel, short headed RM-coated	FS 430 RM FS 439 RM	FS.23
	Führungsbuchsen mit Bund, Stahlführung, langer Bund RM-beschichtet	Leader pin bushings, with collar, steel, long headed RM-coated	FS 440 RM FS 450 RM	FS.23
	Führungsbuchsen mit Festschmierstoff	Leader pin bushings with self lubricating graphite plugs	FS 462	FS.37
	Führungsbuchsen mit Festschmierstoff NAAMS	Leader pin bushings with self lubricating graphite plugs, NAAMS	FS 461	FS.36
	Führungsbuchsen mit Festschmierstoff nach DIN 9834 / ISO 9448	Leader pin bushings with self lubricating graphite plugs, DIN 9834 / ISO 9448	FS 460	FS.34

[06.05.2020]

[06.05.2020]

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Content
FÜHRUNGSSYSTEME / GUIDINGSYSTEMS

[FS]

	Kugelkäfige und Befestigungselemente	Ball cages and mounting elements	Best.-Nr. Order no.	Seite Page
	Abgehängte Kugelkäfige	Ball cages with circlip	FS 424	FS.30 FS.31
	Befestigungselemente RA	Mounting elements RA	FS 424 / RA	FS.33
	Befestigungselemente SI	Mounting elements SI	FS 424 / SI	FS.32
	Befestigungselemente TR	Mounting elements TR	FS 424 / TR	FS.32
	Befestigungselemente VI	Mounting elements VI	FS 424 / VI	FS.33
	Kugelkäfige aus Messing	Ball cages, brass	FS 425	FS.29

	Gleitplatten	Wear plates	Best.-Nr. Order no.	Seite Page
	Führungslaschen, Stahl mit Festschmierstoff	Guide brackets, steel with self lubricating graphite plugs	FS 509	FS.49
	Gleitleisten VDI 3357 Bronze mit Festschmierstoff	Wear strips VDI 3357 with self lubricating graphite plugs	FS 506	FS.46
	Gleitplatten, Bronze mit Festschmierstoff, 5 mm dick	Wear plates, bronze with self lubricating graphite plugs, 5 mm thick	FS 505	FS.45
	Gleitplatten, Bronze mit Festschmierstoff, 10 mm dick	Wear plates, bronze with self lubricating graphite plugs, 10 mm thick	FS 503 FS 504	FS.43 FS.44
	Gleitplatten VDI 3357 Bronze mit Festschmierstoff, 12 mm dick	Wear plates VDI 3357 with self lubricating graphite plugs, 12 mm thick	FS 502	FS.42
	Gleitplatten VDI 3357 Bronze mit Festschmierstoff, 20 mm dick	Wear plates VDI 3357 with self lubricating graphite plugs, 20 mm thick	FS 500	FS.40
	Gleitplatten VDI 3357, Stahl, 20 mm dick	Wear plates VDI 3357, steel, 20 mm thick	FS 501	FS.41
	Prismenführungen, VDI 3357, Bronze mit Festschmierstoff	„V“ drivers, VDI 3357, bronze with self lubricating graphite plugs	FS 526	FS.53
	Prismenführungen, VDI 3357, Stahl	„V“ drivers, VDI 3357, steel	FS 524	FS.52
	Überlaufkeile, VDI 3357, Bronze mit Festschmierstoff	Cam dwells, VDI 3357, bronze with self lubricating graphite plugs	FS 507	FS.47
	Überlaufkeile, VDI 3357, Stahl	Cam dwells, VDI 3357, steel	FS 508	FS.48
	Winkelleisten, Bronze mit Festschmierstoff	„L“ shaped wear plates, bronze with self lubricating graphite plugs	FS 510	FS.50

Inhalt

Content

	Gleitplatten	Wear plates	Best.-Nr. Order no.	Seite Page
	Winkelleisten, VDI 3357, Bronze mit Festschmierstoff	„L“ shaped wear plates, VDI 3357, bronze with self lubricating graphite plugs	FS 511	FS.51

	Zubehör Bereich Führungssysteme	Elements product line „guiding systems“	Best.-Nr. Order no.	Seite Page
	Haltescheiben für Bundsäulen-befestigung	Holding discs	FS 958	FS.39
	Haltestücke für Führungsbuchsen mit Festschmierstoff n.DIN 9834 / ISO 9448	Holding clamps for bronze leader pin bushings with selflubricating graphite plugs, DIN 9834 / ISO 9448	FS 460 HS	FS.35
	Haltestücke für Säulen- und Buchsenbefestigung	Holding clamps for holding leader pins and -bushings	FS 955	FS.38

[06.05.2020]

[06.05.2020]

Führungssäulen, zylindrisch, zum Einpressen, M-Line

Leader pins, cylindrical, for press fitting, M-Line

FÜHRUNGSSYSTEME / GUIDINGSYSTEMS

FS 320

Mat.: 1.7131 / 61 - 63 HRC

Mat.: 1.7131 / 61 - 63 HRC

FS 320 / 25 x 200



D	L																	
	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500	600	700	800
19-20	●	●	●	●	●	●	●	●	●									
24-25			●	●	●	●	●	●	●	●	●	●	●	●	●			
30-32			●	●	●	●	●	●	●	●	●	●	●	●	●			
38-40					●	●	●	●	●	●	●	●	●	●	●			
48-50							●	●	●	●	●	●	●	●	●			
60-63									●	●	●	●	●	●	●			
80										●	●	●	●	●	●	●	●	●

[FS]

[FS]

FS 319

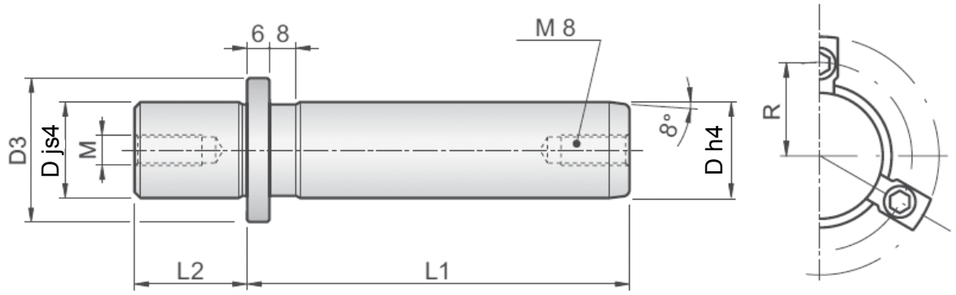
Mat.: 1.7131 / 61 - 63 HRC

Lieferumfang:
- 3 Halteklammern mit Schrauben
alternativ, wenn angegeben:
- 1 Haltescheibe **FS 398** mit Schraube

Mat.: 1.7131 / 61 - 63 HRC

Included:
- 3 holding clamps with screws
alternatively, if specified:
- 1 mount disc **FS 398** with screw

FS 319 / 25 x 160



CAD MAIL

D	D3	M	R	L2
19-20	25	M8	18,0	23
24-25	32	M8	21,5	30
30-32	40	M8	25,5	37
38-40	50	M8	30,5	37
48-50	63	M8	37,0	47
60-63	80	M8	45,5	47
80	95	M12	53,0	60

D	L1												
	100	112	125	140	160	180	200	224	250	280	315	355	400
19-20	●	●	●	●	●	●	●						
24-25	●	●	●	●	●	●	●	●	●				
30-32		●	●	●	●	●	●	●	●	●	●		
38-40			●	●	●	●	●	●	●	●	●	●	
48-50				●	●	●	●	●	●	●	●	●	●
60-63					●	●	●	●	●	●	●	●	●
80							●	●	●	●	●	●	●

[06.05.2020]

[06.05.2020]

[FS]

mit langem Bund/long-headed style

FS 340 … RM
FS 350 … RM

Mat.: 1.7131 / 61 - 63 HRC
RM-beschichtet (selbstschmierend)

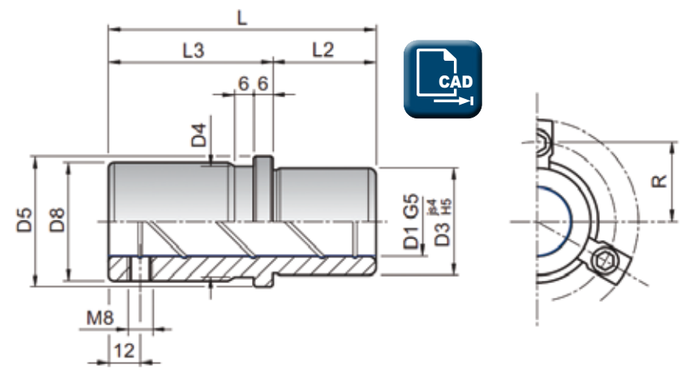
Lieferumfang:
- 3 Halteklammern mit Schrauben

Mat.: 1.7131 / 61 - 63 HRC
RM-coated (self lubricating)

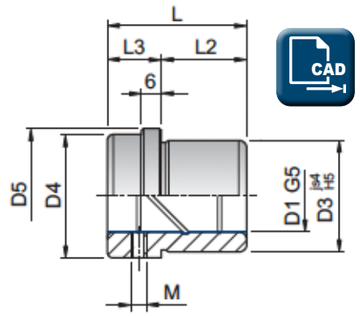
Included:
- 3 holding clamps with screws

FS 340 / 25 x 59 / RM

INFO FS.55



CAD



CAD

mit kurzem Bund/short-headed style

FS 330 … RM

MAIL

D1	D3	D4	D5	D8	Artikelnummer Article number	R	L	L2	L3
19-20	32	32	40	–	**FS 330 … RM**	26	**35**	23	12
19-20	32	32	40	39	**FS 340 … RM**	26	**43**	23	20
19-20	32	32	40	39	**FS 350 … RM**	26	**59**	23	36
24-25	40	40	48	–	**FS 330 … RM**	30	**35**	23	12
24-25	40	40	48	46	**FS 340 … RM**	30	**59**	23	36
24-25	40	40	48	46	**FS 350 … RM**	30	**79**	23	56
30-32	48	48	56	–	**FS 330 … RM**	33,5	**42**	30	12
30-32	48	48	56	53	**FS 340 … RM**	33,5	**75**	30	45
30-32	48	48	56	53	**FS 350 … RM**	33,5	**93**	30	63
38-40	58	58	66	–	**FS 330 … RM**	38,5	**52**	37	15
38-40	58	58	66	63	**FS 340 … RM**	38,5	**82**	37	45
38-40	58	58	66	63	**FS 350 … RM**	38,5	**108**	37	71
48-50	70	70	80	–	**FS 330 … RM**	45,5	**65**	47	18
48-50	70	70	80	77	**FS 340 … RM**	45,5	**97**	47	50
48-50	70	70	80	77	**FS 350 … RM**	45,5	**127**	47	80
60-63	85	85	95	–	**FS 330 … RM**	53	**80**	60	20
60-63	85	85	95	92	**FS 340 … RM**	53	**116**	60	56
60-63	85	85	95	92	**FS 350 … RM**	53	**150**	60	90

Führungsbuchsen mit Bund, Stahl/Bronze, M-Line

Leader pin bushings with collar, steel/bronze, M-Line

mit langem Bund/long-headed style

FS 351
FS 355

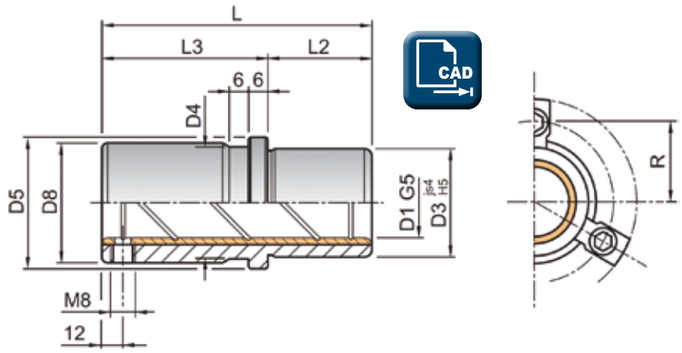
Mat.: 1.7131 + Bronze
Härte: 61 - 63 HRC

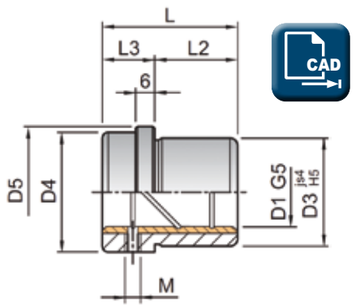
Lieferumfang:
- 3 Halteklammern mit Schrauben

Mat.: 1.7131 + bronze
Hardness: 61 - 63 HRC

Included:
- 3 holding clamps with screws

FS 331 / 25 x 35





Führungsbuchsen können auch RM-beschichtet werden / Leader pin bushings can be delivered RM-coated.

mit kurzem Bund/short-headed style

FS 331

D1	D3	D4	D5	D8	Artikelnummer Article number	R	L	L2	L3
19-20	32	32	40	–	**FS 331**	26	**35**	23	12
19-20	32	32	40	39	**FS 351**	26	**43**	23	20
19-20	32	32	40	39	**FS 355**	26	**59**	23	36
24-25	40	40	48	–	**FS 331**	30	**35**	23	12
24-25	40	40	48	46	**FS 351**	30	**59**	23	36
24-25	40	40	48	46	**FS 355**	30	**79**	23	56
30-32	48	48	56	–	**FS 331**	33,5	**42**	30	12
30-32	48	48	56	53	**FS 351**	33,5	**75**	30	45
30-32	48	48	56	53	**FS 355**	33,5	**93**	30	63
38-40	58	58	66	–	**FS 331**	38,5	**52**	37	15
38-40	58	58	66	63	**FS 351**	38,5	**82**	37	45
38-40	58	58	66	63	**FS 355**	38,5	**108**	37	71
48-50	70	70	80	–	**FS 331**	45,5	**65**	47	18
48-50	70	70	80	77	**FS 351**	45,5	**97**	47	50
48-50	70	70	80	77	**FS 355**	45,5	**127**	47	80
60-63	85	85	95	–	**FS 331**	53	**80**	60	20
60-63	85	85	95	92	**FS 351**	53	**116**	60	56
60-63	85	85	95	92	**FS 355**	53	**150**	60	90

[06.05.2020]

[06.05.2020]

Führungsbuchsen mit Festschmierstoffringen, M-Line

Leader pin bushes with self lubricating graphite rings, M-Line

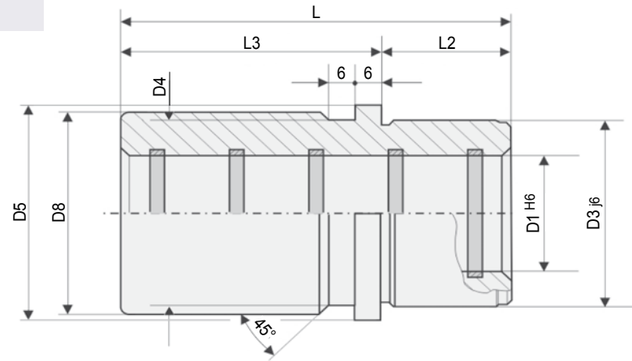
mit langem Bund/long-headed style

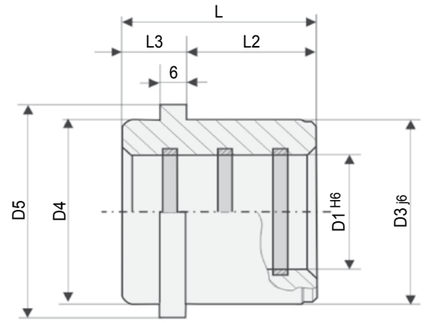
FS 371
FS 374

Mat.: Bronze-Graphit

Mat.: Bronze-graphite

FS 371 / 019x59



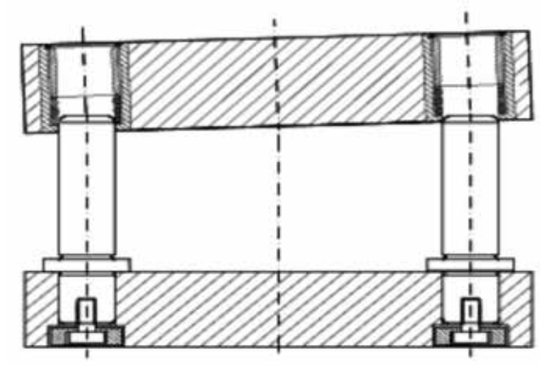


mit kurzem Bund/short-headed style

FS 375

D1	D3	D4	D5	D8	Artikelnummer Article number	L	L2	L3
019-020	32	32	40	–	**FS 375**	**35**	23	12
019-020	32	32	40	39	**FS 371**	**59**	23	36
019-020	32	32	40	39	**FS 374**	**43**	23	20
024-025	40	40	48	–	**FS 375**	**35**	23	12
024-025	40	40	48	46	**FS 371**	**79**	23	56
024-025	40	40	48	46	**FS 374**	**59**	23	36
030-032	48	48	56	–	**FS 375**	**42**	30	12
030-032	48	48	56	53	**FS 371**	**93**	30	63
030-032	48	48	56	53	**FS 374**	**75**	30	45
038-040	58	58	66	–	**FS 375**	**52**	37	15
038-040	58	58	66	63	**FS 371**	**108**	37	71
038-040	58	58	66	63	**FS 374**	**82**	37	45
048-050	70	70	80	–	**FS 375**	**65**	47	18
048-050	70	70	80	77	**FS 371**	**127**	47	80
048-050	70	70	80	77	**FS 374**	**97**	47	50
060-063	85	85	95	–	**FS 375**	**80**	60	20
060-063	85	85	95	92	**FS 371**	**150**	60	90
060-063	85	85	95	92	**FS 374**	**116**	60	56
080	105	105	118	–	**FS 375**	**80**	60	20
080	105	105	118	115	**FS 371**	**150**	60	90
080	105	105	118	115	**FS 374**	**120**	60	60

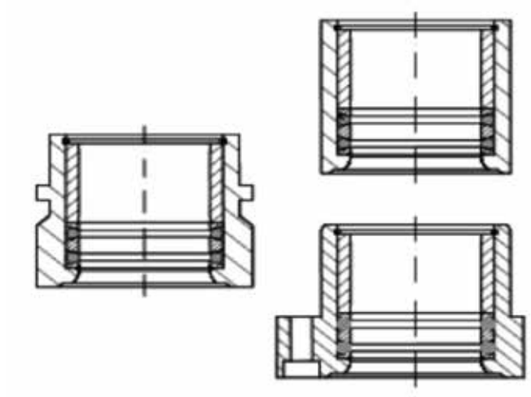




Beim Wechselbuchsen (WeBu) - System handelt es sich um die Paarung einer Stahl-Aufnahmebuchse (die über eine spezielle Geometrie zur automatischen Säulenzentrierung verfügt) mit entweder einer HALCO-Führungsbuchse, einer Kugelführung, oder einer Kombination dieser beiden. Die Buchsen sind miteinander austauschbar. Bei einer reinen Kugelführung empfehlen wir eine gehärtete Aufnahmebuchse.

Vorteil der „Wechselbarkeit“:
- **Flexibilität in der Führungsauswahl**

Vorteile der Säulenzentrierung:
- **Das Zentrieren der Säulen in die Gleitführungen erfolgt automatisch, einfach und ohne Beschädigung. Ein Verkanten der Führungsplatte durch eine bzw. mehrere Führungseinheiten wird vermieden.**
- **Die Demontage und Montage von Werkzeugen und Vorrichtungen kann schneller ausgeführt werden, die Lebensdauer wird erhöht.**



The modular bushings (ModBu) - system is the combination of a receiving steel bushing (with a special geometry for automatic leader pin centering) with either a HALCO guide bushing, a ball guide or a combination of both, all of them being interchangeable.
For the complete ball guide option, we recommend a hardened receiving bushing.

Advantage of the „Interchangeability“:
- **Flexibilty in choosing guiding option**

Advantages of the leader pin centering:
- **The self-centering of the leader pins into the guide bushings happens automatically, simple and without damage … and thereby avoids a tilting of the guide plate due to misalignment of one or more guiding units.**
- **The disassembly and assembly of dies, tools and fixtures can be carried out more quickly, the service life increases.**

[06.05.2020]

[06.05.2020]

[FS]

FS 380/1

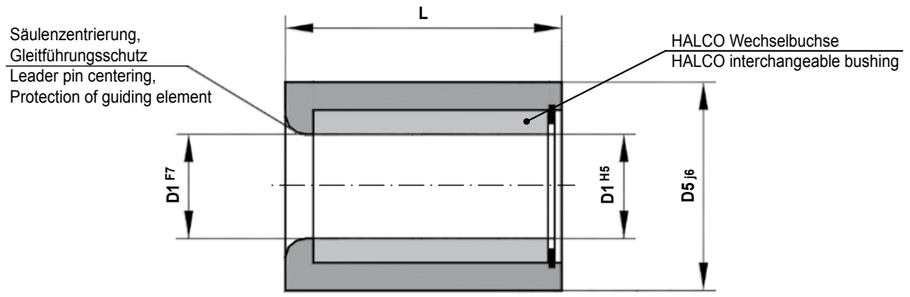
Führungselement:
HALCO Wechselbuchse
Mat. Hochleistungs-Aluminium
Oberflächenhärte:~ 70 HRc
wartungsfrei

Stahl-Aufnahmebuchse:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Klebespalt: min. 0,05 mm,
Einpressen vermeiden

Guiding element:
HALCO interchangeable bushing
Mat.: high-performance Aluminum
Surface hardness: ~ 70 HRc
maintenance-free

Receiving steel bushing:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Adhesive gap : 0,05 mm,
Avoid pressing in

FS 380/1 / 32 x 60



MAIL

D1	L	D5
19-20	30	32
19-20	37	32
19-20	47	32
19-20	60	32
24-25	37	40
24-25	47	40
24-25	60	40
24-25	77	40
30-32	47	48
30-32	60	48
30-32	77	48
30-32	95	48
38-40	47	58
38-40	60	58

D1	L	D5
38-40	77	58
38-40	95	58
38-40	120	58
48-50	47	70
48-50	60	70
48-50	77	70
48-50	95	70
48-50	120	70
60-63	77	85
60-63	95	85
60-63	120	85
80	120	105
80	135	105

FS 380/2

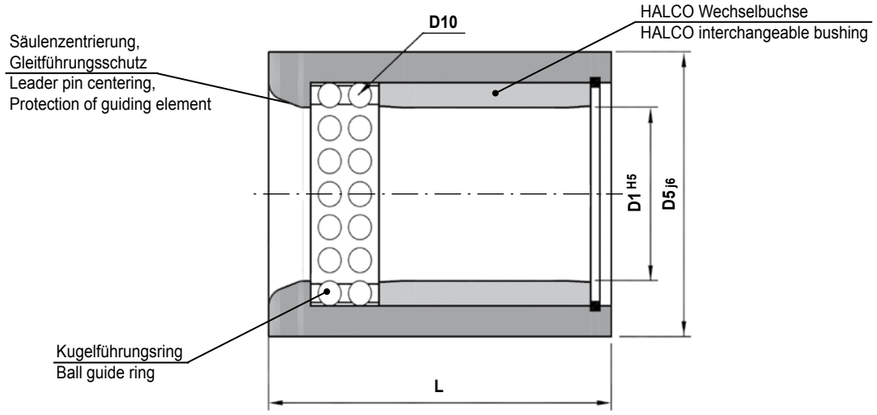
Kombi-Führungselement:
Kugelführungsring zur Unterstützung der Säulenzentrierung kombiniert mit HALCO-Wechselbuchse
Mat. Hochleistungs-Aluminium
Oberflächenhärte = ~70 HRC
wartungsfrei

Stahl-Aufnahmebuchse:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Klebespalt: min. 0,05 mm,
Einpressen vermeiden

Combined guide element:
Ball guide ring for supporting the leader pin centering, combined with HALCO interchangeable bushing.
Mat. High performance aluminum
Surface hardness = ~ 70 HRC
maintenance-free

Receiving steel bushing:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Adhesive gap : 0,05 mm,
Avoid pressing in

FS 380/2 / 30 x 77



MAIL

D1	L	D5	D10
19	**60**	32	3,5
20	**60**	32	3,0
24	**60**	40	3,5
24	**77**	40	3,5
25	**60**	40	3,0
25	**77**	40	3,0
30	**60**	48	5,0
30	**77**	48	5,0
30	**95**	48	5,0
32	**60**	48	4,0
32	**77**	48	4,0
32	**95**	48	4,0
38	**60**	58	5,0
38	**77**	58	5,0
38	**95**	58	5,0
38	**120**	58	5,0
40	**60**	58	4,0

D1	L	D5	D10
40	**77**	58	4,0
40	**95**	58	4,0
40	**120**	58	4,0
48	**77**	70	6,0
48	**95**	70	6,0
48	**120**	70	6,0
50	**77**	70	5,0
50	**95**	70	5,0
50	**120**	70	5,0
60	**77**	85	6,5
60	**95**	85	6,5
60	**120**	85	6,5
63	**77**	85	5,0
63	**95**	85	5,0
63	**120**	85	5,0
80	**120**	105	6,0
80	**135**	105	6,0

FS 380/3

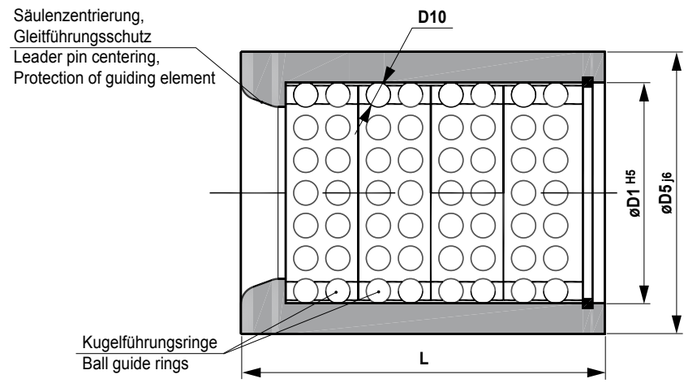
Führungselement:
Endlos-Kugelführung
für axiale und radiale Bewegung,
wartungsfrei

Stahl-Aufnahmebuchse:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4, 61 - 63 HRC
Klebespalt: min. 0,05 mm,
Einpressen vermeiden

Guiding element:
Endless ball guide
for axial and radial movement,
maintenance-free

Receiving steel bushing:
~ DIN 9831 / ISO 9448
Mat .: 42CrMo4, 61 - 63 HRC
Adhesive gap : 0,05 mm,
Avoid pressing in

FS 380/3 / 30 x 77



MAIL

D1	L	D5	D10
19-20	**37**	32	3,5-3,0
19-20	**47**	32	3,5-3,0
19-20	**60**	32	3,5-3,0
24-25	**37**	40	3,5-3,0
24-25	**47**	40	3,5-3,0
24-25	**60**	40	3,5-3,0
24-25	**77**	48	3,5-3,0
30-32	**47**	48	5,0-4,0
30-32	**60**	48	5,0-4,0
30-32	**77**	48	5,0-4,0
30-32	**95**	48	5,0-4,0
38-40	**47**	58	5,0-4,0
38-40	**60**	58	5,0-4,0

D1	L	D5	D10
38-40	**77**	58	5,0-4,0
38-40	**95**	58	5,0-4,0
38-40	**120**	58	5,0-4,0
48-50	**60**	70	6,0-5,0
48-50	**77**	70	6,0-5,0
48-50	**95**	70	6,0-5,0
48-50	**120**	70	6,0-5,0
60-63	**77**	85	6,5-5,0
60-63	**95**	85	6,5-5,0
60-63	**120**	85	6,5-5,0
80	**120**	105	6,0
80	**135**	105	6,0

FS 381/1

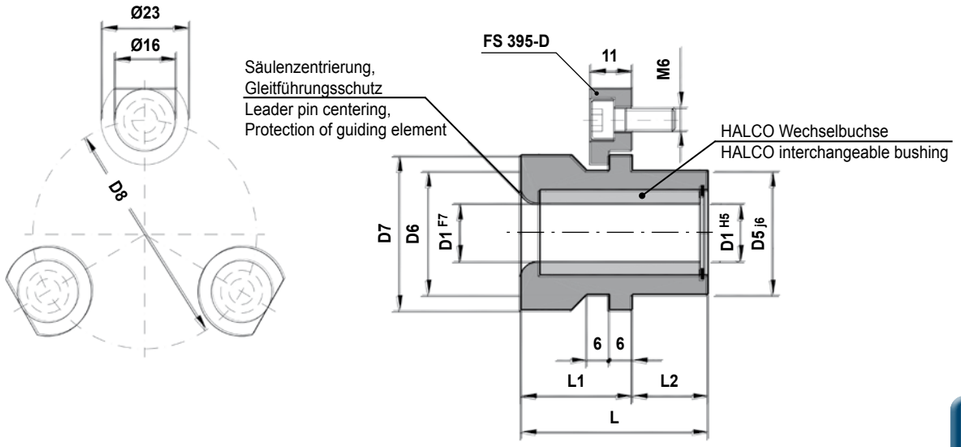
FS 381/1 / 30 x 77

Führungselement:
HALCO Wechselbuchse
Mat. Hochleistungs-Aluminium
Oberflächenhärte:~ 70 HRc
wartungsfrei

Stahl-Aufnahmebuchse:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Toleranz der Aufnahmebohrung: H6
Einpressen vermeiden
Haltestücke gehören zum Lieferumfang!

Guiding element:
HALCO interchangeable bushing
Mat.: high-performance Aluminum
Surface hardness: ~ 70 HRc
maintenance-free

Receiving steel bushing:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Tolerance to be bored: H6
Avoid pressing in
Holding clamps included



D1	L	D5	D6	D7	D8	L1	L2
19-20	**37**	32	32	40	59	14	23
19-20	**47**	32	32	40	59	24	23
19-20	**60**	32	32	40	59	37	23
24-25	**47**	40	40	48	65	24	23
24-25	**60**	40	40	48	65	37	23
24-25	**77**	40	40	48	65	54	23
30-32	**60**	48	48	56	73	30	30
30-32	**77**	48	48	56	73	47	30
30-32	**95**	48	48	56	73	65	30
38-40	**60**	58	58	66	83	24	36
38-40	**77**	58	58	66	83	41	36
38-40	**95**	58	58	66	83	59	36
38-40	**120**	58	58	66	83	84	36
48-50	**77**	70	70	80	97	31	46
48-50	**95**	70	70	80	97	49	46
48-50	**120**	70	70	80	97	74	46
60-63	**77**	85	85	95	112	21	56
60-63	**95**	85	85	95	112	39	56
60-63	**120**	85	85	95	112	64	56
80	**120**	105	105	118	135	64	56
80	**135**	105	105	118	135	79	56

[06.05.2020]

[06.05.2020]

FS 381/2

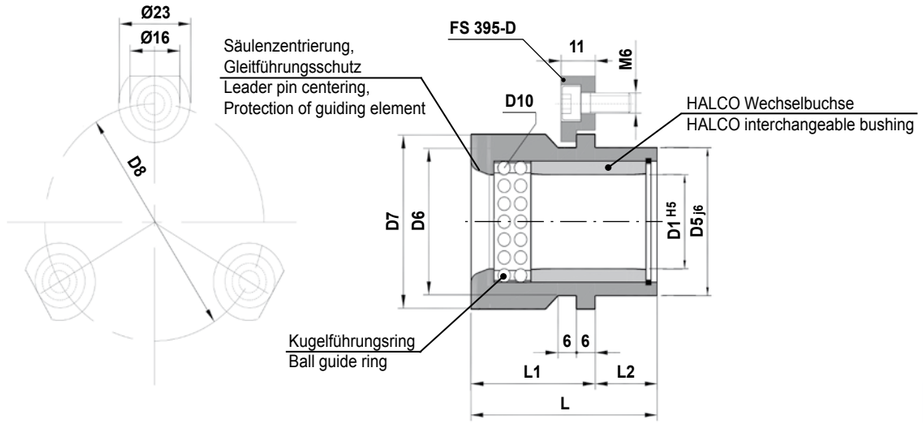
FS 381/2 / 48 x 120

Kombi-Führungselement:
Kugelführungsring zur Unterstützung der Säulenzentrierung kombiniert mit HALCO-Wechselbuchse
Mat. Hochleistungs-Aluminium
Oberflächenhärte = ~70 HRC
wartungsfrei

Stahl-Aufnahmebuchse:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Toleranz der Aufnahmebohrung: H6
Einpressen vermeiden
Haltestücke gehören zum Lieferumfang!

Combined guide element:
Ball guide ring for supporting the leader pin centering, combined with HALCO interchangeable bushing.
Mat. High performance aluminum
Surface hardness = ~ 70 HRC
maintenance-free

Receiving steel bushing:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Tolerance to be bored: H6
Avoid pressing in
Holding clamps included



D1	L	D5	D6	D7	D8	L1	L2	D10
19-20	**60**	32	32	40	59	37	23	3,5-3,0
24-25	**60**	40	40	48	65	37	23	3,5-3,0
24-25	**77**	40	40	48	65	54	23	3,5-3,0
30-32	**60**	48	48	56	73	30	30	5,0-4,0
30-32	**77**	48	48	56	73	47	30	5,0-4,0
30-32	**95**	48	48	56	73	65	30	5,0-4,0
38-40	**60**	58	58	66	83	24	36	5,0-4,0
38-40	**77**	58	58	66	83	41	36	5,0-4,0
38-40	**95**	58	58	66	83	59	36	5,0-4,0
38-40	**120**	58	58	66	83	84	36	5,0-4,0
48-50	**77**	70	70	80	97	31	46	6,0-5,0
48-50	**95**	70	70	80	97	49	46	6,0-5,0
48-50	**120**	70	70	80	97	74	46	6,0-5,0
60-63	**77**	85	85	95	112	21	56	6,5-5,0
60-63	**95**	85	85	95	112	39	56	6,5-5,0
60-63	**120**	85	85	95	112	64	56	6,5-5,0
80	**120**	105	105	118	135	64	56	6,0
80	**135**	105	105	118	135	79	56	6,0

[FS]

FS 381/3

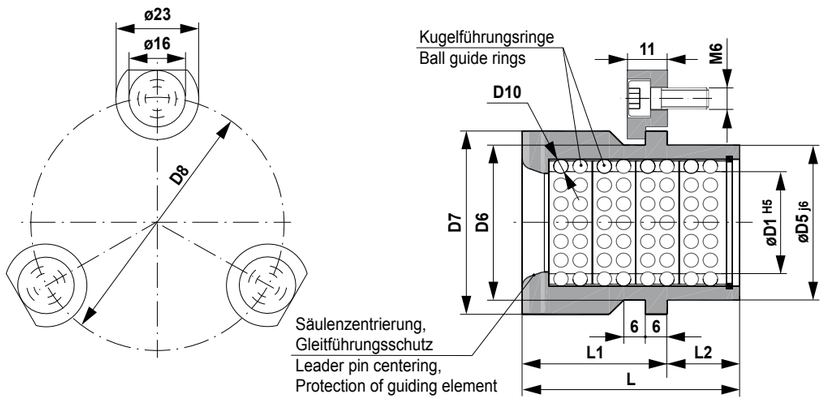
Führungselement:
Endlos-Kugelführung
für axiale und radiale Bewegung,
wartungsfrei

Stahl-Aufnahmebuchse:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4, 61 - 63 HRC
Toleranz der Aufnahmebohrung: H6
Einpressen vermeiden
Haltestücke gehören zum
Lieferumfang!

Guiding element:
Endless ball guide
for axial and radial movement,
maintenance-free

Receiving steel bushing:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4, 61 - 63 HRC
Tolerance to be bored: H6
Avoid pressing in
Holding clamps included

FS 381/3 / 19 x 47



MAIL

D1	L	D5	D6	D7	D8	L1	L2	D10
19-20	**37**	32	26	40	59	14	23	3,5-3,0
19-20	**47**	32	26	40	59	24	23	3,5-3,0
19-20	**60**	32	26	40	59	37	23	3,5-3,0
24-25	**47**	40	31	48	65	24	23	3,5-3,0
24-25	**60**	40	31	48	65	37	23	3,5-3,0
24-25	**77**	40	31	48	65	54	23	3,5-3,0
30-32	**60**	48	40	56	73	30	30	5,0-4,0
30-32	**77**	48	40	56	73	47	30	5,0-4,0
30-32	**95**	48	40	56	73	65	30	5,0-4,0
38-40	**60**	58	48	66	83	24	36	5,0-4,0
38-40	**77**	58	48	66	83	41	36	5,0-4,0
38-40	**95**	58	48	66	83	59	36	5,0-4,0
38-40	**120**	58	48	66	83	84	36	5,0-4,0
48-50	**77**	70	60	80	97	31	46	6,0-5,0
48-50	**95**	70	60	80	97	49	46	6,0-5,0
48-50	**120**	70	60	80	97	74	46	6,0-5,0
60-63	**77**	85	85	95	112	21	56	6,5-5,0
60-63	**95**	85	85	95	112	39	56	6,5-5,0
60-63	**120**	85	85	95	112	64	56	6,5-5,0
80	**120**	105	105	118	135	64	56	6,0
80	**135**	105	105	118	135	79	56	6,0

[06.05.2020]

[06.05.2020]

[FS]

FS 382/1

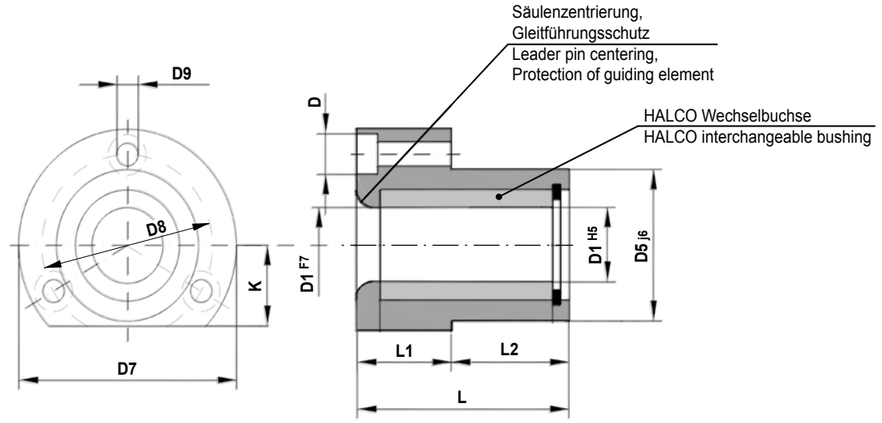
Führungselement:
HALCO Wechselbuchse
Mat. Hochleistungs-Aluminium
Oberflächenhärte:~ 70 HRc
wartungsfrei

Stahl-Aufnahmebuchse:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Toleranz der Aufnahmebohrung: H6
Einpressen vermeiden
Schrauben bitte gesondert bestellen.

Guiding element:
HALCO interchangeable bushing
Mat.: high-performance Aluminum
Surface hardness: ~ 70 HRc
maintenance-free

Receiving steel bushing:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Tolerance to be bored: H6
Avoid pressing in
Screws to be ordered separately.

FS 382/1 / 40 x 47



MAIL

D1	L	D	D5	D7	D8	D9	L1	L2	K
19-20	**37**	8	32	52	40	4,5	14	23	18
19-20	**60**	8	32	52	40	4,5	24	36	18
24-25	**37**	9,5	40	63	50	5,5	14	23	23
24-25	**47**	9,5	40	63	50	5,5	24	23	23
24-25	**60**	9,5	40	63	50	5,5	30	30	23
30-32	**37**	9,5	48	72	58	5,5	14	23	28
30-32	**60**	9,5	48	72	58	5,5	24	36	28
30-32	**77**	9,5	48	72	58	5,5	31	46	28
38-40	**47**	11	58	85	70	6,6	17	30	33
38-40	**60**	11	58	85	70	6,6	24	36	33
38-40	**77**	11	58	85	70	6,6	31	46	33
48-50	**60**	14	70	104	86	9	24	36	38
48-50	**77**	14	70	104	86	9	31	46	38
48-50	**95**	14	70	104	86	9	49	46	38
48-50	**120**	14	70	104	86	9	64	56	38
60-63	**95**	14	85	120	100	9	49	46	46
60-63	**120**	14	85	120	100	9	64	56	46
80	**120**	18	105	148	125	11	64	56	56
80	**135**	18	105	148	125	11	59	76	56

FS 382/2

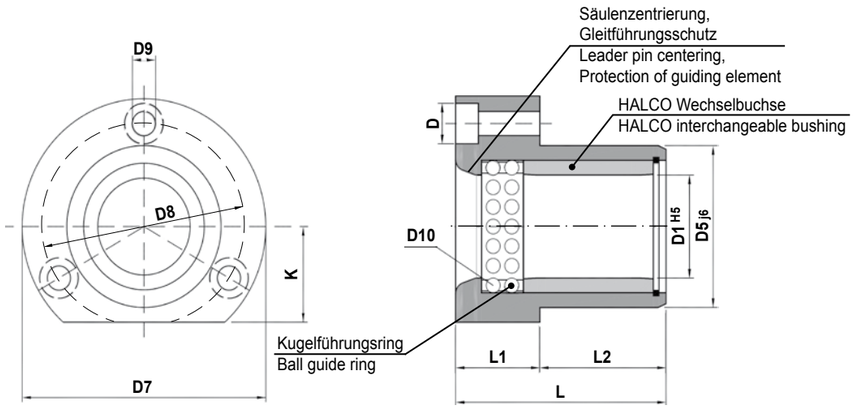
Kombi-Führungselement:
Kugelführungsring zur Unterstützung der Säulenzentrierung kombiniert mit HALCO-Wechselbuchse
Mat. Hochleistungs-Aluminium
Oberflächenhärte = ~70 HRC
wartungsfrei

Stahl-Aufnahmebuchse:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Toleranz der Aufnahmebohrung: H6
Einpressen vermeiden
Schrauben bitte gesondert bestellen.

Combined guide element:
Ball guide ring for supporting the leader pin centering, combined with HALCO interchangeable bushing.
Mat. High performance aluminum
Surface hardness = ~ 70 HRC
maintenance-free

Receiving steel bushing:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4
Tolerance to be bored: H6
Avoid pressing in
Screws to be ordered separately.

FS 382/2 / 19 x 60



MAIL

D1	L	D5	D7	D8	D9	L1	L2	K	D10
19-20	**60**	32	52	40	4,5	24	36	18	3,5-3,0
24-25	**60**	40	63	50	5,5	30	30	23	3,5-3,0
30-32	**60**	48	72	58	5,5	24	36	28	5,0-4,0
30-32	**77**	48	72	58	5,5	31	46	28	5,0-4,0
38-40	**60**	58	85	70	6,6	24	36	33	5,0-4,0
38-40	**77**	58	85	70	6,6	31	46	33	5,0-4,0
48-50	**77**	70	104	86	9	31	46	38	6,0-5,0
48-50	**95**	70	104	86	9	49	46	38	6,0-5,0
48-50	**120**	70	104	86	9	64	56	38	6,0-5,0
60-63	**95**	85	120	100	9	49	46	46	6,5-5,0
60-63	**120**	85	120	100	9	64	56	46	6,5-5,0
80	**120**	105	148	125	11	64	56	56	6,0
80	**135**	105	148	125	11	59	76	56	6,0

FS 382/3

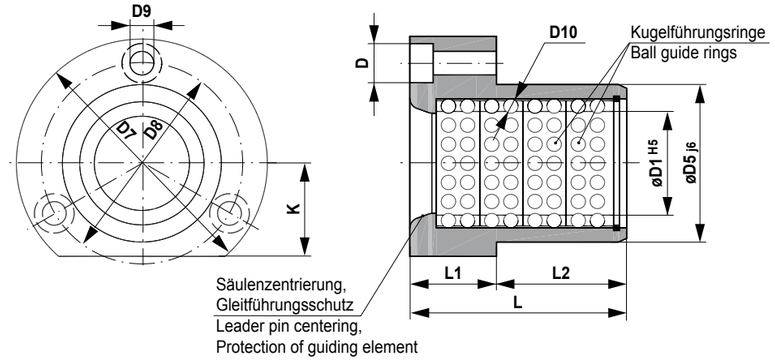
Führungselement:
Endlos-Kugelführung
für axiale und radiale Bewegung,
wartungsfrei

Stahl-Aufnahmebuchse:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4, 61 - 63 HRC
Toleranz der Aufnahmebohrung: H6
Einpressen vermeiden
Schrauben bitte gesondert bestellen.

Guiding element:
Endless ball guide
for axial and radial movement,
maintenance-free

Receiving steel bushing:
~ DIN 9831 / ISO 9448
Mat.: 42CrMo4, 61 - 63 HRC
Tolerance to be bored: H6
Avoid pressing in
Screws to be ordered separately.

FS 382/3 / 20 x 60



MAIL

D1	L	D5	D7	D8	D9	L1	L2	K	D10
19-20	**37**	32	52	40	4,5	14	23	18	3,5-3,0
19-20	**60**	32	52	40	4,5	24	36	18	3,5-3,0
24-25	**37**	40	63	50	5,5	14	23	23	3,5-3,0
24-25	**47**	40	63	50	5,5	24	23	23	3,5-3,0
24-25	**60**	40	63	50	5,5	30	30	23	3,5-3,0
30-32	**60**	48	72	58	5,5	24	36	28	5,0-4,0
30-32	**77**	48	72	58	5,5	31	46	28	5,0-4,0
38-40	**47**	58	85	70	6,6	17	30	33	5,0-4,0
38-40	**60**	58	85	70	6,6	24	36	33	5,0-4,0
38-40	**77**	58	85	70	6,6	31	46	33	5,0-4,0
48-50	**60**	70	104	86	9	24	36	38	6,0-5,0
48-50	**77**	70	104	86	9	31	46	38	6,0-5,0
48-50	**95**	70	104	86	9	49	46	38	6,0-5,0
48-50	**120**	70	104	86	9	64	56	38	6,0-5,0
60-63	**95**	85	120	100	9	49	46	46	6,5-5,0
60-63	**120**	85	120	100	9	64	56	46	6,5-5,0
80	**120**	105	148	125	11	64	56	56	6,0
80	**135**	105	148	125	11	59	76	56	6,0

Führungsbuchsen mit Bund, Kugelführung, M-Line

Leader pin bushings with collar, ball bearing, M-Line

mit langem Bund/long-headed style

FS 358
FS 353

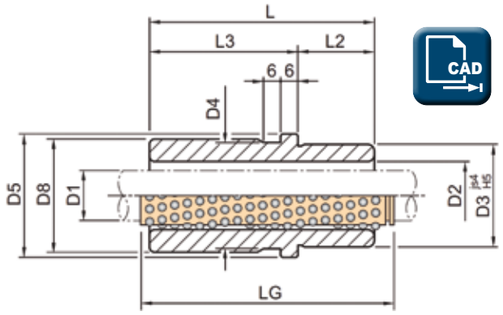
Mat.: 1.7131 / 61 - 63 HRC

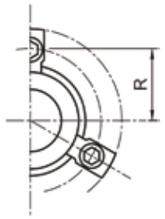
Lieferumfang:
- 3 Halteklammern mit Schrauben

Mat.: 1.7131 / 61 - 63 HRC

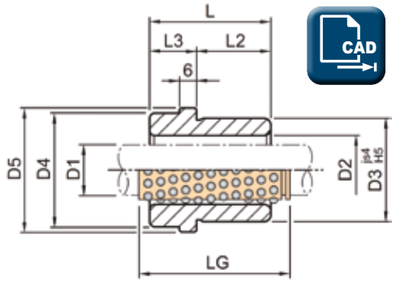
Included:
- 3 holding clamps with screws

FS 358 / 25 x 59





Führungsbuchsen können auch RM-beschichtet werden / Leader pin bushings can be delivered RM-coated.



mit kurzem Bund/short-headed style

FS 357

D1	D2	D3	D4	D5	D8	Artikelnummer Article number	R	L	L2	L3	Vorschlag Proposal LG
19-20	25-26	32	32	40	–	**FS 357**	26	**35**	23	12	45
19-20	25-26	32	32	40	39	**FS 358**	26	**43**	23	20	56
19-20	25-26	32	32	40	39	**FS 353**	26	**59**	23	36	71
24-25	30-31	40	40	48	–	**FS 357**	30	**35**	23	12	45
24-25	30-31	40	40	48	46	**FS 358**	30	**59**	23	36	71
24-25	30-31	40	40	48	46	**FS 353**	30	**79**	23	56	95
30-32	38-40	48	48	56	–	**FS 357**	33,5	**42**	30	12	56
30-32	38-40	48	48	56	53	**FS 358**	33,5	**75**	30	45	95
30-32	38-40	48	48	56	53	**FS 353**	33,5	**93**	30	63	120
38-40	46-48	58	58	66	–	**FS 357**	38,5	**52**	37	15	63
38-40	46-48	58	58	66	63	**FS 358**	38,5	**82**	37	45	105
38-40	46-48	58	58	66	63	**FS 353**	38,5	**108**	37	71	120
48-50	56-58	70	70	80	–	**FS 357**	45,5	**65**	47	18	80
48-50	56-58	70	70	80	77	**FS 358**	45,5	**97**	47	50	120
48-50	56-58	70	70	80	77	**FS 353**	45,5	**127**	47	80	140
60-63	68-71	85	85	95	–	**FS 357**	53	**80**	60	20	95
60-63	68-71	85	85	95	92	**FS 358**	53	**116**	60	56	140
60-63	68-71	85	85	95	92	**FS 353**	53	**150**	60	90	160
80	92	105	105	118	–	**FS 357**	64,5	**80**	60	20	120
80	92	105	105	118	115	**FS 358**	64,5	**120**	60	60	140
80	92	105	105	118	115	**FS 353**	64,5	**150**	60	90	160

[06.05.2020]

[06.05.2020]

Kugelkäfige aus Messing, M-Line

Ball cages, brass, M-Line

FS 325

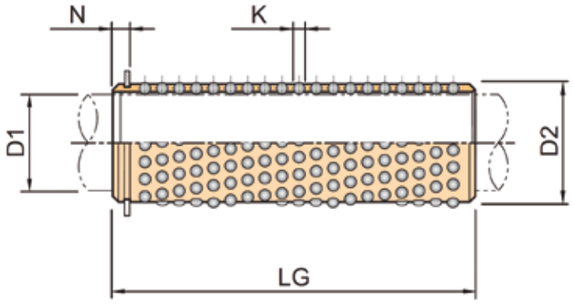
Mat.: Messing
Stahlkugeln: Güteklasse AAA

Sicherungsring im Lieferumfang enthalten.

Mat.: Brass
Steel balls, grade AAA

Safety ring included

FS 325 / 25 x 71





D1	LG																D2	K	N
	40	45	50	56	63	71	80	95	105	120	140	160	180	200	240				
19		●		●		●	●	●									25	3	2,9
20		●		●		●	●	●									26	3	2,9
24	●	●		●		●	●	●		●							30	3	3,2
25	●	●		●		●	●	●		●							31	3	3,2
30	●	●	●	●		●	●	●	●	●	●	●					38	4	3,95
32	●	●	●	●		●	●	●	●	●	●	●					40	4	3,95
38		●	●	●	●		●	●	●	●	●	●	●	●	●		46	4	3,95
40		●	●	●	●		●	●	●	●	●	●	●	●	●		48	4	3,95
48			●		●		●	●	●	●	●	●	●	●	●		56	4	4,25
50			●		●		●	●	●	●	●	●	●	●	●		58	4	4,25
60								●	●	●	●	●	●	●	●		68	4	4,75
63								●	●	●	●	●	●	●	●		71	4	4,75
80										●	●	●	●	●	●		92	6	6,15

[FS]

FS 395 / A - D

FS 395 / A für Ø 19-20, 24-25
FS 395 / B für Ø 19-20, 24-25, 30-32, 38-40, 48-50, 60-63, 80
FS 395 / C für Ø 30-32, 38-40, 48-50, 60-63, 80

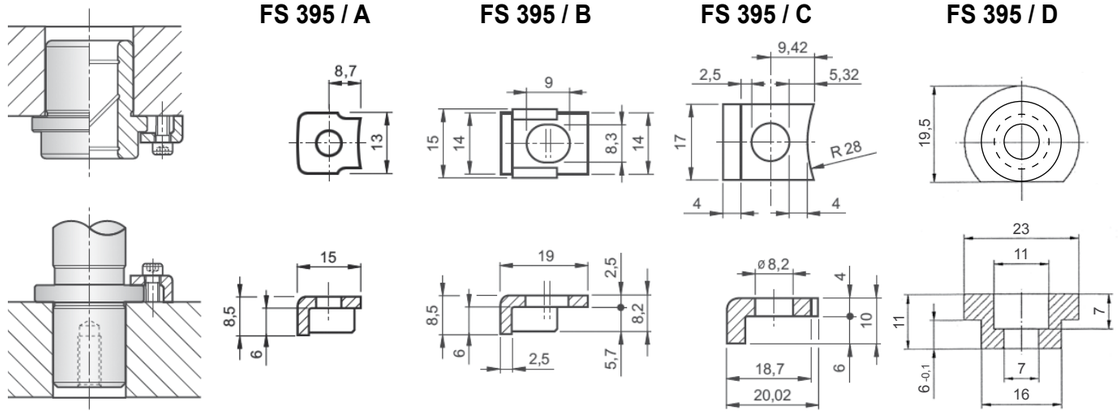
Haltestücke werden mit Schrauben geliefert.

FS 395 / A for Ø 19-20, 24-25
FS 395 / B for Ø 19-20, 24-25, 30-32, 38-40, 48-50, 60-63, 80
FS 395 / C for Ø 30-32, 38-40, 48-50, 60-63, 80

Holding clamps include screws.

FS 395 / A

CAD MAIL



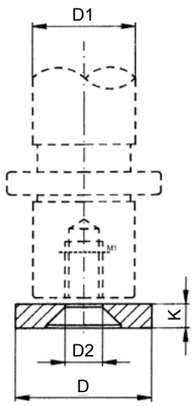
FS 398

Mat.: C 40, brüniert
Scheibe wird mit Schraube befestigt

Mat.: C 40, gunmetal-finished
Mount disc with screw.

FS 398 / 1

CAD MAIL



Ausführung Style	D1	D	K	D2
1	19-20	25	6	8,5
2	24-25	32	6	8,5
3	30-32	40	6	8,5
4	38-40	50	6	8,5
5	48-50	60	6	8,5
6	60-63	70	6	8,5
7	80	93	12	12,5

[06.05.2020]

[06.05.2020]

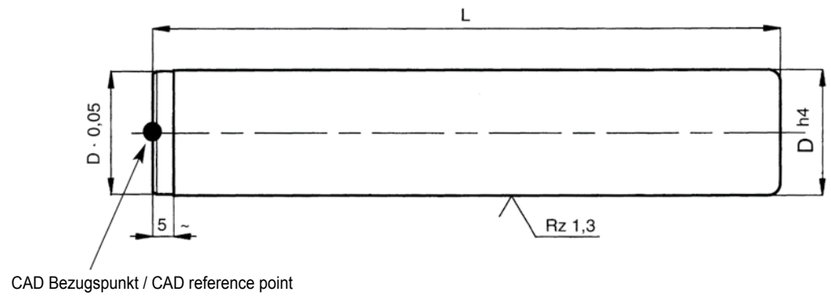
[FS]

FS 420

Mat.: 1.5732 / 61 - 63 HRC

Mat.: 1.5732 / 61 - 63 HRC

FS 420 / 24 x 200



CAD MAIL

D	L																					Aufnahmebohrung Mounting hole
	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	300	320	350	360	400	R7
18-19	●	●	●	●	●	●	●	●	●														-0,020 -0,041
24-25			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					-0,020 -0,041
30-32			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					-0,025 -0,050
40-42						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	-0,025 -0,050
50-52							●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	-0,030 -0,060
63									●		●		●		●		●	●	●		●	●	-0,030 -0,060
80																	●	●	●		●	●	-0,032 -0,062

[FS]

FS 419

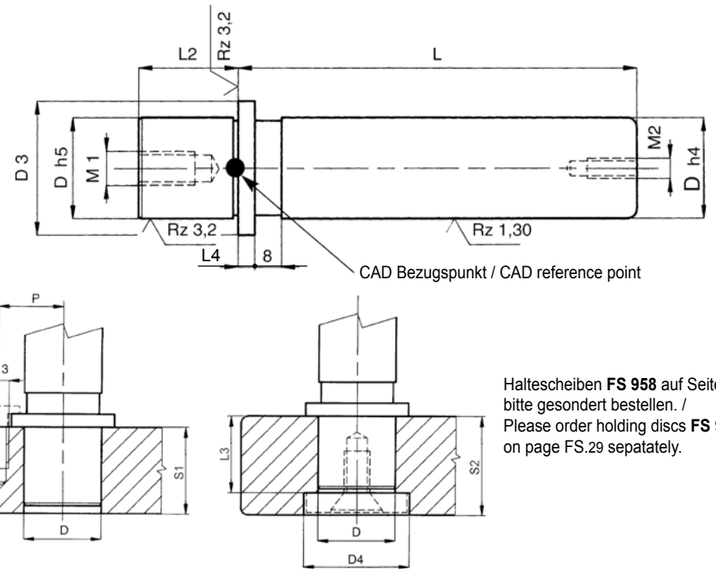
Mat.: 1.5732 / 61 - 63 HRC

Lieferumfang:
- 3 Halteklammern mit Schrauben (D ≤ 80 mm)

Mat.: 1.5732 / 61 - 63 HRC

Included:
- 3 holding clamps with screws (D ≤ 80 mm)

FS 419 / 25 x 160



Haltescheiben **FS 958** auf Seite FS.29 bitte gesondert bestellen. /
Please order holding discs **FS 958** on page FS.29 sepatately.

CAD MAIL

D	D3	D4	L2	L3	L4	M1	M2	M3	N	P	S1min	S2min
18	25	27	20	21	5	M8	M6	M6	12	16	23	28
19	25	27	20	21	5	M8	M6	M6	12	16	23	28
24	32	34	25	26	5	M10	M6	M6	12	19,5	28	33
25	32	34	25	26	5	M10	M6	M6	12	19,5	28	33
30	40	41	30	31	5	M10	M6	M8	16	25	33	38
32	40	41	30	31	5	M10	M6	M8	16	25	33	38
40	50	52	35	36	5	M12	M8	M8	16	30	38	48
42	50	52	35	36	5	M12	M8	M8	16	30	38	48
50	62	64	45	46	5	M12	M8	M8	16	36	48	58
52	62	64	45	46	5	M12	M8	M8	16	36	48	58
63	73	75	49	50	5	M12	M10	M8	16	41,5	53	63
80	93	95	59	60	5	M12	M10	M8	16	51,5	63	73
100	120	122	80	81	8	M16	M16	–	–	–	–	104

D	L																		Aufnahmebohrung Mounting hole
	100	110	120	130	140	150	160	170	180	200	220	240	260	280	300	320	360	400	JS6
18-19	●	●	●	●	●	●	●												±0,006
24-25	●	●	●	●	●	●	●	●	●										±0,006
30-32			●	●	●	●	●	●	●	●	●								±0,006
40-42				●	●	●	●	●	●	●	●	●	●	●	●	●			±0,006
50-52						●	●	●	●	●	●	●	●	●	●	●	●	●	±0,006
63							●		●	●	●	●	●	●	●	●			±0,010
80										●	●	●	●	●	●	●	●	●	±0,010
100												●	●	●	●	●			±0,010

[06.05.2020]

[06.05.2020]

[FS]

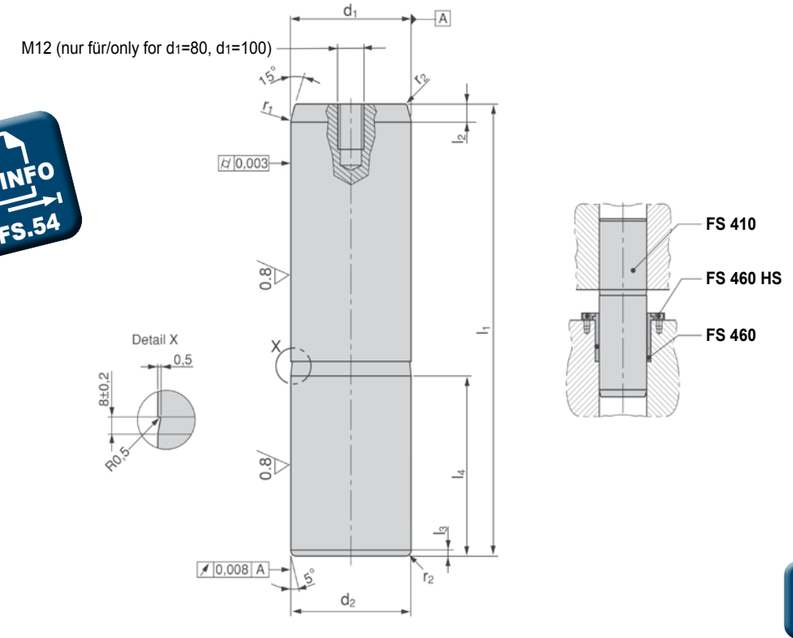
FS 410

Mat.: Stahl
Oberflächenhärte: 60 - 64 HRC
Einhärtungstiefe: 1,5 + 1 mm

Mat.: steel
Surface hardness: 60 - 64 HRC
Hardening depth: 1,5 + 1 mm

FS 410 / 50 x 200

INFO FS.54



CAD MAIL

d1	l1 -1												l2	l3	l4	d2	r1	r2
f6	125	140	160	180	200	224	250	280	315	355	400	450	+0,8	+0,8	+0,8	r6		
25	●	●	●	●	●	●							8	4	40	25	3	2
32		●	●	●	●	●	●						8	4	45	32	3	2
40		●	●	●	●	●	●	●					8	4	56	40	3	2
50			●	●	●	●	●	●	●	●			10	4	70	50	5	2,5
63				●	●	●	●	●	●	●	●		10	4	80	63	6	2,5
80					●	●	●	●	●	●	●	●	10	4	100	80	8	3
100						●	●	●	●	●	●	●	10	4	125	100	10	3

Führungssäulen für Großwerkzeuge, DIN 9833

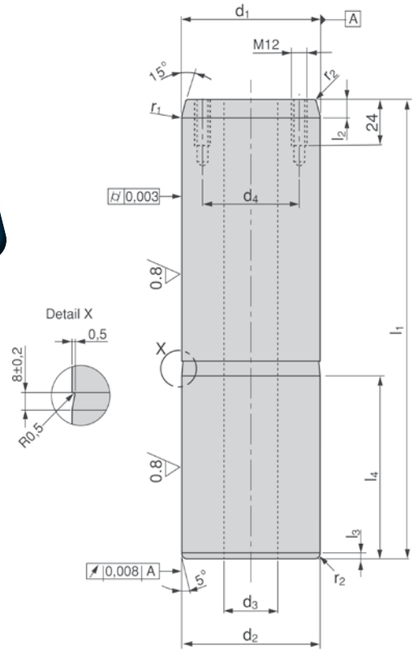
Leader pins for large dies, DIN 9833

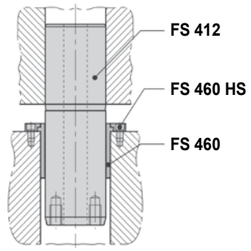
FS 412

Mat.: Stahl
Oberflächenhärte: 60 - 64 HRC
Einhärtungstiefe: 1,5 + 1 mm

Mat.: steel
Surface hardness: 60 - 64 HRC
Hardening depth: 1,5 + 1 mm

FS 412 / 50 x 200





d1 f6	l1 200	224	250	280	315	355	400	450	500	560	l2 +0,8	l3 +0,8	l4 +0,8	d2 r6	d3 ±2	d4 +0,8	r1	r2
80	●	●	●	●	●	●	●	●			10	4	100	80	40	58	8	3
100		●	●	●	●	●	●	●			10	4	125	100	50	72	10	3
125					●	●	●	●	●		12	4	140	125	65	90	12	4
160							●	●	●	●	12	5	180	160	95	132	18	4

[06.05.2020]

[06.05.2020]

Führungsbuchsen m. Bund, Stahlführung, RM-beschichtet

Leader pin bushings with collar, steel, RM-coated

mit langem Bund/long-headed style

FS 440 ... RM
FS 450 ... RM

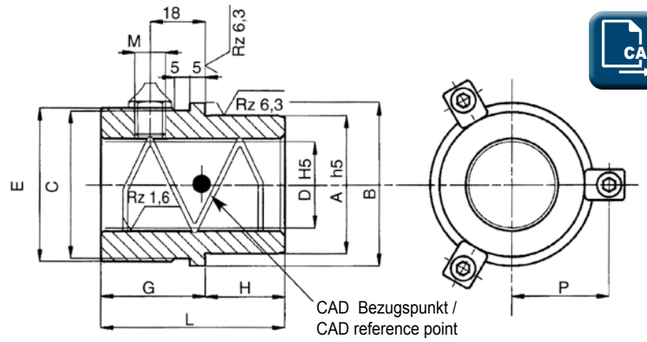
Mat.: 1.6757 / 61 - 63 HRC
RM-beschichtet (selbstschmierend)

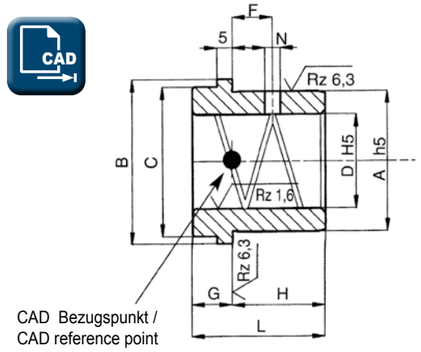
Lieferumfang:
- 3 Halteklammern mit Schrauben

Mat.: 1.6757 / 61 - 63 HRC
RM-coated (self lubricating)

Included:
- 3 holding clamps with screws

FS 450 / 40 x 90 / RM





mit kurzem Bund/short-headed style

FS 430 ... RM
FS 439 ... RM

D	A	B	C	Artikelnummer Article number	E	F	G	H	L	M	N	P	Aufnahmebohrung Mounting hole H6
18-19	28	34	29	**FS 430 ... RM**	–	8	13	18	**31**	–	5	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 439 ... RM**	–	8	13	37	**50**	–	5	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 440 ... RM**	31	–	32	18	**50**	M6	–	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 450 ... RM**	31	–	33	27	**60**	M6	–	20,5	$28^{+0,013}$
24-25	38	44	39	**FS 430 ... RM**	–	9	13	23	**36**	–	5	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 439 ... RM**	–	12	13	42	**55**	–	5	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 440 ... RM**	41	–	32	23	**55**	M10 x 1	–	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 450 ... RM**	41	–	38	32	**70**	M10 x 1	–	25,5	$38^{+0,016}$
30-32	45	53	48	**FS 430 ... RM**	–	11	13	30	**43**	–	5	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 439 ... RM**	–	19	13	47	**60**	–	5	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 440 ... RM**	50	–	34	26	**60**	M10 x 1	–	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 450 ... RM**	50	–	43	37	**80**	M10 x 1	–	31,5	$45^{+0,016}$
40-42	54	63	58	**FS 430 ... RM**	–	11	13	38	**51**	–	8	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 439 ... RM**	–	19	13	54	**67**	–	8	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 440 ... RM**	60	–	37	30	**67**	M10 x 1	–	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 450 ... RM**	60	–	43	47	**90**	M10 x 1	–	36,5	$54^{+0,019}$
50-52	65	79	74	**FS 430 ... RM**	–	14	13	48	**61**	–	8	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 439 ... RM**	–	19	13	62	**75**	–	8	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 440 ... RM**	76	–	40	35	**75**	M10 x 1	–	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 450 ... RM**	76	–	43	57	**100**	M10 x 1	–	44,5	$65^{+0,019}$

Führungsbuchsen mit Bund, Stahlführung

Leader pin bushings with collar, steel

mit langem Bund/long-headed style

FS 741
FS 751
FS 755

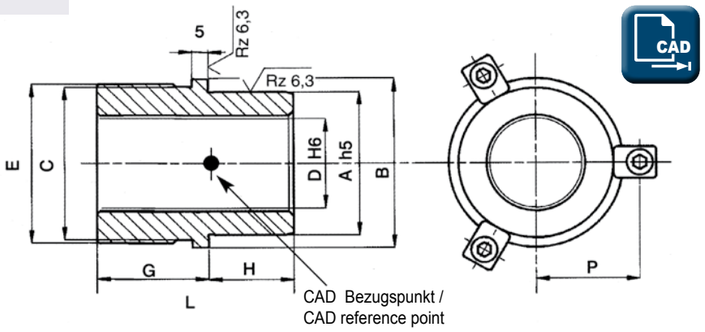
Mat.: Stahl 61 - 63 HRC
Sinter: 40 - 50 HRC

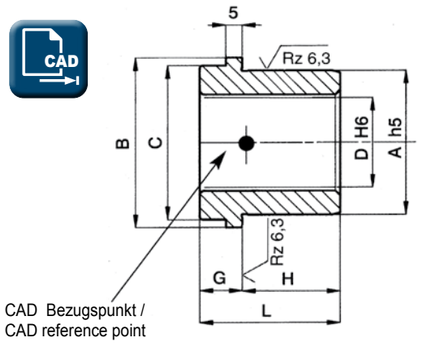
Lieferumfang:
- 3 Halteklammern mit Schrauben

Mat.: Steel 61 - 63 HRC
Sinter: 40 - 50 HRC

Included:
- 3 holding clamps with screws

FS 751 / 30 x 90





mit kurzem Bund/short-headed style

FS 731
FS 732

D	A	B	C	Artikelnummer Article number	E	G	H	L	P	Aufnahmebohrung Mounting hole H6
18-19	28	34	29	**FS 731**	–	13	18	**31**	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 732**	–	13	37	**50**	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 741**	31	32	18	**50**	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 751**	31	43	27	**70**	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 755**	31	52	18	**70**	20,5	$28^{+0,013}$
24-25	38	44	39	**FS 731**	–	13	23	**36**	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 732**	–	13	42	**55**	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 741**	41	32	23	**55**	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 751**	41	48	32	**80**	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 755**	41	57	23	**80**	25,5	$38^{+0,016}$
30-32	45	53	48	**FS 731**	–	13	30	**43**	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 732**	–	13	47	**60**	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 741**	50	34	26	**60**	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 751**	50	53	37	**90**	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 755**	50	64	26	**90**	31,5	$45^{+0,016}$
40-42	54	63	58	**FS 731**	–	13	38	**51**	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 732**	–	13	54	**67**	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 741**	60	37	30	**67**	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 751**	60	53	47	**100**	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 755**	60	70	30	**100**	36,5	$54^{+0,019}$
50-52	65	79	74	**FS 731**	–	13	48	**61**	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 732**	–	13	62	**75**	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 741**	76	40	35	**75**	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 751**	76	53	57	**110**	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 755**	76	75	35	**110**	44,5	$65^{+0,019}$

[06.05.2020]

[06.05.2020]

Führungsbuchsen mit Bund, Stahlführung

Leader pin bushings with collar, steel

FÜHRUNGSSYSTEME / GUIDINGSYSTEMS

mit langem Bund/long-headed style

FS 741
FS 751
FS 755

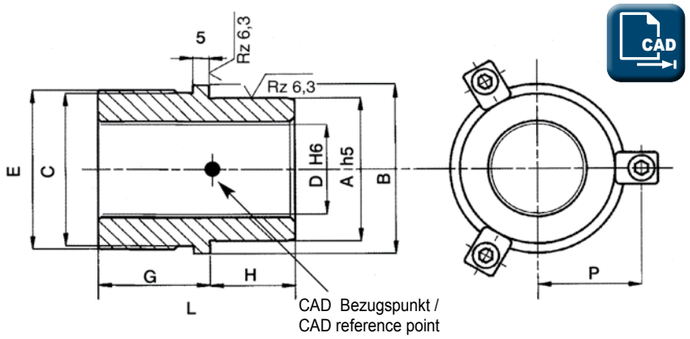
Mat.: Stahl 61 - 63 HRC
Sinter: 40 - 50 HRC

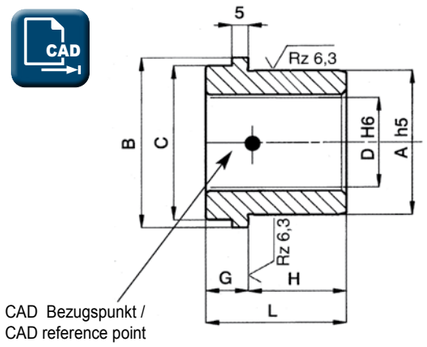
Lieferumfang:
- 3 Halteklammern mit Schrauben

Mat.: Steel 61 - 63 HRC
Sinter: 40 - 50 HRC

Included:
- 3 holding clamps with screws

FS 751 / 63 x 130





mit kurzem Bund/short-headed style

FS 731
FS 732

D	A	B	C	Artikelnummer Article number	E	G	H	L	P	Aufnahmebohrung Mounting hole H6
63	81	92	87	**FS 731**	–	13	61	**74**	51	$81^{+0,022}$
63	81	92	87	**FS 732**	–	13	77	**90**	51	$81^{+0,022}$
63	81	92	87	**FS 741**	89	42	48	**90**	51	$81^{+0,022}$
63	81	92	87	**FS 751**	89	63	67	**130**	51	$81^{+0,022}$
63	81	92	87	**FS 755**	89	82	48	**130**	51	$81^{+0,022}$
80	100	111	106	**FS 731**	–	13	78	**91**	60,5	$100^{+0,022}$
80	100	111	106	**FS 741**	108	52	48	**100**	60,5	$100^{+0,022}$
80	100	111	106	**FS 751**	108	73	77	**150**	60,5	$100^{+0,022}$
80	100	111	106	**FS 755**	108	102	48	**150**	60,5	$100^{+0,022}$

Führungsbuchsen mit Bund, Bronze beschichtet

Leader pin bushings with collar, bronze plated

mit langem Bund/long-headed style

FS 641
FS 651
FS 655

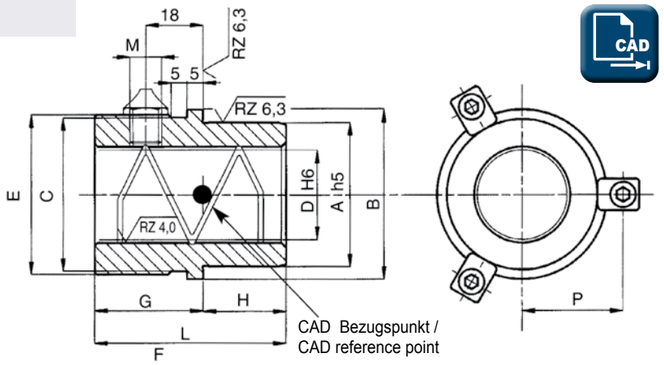
Mat.: 1.6757 / 61 - 63 HRC
Bronze: 40 - 45 HRC

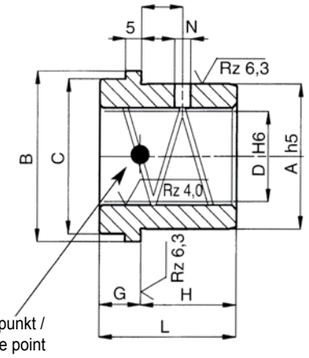
Lieferumfang:
- 3 Halteklammern mit Schrauben

Mat.: 1.6757 / 61 - 63 HRC
Bronze: 40 - 45 HRC

Included:
- 3 holding clamps with screws

FS 651 / 30 x 90





mit kurzem Bund/short-headed style

FS 631
FS 632

D	A	B	C	Artikelnummer Article number	E	F	G	H	L	M	N	P	Aufnahmebohrung Mounting hole H6
18-19	28	34	29	**FS 631**	–	8	13	18	**31**	–	5	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 632**	–	8	13	37	**50**	–	5	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 641**	31	–	32	18	**50**	M6	–	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 651**	31	–	43	27	**70**	M6	–	20,5	$28^{+0,013}$
18-19	28	34	29	**FS 655**	31	–	52	18	**70**	M6	–	20,5	$28^{+0,013}$
24-25	38	44	39	**FS 631**	–	12	13	23	**36**	–	5	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 632**	–	12	13	42	**55**	–	5	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 641**	41	–	32	23	**55**	M10 x 1	–	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 651**	41	–	48	32	**80**	M10 x 1	–	25,5	$38^{+0,016}$
24-25	38	44	39	**FS 655**	41	–	57	23	**80**	M10 x 1	–	25,5	$38^{+0,016}$
30-32	45	53	48	**FS 631**	–	16	13	30	**43**	–	5	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 632**	–	16	13	47	**60**	–	5	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 641**	50	–	34	26	**60**	M10 x 1	–	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 651**	50	–	53	37	**90**	M10 x 1	–	31,5	$45^{+0,016}$
30-32	45	53	48	**FS 655**	50	–	64	26	**90**	M10 x 1	–	31,5	$45^{+0,016}$
40-42	54	63	58	**FS 631**	–	19	13	38	**51**	–	8	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 632**	–	19	13	54	**67**	–	8	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 641**	60	–	37	30	**67**	M10 x 1	–	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 651**	60	–	53	47	**100**	M10 x 1	–	36,5	$54^{+0,019}$
40-42	54	63	58	**FS 655**	60	–	70	30	**100**	M10 x 1	–	36,5	$54^{+0,019}$
50-52	65	79	74	**FS 631**	–	19	13	48	**61**	–	8	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 632**	–	19	13	62	**75**	–	8	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 641**	76	–	40	35	**75**	M10 x 1	–	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 651**	76	–	53	57	**110**	M10 x 1	–	44,5	$65^{+0,019}$
50-52	65	79	74	**FS 655**	76	–	75	35	**110**	M10 x 1	–	44,5	$65^{+0,019}$

[06.05.2020]

[06.05.2020]

Führungsbuchsen mit Bund, Bronze beschichtet

Leader pin bushings with collar, bronze plated

FÜHRUNGSSYSTEME / GUIDINGSYSTEMS

mit langem Bund/long-headed style

FS 641
FS 651
FS 655

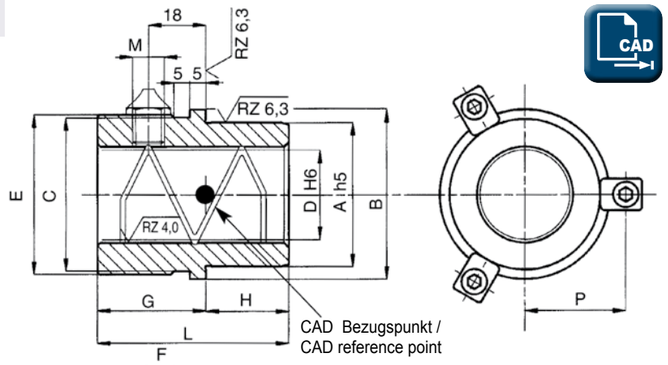
Mat.: 1.6757 / 61 - 63 HRC
Bronze: 40 - 45 HRC

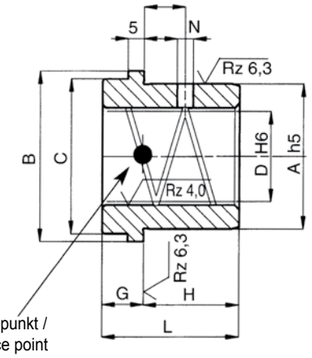
Lieferumfang:
- 3 Halteklammern mit Schrauben

Mat.: 1.6757 / 61 - 63 HRC
Bronze: 40 - 45 HRC

Included:
- 3 holding clamps with screws

FS 651 / 63 x 130





mit kurzem Bund/short-headed style

FS 631
FS 632

D	A	B	C	Artikelnummer Article number	E	F	G	H	L	M	N	P	Aufnahmebohrung Mounting hole H6
63	81	92	87	**FS 631**	–	19	13	61	**74**	–	8	51	$81^{+0,022}$
63	81	92	87	**FS 632**	–	19	13	77	**90**	–	8	51	$81^{+0,022}$
63	81	92	87	**FS 641**	89	–	42	48	**90**	M10 x 1	–	51	$81^{+0,022}$
63	81	92	87	**FS 651**	89	–	63	67	**130**	M10 x 1	–	51	$81^{+0,022}$
63	81	92	87	**FS 655**	89	–	82	48	**130**	M10 x 1	–	51	$81^{+0,022}$
80	100	111	106	**FS 631**	–	19	13	78	**91**	–	8	60,5	$100^{+0,022}$
80	100	111	106	**FS 641**	108	–	52	48	**100**	–	8	60,5	$100^{+0,022}$
80	100	111	106	**FS 651**	108	–	73	77	**150**	M10 x 1	–	60,5	$100^{+0,022}$
80	100	111	106	**FS 655**	108	–	102	48	**150**	M10 x 1	–	60,5	$100^{+0,022}$

[FS]

Führungsbuchsen mit Bund, Kugelführung

Leader pin bushings with collar, ball bearing

FS 457
FS 458
FS 453

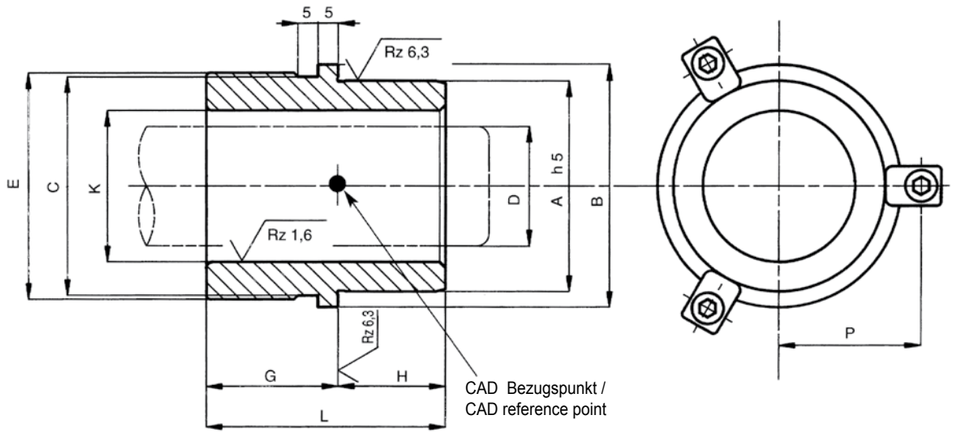
Mat.: 1.6757 / 61 - 63 HRC

Lieferumfang:
- 3 Halteklammern mit Schrauben

Mat.: 1.6757 / 61 - 63 HRC

Included:
- 3 holding clamps with screws

FS 453 / 30 x 90



D	K	A	B	C	Artikelnummer Article number	E	G	H	L	P	Aufnahmebohrung Mounting hole H6
18-19	24-25	34	40	34	**FS 457**	–	13	18	**31**	23,5	$34^{+0,013}$
18-19	24-25	34	40	34	**FS 458**	36	32	18	**50**	23,5	$34^{+0,013}$
18-19	24-25	34	40	34	**FS 453**	36	43	27	**70**	23,5	$34^{+0,013}$
24-25	30-31	44	50	44	**FS 457**	–	13	22	**35**	28,5	$44^{+0,016}$
24-25	30-31	44	50	44	**FS 458**	46	33	22	**55**	28,5	$44^{+0,016}$
24-25	30-31	44	50	44	**FS 453**	46	48	32	**80**	28,5	$44^{+0,016}$
30-32	38-40	53	61	55	**FS 457**	–	13	27	**40**	35,5	$53^{+0,016}$
30-32	38-40	53	61	55	**FS 458**	57	33	27	**60**	35,5	$53^{+0,016}$
30-32	38-40	53	61	55	**FS 453**	57	53	37	**90**	35,5	$53^{+0,016}$
40-42	48-50	62	71	65	**FS 457**	–	13	32	**45**	40,5	$62^{+0,019}$
40-42	48-50	62	71	65	**FS 458**	67	40	27	**67**	40,5	$62^{+0,019}$
40-42	48-50	62	71	65	**FS 453**	67	53	47	**100**	40,5	$62^{+0,019}$
50-52	58-60	73	87	81	**FS 457**	–	13	37	**50**	48,5	$73^{+0,019}$
50-52	58-60	73	87	81	**FS 458**	83	43	32	**75**	48,5	$73^{+0,019}$
50-52	58-60	73	87	81	**FS 453**	83	53	57	**110**	48,5	$73^{+0,019}$

ØD = 63 und 80 auf Anfrage / ØD = 63 and 80 on request

[06.05.2020]

[06.05.2020]

Kugelkäfige aus Messing

Ball cages, brass

FS 425

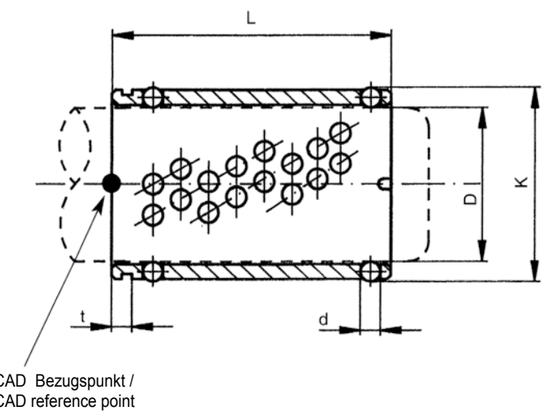
Mat.: Messing
Stahlkugeln: Güteklasse AAA

Sicherungsring im Lieferumfang enthalten.

Mat.: Brass
Steel balls, grade AAA

Safety ring included

FS 425 / 25 x 90



D	K	d	t	L	Anzahl Kugeln Number of balls
18	24	3	2,9	**45**	144
				56	176
19	25			**71**	224
				80	272
24	30	3	3,6	**45**	171
				71	285
25	31			**90**	361
30	38	4	4,8	**56**	160
				75	228
32	40			**95**	300
				105	340
40	48	4	4,8	**63**	230
				80	299
42	50			**120**	460
50	58	4	5,5	**80**	336
				95	405
52	60			**140**	616

ØD = 63 und 80 auf Anfrage / ØD = 63 and 80 on request

[FS]

FS 424

Mat.: Aluminium
Stahlkugeln: Güteklasse AAA

Jeder Kugelkäfig wird mit Befestigungselementen (siehe Seite FS.32/33) geliefert.

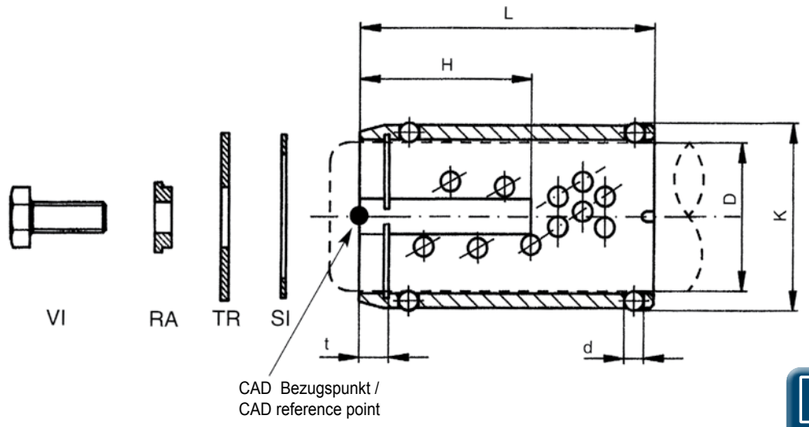
Kugelkäfige vorzugsweise für den Einbau im Unterteil.

Mat.: Aluminium
Steel balls, grade AAA

Each ball cage supplied with mounting elements (please see page FS.32/33).

Ball cages, preferably for mounting in the lower half of the die.

FS 424 / 32 x 105



CAD MAIL

D	K	d	t	H	L	Anzahl Kugeln Number of balls
18	24	3	4	24	**44**	66
18	24	3	4	36	**60**	93
18	24	3	4	44	**80**	141
19	25	3	4	24	**44**	66
19	25	3	4	36	**60**	93
19	25	3	4	44	**80**	141
24	30	3	4	32	**52**	100
24	30	3	4	40	**72**	149
24	30	3	4	48	**92**	198
25	31	3	4	32	**52**	100
25	31	3	4	40	**72**	149
25	31	3	4	48	**92**	198
30	38	4	5	35	**60**	112
30	38	4	5	45	**75**	145
30	38	4	5	55	**105**	204
32	40	4	5	35	**60**	112
32	40	4	5	45	**75**	145
32	40	4	5	55	**105**	204

[06.05.2020]

Abgehängte Kugelkäfige mit Befestigungselementen
Ball cages with circlip incl. mounting elements
FÜHRUNGSSYSTEME / GUIDINGSYSTEMS

[FS]

FS 424

Mat.: Aluminium
Stahlkugeln: Güteklasse AAA

Jeder Kugelkäfig wird mit Befestigungselementen (siehe Seite FS.32/33) geliefert.

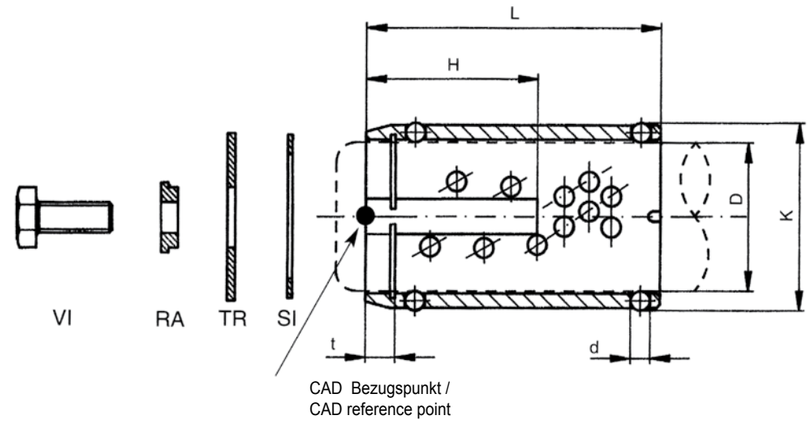
Kugelkäfige vorzugsweise für den Einbau im Unterteil.

Mat.: Aluminium
Steel balls, grade AAA

Each ball cage supplied with mounting elements (please see page FS.32/33).

Ball cages, preferably for mounting in the lower half of the die.

FS 424 / 52 x 105



CAD MAIL

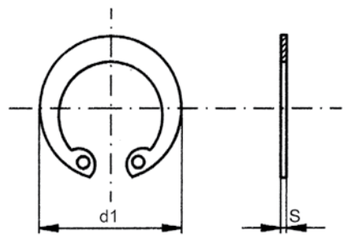
D	K	d	t	H	L	Anzahl Kugeln Number of balls
40	48	4	5	40	**70**	159
40	48	4	5	50	**85**	198
40	48	4	5	75	**120**	288
42	50	4	5	40	**70**	159
42	50	4	5	50	**85**	198
42	50	4	5	75	**120**	288
50	58	4	5	45	**90**	245
50	58	4	5	55	**105**	293
50	58	4	5	80	**130**	363
52	60	4	5	45	**90**	245
52	60	4	5	55	**105**	293
52	60	4	5	80	**130**	363

[06.05.2020]

[FS]

FS 424 / SI

FS 424 / SI 1

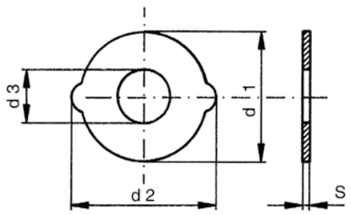


CAD MAIL

Größe Size	D FS 424	d1	S
SI 1	18	19	1
SI 2	19	20	1
SI 3	24	25	1,2
SI 4	25	26	1,2
SI 5	30	31	1,2
SI 6	32	33	1,2
SI 7	40	41	1,75
SI 8	42	43	1,75
SI 9	50	51	2
SI 10	52	53	2

FS 424 / TR

FS 424 / TR 1



CAD MAIL

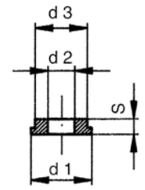
Größe Size	D FS 424	d1	d2	d3	S
TR 1	18	17,5	20,8	12	1,5
TR 2	19	18,5	21,8	12	1,5
TR 3	24	23,5	26,8	12	1,5
TR 4	25	24,5	27,8	12	1,5
TR 5	30	29,5	34,2	12	1,5
TR 6	32	31,5	36,2	12	1,5
TR 7	40	39,5	44,2	15	2
TR 8	42	41,5	46,2	15	2
TR 9	50	49,5	54,2	15	2
TR 10	52	51,5	56,5	15	2

Befestigungselemente für Kugelkäfig FS 424
Mounting elements for ball cage FS 424
FÜHRUNGSSYSTEME / GUIDINGSYSTEMS

[FS]

FS 424 / RA

FS 424 / RA 1

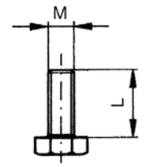


CAD MAIL

Größe Size	D FS 424	d1	d2	d3	S
RA 1	18	14	6,3	11,8	3,5
RA 1	19	14	6,3	11,8	3,5
RA 1	24	14	6,3	11,8	3,5
RA 1	25	14	6,3	11,8	3,5
RA 1	30	14	6,3	11,8	3,5
RA 1	32	14	6,3	11,8	3,5
RA 2	40	18	8,3	14,7	4,5
RA 2	42	18	8,3	14,7	4,5
RA 2	50	18	8,3	14,7	4,5
RA 2	52	18	8,3	14,7	4,5

FS 424 / VI

FS 424 / VI 1



CAD MAIL

Größe Size	D FS 424	M	L
VI 1	18	M6	15
VI 1	19	M6	15
VI 1	24	M6	15
VI 1	25	M6	15
VI 1	30	M6	15
VI 1	32	M6	15
VI 2	40	M8	18
VI 2	42	M8	18
VI 2	50	M8	18
VI 2	52	M8	18

[FS]

FS 460

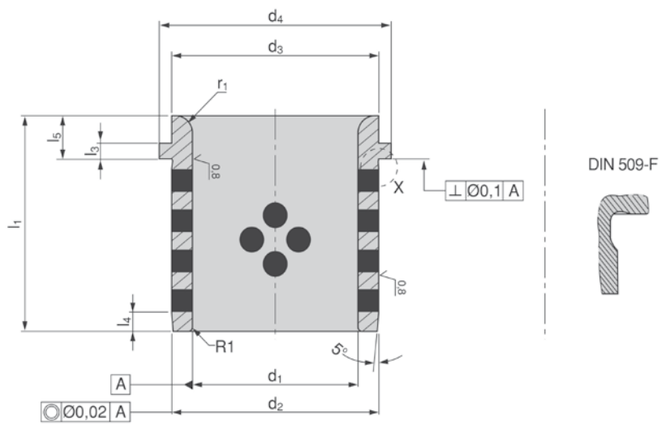
mit Bund
Mat.: Bronze-Graphit

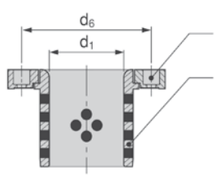
Haltestücke bitte gesondert bestellen!

with collar
Mat.: Bronze-graphite

Holding clamps need to be ordered separately!

FS 460 / 40





CAD MAIL

d1 H7	d2 h6	d3 -0,25	d4 -0,8	d6 ±0,3	l1 -0,5/-1	l3 ±0,1	l4 ±1	l5 -0,5	r1	Haltestücke Typ Holding clamps type
25	32	32	40	58	40	6,3	3	10	3	FS 460 HS 1
32	40	40	50	66	50	6,3	4	12	3	FS 460 HS 1
40	50	50	63	79	63	6,3	5	15	3	FS 460 HS 1
50	63	63	71	89	71	6,3	6,3	17	5	FS 460 HS 1
63	80	80	90	123	80	10	8	19	6	FS 460 HS 2
80	100	100	112	143	100	10	10	22	8	FS 460 HS 2
100	125	125	140	168	125	10	12,5	21	10	FS 460 HS 2
125	160	160	180	203	160	10	16	30	12	FS 460 HS 2
160	200	200	220	243	200	10	16	32	18	FS 460 HS 2

[06.05.2020]

[06.05.2020]

[FS]

FS 460 HS .

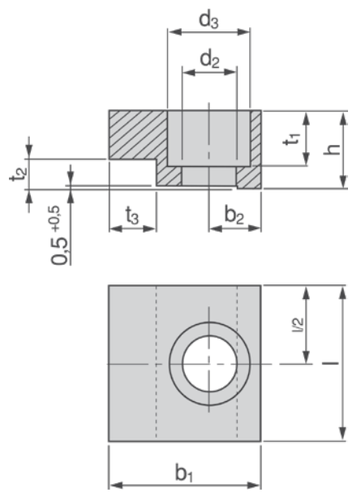
für Führungsbuchse FS 460 nach DIN 9834 / ISO 9448

Mat.: CK45

for leader pin bushings FS 460 DIN 9834 / ISO 9448

Mat.: CK45

FS 460 HS 1



CAD MAIL

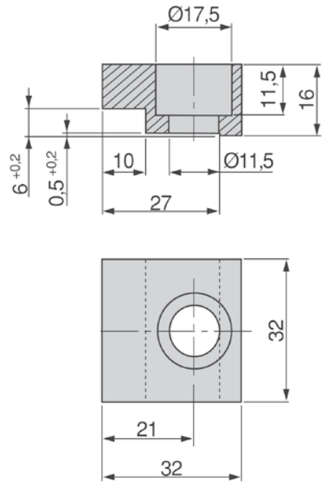
Typ Type	b1	b2	d2 +0,2	d3 +0,2	h	l -0,3	t1	t2	t3	Ø Buchse Ø Bushing	Schraube Screw
HS 1	20	7,5	7	11	10	20	7	6,3	5	25-50	M6x16
HS 2	32	11,0	11,5	17,5	16	32	11,5	10	10	63-160	M10x20

FS 460 HS 3

Mat.: CK45

Mat.: CK45

FS 460 HS 3



CAD MAIL

FS 461

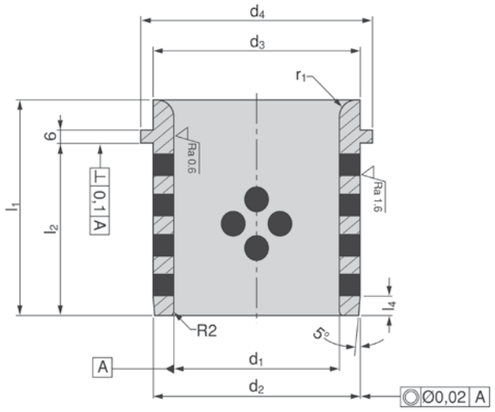
mit Bund
Mat.: Bronze-Graphit

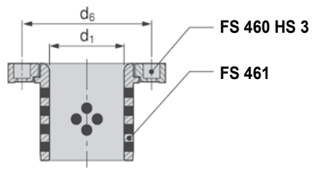
with collar
Mat.: Bronze-graphite

FS 461 / 40

Haltestücke bitte gesondert bestellen!

Holding clamps need to be ordered separately!





d1 H7	d2 g6	d3 -0,25	d4 -0,8	d6 ±0,3	l1 -0,5	l2	l4	r1	Haltestücke Typ Holding clamps type
25	32	32	40	75	40	30	4	3	FS 460 HS 3
32	40	40	50	83	50	40	4	3	FS 460 HS 3
40	50	50	63	93	63	50	5	3	FS 460 HS 3
50	63	63	71	106	71	56	6	5	FS 460 HS 3
63	80	80	90	123	80	63	8	6	FS 460 HS 3
80	100	100	112	143	100	80	10	8	FS 460 HS 3
100	125	125	140	168	125	106	12	10	FS 460 HS 3
125	160	160	180	203	160	132	12	12	FS 460 HS 3

[06.05.2020]

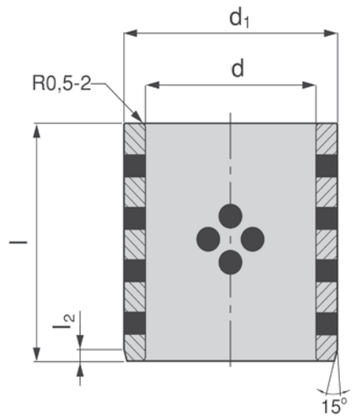
[06.05.2020]

FS 462

ohne Bund
Mat.: Bronze-Graphit

without collar
Mat.: Bronze-graphite

FS 462 / 20 x 28 x 30



d F7	d1 m6	l -0,1/-0,3 8	10	12	15	16	20	25	30	35	40	50	60	70	80	100	120	l2
8	**12**	●	●	●	●													2
10	**14**		●	●	●		●											2
12	**18**		●	●		●	●	●	●									2
16	**22**			●		●	●	●	●	●	●							2
18	**24**						●	●	●	●	●							2
20	**28**						●	●	●	●	●							2
20	**30**					●	●	●	●	●	●							2
25	**33**						●	●	●	●	●	●						2
25	**35**						●	●	●	●	●	●						2
30	**38**							●	●	●	●	●	●					2
30	**40**						●		●	●	●	●	●					2
35	**44**										●	●						2
35	**45**								●		●	●	●					2
40	**50**							●	●	●	●	●	●					2
40	**55**											●	●					2
50	**60**											●	●	●				2
50	**62**												●	●				2
50	**65**											●		●				2
60	**75**											●	●		●			2
70	**85**												●	●	●	●		2
80	**96**												●			●		2
80	**100**												●			●	●	2
100	**120**																●	2
110	**130**														●		●	2
130	**150**															●		4

Haltestücke für Säulen- und Buchsenbefestigung

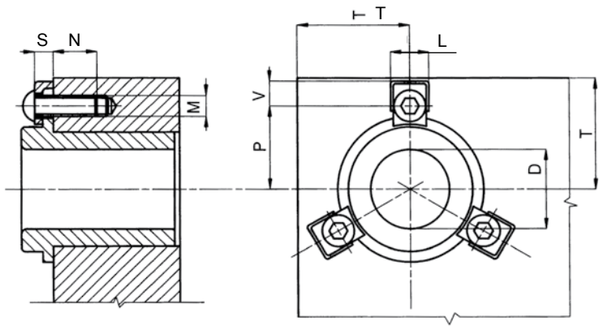
Holding clamps for leader pin- and -bushing mounting

FS 955

Haltestücke werden mit Schrauben geliefert

Holding clamps come with corresponding screws

FS 955 / A

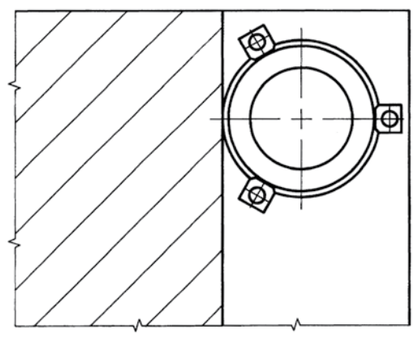


CAD MAIL

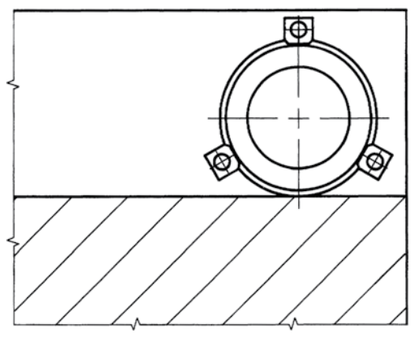
Ausführung Style	D	L	M	N	S	V
A	18-19	12	M6	12	6,7	6,0
A	24-25	12	M6	12	6,7	6,0
B	30-32	14,5	M8	16	7	7,2
B	40-42	14,5	M8	16	7	7,2
B	50-52	14,5	M8	16	7	7,2
B	63-80	14,5	M8	16	7	7,2

für Bundbuchsen mit Stahl- oder Bronzebeschichtung for leader pin bushings with collar steel or bronze-plated			für Bundbuchsen mit Kugelführung for leader pin bushings with collar ball cage		
D	P	T	D	P	T
18-19	20,5	32	18-19	23,5	35
24-25	25,5	37	24-25	28,5	40
30-32	31,5	44	30-32	35,5	48
40-42	36,5	49	40-42	40,5	53
50-52	44,5	57	50-52	48,5	61
63	51	64			
80	60,5	73			

Anordnung der Haltestücke bei Stahlgestellen / Location of holding clamps in die sets



Position Z



Position X

[06.05.2020]

[06.05.2020]

Haltescheiben für Bundsäulenbefestigung

Holding discs for mounting of leader pins with collar

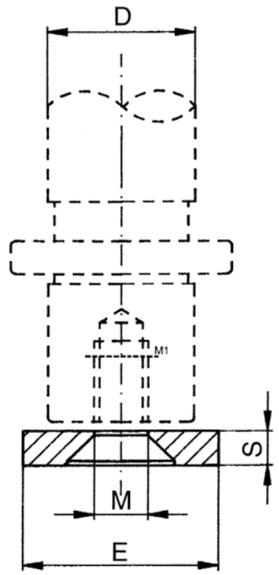
[FS]

FS 958

Mat.: C 40, brüniert
Scheibe wird mit Schraube befestigt

Mat.: C 40, gunmetal-finished
Mount disc with screw.

FS 958 / A



CAD MAIL

Ausführung Style	D	E	S	M
A	18-19	25	6	M8
B	24-25	32	7	M10
C	30-32	40	7	M10
D	40-42	50	9	M12
E	50-52	62	9	M12
F	63	73	9	M12
G	80	93	12	M12
H	100	120	20	M16

FS 500

Mat.: Bronze

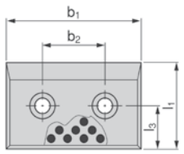
Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

Mat.: Bronze

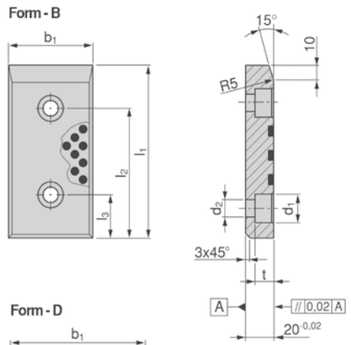
Bronze wear plates with self lubricating graphite plugs ensure even during long-term production cycles a low maintenance operation.

FS 500 / 50 x 100

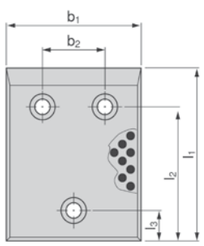
Form - A



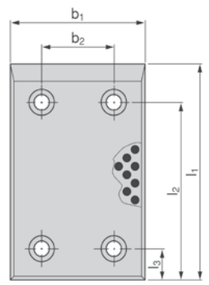
Form - B



Form - C



Form - D



CAD MAIL

b1	l1	Form	b2	d1	d2	l2	l3	t
50	**80**	B	-	15	9	55	25	9
50	**100**	B	-	20	13,5	75	25	13
50	**125**	B	-	20	13,5	100	25	13
50	**160**	B	-	20	13,5	135	25	13
50	**200**	B	-	20	13,5	175	25	13
80	**50**	A	30	15	9	-	25	9
80	**80**	B	-	20	13,5	55	25	13
80	**100**	B	-	20	13,5	75	25	13
80	**125**	B	-	20	13,5	100	25	13
80	**160**	B	-	20	13,5	135	25	13
80	**200**	B	-	20	13,5	175	25	13
80	**250**	B	-	20	13,5	210	40	13
80	**315**	B	-	20	13,5	275	40	13
100	**50**	A	50	20	13,5	-	25	13
100	**80**	A	50	20	13,5	-	40	13
100	**100**	B	-	20	13,5	75	25	13
100	**125**	B	-	20	13,5	100	25	13
100	**160**	B	-	20	13,5	135	25	13
100	**200**	B	-	20	13,5	175	25	13

b1	l1	Form	b2	d1	d2	l2	l3	t
100	**250**	B	-	20	13,5	210	40	13
100	**315**	B	-	20	13,5	275	40	13
125	**50**	A	75	20	13,5	-	25	13
125	**80**	A	75	20	13,5	-	40	13
125	**100**	C	75	20	13,5	75	25	13
125	**125**	C	75	20	13,5	100	25	13
125	**160**	C	75	20	13,5	135	25	13
125	**200**	C	75	20	13,5	175	25	13
125	**250**	C	75	20	13,5	210	40	13
125	**315**	C	75	20	13,5	275	40	13
160	**50**	A	110	20	13,5	-	25	13
160	**80**	A	110	20	13,5	-	40	13
160	**100**	C	110	20	13,5	75	25	13
160	**125**	C	110	20	13,5	100	25	13
160	**160**	C	110	20	13,5	135	25	13
160	**200**	C	110	20	13,5	175	25	13
160	**250**	D	110	20	13,5	210	40	13
160	**315**	D	110	20	13,5	275	40	13

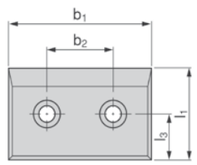
FS 501

Mat.: 16MnCr5
Oberflächenhärte: 60 - 64 HRC

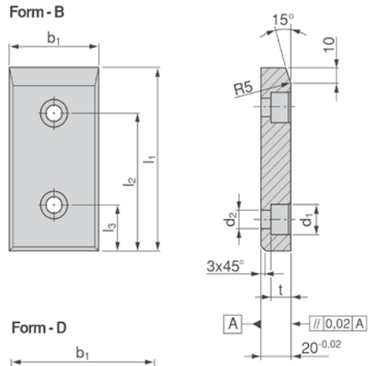
Mat.: 16MnCr5
Surface hardness: 60 - 64 HRC

FS 501 / 80 x 50

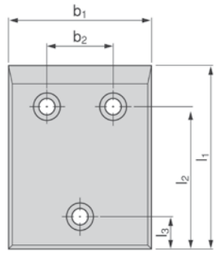
Form - A



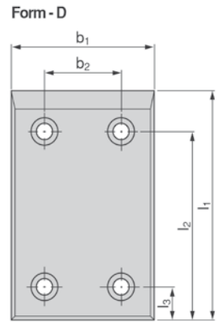
Form - B



Form - C



Form - D



MAIL

b1	l1	Form	b2	d1	d2	l2	l3	t
50	**80**	B	-	15	9	55	25	9
50	**100**	B	-	20	13,5	75	25	13
50	**125**	B	-	20	13,5	100	25	13
50	**160**	B	-	20	13,5	135	25	13
50	**200**	B	-	20	13,5	175	25	13
80	**50**	A	30	15	9	-	25	9
80	**80**	B	-	20	13,5	55	25	13
80	**100**	B	-	20	13,5	75	25	13
80	**125**	B	-	20	13,5	100	25	13
80	**160**	B	-	20	13,5	135	25	13
80	**200**	B	-	20	13,5	175	25	13
80	**250**	B	-	20	13,5	210	40	13
80	**315**	B	-	20	13,5	275	40	13
100	**50**	A	50	20	13,5	-	25	13
100	**80**	A	50	20	13,5	-	40	13
100	**100**	B	-	20	13,5	75	25	13
100	**125**	B	-	20	13,5	100	25	13
100	**160**	B	-	20	13,5	135	25	13
100	**200**	B	-	20	13,5	175	25	13

b1	l1	Form	b2	d1	d2	l2	l3	t
100	**250**	B	-	20	13,5	210	40	13
100	**315**	B	-	20	13,5	275	40	13
125	**50**	A	75	20	13,5	-	25	13
125	**80**	A	75	20	13,5	-	40	13
125	**100**	C	75	20	13,5	75	25	13
125	**125**	C	75	20	13,5	100	25	13
125	**160**	C	75	20	13,5	135	25	13
125	**200**	C	75	20	13,5	175	25	13
125	**250**	C	75	20	13,5	210	40	13
125	**315**	C	75	20	13,5	275	40	13
160	**50**	A	110	20	13,5	-	25	13
160	**80**	A	110	20	13,5	-	40	13
160	**100**	C	110	20	13,5	75	25	13
160	**125**	C	110	20	13,5	100	25	13
160	**160**	C	110	20	13,5	135	25	13
160	**200**	C	110	20	13,5	175	25	13
160	**250**	D	110	20	13,5	210	40	13
160	**315**	D	110	20	13,5	275	40	13

FS 502

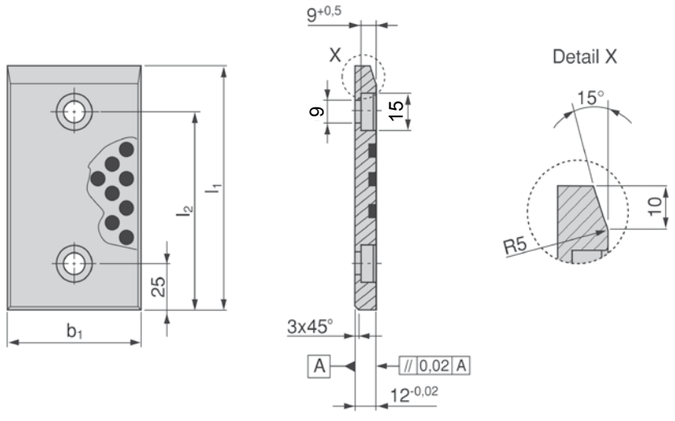
Mat.: Bronze

Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

Mat.: Bronze

Bronze wear plates with self lubricating graphite plugs ensure even during long-term production cycles a low maintenance operation.

FS 502 / 30 x 80



CAD MAIL

b1	l1	l2
30	**80**	55
30	**100**	75
30	**125**	100
30	**160**	135
30	**200**	175
40	**80**	55
40	**100**	75
40	**125**	100
40	**160**	135
40	**200**	175
50	**80**	55
50	**100**	75
50	**125**	100

b1	l1	l2
50	**160**	135
50	**200**	175
60	**80**	55
60	**100**	75
60	**125**	100
60	**160**	135
60	**200**	175
80	**80**	55
80	**100**	75
80	**125**	100
80	**160**	135
80	**200**	175

FS 503

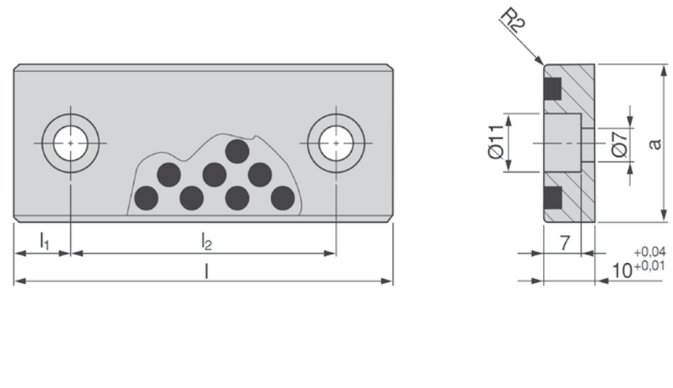
Mat.: Bronze-Graphit

Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

Mat.: Bronze-graphite

Bronze wear plates with self lubricating graphite plugs ensure a low maintenance operation, even during long-term production cycles.

FS 503 / 18 x 125



MAIL

a	l	l1	l2
18	**75**	15	45
18	**100**	25	50
18	**125**	25	75
18	**150**	25	100
28	**75**	15	45
28	**100**	25	50
28	**125**	25	75
28	**150**	25	100
38	**75**	15	45
38	**100**	25	50
38	**125**	25	75
38	**150**	25	100
48	**75**	15	45
48	**100**	25	50
48	**125**	25	75
48	**150**	25	100

FS 504

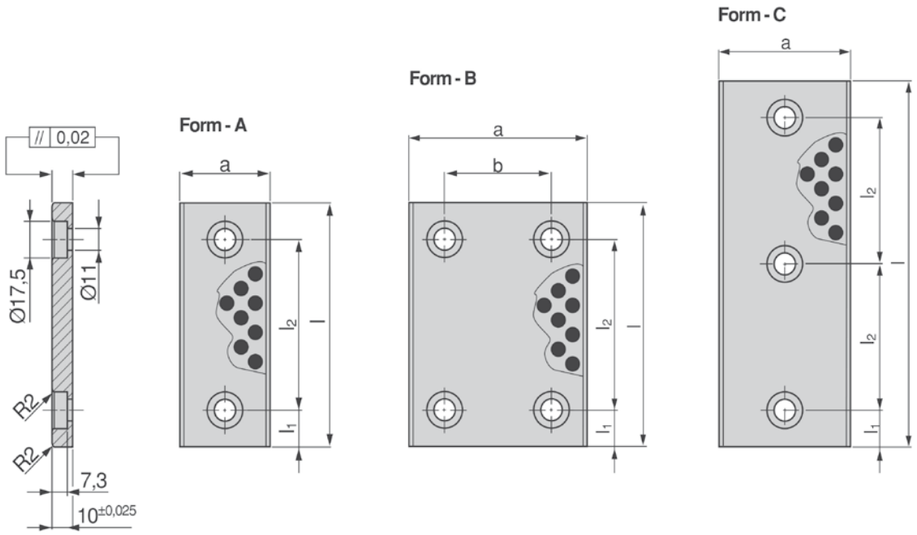
Mat.: Bronze-Graphit

Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

Mat.: Bronze-graphite

Bronze wear plates with self lubricating graphite plugs ensure a low maintenance operation, even during long-term production cycles.

FS 504 / 48 x 150



a	l	Form	b	l1	l2
28	**75**	A	-	15	45
28	**100**	A	-	25	50
28	**125**	A	-	25	75
28	**150**	A	-	25	100
38	**75**	A	-	15	45
38	**100**	A	-	25	50
38	**125**	A	-	25	75
38	**150**	A	-	25	100
48	**75**	A	-	15	45
48	**100**	A	-	25	50
48	**125**	A	-	25	75
48	**150**	A	-	25	100
48	**200**	A	-	50	100
58	**75**	A	-	15	45
58	**100**	A	-	25	50
58	**125**	A	-	25	75
58	**150**	A	-	25	100

a	l	Form	b	l1	l2
58	**200**	A	-	50	100
75	**75**	A	-	15	45
75	**100**	A	-	25	50
75	**125**	A	-	25	75
75	**150**	A	-	25	100
75	**200**	C	-	25	75
100	**100**	B	50	25	50
100	**125**	B	50	25	75
100	**150**	B	50	25	100
100	**200**	B	50	25	150
100	**250**	B	50	25	200
125	**150**	B	50	25	100
125	**200**	B	50	25	150
125	**250**	B	50	25	200
150	**150**	B	100	25	100
150	**200**	B	100	25	150

FS 505

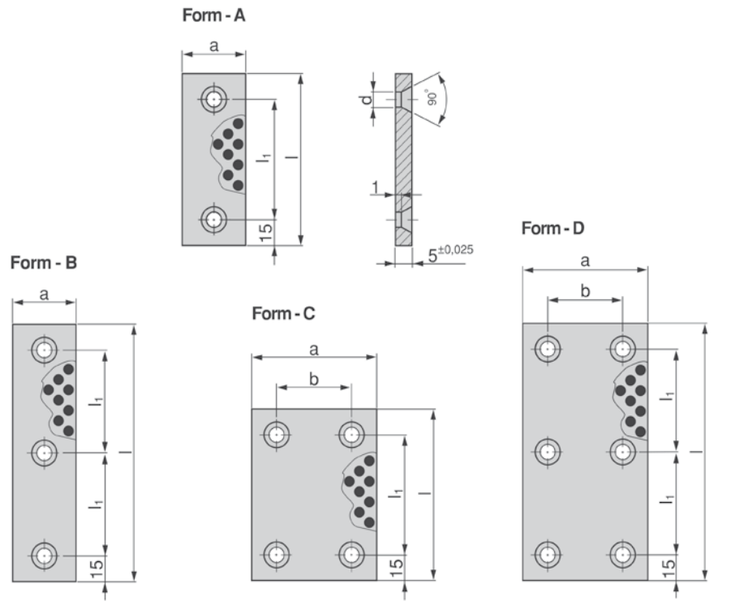
Mat.: Bronze-Graphit

Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

Mat.: Bronze-graphite

Bronze wear plates with self lubricating graphite plugs ensure a low maintenance operation, even during long-term production cycles.

FS 505 / 75 x 75



a	l	Form	b	d	l1
18	**50**	A	-	6,5	20
18	**75**	A	-	6,5	45
18	**100**	A	-	6,5	70
18	**150**	B	-	6,5	60
28	**50**	A	-	9	20
28	**75**	A	-	9	45
28	**100**	A	-	9	70
28	**150**	B	-	9	60
38	**50**	A	-	9	20
38	**75**	A	-	9	45
38	**100**	A	-	9	70
38	**150**	B	-	9	60
48	**75**	A	-	9	45
48	**100**	A	-	9	70
48	**125**	A	-	9	95
48	**150**	B	-	9	60
75	**75**	C	45	9	45
75	**100**	C	45	9	70
75	**125**	C	45	9	95
75	**150**	D	45	9	60
100	**100**	C	70	9	70
100	**125**	C	70	9	95
100	**150**	D	70	9	60

[FS]

FS 506

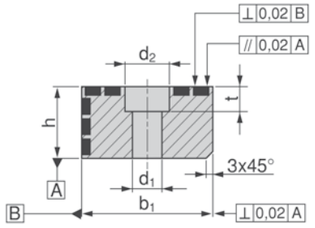
mit 2 Gleitflächen
Mat.: Bronze-Graphit

Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

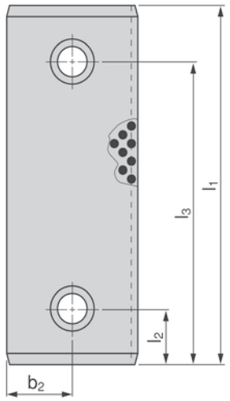
with 2 slide surfaces
Mat.: Bronze-graphite

Bronze wear plates with self lubricating graphite plugs ensure a low maintenance operation, even during long-term production cycles.

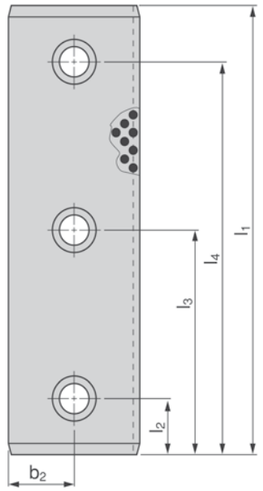
FS 506 / 15 x 110



Form - A



Form - B



h -0,02	l1 H7	Form	b1 -0,02	b2	d1 H13	d2 H13	l2	l3 ±0,2	l4 ±0,2	t +0,5
12	**110**	A	25	12,5	9	15	25	85	-	8,5
12	**120**	A	25	12,5	9	15	25	95	-	8,5
15	**110**	A	25	12,5	11	18	25	85	-	10,5
15	**120**	A	25	12,5	11	18	25	95	-	10,5
30	**125**	A	60	30	13,5	20	25	100	-	13
30	**160**	A	60	30	13,5	20	25	135	-	13
30	**200**	B	60	30	13,5	20	25	100	175	13
40	**125**	A	60	30	13,5	20	25	100	-	13
40	**160**	A	60	30	13,5	20	25	135	-	13
40	**200**	B	60	30	13,5	20	25	100	175	13

[06.05.2020]

[06.05.2020]

[FS]

FS 507

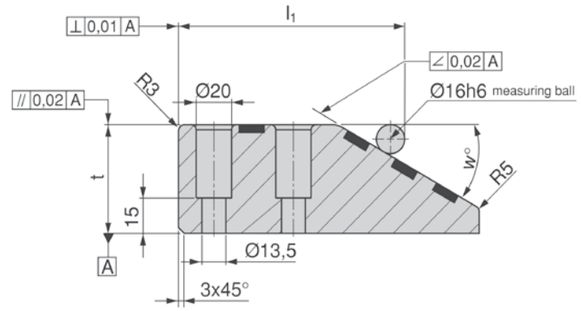
mit 2 Gleitflächen
Mat.: Bronze-Graphit

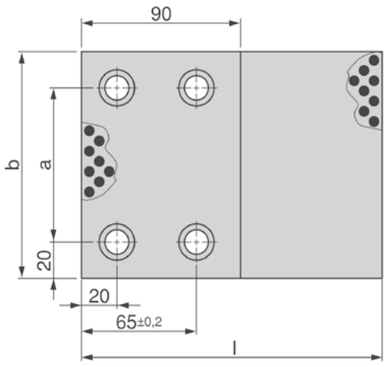
Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

with 2 slide surfaces
Mat.: Bronze-graphite

Bronze wear plates with self lubricating graphite plugs ensure a low maintenance operation, even during long-term production cycles.

FS 507 / 125 x 170 x 45





b	l	t ±0,1	a	l1 ±0,5	w
100	**170**	**45**	60	143,37	20°
125	**170**	**45**	85	143,37	20°
150	**170**	**45**	110	143,37	20°
100	**150**	**45**	60	127,86	30°
100	**170**	**60**	60	127,86	30°
125	**150**	**45**	85	127,86	30°
125	**170**	**60**	85	127,86	30°
150	**150**	**45**	110	127,86	30°
150	**170**	**60**	110	127,86	30°

Überlaufkeile VDI 3357, Stahl

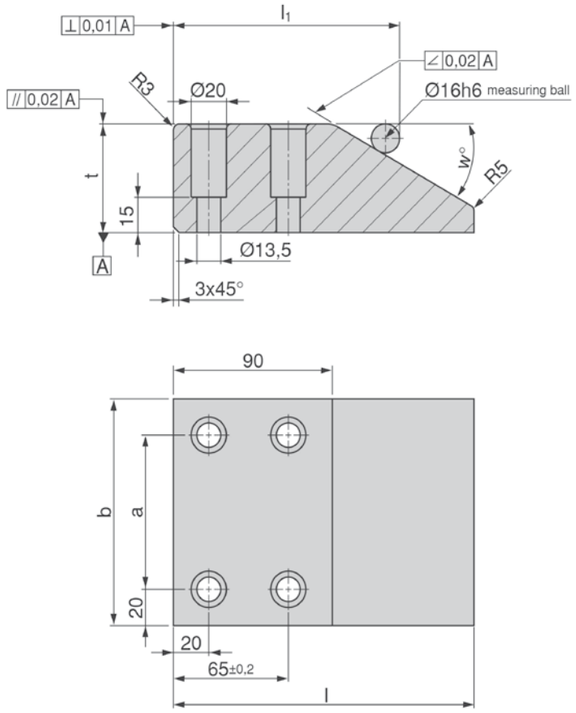
Cam dwells VDI 3357, steel

FS 508

Mat.: X153CrMoV12
Oberflächenhärte: 60 - 62 HRC

Mat.: X153CrMoV12
Surface hardness: 60 - 62 HRC

FS 508 / 125 x 170 x 45



b	l	t ±0,1	a	l1 ±0,5	w
100	**170**	**45**	60	143,37	20°
125	**170**	**45**	85	143,37	20°
150	**170**	**45**	110	143,37	20°
100	**150**	**45**	60	127,86	30°
100	**170**	**60**	60	127,86	30°
125	**150**	**45**	85	127,86	30°
125	**170**	**60**	85	127,86	30°
150	**150**	**45**	110	127,86	30°
150	**170**	**60**	110	127,86	30°

[06.05.2020]

[06.05.2020]

Führungslaschen, Stahl mit Festschmierstoff

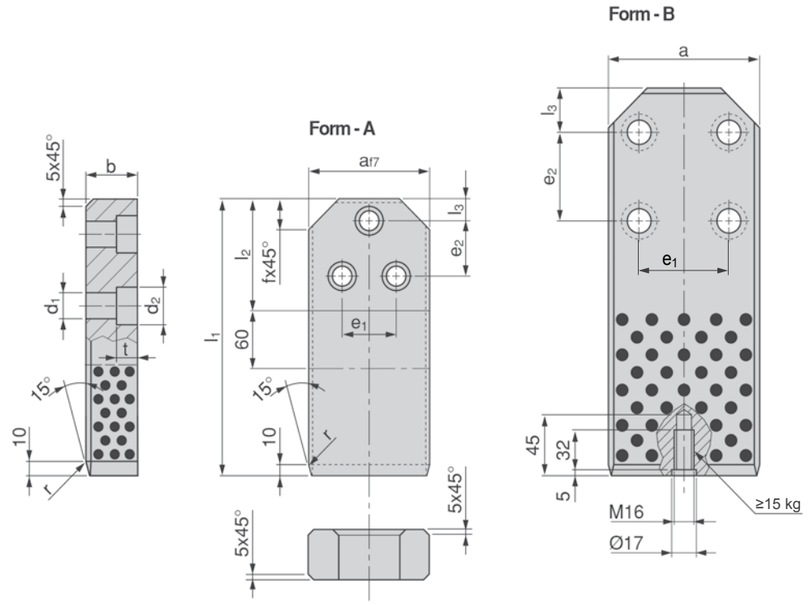
Guide brackets, steel with self lubricating graphite plugs

FS 509

Mat.: CK45
Oberflächenhärte: 58 - 60 HRC

Mat.: CK45
Surface hardness: 58 - 60 HRC

FS 509 / 63 x 180 x 36



a	l1	b	l2	l3	e1	e2	d1	d2	t	f	r	Form
63	**180**	**36**	90	20	50	50	14	20	16	18	16	A
63	**200**	**36**	90	20	50	50	14	20	16	18	16	A
63	**224**	**36**	90	20	50	50	14	20	16	18	16	A
71	**180**	**36**	90	20	50	50	14	20	16	18	16	A
71	**200**	**36**	90	20	50	50	14	20	16	18	16	A
71	**224**	**36**	90	20	50	50	14	20	16	18	16	A
90	**200**	**36**	100	20	50	50	18	26	21	28	25	A
90	**224**	**36**	100	20	50	50	18	26	21	28	25	A
90	**250**	**36**	100	20	50	50	18	26	21	28	25	A
90	**200**	**45**	100	20	50	50	18	26	21	28	25	A
90	**224**	**45**	100	20	50	50	18	26	21	28	25	A
90	**250**	**45**	100	20	50	50	18	26	21	28	25	A
112	**200**	**45**	100	20	50	50	18	26	21	28	25	A
112	**224**	**45**	100	20	50	50	18	26	21	28	25	A
112	**250**	**45**	100	20	50	50	18	26	21	28	25	A
140	**315**	**45**	150	40	90	80	22	33	25,5	36	31,5	B
140	**400**	**45**	150	40	90	80	22	33	25,5	36	31,5	B
140	**315**	**56**	150	40	90	80	22	33	25,5	36	31,5	B
140	**400**	**56**	150	40	90	80	22	33	25,5	36	31,5	B
190	**315**	**45**	150	40	90	80	22	33	25,5	36	31,5	B
190	**400**	**45**	150	40	90	80	22	33	25,5	36	31,5	B
190	**315**	**56**	150	40	90	80	22	33	25,5	36	31,5	B
190	**400**	**56**	150	40	90	80	22	33	25,5	36	31,5	B
240	**500**	**56**	250	40	160	160	26	40	30,5	36	31,5	B
240	**630**	**56**	250	40	160	160	26	40	30,5	36	31,5	B

FS 510

Mat.: Bronze-Graphit

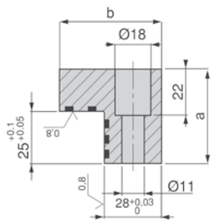
Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

Mat.: Bronze-graphite

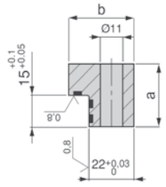
Bronze wear plates with self lubricating graphite plugs ensure a low maintenance operation, even during long-term production cycles.

FS 510 / 20 x 26 x 100

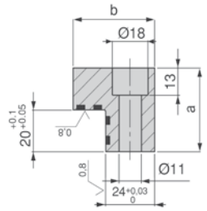
Form - A



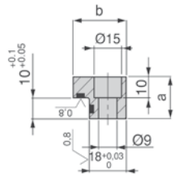
Form - B

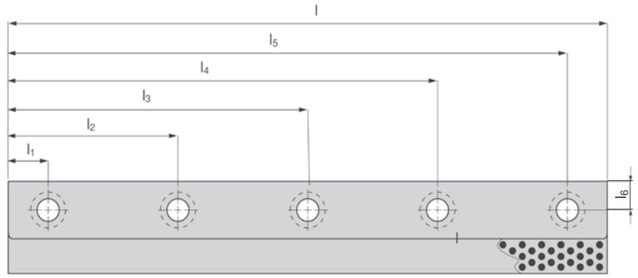


Form - C



Form - D





MAIL

a ±0,25	b ±0,25	l	Form	l1	l2	l3	l4	l5	l6	Bohrungen Holes
20	**26**	**100**	D	20	80	-	-	-	9	2
20	**26**	**150**	D	20	75	130	-	-	9	3
20	**26**	**200**	D	20	75	125	180	-	9	4
30	**32**	**100**	B	20	80	-	-	-	11	2
30	**32**	**150**	B	20	75	130	-	-	11	3
30	**32**	**200**	B	20	75	125	180	-	11	4
30	**32**	**250**	B	20	90	160	230	-	11	4
40	**40**	**160**	C	15	145	-	-	-	12	2
40	**40**	**250**	C	15	145	225	-	-	12	3
45	**50**	**200**	A	20	75	125	180	-	14	4
45	**50**	**250**	A	20	90	160	230	-	14	4
45	**50**	**300**	A	20	85	150	215	280	14	5
45	**50**	**350**	A	20	100	175	250	330	14	5

[06.05.2020]

[06.05.2020]

FS 511

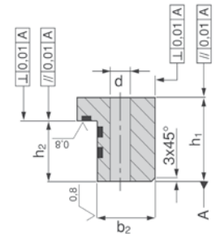
Mat.: Bronze-Graphit

Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

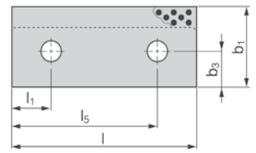
Mat.: Bronze-graphite

Bronze wear plates with self lubricating graphite plugs ensure a low maintenance operation, even during long-term production cycles.

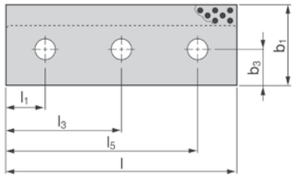
FS 511 / 55 x 55 x 100



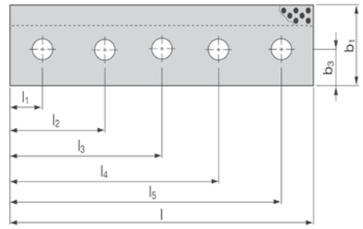
Form - A



Form - B



Form - C



MAIL

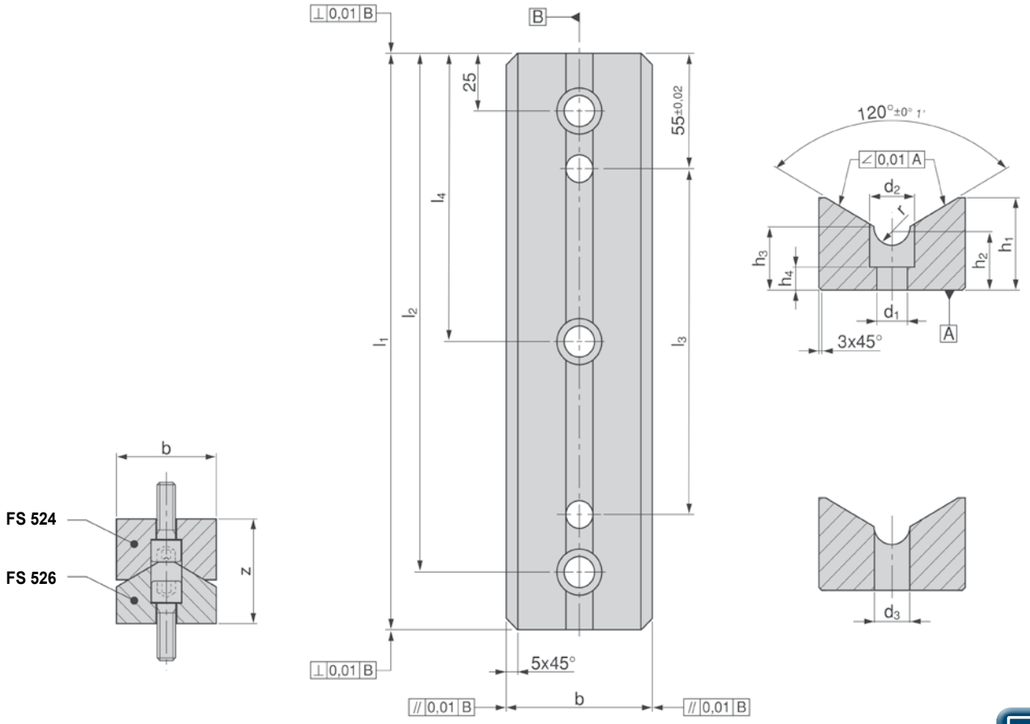
b1 ±0,2	h1 ±0,2	l -0,2	Form	b2 -0,02	b3 ±0,2	d H13	l1 ±0,2	l2 ±0,2	l3 ±0,2	l4 ±0,2	l5 ±0,2	h2 +0,02
55	**55**	**100**	A	37	20	13,5	27,5	-	-	-	72,5	39
55	**55**	**160**	A	37	20	13,5	27,5	-	-	-	132,5	39
70	**75**	**160**	A	50	30	17,5	35	-	-	-	125	55
70	**75**	**200**	A	50	30	17,5	35	-	-	-	165	55
70	**75**	**250**	B	50	30	17,5	35	-	125	-	215	55
70	**75**	**400**	C	50	30	17,5	35	125	200	275	365	55
85	**90**	**160**	A	63	38	22	42,5	-	-	-	117,5	65
85	**90**	**200**	A	63	38	22	42,5	-	-	-	157,5	65
85	**90**	**250**	B	63	38	22	42,5	-	125	-	207,5	65
85	**90**	**400**	C	63	38	22	42,5	125	200	275	357,5	65

FS 524

Mat.: CK45
Oberflächenhärte: 56 - 60 HRC

Mat.: CK45
Surface hardness: 56 - 60 HRC

FS 524 / 65 x 150



MAIL

b h6	l1 -0,2	d1 H13	d2 H13	d3 H7	h1 ±0,2	h2 ±0,01	h3 ±0,2	h4	l2 ±0,2	l3 ±0,01	l4 ±0,2	r	z +0,05
65	**150**	13,5	20	12	35	18	22	8	125	45	-	7	65
65	**200**	13,5	20	12	35	18	22	8	175	95	-	7	65
65	**250**	13,5	20	12	35	18	22	8	225	145	125	7	65
65	**300**	13,5	20	12	35	18	22	8	275	195	150	7	65
125	**150**	17,5	26	16	60	28	34	15	125	45	-	10	85
125	**200**	17,5	26	16	60	28	34	15	175	95	-	10	85
125	**250**	17,5	26	16	60	28	34	15	225	145	125	10	85
125	**300**	17,5	26	16	60	28	34	15	275	195	150	10	85

FS 526

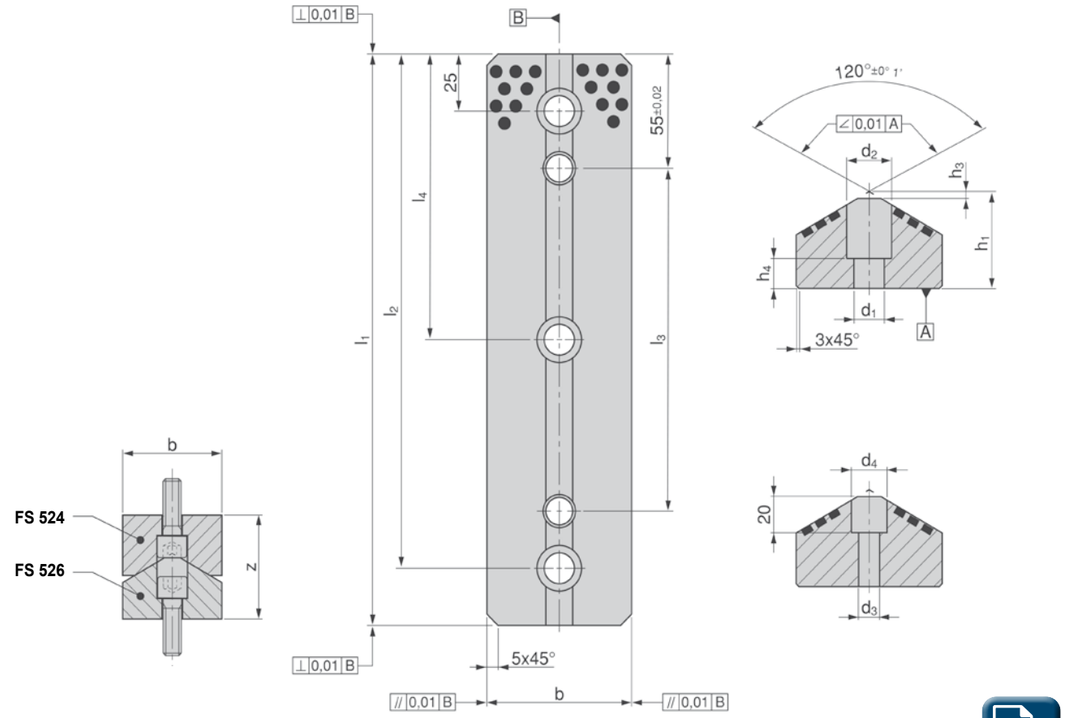
Mat.: Bronze-Graphit

Gleitplatten aus Bronze mit Festschmierstoff-Einsätzen gewährleisten auch im Dauerbetrieb einen wartungsarmen Einsatz.

Mat.: Bronze-graphite

Bronze wear plates with self lubricating graphite plugs ensure a low maintenance operation, even during long-term production cycles.

FS 526 / 65 x 150



MAIL

b h6	l1 -0,2	d1 H13	d2 H13	d3 H7	d4 H13	h1 ±0,01	h3	l2 ±0,2	l3 ±0,01	l4 ±0,2	z +0,05
65	**150**	13,5	20	12	14	47	3	125	45	-	65
65	**200**	13,5	20	12	14	47	3	175	95	-	65
65	**250**	13,5	20	12	14	47	3	225	145	125	65
65	**300**	13,5	20	12	14	47	3	275	195	150	65
125	**150**	17,5	26	16	18	57	5	125	45	-	85
125	**200**	17,5	26	16	18	57	5	175	95	-	85
125	**250**	17,5	26	16	18	57	5	225	145	125	85
125	**300**	17,5	26	16	18	57	5	275	195	150	85

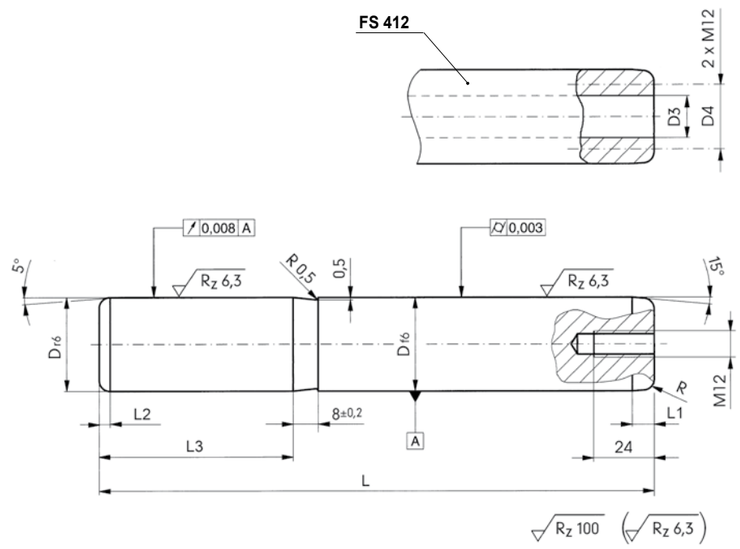
Führungssäulen für Großwerkzeuge, DIN 9833

Leader pins for large dies, DIN 9833

FS 410
FS 412

Technischer Hinweis:
Säulen-Aufnahmebohrungen: H7
Säulentyp **FS 410** kann ab ø80 mm mit 2 Transportgewinden M12 geliefert werden (bitte angeben).
Säulentyp **FS 412** bis ø63 mm ohne Hohlbohrung, ab ø80 mm mit Hohlbohrung und 2 Transportgewinden M12 (bitte angeben).
Passende Führungsbuchsen finden Sie auf Seite FS.34

Technical recommendation:
Leader pin mounting holes: H7
Leader pin type **FS 410** with 80 mm diameter and larger can be supplied with two transport-threads M12 (please specify when ordering).
Leader pin type **FS 412** up to 63 mm without internal hole, 80 mm diameter and larger with internal hole and with two transport-threads M12 (please specify when ordering).



[06.05.2020]

Info RM-Beschichtung

Info RM-coating

FS 330 … RM
FS 340 … RM
FS 350 … RM
FS 430 … RM
FS 439 … RM
FS 440 … RM
FS 450 … RM

Bei RM-Coat handelt es sich um eine dunkelblaugraue Gleitstoffbeschichtung auf Basis Wolframdisulfid (WS2) mit einer Stärke von 0,0005 - 0,0015 mm, die bei Raumtemperatur aufgebracht wird und bis 650° C stabil bleibt.

Sie reduziert - abhängig vom spezifischen Anwendungsfall - die Reibung um bis zu 70%, was zu einer signifikanten Verbesserungen der Schmier- und Gleiteigenschaften der beschichteten Teile führt. Außer einer leichten anfänglichen Schmierung und bei den üblichen Wartungen kann der Schmiermittel-Einsatz in vielen Fällen reduziert werden, wobei meist zusätzlich noch eine deutliche Verlängerung der Standzeiten zu verzeichnen ist.
Sie kann nicht nur, aber auch, auf andere Beschichtungen - wie z.B. PVD und CVD - zusätzlich aufgetragen werden.

Typische Anwendungsbeispiele finden sich beim Umformen, in Wälz- und Gleitlagern und in der Vakuumtechnik. Erstklassige Resultate werden auch im gesamten Bereich der Spritzgießtechnik erzielt, angefangen bei den Führungselementen bis hin zur Beschichtung von komplexen, schwer entformbaren Konturkernen.

Um eine bestmögliche Verbindung zum Trägermaterial zu gewährleisten, müssen die zu beschichtenden Teile vollständig (von Ölen / Fetten, Staub u.ä.) gesäubert werden.

Die Beschichtung lässt sich nur durch mechanische Bearbeitung wieder entfernen.

Die Technik der Wolframdisulfid-Beschichtung findet sich in jedem amerikanischen Flugzeug. Sie ist unter den strengen Auflagen der amerikanischen NAMSA - Class 6 getestet und als bio-kompatibel eingestuft worden. Der Beschichtungs-Prozess wird in Übereinstimmung mit den US-Militär - Spezifikationen DOD-L-85645 A Type 1 ausgeführt.

Im Programm der Märkischen Stanz-Partner werden die Artikel der Serie **FS 330 / …** bis **FS 350 / …** standardmäßig mit RM-Coat beschichtet, bei allen anderen Führungs- und Funktionsteilen nach Rücksprache bzw. nach Anforderung.

Bezüglich weiterer Anwendungsfälle sprechen Sie uns gerne an.

RM-Coat is a dark blue / grey tungsten disulfid (WS2) lubricant coating, being applied at room temperature with a thickness of 0,0005 - 0,0015 mm. It is stable up to 650 degrees Celsius.

Depending on the specific application, this coating reduces friction up to 70%, leading to significantly improved sliding-characteristics of the coated parts. After a slight initial lubrication (and during the usually scheduled maintenance works), in a lot of cases the lubricant can be reduced and minimized ... while at the same time in most cases the tool-life considerably extends.
The RM Coat can (not must !) be applied on other coatings like PVD and CVD as well.

Typical applications can be found in sheet metal forming processes, roller- and plain bearings and in vacuum technologies. Top results have been accomplished in injection molding as well, by coating not only guiding elements, but complex, hard-to-stripp-off cores.

To provide for an excellent connection between the coating and the carrying material, the part to be coated has to be cleaned completely from dust, oil, grease etc.

The coating can only be removed mechanically.

The WS2-coating-technique can be found on every American airplane. Metercoat has been NAMSA-Class 6 tested and certified as bio-compatible. The whole coating process is carried out in compliance with DOD-L-85645 A Type 1.

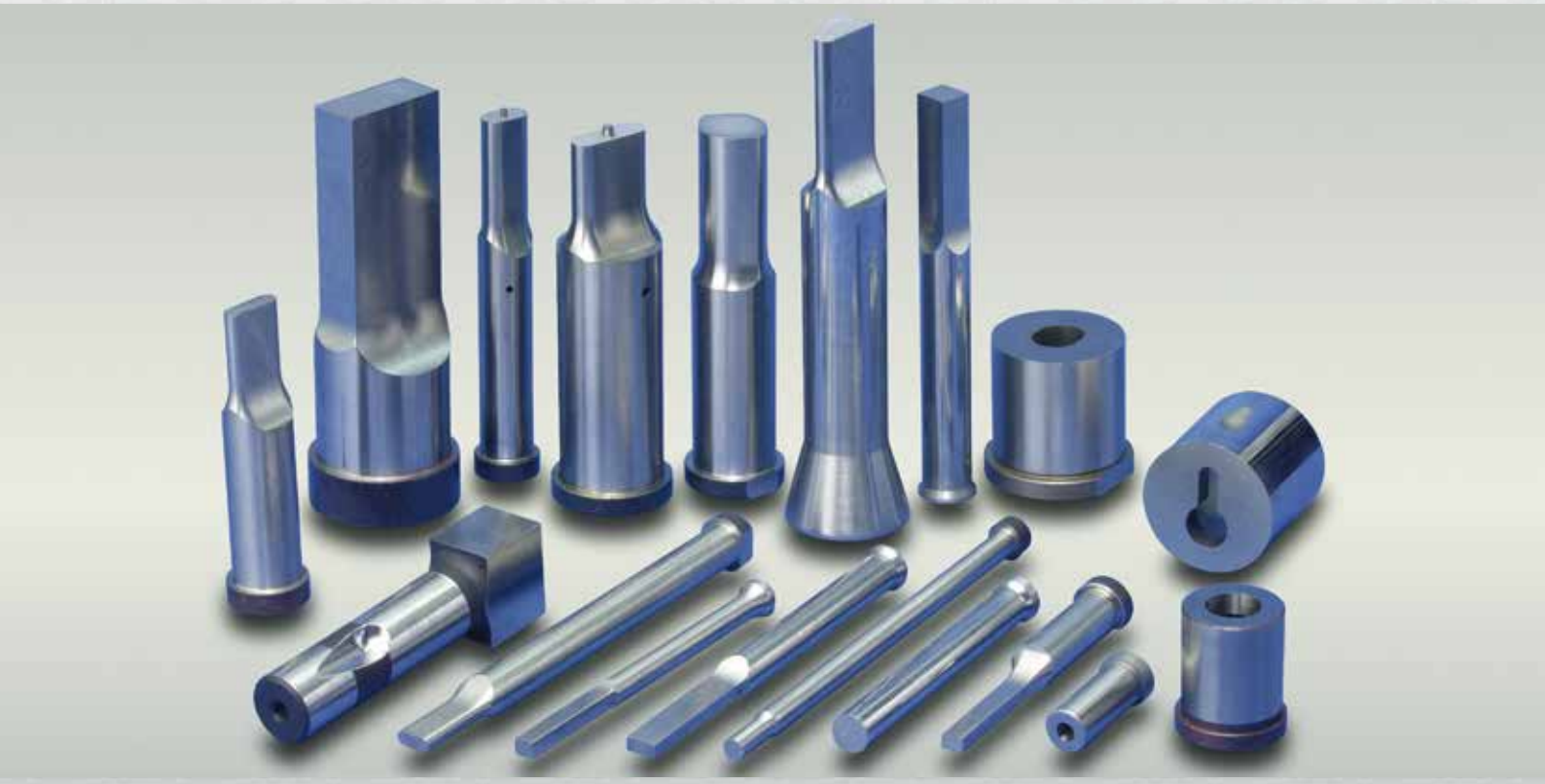
In our program the products from **FS 330 / ...** to **FS 350 / ...** and **FS 430 / …** to **FS 450 / …** are RM-coated as standards, all other (guiding- and other) products can be treated upon request.

Please contact us with your specific application.

zertifiziert ISO 9001 for you Cert

MSP GMBH

Märkische Stanz-Partner



[**schneid**elemente]

[**cutting**elements]

Stand / Revision Status 30.10.2020

Inhalt Katalog 1: Stanznormalien (D)
Content Catalogue 1: Standard die components (D)

STANZNORMALIEN / STANDARD DIE COMPONENTS

Artikel Article	Best.-Nr. Order no.	Seite Page
A		
Aufwerferstifte, gehärtet, DIN 1530 A – ISO 6750	TH 750	TH.9
Auswerferstifte, DIN 1530 Form D	TH 75[illegible]	TH.[illegible]0

Ein „Klick“ auf Artikelbezeichnung, Bestell-Nummer oder Seite im vorangestellten Inhaltsverzeichnis bringt Sie zum gewünschten Artikel.

„Clicking“ on the Article name, the Order- or Page-no. in the main table of contents opens the corresponding article-page.

Inhalt
Content

SCHNEIDELEMENTE / CUTTING ELEMENTS

	Schneidstempel	Punches	Best.-Nr. Order no.	Seite Page
	Schneidstempel DIN 9861, Form D, HSS	Punches DIN 9861, Form D, HSS	SE 775	SE.1 SE.2

Ein „Klick“ auf Foto, Artikelbezeichnung, Bestell-Nummer oder Seite im Inhaltsverzeichnis des Registers bringt Sie unmittelbar zum gewünschten Artikel im Katalog.

„Clicking“ on the Photo, the Article name, the Order- or Page-no. in any register‘s table of contents opens the corresponding article-page.

Ein „Klick“ auf das CAD-Logo bringt Sie zu den CAD-Daten des gewünschten Artikels im CADENAS-Downloadportal.

„Clicking“ on the CAD-logo leads you to the CAD-file(s) of the corresponding article within the Cadenas download-portal.

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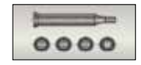
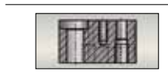
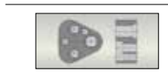
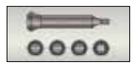
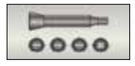
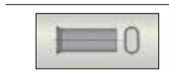
„Clicking“ on the MAIL-logo generates an e-mail addressed to the Stanz-Partners, showing the requested article in the subject heading.

Ein „Klick“ auf das RETURN-Logo unten auf jeder Katalogseite bringt Sie zurück auf das Inhaltsverzeichnis des entsprechenden Registers.

„Clicking“ on the RETURN-logo at the bottom of each catalog-page opens that specific register‘s table of contents.

[06.05.2020]

	Schneidstempel	Punches	Best.-Nr. Order no.	Seite Page
	Schneidstempel DIN 9861, Form D, HSS	Punches DIN 9861, Form D, HSS	SE 775	SE.1 SE.2
	Schneidstempel DIN 9861, Form C, abgesetzter Schaft, HSS	Punches DIN 9861, Form C, shouldered shank, HSS	SE 785	SE.3
	Schneidstempel DIN 9861, Form C, abgesetzter Schaft, Typen F, O, R, S	Punches DIN 9861, Form C, shouldered shank, Types F, O, R, S	SE 786 .	SE.4
	Schneidstempel, zylindrischer Kopf Type K	Punches, cylindrical head Type K	SE 712	SE.5
	Schneidstempel, zylindrischer Kopf Type K ISO 8020	Punches, cylindrical head Type K ISO 8020	SE 712 ISO	SE.6
	Schneidstempel ISO 8020 mit federndem Auswerferstift	Punches ISO 8020 with spring ejector	SE 737	SE.7
	Schneidstempel ISO 8020, Type KP, abgesetzter Schaft	Punches ISO 8020, type KP, shouldered shank	SE 716 KP ISO	SE.8
	Schneidstempel ISO 8020 mit federn- dem Auswerferstift, Type EKP	Punches ISO 8020 with spring ejector Type EKP	SE 737 EKP	SE.9
	Schneidstempel ISO 8020, Type KF, KO, KR, KS, abgesetzter Schaft	Punches ISO 8020, type KF, KO, KR, KS, shouldered shank	SE 731 . . ISO	SE.10
	Schneidstempel ISO 8020 mit federn- dem Auswerferstift Typen EKF, EKO, EKR, EKS	Punches ISO 8020 with spring ejector Types EKF, EKO, EKR, EKS	SE 737 . . .	SE.11
	Stempelhalteplatten für Schneidstempel ISO 8020	Triangle retainers for punches ISO 8020	SE 391	SE.12
	Druckplatten für Stempelhalteplatten SE 391	Thrust plates for triangle retainers SE 391	SE 392	SE.13
	Stempelhalteplatten für Schneidstempel ISO 8020 ohne Verdrehsicherung	Triangle retainers for punches ISO 8020 without rotation prevention	SE 393	SE.14
	Stempelhalteplatten für Schneidstempel ISO 8020 mit Verdrehsicherung	Triangle retainers for punches ISO 8020 with rotation prevention	SE 394	SE.15
	Ausgleichsplatten für Stempelhalte- platten SE 393, SE 394	Shim plates for triangle retainers SE 393, SE 394	SE 395	SE.16
	Druckplatten für Stempelhalteplatten SE 393, SE 394	Thrust plates for triangle retainers SE 393, SE 394	SE 396	SE.16
	Schneidstempel Posaunenhals	Punches trumpet head	SE 750	SE.17
	Schneidstempel Posaunenhals mit federndem Auswerferstift	Punches trumpet head with spring ejector	SE 753	SE.18
	Schneidstempel Posaunenhals, abgesetzter Schaft	Punches trumpet head, shouldered shank	SE 751	SE.19
	Schneidstempel Posaunenhals, abgesetz- ter Schaft, mit federndem Auswerferstift	Punches trumpet head, shouldered shank with spring ejector	SE 754	SE.20

	Schneidstempel	Punches	Best.-Nr. Order no.	Seite Page
	Schneidstempel Posaunenhals, abgesetzter Schaft, Typen PF, PO, PR, PS	Punches trumpet head, shouldered shank Types PF, PO, PR, PS	SE 752 . .	SE.21
	Schneidstempel Posaunenhals abgesetzter Schaft, mit federndem Auswerferstift, Typen EPF, EPO, EPR, EPS	Punches trumpet head, shouldered shank with spring ejector, Types EPF, EPO, EPR, EPS	SE 755 . . .	SE.22
	Kopfsenker für Posaunenhals-Stempel	Counterbore-tools for trumpet-heads	SE 020	SE.23
	Fangstifte	Pilot punches	SE 709	SE.24
	Schneidstempel 30° Kopf	Punches 30° head	SE 730	SE.25
	Schneidstempel 30° Kopf mit federndem Auswerferstift	Punches 30° head with spring ejector	SE 734	SE.26
	Schneidstempel 30° Kopf, abgesetzter Schaft	Punches 30° head, shouldered shank	SE 732	SE.27
	Schneidstempel 30° Kopf, abgesetzter Schaft mit federndem Auswerferstift	Punches 30° head, shouldered shank with spring ejector	SE 735	SE.28
	Schneidstempel 30° Kopf, abgesetzter Schaft, Typen 30F, 30O, 30R, 30S	Punches 30° head, shouldered shank Types 30F, 30O, 30R, 30S	SE 733 . . .	SE.29
	Schneidstempel 30° Kopf, abgesetzter Schaft, Typen 30EF, 30EO, 30ER, 30ES mit federndem Auswerferstift	Punches 30° head, shouldered shank Types 30EF, 30EO, 30ER, 30ES with spring ejector	SE 736 . . .	SE.30
	Schneidstempel mit Langlochprofil über die Gesamtlänge, mit Senkkopf	Punches with oblong shape over the total length with countersunk head	SE 744 SE 745	SE.31
	Schneidstempel mit Rechteckprofil über die Gesamtlänge, mit Senkkopf	Punches with rectangular shape over the total length with countersunk head	SE 748 SE 749	SE.32
	Schneidstempel mit Rechteckprofil über die Gesamtlänge	Punches with rectangular shape over the total length	SE 738 SE 739	SE.33
	Schneidstempel mit Langlochprofil über die Gesamtlänge	Punches with oblong shape over the total length	SE 740 SE 741	SE.34
	Verdrehsicherung für Schneidstempel Information	Rotation prevention for punches Information		SE.61

	Schneidbuchsen	Die buttons	Best.-Nr. Order no.	Seite Page
	Schneidbuchsen DIN 9845, Form A ohne Bund	Die buttons DIN 9845 A without collar	SE 791	SE.35
	Schneidbuchsen DIN 9845, Form B mit Bund	Die buttons DIN 9845 B with collar	SE 792	SE.36
	Schneidbuchsen ohne Bund Type ED, ISO 8977A	Die buttons without collar Type ED, ISO 8977A	SE 711 ED	SE.37

[16.03.2020]
[06.05.2020]

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[SE]

	Schneidbuchsen	Die buttons	Best.-Nr. Order no.	Seite Page
	Schneidbuchsen mit Bund Type EKD, ISO 8977B	Die buttons with collar Type EKD, ISO 8977B	SE 713 EKD	SE.38
	Schneidbuchsen ohne Bund, Typen EDF, EDO, EDR, EDS, ISO 8977A	Die buttons without collar Types EDF, EDO, EDR, EDS, ISO 8977A	SE 715 . . .	SE.39
	Schneidbuchsen mit Bund Typen EKDF, EKDO, EKDR, EKDS, ISO 8977B	Die buttons with collar Types EKDF, EKDO, EKDR, EKDS, ISO 8977B	SE 717	SE.40
	Schneidbuchsen mit Startlochbohrung durchgehend, Type EDL, ohne Bund ISO 8977A	Die buttons with start hole, Type EDL, without collar, ISO 8977A	SE 711 EDL	SE.41
	Schneidbuchsen mit Startlochbohrung durchgehend, Type EKDL, mit Bund ISO 8977B	Die buttons with start hole, Type EKDL, with collar, ISO 8977B	SE 713 EKDL	SE.42
	Schneidbuchsen mit Startlochbohrung und Ausfallloch, Type EDM, ohne Bund, ISO 8977A	Die buttons with start hole and counterbore relief, Type EDM, without collar, ISO 8977A	SE 711 EDM	SE.43
	Schneidbuchsen mit Startlochbohrung und Ausfallloch, Type EKDM, mit Bund, ISO 8977B	Die buttons with start hole and counterbore relief, Type EKDM, with collar, ISO 8977B	SE 713 EKDM	SE.44
	Stempelführungsbuchsen DIN 9845, Form C	Punch - guide bushings, DIN 9845 C	SE 793	SE.45
	Verdrehsicherung für Schneidbuchsen Information	Rotation prevention for die buttons Information		SE.61

	Schnellwechsel-Schneidelemente	Ball lock cutting elements	Best.-Nr. Order no.	Seite Page
	Schnellwechsel-Schneidstempel, schwere Ausführung	Ball lock punches, heavy duty	SE 300	SE.47
	Schnellwechsel-Schneidstempel, schwere Ausführung, mit federndem Auswerferstift	Ball lock punches, heavy duty, with spring ejector	SE 320	SE.48
	Schnellwechsel-Schneidstempel, schwere Ausführung, abgesetzter Schaft	Ball lock punches, heavy duty, shouldered shank	SE 301	SE.49
	Schnellwechsel-Schneidstempel, schwere Ausführung, abgesetzter Schaft, mit federndem Auswerferstift	Ball lock punches, heavy duty, shouldered shank, with spring ejector	SE 321	SE.50
	Schnellwechsel-Schneidstempel, schwere Ausführung, abgesetzter Schaft Typen O, S, H, L	Ball lock punches, heavy duty, shouldered shank Types O, S, H, L	SE 302 .	SE.51
	Schnellwechsel-Schneidstempel, schwere Ausführung, abgesetzter Schaft Typen O, S, H, L, mit. fed. Auswerferst.	Ball lock punches, heavy duty, shouldered shank, Types O, S, H, L, with spring ejector	SE 322 .	SE.52
	Schnellwechsel-Schneidstempel, schwere Ausführung, Schneide > Schaft	Ball lock punches, heavy duty, inverted	SE 303	SE.53
	Schnellwechsel-Schneidstempel, schwere Ausführung, Schneide > Schaft, mit federndem Auswerferstift	Ball lock punches, heavy duty, inverted, with spring ejector	SE 323	SE.54
	Schnellwechsel-Schneidstempel, schwere Ausführung, Schneide > Schaft, Typen O, S, H, L	Ball lock punches, heavy duty, inverted, Types O, S, H, L	SE 304 .	SE.55

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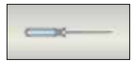
	Schnellwechsel-Schneidelemente	Ball lock cutting elements	Best.-Nr. Order no.	Seite Page
	Schnellwechsel-Schneidstempel, schw. Ausführung, Schneide > Schaft, Typen O, S, H, L, mit. fed. Auswerferst.	Ball lock punches, heavy duty, inverted, Types O, S, H, L, with spring ejector	SE 324 .	SE.56
	Schnellwechsel-Schneidbuchsen, leichte Ausführung, rund	Ball lock die buttons, light duty, round	SE 340	SE.57
	Schnellwechsel-Schneidbuchsen, leichte Ausführung, Profile, Typen O, S, H, L	Ball lock die buttons, light duty, profiles, Types O, S, H, L	SE 341 .	SE.58
	Stempelhalteplatten für Schnellwechsel-Schneidstempel	Triangle retainers for ball lock punches	SE 390	SE.59

	Zubehör Bereich Schneidelemente	Accessories	Best.-Nr. Order no.	Seite Page
	Entrigelungswerkzeuge für Stempelhalteplatten, abgewinkelte Ausführung	Release tools for ball lock punch retainers, angular	SE 360	SE.60
	Entrigelungswerkzeuge für Stempelhalteplatten, gerade Ausführung	Release tools for ball lock punch retainers, straight	SE 361	SE.60
	Entrigelungswerkzeuge für Stempelhalteplatten, Gewindeausführung	Release tools for ball lock punch retainers, threaded	SE 362	SE.60

	Sonderschneid-elemente	Special punches	Best.-Nr. Order no.	Seite Page
	Bestellbeispiele	Ordering examples		SE.62
	Bestellformulare	Order forms		SE.63 SE.64
	Formbeispiele für Sonderschneidelemente	Shape examples for special cutting elements		SE.46

[SE]

[06.05.2020]

[06.05.2020]

Schneidstempel DIN 9861, Form D

Punches DIN 9861, Form D

SCHNEIDELEMENTE / CUTTING ELEMENTS

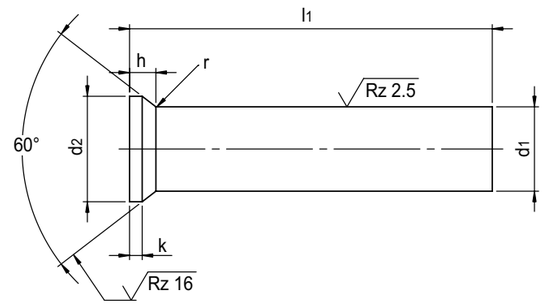
SE 775

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

SE 775 / 2,50 x 100

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).



Punches with rotation prevention available, please specify when ordering.

CAD MAIL

d1 h6	d2 ±0,05	h +0,2	k +0,2	r	l1 +0,5			
					71	80	100	130
0,50	0,9	0,55	0,2	$0,2^{+0,2}$	●	●	●	
0,55	1,0	0,59	0,2	$0,2^{+0,2}$	●	●	●	
0,60	1,1	0,63	0,2	$0,2^{+0,2}$	●	●	●	
0,65	1,2	0,68	0,2	$0,2^{+0,2}$	●	●	●	
0,70	1,3	0,72	0,2	$0,2^{+0,2}$	●	●	●	
0,75	1,3	0,68	0,2	$0,2^{+0,2}$	●	●	●	
0,80	1,4	0,92	0,4	$0,2^{+0,2}$	●	●	●	
0,85	1,4	0,88	0,4	$0,2^{+0,2}$	●	●	●	
0,90	1,6	1,01	0,4	$0,2^{+0,2}$	●	●	●	
0,95	1,6	0,96	0,4	$0,2^{+0,2}$	●	●	●	
1,00	1,8	1,19	0,5	$0,4^{+0,3}$	●	●	●	
1,10	1,8	1,11	0,5	$0,4^{+0,3}$	●	●	●	
1,20	2,0	1,19	0,5	$0,4^{+0,3}$	●	●	●	
1,30	2,0	1,11	0,5	$0,4^{+0,3}$	●	●	●	
1,40	2,2	1,19	0,5	$0,4^{+0,3}$	●	●	●	
1,50	2,2	1,11	0,5	$0,4^{+0,3}$	●	●	●	
1,60	2,5	1,28	0,5	$0,4^{+0,3}$	●	●	●	
1,70	2,5	1,19	0,5	$0,4^{+0,3}$	●	●	●	
1,80	2,8	1,37	0,5	$0,4^{+0,3}$	●	●	●	
1,90	2,8	1,28	0,5	$0,4^{+0,3}$	●	●	●	
2,00	3,0	1,37	0,5	$0,4^{+0,3}$	●	●	●	
2,10	3,2	1,45	0,5	$0,4^{+0,3}$	●	●	●	
2,20	3,2	1,37	0,5	$0,4^{+0,3}$	●	●	●	
2,30	3,5	1,54	0,5	$0,4^{+0,3}$	●	●	●	
2,40	3,5	1,45	0,5	$0,4^{+0,3}$	●	●	●	
2,50	3,5	1,37	0,5	$0,4^{+0,3}$	●	●	●	
2,60	4,0	1,71	0,5	$0,4^{+0,3}$	●	●	●	
2,70	4,0	1,63	0,5	$0,4^{+0,3}$	●	●	●	
2,80	4,0	1,54	0,5	$0,4^{+0,3}$	●	●	●	
2,90	4,0	1,45	0,5	$0,4^{+0,3}$	●	●	●	
3,00	4,5	1,80	0,5	$0,6^{+0,4}$	●	●	●	
3,10	4,5	1,71	0,5	$0,6^{+0,4}$	●	●	●	●
3,20	4,5	1,63	0,5	$0,6^{+0,4}$	●	●	●	●
3,30	4,5	1,54	0,5	$0,6^{+0,4}$	●	●	●	●
3,40	4,5	1,45	0,5	$0,6^{+0,4}$	●	●	●	●
3,50	5,0	1,80	0,5	$0,6^{+0,4}$	●	●	●	●
3,60	5,0	1,71	0,5	$0,6^{+0,4}$	●	●	●	●
3,70	5,0	1,63	0,5	$0,6^{+0,4}$	●	●	●	●
3,80	5,0	1,54	0,5	$0,6^{+0,4}$	●	●	●	●
3,90	5,0	1,45	0,5	$0,6^{+0,4}$	●	●	●	●
4,00	5,5	1,80	0,5	$0,6^{+0,4}$	●	●	●	●
4,10	5,5	1,71	0,5	$0,6^{+0,4}$	●	●	●	●
4,20	5,5	1,63	0,5	$0,6^{+0,4}$	●	●	●	●
4,30	5,5	1,54	0,5	$0,6^{+0,4}$	●	●	●	●
4,40	5,5	1,45	0,5	$0,6^{+0,4}$	●	●	●	●
4,50	6,0	1,80	0,5	$0,6^{+0,4}$	●	●	●	●
4,60	6,0	1,71	0,5	$0,6^{+0,4}$	●	●	●	●
4,70	6,0	1,63	0,5	$0,6^{+0,4}$	●	●	●	●

[SE]

SE 775

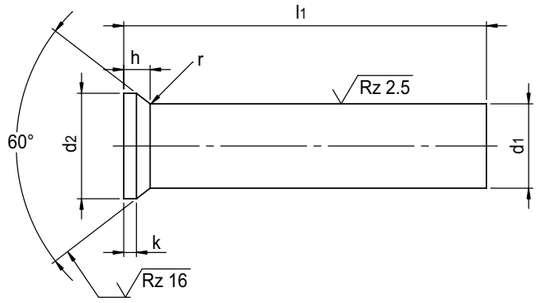
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

SE 775 / 2,50 x 100

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Punches with rotation prevention available, please specify when ordering.



CAD MAIL

d1 h6	d2 ±0,05	h +0,2	k +0,2	r	l1 +0,5 71	80	100	130
4,80	**6,0**	1,54	0,5	0,6+0,4	●	●	●	●
4,90	**6,0**	1,45	0,5	0,6+0,4	●	●	●	●
5,00	**6,5**	1,80	0,5	0,6+0,4	●	●	●	●
5,10	**6,5**	1,71	0,5	0,6+0,4	●	●	●	●
5,20	**6,5**	1,63	0,5	0,6+0,4	●	●	●	●
5,30	**6,5**	1,54	0,5	0,6+0,4	●	●	●	●
5,40	**6,5**	1,45	0,5	0,6+0,4	●	●	●	●
5,50	**7,0**	1,80	0,5	0,6+0,4	●	●	●	●
5,60	**7,0**	1,71	0,5	0,6+0,4	●	●	●	●
5,70	**7,0**	1,63	0,5	0,6+0,4	●	●	●	●
5,80	**7,0**	1,54	0,5	0,6+0,4	●	●	●	●
5,90	**7,0**	1,45	0,5	0,6+0,4	●	●	●	●
6,00	**8,0**	2,23	0,5	1,0+0,5	●	●	●	●
6,10	**8,0**	2,15	0,5	1,0+0,5	●	●	●	●
6,20	**8,0**	2,06	0,5	1,0+0,5	●	●	●	●
6,30	**8,0**	1,97	0,5	1,0+0,5	●	●	●	●
6,40	**8,0**	1,89	0,5	1,0+0,5	●	●	●	●
6,50	**9,0**	3,17	1,0	1,0+0,5	●	●	●	●
7,00	**9,0**	2,73	1,0	1,0+0,5	●	●	●	●
7,50	**10,0**	3,17	1,0	1,0+0,5	●	●	●	●
8,00	**10,0**	2,73	1,0	1,0+0,5	●	●	●	●
8,50	**11,0**	3,17	1,0	1,0+0,5	●	●	●	●
9,00	**11,0**	2,73	1,0	1,0+0,5	●	●	●	●
9,50	**12,0**	3,17	1,0	1,0+0,5	●	●	●	●
10,00	**12,0**	2,73	1,0	1,0+0,5	●	●	●	●
10,50	**13,0**	3,17	1,0	1,0+0,5	●	●	●	●
11,00	**13,0**	2,73	1,0	1,0+0,5	●	●	●	●
11,50	**14,0**	3,17	1,0	1,0+0,5	●	●	●	●
12,00	**14,0**	2,73	1,0	1,0+0,5	●	●	●	●
12,50	**15,0**	3,17	1,0	1,0+0,5	●	●	●	●
13,00	**15,0**	2,73	1,0	1,0+0,5	●	●	●	●
13,50	**16,0**	3,67	1,5	1,5+0,5	●	●	●	●
14,00	**16,0**	3,23	1,5	1,5+0,5	●	●	●	●
14,50	**17,0**	3,67	1,5	1,5+0,5	●	●	●	●
15,00	**17,0**	3,23	1,5	1,5+0,5	●	●	●	●
15,50	**18,0**	3,67	1,5	1,5+0,5	●	●	●	●
16,00	**18,0**	3,23	1,5	1,5+0,5	●	●	●	●
16,50	**19,0**	3,67	1,5	1,5+0,5	●	●	●	●
17,00	**19,5**	3,23	1,5	1,5+0,5	●	●	●	●
17,50	**20,0**	3,67	1,5	1,5+0,5	●	●	●	●
18,00	**20,5**	3,23	1,5	1,5+0,5	●	●	●	●
18,50	**21,0**	3,67	1,5	1,5+0,5	●	●	●	●
19,00	**21,5**	3,23	1,5	1,5+0,5	●	●	●	●
19,50	**22,0**	3,67	1,5	1,5+0,5	●	●	●	●
20,00	**22,5**	3,23	1,5	1,5+0,5	●	●	●	●

SE 785

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

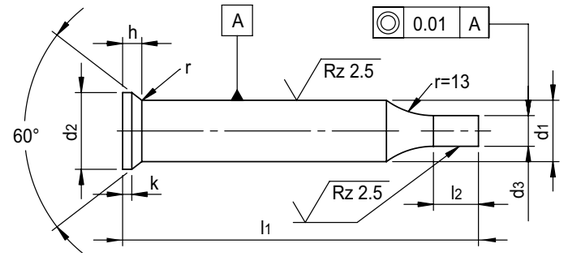
SE 785 / 5,0 x 71 / d3

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Länge l2 frei wählbar!
Fehlende Maße siehe SE 775 (Seite SE.1)

Length l2 freely selectable!
for missing dimensions please see **SE 775** (page SE.1)

Punches with rotation prevention available, please specify when ordering.



CAD MAIL

d1 h6	d3 h6 Stufung/step 0,01	l2 +0,5	l1 +0,5 71	80	100	130
1,5	**0,5 - 1,4**	7	●	●	●	
2,0	**0,5 - 1,9**	7	●	●	●	
3,0	**1,6 - 2,9**	7	●	●	●	
4,0	**1,6 - 3,9**	10	●	●	●	●
5,0	**2,5 - 4,9**	10	●	●	●	●
6,0	**3,0 - 5,9**	10	●	●	●	●
8,0	**4,0 - 7,9**	13	●	●	●	●
10,0	**5,0 - 9,9**	17	●	●	●	●
13,0	**9,0 - 12,9**	17	●	●	●	●
16,0	**12,0 - 15,9**	17	●	●	●	●
20,0	**16,0 - 19,9**	17	●	●	●	●
25,0	**20,0 - 24,9**	17	●	●	●	●
32,0	**25,0 - 31,9**	17	●	●	●	●
38,0	**30,0 - 37,9**	17	●	●	●	●

SE 786 .

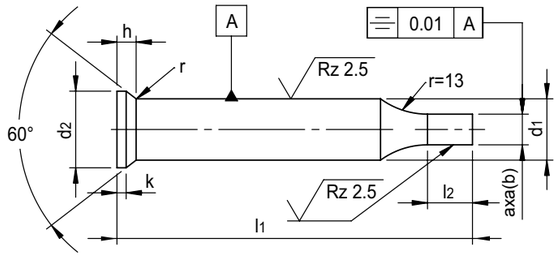
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

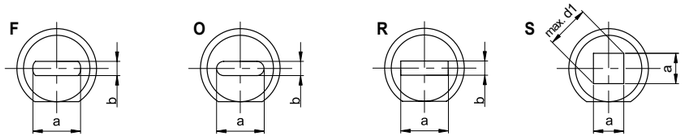
Länge l2 frei wählbar!
Stempel ohne Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).
Fehlende Maße siehe SE 775 (Seite SE.1)

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
Punches without rotation prevention available, please specify when ordering.
For missing dimensions please see **SE 775** (page SE.1)

SE 786 F / 8 x 80 / a x b





CAD MAIL

d1 h6	a x b ±0,01 Stufung/step 0,01 ≥ ≤	l2 +0,5	l1 +0,5 71	80	100	130
5	2,5 - 4,9	10	●	●	●	●
6	3,0 - 5,9	10	●	●	●	●
8	4,0 - 7,9	13	●	●	●	●
10	5,0 - 9,9	17	●	●	●	●
13	9,0 - 12,9	17	●	●	●	●
16	12,0 - 15,9	17	●	●	●	●
20	16,0 - 19,9	17	●	●	●	●
25	20,0 - 24,9	17	●	●	●	●
32	27,0 - 31,9	17	●	●	●	●
38	33,0 - 37,9	17	●	●	●	●

SE 712

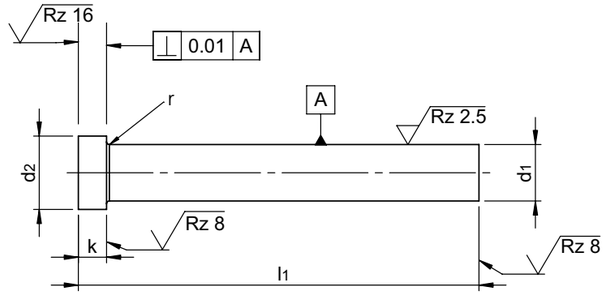
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Punches with rotation prevention available, please specify when ordering.

SE 712 / 8 x 80



CAD MAIL

d1 m5	d2 -0,15	k +0,2 +0,1	r +0,1	l1 +0,5 +0,2 63	71	80	90	100	120
3	5	3	0,2	●	●	●	●		
4	6	3	0,2	●	●	●	●	●	
5	8	5	0,3	●	●	●	●	●	●
6	9	5	0,3	●	●	●	●	●	●
8	11	5	0,3	●	●	●	●	●	●
10	13	5	0,3	●	●	●	●	●	●
13	16	5	0,5	●	●	●	●	●	●
16	19	6	0,5	●	●	●	●	●	●
20	24	6	0,5	●	●	●	●	●	●
25	29	10	0,5	●	●	●	●	●	●
32	36	12	0,5	●	●	●	●	●	●
38	45	15	0,5	●	●	●	●	●	●

Schneidstempel Typ K ISO 8020, zylindrischer Kopf

Punches type K ISO 8020, cylindrical head

SE 712 ISO

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

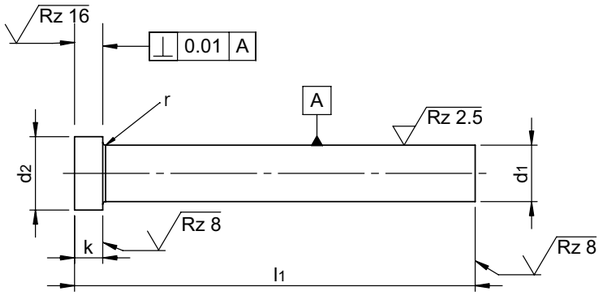
SE 712 ISO / 8 x 80

Stempel mit verstärkter Kopfhöhe auf Wunsch lieferbar (bei Bestellung angeben).

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Punches with rotation prevention available, please specify when ordering.

Punches with reinforced head height available, please specify when ordering.



CAD MAIL

d1 m5	d2 -0,15	k +0,2 +0,1	r +0,1	l1 +0,5 +0,2					
				63	71	80	90	100	120
3	5	3	0,2	●	●	●	●		
4	6	3	0,2	●	●	●	●	●	
5	8	5	0,3	●	●	●	●	●	●
6	9	5	0,3	●	●	●	●	●	●
8	11	5	0,3	●	●	●	●	●	●
10	13	5	0,3	●	●	●	●	●	●
13	16	5	0,5	●	●	●	●	●	●
16	19	5	0,5	●	●	●	●	●	●
20	23	5	0,5	●	●	●	●	●	●
25	28	5	0,5	●	●	●	●	●	●
32	35	5	0,5	●	●	●	●	●	●
38	41	5	0,5	●	●	●	●	●	●

[06.05.2020]

[06.05.2020]

Schneidstempel ISO 8020 mit federndem Auswerferstift

Punches ISO 8020 with spring ejector

SE 737

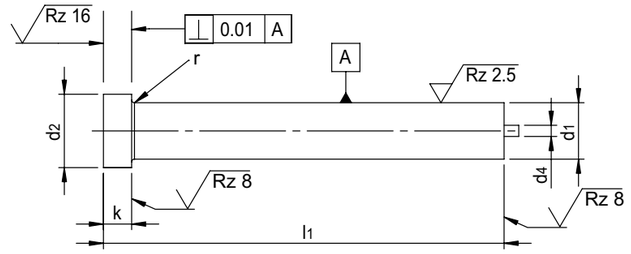
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

SE 737 / 10 x 100

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Punches with rotation prevention available, please specify when ordering.



CAD MAIL

d1 m5	d2 -0,05	d4	k +0,2 +0,1	r +0,1	l1 +0,5 +0,2					
					63	71	80	90	100	120
5	8	1,0	5	0,3	●	●	●	●	●	
6	9	1,0	5	0,3	●	●	●	●	●	
8	11	1,5	5	0,3	●	●	●	●	●	●
10	13	1,5	5	0,3	●	●	●	●	●	●
13	16	1,5	5	0,5	●	●	●	●	●	●
16	19	2,3	5	0,5	●	●	●	●	●	●
20	23	2,3	5	0,5	●	●	●	●	●	●
25	28	2,3	5	0,5	●	●	●	●	●	●
32	35	3,0	5	0,5	●	●	●	●	●	●
38	41	3,0	5	0,5	●	●	●	●	●	●

[SE]

SE 716 KP ISO

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

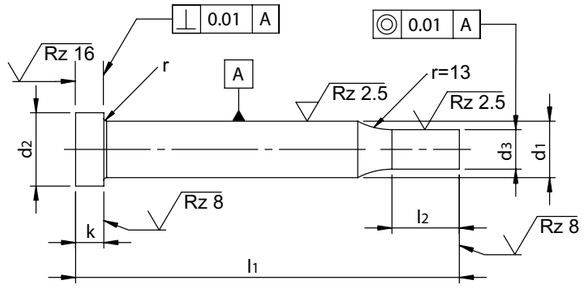
SE 716 KP / ISO / 10 x 100 / d3

Stempel mit verstärkter Kopfhöhe auf Wunsch lieferbar (bei Bestellung angeben).

**Länge l2 frei wählbar!
Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).**

**Length l2 freely selectable!
Punches with rotation prevention available, please specify when ordering.**

Punches with reinforced head height available, please specify when ordering.



CAD MAIL

d1 m5	d2 -0,15	d3 +0,01 Stufung/step 0,01	k +0,2 +0,1	r +0,1	l2 ±0,5	l1 +0,5 +0,2 63	71	80	90	100	120
3	5	**1,6 - 2,9**	3	0,2	7	●	●	●	●		
4	6	**1,6 - 3,9**	3	0,2	10	●	●	●	●	●	
5	8	**2,5 - 4,9**	5	0,3	10	●	●	●	●	●	●
6	9	**3,0 - 5,9**	5	0,3	10	●	●	●	●	●	●
8	11	**4,0 - 7,9**	5	0,3	13	●	●	●	●	●	●
10	13	**5,0 - 9,9**	5	0,3	17	●	●	●	●	●	●
13	16	**9,0 - 12,9**	5	0,5	17	●	●	●	●	●	●
16	19	**12,0 - 15,9**	5	0,5	17	●	●	●	●	●	●
20	23	**16,0 - 19,9**	5	0,5	17	●	●	●	●	●	●
25	28	**20,0 - 24,9**	5	0,5	17	●	●	●	●	●	●
32	35	**27,0 - 31,9**	5	0,5	17	●	●	●	●	●	●
38	41	**33,0 - 37,9**	5	0,5	17	●	●	●	●	●	●

SE 737 EKP

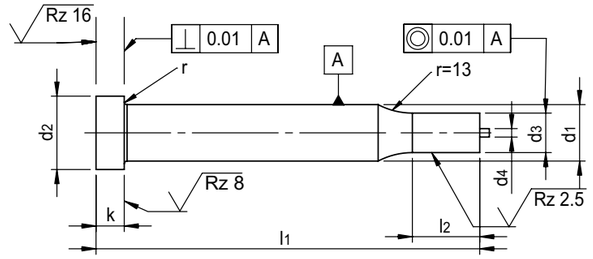
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

SE 737 EKP / 10 x 100 / d3

**Länge l2 frei wählbar!
Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).**

**Length l2 freely selectable!
Punches with rotation prevention available, please specify when ordering.**



CAD MAIL

d1 m5	d2 -0,15	d3 +0,01 Stufung/step 0,01	d4	k +0,2 +0,1	r +0,1	l2 ±0,5	l1 +0,5 +0,2 63	71	80	90	100	120
5	8	**2,5 - 4,9**	1,0	5	0,3	10	●	●	●	●	●	
6	9	**3,0 - 5,9**	1,0	5	0,3	10	●	●	●	●	●	
8	11	**4,0 - 7,9**	1,5	5	0,3	13	●	●	●	●	●	●
10	13	**5,0 - 9,9**	1,5	5	0,3	17	●	●	●	●	●	●
13	16	**9,0 - 12,9**	1,5	5	0,5	17	●	●	●	●	●	●
16	19	**12,0 - 15,9**	2,3	5	0,5	17	●	●	●	●	●	●
20	23	**16,0 - 19,9**	2,3	5	0,5	17	●	●	●	●	●	●
25	28	**20,0 - 24,9**	2,3	5	0,5	17	●	●	●	●	●	●
32	35	**24,0 - 31,9**	3,0	5	0,5	17	●	●	●	●	●	●
38	41	**28,0 - 37,9**	3,0	5	0,5	17	●	●	●	●	●	●

SE 731 . . ISO

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Stempel mit verstärkter Kopfhöhe auf Wunsch lieferbar (bei Bestellung angeben).

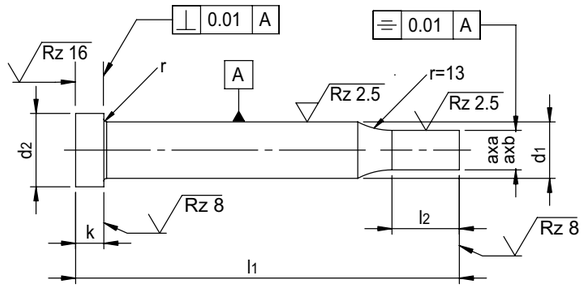
Länge l2 frei wählbar!
Stempel ohne Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

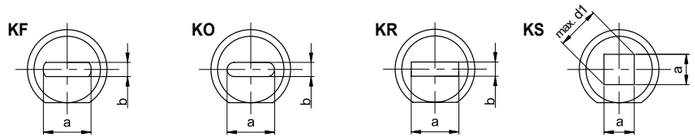
Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
Punches without rotation prevention available, please specify when ordering.

SE 731 KO / ISO / 10 x 100 / a x b

Punches with reinforced head height available, please specify when ordering.





d1 m5	a x b ±0,01 Stufung/step 0,01 ≥ ≤	d2 -0,15	k +0,2 +0,1	r +0,1	l2 ±0,5	l1 +0,5 +0,2 63	71	80	90	100	120
3	**1,6 - 2,9**	5	3	0,2	7	●	●	●	●		
4	**1,6 - 3,9**	6	3	0,2	10	●	●	●	●	●	
5	**2,5 - 4,9**	8	5	0,3	10	●	●	●	●	●	●
6	**3,0 - 5,9**	9	5	0,3	10	●	●	●	●	●	●
8	**4,0 - 7,9**	11	5	0,3	13	●	●	●	●	●	●
10	**5,0 - 9,9**	13	5	0,3	17	●	●	●	●	●	●
13	**9,0 - 12,9**	16	5	0,5	17	●	●	●	●	●	●
16	**12,0 - 15,9**	19	5	0,5	17	●	●	●	●	●	●
20	**16,0 - 19,9**	23	5	0,5	17	●	●	●	●	●	●
25	**20,0 - 24,9**	28	5	0,5	17	●	●	●	●	●	●
32	**27,0 - 31,9**	35	5	0,5	17	●	●	●	●	●	●
38	**33,0 - 37,9**	41	5	0,5	17	●	●	●	●	●	●

SE 737 . . .

mit federndem Auswerferstift

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

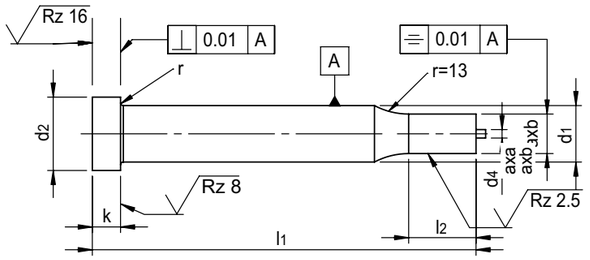
Länge l2 frei wählbar!
Stempel ohne Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

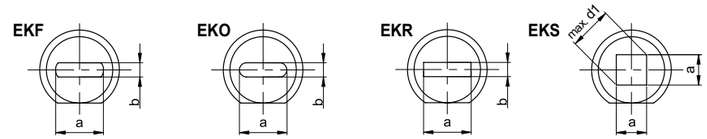
with spring ejector

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
Punches without rotation prevention available, please specify when ordering.

SE 737 EKF / 10 x 100 / a x b





d1 m5	d2 -0,15	a x b ±0,01 Stufung/step 0,01 ≥ ≤	d4	k +0,2 +0,1	r +0,1	l2 ±0,5	l1 +0,5 +0,2 63	71	80	90	100	120
5	8	**2,5 - 4,9**	1,0	5	0,3	10	●	●	●	●	●	
6	9	**3,0 - 5,9**	1,0	5	0,3	10	●	●	●	●	●	
8	11	**4,0 - 7,9**	1,6	5	0,3	13	●	●	●	●	●	●
10	13	**5,0 - 9,9**	1,6	5	0,3	17	●	●	●	●	●	●
13	16	**9,0 - 12,9**	1,6	5	0,5	17	●	●	●	●	●	●
16	19	**12,0 - 15,9**	2,4	5	0,5	17	●	●	●	●	●	●
20	23	**16,0 - 19,9**	2,4	5	0,5	17	●	●	●	●	●	●
25	28	**20,0 - 24,9**	2,4	5	0,5	17	●	●	●	●	●	●
32	35	**24,0 - 31,9**	2,4	5	0,5	17	●	●	●	●	●	●
38	41	**28,0 - 37,9**	2,4	5	0,5	17	●	●	●	●	●	●

SE 391

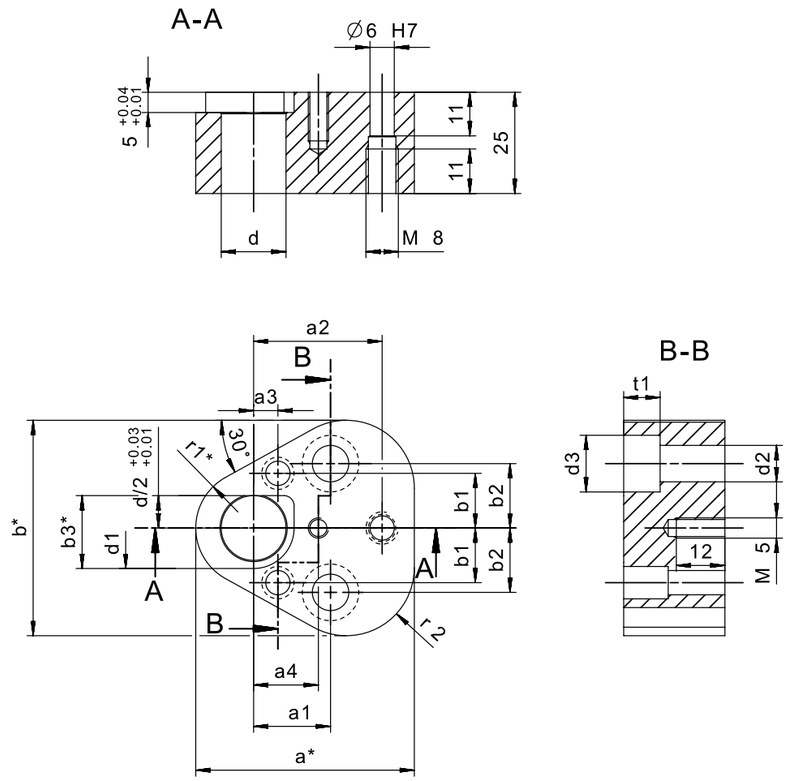
Schwere Ausführung mit Verdrehsicherung

Lieferumfang:
Zylinderkopfschrauben und Zylinderstifte

Heavy duty with rotation prevention

Included:
Socket head cap screw and dowel pins

SE 391 / 13



d	Toleranzen d Tolerances d	d1	d2	d3	t1	a* max.	a1	a2 ±0,01	a3 ±0,01	a4	b* max.	b1 ±0,01	b2	b3*	r1*	r2
10	+0,011 +0,008	14	9	15	9	44,5	19	26,92	7,5	16	43,7	9	11,1	12	9,5	12
13	+0,014 +0,010	17	9	15	9	50,8	19	29,97	6,5	16	50	12	14,3	15	12,7	15,2
16	+0,014 +0,010	20	9	15	9	54	19	31,75	6	16	53,2	13,5	15,9	18	14,3	16,8
20	+0,016 +0,011	24	11	18	11	60,3	19	33,53	5	23	59,5	16,5	17,5	22	17,5	20
25	+0,016 +0,011	29	13,5	20	13	69,9	23,8	40,64	7	30	69,1	22	19,8	27	22,2	24,7
32	+0,019 +0,013	36	13,5	20	13	69,9	23,8	40,64	7	30	69,1	22	19,8	34	22,2	24,7

* Konturen können variieren. Größtmaße sind in der Tabelle angegeben.

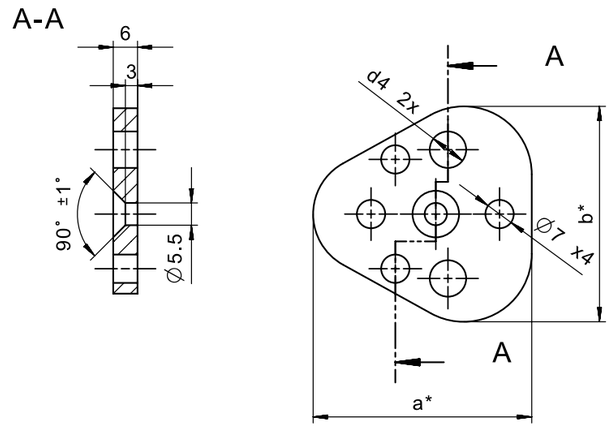
* Contours may vary. Maximum dimensions are given in the table.

SE 392

Mat.: 1.2842
Härte: 50 +3 HRC

Mat.: 1.2842
Hardness: 50 +3 HRC

SE 392 / 13



d SE 391	d4	a* max.	b* max.
10	9	44,5	43,7
13	9	50,8	50
16	9	54	53,2
20	11	60,3	59,5
25	13,5	69,9	69,1
32	13,5	69,9	69,1

* Konturen können variieren. Größtmaße sind in der Tabelle angegeben.

* Contours may vary. Maximum dimensions are given in the table.

SE 393

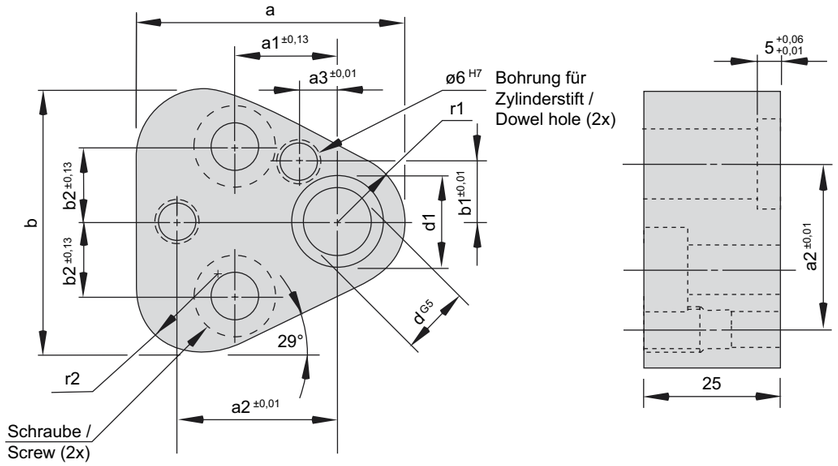
Mat.: C45

Lieferumfang:
Zylinderkopfschrauben und Zylinderstifte

Mat.: C45

Included:
Socket head cap screw and dowel pins

SE 393 / 13



d	d1	a* max.	a1	a2	a3	b* max.	b1	b2	r1*	r2	Schrauben Screws
10	14	44,5	19	26,93	7,5	43,7	9	11,1	9,5	12	M8
13	17	50,8	19	29,97	6,5	50	12	14,3	12,7	15,2	M8
16	20	54	19	31,75	6	53,2	13,5	15,9	14,3	16,8	M8
20	24	60,3	19	33,53	5	59,5	16,5	17,5	17,5	20	M10
25	29	69,9	23,8	40,64	7	69,1	22	19,8	22,2	24,7	M10
32	36	69,9	23,8	40,64	7	69,1	22	19,8	22,2	24,7	M12

* Konturen können variieren. Größtmaße sind in der Tabelle angegeben.

* Contours may vary. Maximum dimensions are given in the table.

SE 394

mit Verdrehsicherung

Mat.: C45

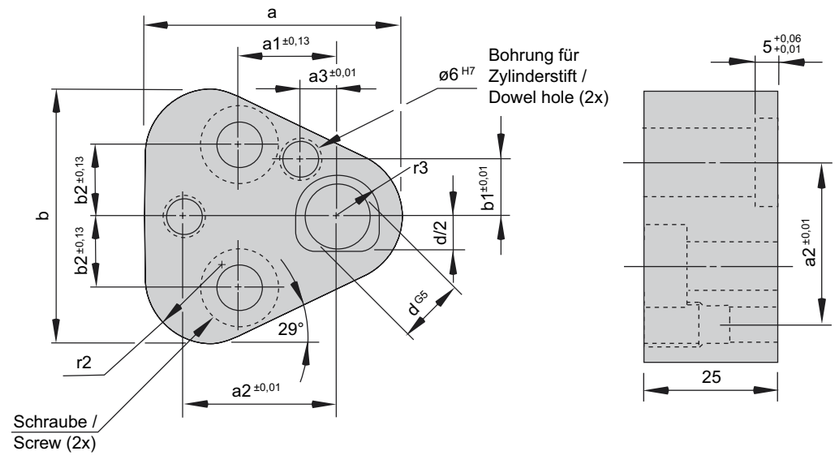
Lieferumfang:
Zylinderkopfschrauben und Zylinderstifte

with rotation prevention

Mat.: C45

Included:
Socket head cap screw and dowel pins

SE 394 / 13



d	a* max.	a1	a2	a3	b* max.	b1	b2	r1*	r2	r3	Schrauben Screws
10	44,5	19	26,93	7,5	43,7	9	11,1	9,5	12	7	M8
13	50,8	19	29,97	6,5	50	12	14,3	12,7	15,2	8,5	M8
16	54	19	31,75	6	53,2	13,5	15,9	14,3	16,8	10	M8
20	60,3	19	33,53	5	59,5	16,5	17,5	17,5	20	12	M10
25	69,9	23,8	40,64	7	69,1	22	19,8	22,2	24,7	14,5	M10
32	69,9	23,8	40,64	7	69,1	22	19,8	22,2	24,7	18	M12

* Konturen können variieren. Größtmaße sind in der Tabelle angegeben.

* Contours may vary. Maximum dimensions are given in the table.

SE 395

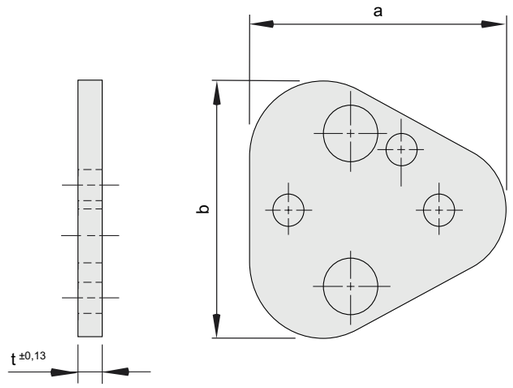
Ausgleichsplatten

Mat.: C45

Shim plates

Mat.: C45

SE 395 / 13



d SE 393, SE 394	t	a* max.	b* max.
10	1,8	44,5	43,7
13	1,8	50,8	50
16	1,8	54	53,2
20	1,8	60,3	59,5
25	1,8	69,9	69,1
32	1,8	69,9	69,1

* Konturen können variieren. Größtmaße sind in der Tabelle angegeben.

* Contours may vary. Maximum dimensions are given in the table.

SE 396

Druckplatten

Mat.: C45
Härte: 55 HRC

Thrust plates

Mat.: C45
Hardness: 55 HRC

SE 396 / 13

d SE 393, SE 394	t	a* max.	b* max.
10	4,8	44,5	43,7
13	4,8	50,8	50
16	4,8	54	53,2
20	4,8	60,3	59,5
25	4,8	69,9	69,1
32	4,8	69,9	69,1

* Konturen können variieren. Größtmaße sind in der Tabelle angegeben.

* Contours may vary. Maximum dimensions are given in the table.

[06.05.2020]

[06.05.2020]

SE 750

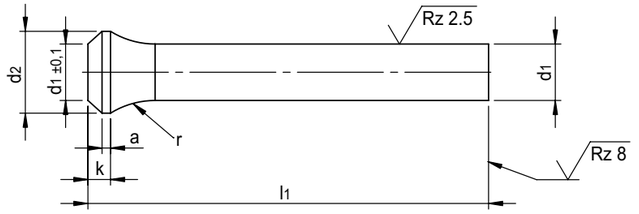
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Punches with rotation prevention available, please specify when ordering.

SE 750 / 13,0 x 100



d1 **h6**	d2 -0,2	k +0,2	a	r -0,2	**l1** **+0,5** **71**	**80**	**90**	**100**	**120**
2,0	3,0	3	1,0	3,5	●	●	●		
2,5	3,5	3	1,0	3,5	●	●	●		
3,0	4,5	3	1,0	6,5	●	●	●		
3,5	5,0	3	1,0	8,0	●	●	●		
4,0	5,5	4	1,5	8,0	●	●	●	●	
4,5	6,0	4	1,5	8,0	●	●	●	●	
5,0	7,0	4	1,5	10,0	●	●	●	●	●
5,5	8,0	4	1,5	10,0	●	●	●	●	●
6,0	9,0	4	1,5	10,0	●	●	●	●	●
6,5	10,0	4	1,5	12,0	●	●	●	●	●
7,0	10,0	4	1,5	12,0	●	●	●	●	●
7,5	11,0	4	1,5	12,0	●	●	●	●	●
8,0	11,0	4	1,5	12,0	●	●	●	●	●
8,5	13,0	4	1,5	15,0	●	●	●	●	●
9,0	13,0	4	1,5	15,0	●	●	●	●	●
9,5	14,0	4	1,5	15,0	●	●	●	●	●
10,0	14,0	4	1,5	15,0	●	●	●	●	●
10,5	15,0	4	1,5	15,0	●	●	●	●	●
11,0	15,0	4	1,5	15,0	●	●	●	●	●
11,5	16,0	4	1,5	15,0	●	●	●	●	●
12,0	16,0	4	1,5	15,0	●	●	●	●	●
12,5	17,0	4	1,5	15,0	●	●	●	●	●
13,0	17,0	4	1,5	15,0	●	●	●	●	●
13,5	18,0	4	1,5	15,0	●	●	●	●	●
14,0	18,0	4	1,5	15,0	●	●	●	●	●
14,5	19,0	4	1,5	15,0	●	●	●	●	●
15,0	19,0	4	1,5	15,0	●	●	●	●	●
15,5	20,0	4	1,5	15,0	●	●	●	●	●
16,0	20,0	4	1,5	15,0	●	●	●	●	●
16,5	21,0	4	1,5	15,0	●	●	●	●	●
17,0	21,0	4	1,5	15,0	●	●	●	●	●
17,5	22,0	4	1,5	15,0	●	●	●	●	●
18,0	22,0	4	1,5	15,0	●	●	●	●	●
18,5	23,0	4	1,5	15,0	●	●	●	●	●
19,0	23,0	4	1,5	15,0	●	●	●	●	●
19,5	25,0	4	1,5	15,0	●	●	●	●	●
20,0	25,0	4	1,5	15,0	●	●	●	●	●
25,0	30,0	4	1,5	15,0	●	●	●	●	●
	= bevorzugte Abmessungen / preferred dimensions								

Schneidstempel Posaunenhals mit fed. Auswerferstift

Punches trumpet head with spring ejector

SE 753

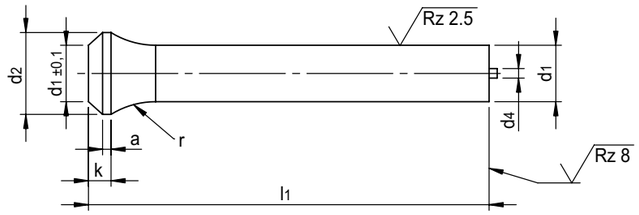
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Punches with rotation prevention available, please specify when ordering.

SE 753 / 13,0 x 100



CAD MAIL

d1 h6	d2 -0,2	k +0,2	a	r -0,2	d4	l1 +0,5				
						71	80	90	100	120
5,0	7	4	1,5	10	1,0	●	●	●	●	
6,0	9	4	1,5	10	1,0	●	●	●	●	
8,0	11	4	1,5	12	1,5	●	●	●	●	●
10,0	14	4	1,5	15	1,5	●	●	●	●	●
13,0	17	4	1,5	15	1,5	●	●	●	●	●
16,0	20	4	1,5	15	2,3	●	●	●	●	●
20,0	25	4	1,5	15	2,3	●	●	●	●	●
25,0	30	4	1,5	15	2,3	●	●	●	●	●

Zwischenabmessungen auf Anfrage! / Intermediate dimensions on request!

[06.05.2020]

Schneidstempel Posaunenhals, abgesetzter Schaft

Punches trumpet head, shouldered shank

SE 751

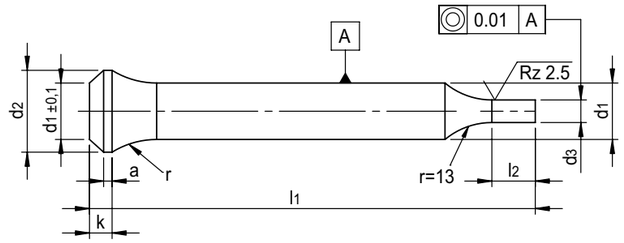
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Länge l2 frei wählbar!
Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
Punches with rotation prevention available, please specify when ordering.

SE 751 / 10,0 x 100 / d3



CAD MAIL

d1 h6	d3 h6 Stufung/step 0,01	d2 -0,2	k +0,2	a	r -0,2	l2 +0,5	l1 +0,5				
							71	80	90	100	120
2,0	**0,5 - 1,9**	3,0	3	1,0	3,5	7	●	●	●		
2,5	**0,5 - 2,4**	3,5	3	1,0	3,5	7	●	●	●		
3,0	**1,6 - 2,9**	4,5	3	1,0	6,5	7	●	●	●		
3,5	**1,6 - 3,4**	5,0	3	1,0	8,0	10	●	●	●		
4,0	**1,6 - 3,9**	5,5	4	1,5	8,0	10	●	●	●	●	
4,5	**2,0 - 4,4**	6,0	4	1,5	8,0	10	●	●	●	●	
5,0	**2,5 - 4,9**	7,0	4	1,5	10,0	10	●	●	●	●	●
5,5	**2,5 - 5,4**	8,0	4	1,5	10,0	10	●	●	●	●	●
6,0	**3,0 - 5,9**	9,0	4	1,5	10,0	10	●	●	●	●	●
6,5	**3,0 - 6,4**	10,0	4	1,5	12,0	10	●	●	●	●	●
7,0	**3,5 - 6,9**	10,0	4	1,5	12,0	10	●	●	●	●	●
7,5	**3,5 - 7,4**	11,0	4	1,5	12,0	10	●	●	●	●	●
8,0	**3,5 - 7,9**	11,0	4	1,5	12,0	13	●	●	●	●	●
8,5	**4,0 - 8,4**	13,0	4	1,5	15,0	13	●	●	●	●	●
9,0	**4,0 - 8,9**	13,0	4	1,5	15,0	13	●	●	●	●	●
9,5	**4,5 - 9,4**	14,0	4	1,5	15,0	13	●	●	●	●	●
10,0	**5,0 - 9,9**	14,0	4	1,5	15,0	17	●	●	●	●	●
10,5	**5,5 - 10,4**	15,0	4	1,5	15,0	17	●	●	●	●	●
11,0	**5,5 - 10,9**	15,0	4	1,5	15,0	17	●	●	●	●	●
11,5	**6,0 - 11,4**	16,0	4	1,5	15,0	17	●	●	●	●	●
12,0	**6,0 - 11,9**	16,0	4	1,5	15,0	17	●	●	●	●	●
12,5	**7,0 - 12,4**	17,0	4	1,5	15,0	17	●	●	●	●	●
13,0	**9,0 - 12,9**	17,0	4	1,5	15,0	17	●	●	●	●	●
13,5	**9,0 - 13,4**	18,0	4	1,5	15,0	17	●	●	●	●	●
14,0	**9,5 - 13,9**	18,0	4	1,5	15,0	17	●	●	●	●	●
14,5	**9,5 - 14,4**	19,0	4	1,5	15,0	17	●	●	●	●	●
15,0	**10,0 - 14,9**	19,0	4	1,5	15,0	17	●	●	●	●	●
15,5	**10,5 - 15,4**	20,0	4	1,5	15,0	17	●	●	●	●	●
16,0	**12,0 - 15,9**	20,0	4	1,5	15,0	17	●	●	●	●	●
16,5	**12,5 - 16,4**	21,0	4	1,5	15,0	17	●	●	●	●	●
17,0	**13,0 - 16,9**	21,0	4	1,5	15,0	17	●	●	●	●	●
17,5	**13,0 - 17,4**	22,0	4	1,5	15,0	17	●	●	●	●	●
18,0	**13,5 - 17,9**	22,0	4	1,5	15,0	17	●	●	●	●	●
18,5	**13,5 - 18,4**	23,0	4	1,5	15,0	17	●	●	●	●	●
19,0	**14,0 - 18,9**	23,0	4	1,5	15,0	17	●	●	●	●	●
19,5	**15,0 - 19,4**	25,0	4	1,5	15,0	17	●	●	●	●	●
20,0	**16,0 - 19,9**	25,0	4	1,5	15,0	17	●	●	●	●	●
25,0	**18,0 - 24,9**	30,0	4	1,5	15,0	17	●	●	●	●	●
	= bevorzugte Abmessungen / preferred dimensions										

[06.05.2020]

SE 754

mit federndem Auswerferstift

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

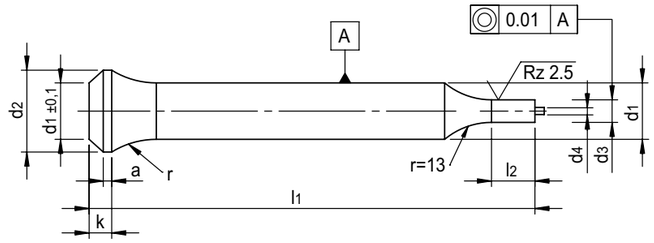
Länge l2 frei wählbar!
Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

with spring ejector

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
Punches with rotation prevention available, please specify when ordering.

SE 754 / 10,0 x 100 / d3



CAD MAIL

d1 h6	d3 h6 Stufung/step 0,01 ≥ ≤	d2	k -0,2	a +0,2	r	l2 -0,2	d4 +0,5	l1 +0,5 71	80	90	100	120
5,0	**2,5 - 4,9**	7	4,0	1,5	10,0	10	1,0	●	●	●	●	
6,0	**3,0 - 5,9**	9	4,0	1,5	10,0	10	1,0	●	●	●	●	
8,0	**4,0 - 7,9**	11	4,0	1,5	12,0	13	1,5	●	●	●	●	●
10,0	**5,0 - 9,9**	14	4,0	1,5	15,0	17	1,5	●	●	●	●	●
13,0	**9,0 - 12,9**	17	4,0	1,5	15,0	17	1,5	●	●	●	●	●
16,0	**12,0 - 15,9**	20	4,0	1,5	15,0	17	2,3	●	●	●	●	●
20,0	**16,0 - 19,9**	25	4,0	1,5	15,0	17	2,3	●	●	●	●	●
25,0	**18,0 - 24,9**	30	4,0	1,5	15,0	17	2,3	●	●	●	●	●
Zwischenabmessungen auf Anfrage! / Intermediate dimensions on request!												

[06.05.2020]

[06.05.2020]

Schneidstempel Posaunenhals, abgesetzter Schaft
Punches trumpet head, shouldered shank
SCHNEIDELEMENTE / CUTTING ELEMENTS

SE 752 . .

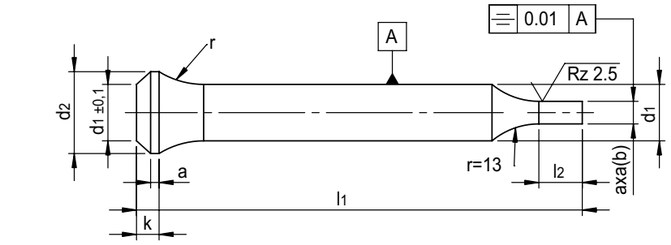
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

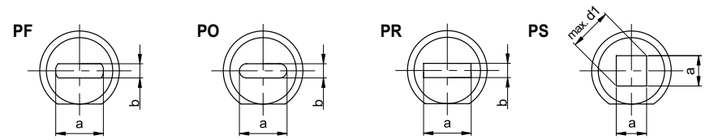
Länge l2 frei wählbar!
Stempel ohne Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
Punches without rotation prevention available, please specify when ordering.

SE 752 PF / 10,0 x 100 / a x b





CAD MAIL

d1 h6	a x b ±0,01 Stufung/step 0,01 ≥ ≤	d2 -0,2	k +0,2	a	r -0,2	l2 +0,5	l1 +0,5 71	80	90	100	120
2,0	**0,5 - 1,9**	3,0	3	1,0	3,5	7	●	●	●		
2,5	**0,5 - 2,4**	3,5	3	1,0	3,5	7	●	●	●		
3,0	**1,6 - 2,9**	4,5	3	1,0	6,5	7	●	●	●		
3,5	**1,6 - 3,4**	5,0	3	1,0	8,0	10	●	●	●		
4,0	**1,6 - 3,9**	5,5	4	1,5	8,0	10	●	●	●	●	
4,5	**2,0 - 4,4**	6,0	4	1,5	8,0	10	●	●	●	●	
5,0	**2,5 - 4,9**	7,0	4	1,5	10,0	10	●	●	●	●	●
5,5	**2,5 - 5,4**	8,0	4	1,5	10,0	10	●	●	●	●	●
6,0	**3,0 - 5,9**	9,0	4	1,5	10,0	10	●	●	●	●	●
6,5	**3,0 - 6,4**	10,0	4	1,5	12,0	10	●	●	●	●	●
7,0	**3,5 - 6,9**	10,0	4	1,5	12,0	10	●	●	●	●	●
7,5	**3,5 - 7,4**	11,0	4	1,5	12,0	10	●	●	●	●	●
8,0	**3,5 - 7,9**	11,0	4	1,5	12,0	13	●	●	●	●	●
8,5	**4,0 - 8,4**	13,0	4	1,5	15,0	13	●	●	●	●	●
9,0	**4,0 - 8,9**	13,0	4	1,5	15,0	13	●	●	●	●	●
9,5	**4,5 - 9,4**	14,0	4	1,5	15,0	13	●	●	●	●	●
10,0	**5,0 - 9,9**	14,0	4	1,5	15,0	17	●	●	●	●	●
10,5	**5,5 - 10,4**	15,0	4	1,5	15,0	17	●	●	●	●	●
11,0	**5,5 - 10,9**	15,0	4	1,5	15,0	17	●	●	●	●	●
11,5	**6,0 - 11,4**	16,0	4	1,5	15,0	17	●	●	●	●	●

d1 h6	a x b ±0,01 Stufung/step 0,01 ≥ ≤	d2 -0,2	k +0,2	a	r -0,2	l2 +0,5	l1 +0,5 71	80	90	100	120
12,0	**6,0 - 11,9**	16,0	4	1,5	15,0	17	●	●	●	●	●
12,5	**7,0 - 12,4**	17,0	4	1,5	15,0	17	●	●	●	●	●
13,0	**9,0 - 12,9**	17,0	4	1,5	15,0	17	●	●	●	●	●
13,5	**9,0 - 13,4**	18,0	4	1,5	15,0	17	●	●	●	●	●
14,0	**9,5 - 13,9**	18,0	4	1,5	15,0	17	●	●	●	●	●
14,5	**9,5 - 14,4**	19,0	4	1,5	15,0	17	●	●	●	●	●
15,0	**10,0 - 14,9**	19,0	4	1,5	15,0	17	●	●	●	●	●
15,5	**10,5 - 15,4**	20,0	4	1,5	15,0	17	●	●	●	●	●
16,0	**12,0 - 15,9**	20,0	4	1,5	15,0	17	●	●	●	●	●
16,5	**12,5 - 16,4**	21,0	4	1,5	15,0	17	●	●	●	●	●
17,0	**13,0 - 16,9**	21,0	4	1,5	15,0	17	●	●	●	●	●
17,5	**13,0 - 17,4**	22,0	4	1,5	15,0	17	●	●	●	●	●
18,0	**13,5 - 17,9**	22,0	4	1,5	15,0	17	●	●	●	●	●
18,5	**13,5 - 18,4**	23,0	4	1,5	15,0	17	●	●	●	●	●
19,0	**14,0 - 18,9**	23,0	4	1,5	15,0	17	●	●	●	●	●
19,5	**15,0 - 19,4**	25,0	4	1,5	15,0	17	●	●	●	●	●
20,0	**16,0 - 19,9**	25,0	4	1,5	15,0	17	●	●	●	●	●
25,0	**18,0 - 24,9**	30,0	4	1,5	15,0	17	●	●	●	●	●
	= bevorzugte Abmessungen / preferred dimensions										

Schneidstempel Posaunenhals abgesetzter Schaft

Punches trumpet head shouldered shank

SE 755 . . .

mit federndem Auswerferstift

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

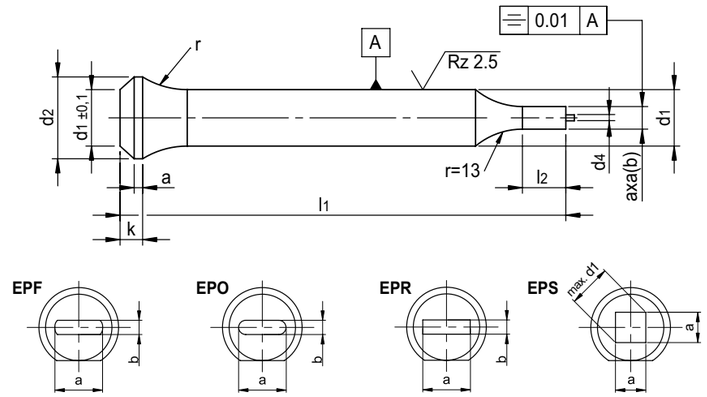
Länge l2 frei wählbar!
Stempel ohne Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

with spring ejector

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
Punches without rotation prevention available, please specify when ordering.

SE 755 EPF / 10,0 x 100 / a x b



CAD MAIL

d1 h6	a x b ±0,01 Stufung/step 0,01 ≥ ≤	d2	k -0,2	a +0,2	r	l2 -0,2	d4 +0,5	l1 +0,5 71	80	90	100	120
5,0	**2,5 - 4,9**	7	4,0	1,5	10	10	1,0	●	●	●	●	
6,0	**3,0 - 5,9**	9	4,0	1,5	10	10	1,0	●	●	●	●	
8,0	**4,0 - 7,9**	11	4,0	1,5	12	13	1,5	●	●	●	●	●
10,0	**5,0 - 9,9**	14	4,0	1,5	15	17	1,5	●	●	●	●	●
13,0	**9,0 -12,9**	17	4,0	1,5	15	17	1,5	●	●	●	●	●
16,0	**12,0-15,9**	20	4,0	1,5	15	17	2,3	●	●	●	●	●
20,0	**16,0-19,9**	25	4,0	1,5	15	17	2,3	●	●	●	●	●
25,0	**18,0-24,9**	30	4,0	1,5	15	17	2,3	●	●	●	●	●

Zwischenabmessungen auf Anfrage! / Intermediate dimensions on request!

[06.05.2020]

Kopfsenker für Posaunenhals-Stempel

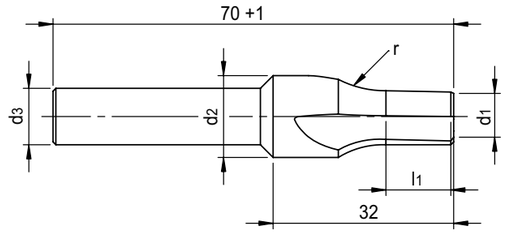
Counterbore-tools for trumpet-head punches

SE 020

Mat.: HSS
Härte Schaft: 64 ±2 HRC

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC

SE 020 / 6,0



CAD MAIL

d1 f7	d2 h8	d3 h11	r	l1
5,0	7,4	d2	10	10
5,5	8,5	d2	10	10
6,0	9,5	d2	10	10
6,5 / 7,0	10,5	10	12	12
7,5 / 8,0	11,5	10	12	12
8,5 / 9,0	13,5	10	15	12
9,5 / 10,0	14,5	10	15	12
10,5 / 11,0	15,5	10	15	15
11,5 / 12,0	16,5	10	15	15
12,5 / 13,0	17,5	10	15	15
13,5 / 14,0	18,5	10	15	15
14,5 / 15,0	19,5	10	15	15
15,5 / 16,0	20,5	10	15	15
16,5 / 17,0	21,5	16	15	15
17,5 / 18,0	22,5	16	15	15
18,5 / 19,0	23,5	16	15	15
19,5 / 20,0	25,5	16	15	15
25,0	30,5	16	15	15

Zwischenabmessungen auf Anfrage! / Intermediate dimensions on request!

[06.05.2020]

[SE]

SE 709

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

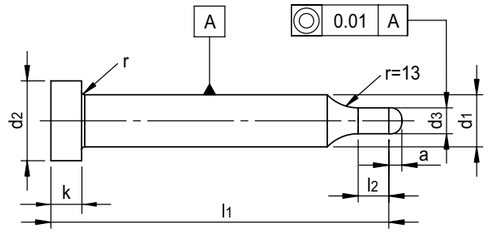
Gesamtlänge = l1 + a
Länge l2 frei wählbar!
Fehlende Maße siehe **SE 712** (Seite SE.4)

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Total length = l1 + a
Length l2 freely selectable!
for missing dimensions please see **SE 712** (Page SE.4)

SE 709 / 6 x 100 / d3

Punches with rotation prevention available, please specify when ordering.



CAD MAIL

d1 m5	d3 +0,01 Stufung/step 0,01	l2	a	l1 +0,5 +0,2 63	71	80	90	100
5	**0,8 - 2,0**	10	3,0	●	●	●	●	●
6	**2,1 - 4,5**	10	4,5	●	●	●	●	●
8	**4,6 - 7,5**	13	6,5	●	●	●	●	●
10	**7,6 - 10,0**	17	8,0	●	●	●	●	●
13	**10,1 - 13,0**	17	9,5	●	●	●	●	●
16	**13,1 - 16,0**	17	11,5	●	●	●	●	●
20	**16,1 - 20,0**	17	13,5	●	●	●	●	●
25	**20,1 - 25,0**	17	13,5	●	●	●	●	●

SE 730

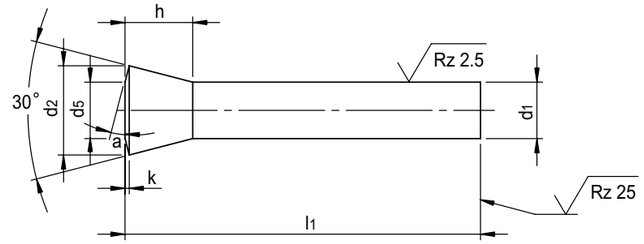
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Punches with rotation prevention available, please specify when ordering.

SE 730 / 8 x 100



CAD MAIL

d1 h6	d2 -0,3	d5	h	k	a	l1 +1 71	80	90	100	120
4	6,6	3,8	6	1,0	35,0	●	●	●	●	
5	8,2	5,0	7	1,0	32,0	●	●	●	●	●
6	9,7	6,0	8	1,0	28,0	●	●	●	●	●
7	11,8	7,0	10	1,0	22,6	●	●	●	●	●
8	12,8	8,0	10	1,0	22,5	●	●	●	●	●
9	14,4	9,0	11	1,0	20,0	●	●	●	●	●
10	15,9	10,0	12	1,0	19,0	●	●	●	●	●
11	17,4	11,0	13	1,5	25,0	●	●	●	●	●
12	18,7	12,0	14	1,5	24,0	●	●	●	●	●
13	20,2	13,0	15	1,5	26,0	●	●	●	●	●
14	21,8	14,0	16	1,5	21,0	●	●	●	●	●
15	23,3	15,0	17	1,5	20,0	●	●	●	●	●
16	24,6	16,0	18	2,0	25,0	●	●	●	●	●

SE 734

mit federndem Auswerferstift

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

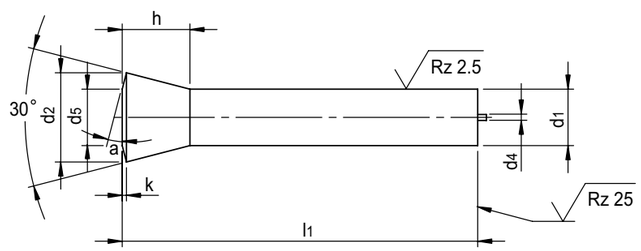
Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

with spring ejector

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Punches with rotation prevention available, please specify when ordering.

SE 734 / 8 x 100



d1 h6	d2 -0,3	d4	d5	h	k	a	l1 +1 71	80	90	100	120
5	8,2	1	5,0	7	1,0	32,0	●	●	●	●	●
6	9,7	1	6,0	8	1,0	28,0	●	●	●	●	●
7	11,8	1	7,0	10	1,0	22,6	●	●	●	●	●
8	12,8	1,5	8,0	10	1,0	22,5	●	●	●	●	●
9	14,4	1,5	9,0	11	1,0	20,0	●	●	●	●	●
10	15,9	1,5	10,0	12	1,0	19,0	●	●	●	●	●
11	17,4	1,5	11,0	13	1,5	25,0	●	●	●	●	●
12	18,7	1,5	12,0	14	1,5	24,0	●	●	●	●	●
13	20,2	1,5	13,0	15	1,5	26,0	●	●	●	●	●
14	21,8	1,5	14,0	16	1,5	21,0	●	●	●	●	●
15	23,3	2,3	15,0	17	1,5	20,0	●	●	●	●	●
16	24,6	2,3	16,0	18	2,0	25,0	●	●	●	●	●

SE 732

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

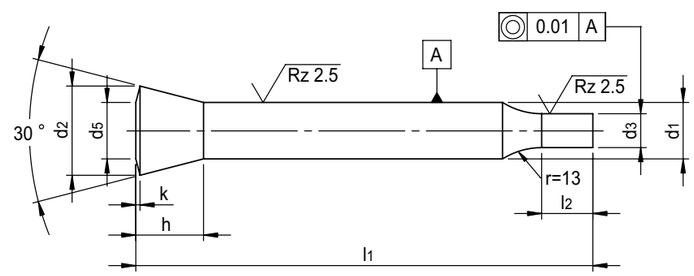
Länge l2 frei wählbar!
Fehlende Maße siehe **SE 730** (Seite SE.23)

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
for missing dimensions please see **SE 730** (page SE.23)

SE 732 / 6 x 100 / d3

Punches with rotation prevention available, please specify when ordering.



d1 h6	d3 h6 Stufung/step 0,01	l2	d5	h	k	l1 +1 71	80	90	100	120
4	**1,6 - 3,9**	10	3,8	6	1,0	●	●	●	●	
5	**2,5 - 4,9**	10	5,0	7	1,0	●	●	●	●	●
6	**3,0 - 5,9**	10	6,0	8	1,0	●	●	●	●	●
7	**3,0 - 6,9**	10	7,0	10	1,0	●	●	●	●	●
8	**4,0 - 7,9**	13	8,0	10	1,0	●	●	●	●	●
9	**4,5 - 8,9**	13	9,0	11	1,0	●	●	●	●	●
10	**5,0 - 9,9**	17	10,0	12	1,0	●	●	●	●	●
11	**5,0 -10,9**	17	11,0	13	1,5	●	●	●	●	●
12	**6,0 -11,9**	17	12,0	14	1,5	●	●	●	●	●
13	**9,0 -12,9**	17	13,0	15	1,5	●	●	●	●	●
14	**9,5 -13,9**	17	14,0	16	1,5	●	●	●	●	●
15	**10,0-14,9**	17	15,0	17	1,5	●	●	●	●	●
16	**12,0-15,9**	17	16,0	18	2,0	●	●	●	●	●

SE 735

mit federndem Auswerferstift

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

Länge l2 frei wählbar!
Fehlende Maße siehe **SE 730** (Seite SE.23)

with spring ejector

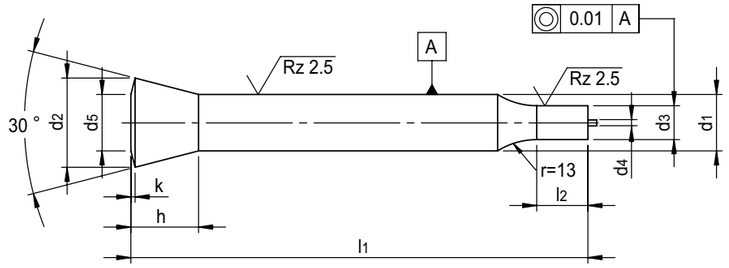
Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
for missing dimensions please see **SE 730** (page SE.23)

SE 735 / 6 x 100 / d3

Stempel mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Punches with rotation prevention available, please specify when ordering.



MAIL

d1 h6	d3 h6 Stufung/step 0,01	d4	l2	d5	h	k	l1 +1 71	80	90	100	120
5	**2,5 - 4,9**	1	10	5,0	7	1,0	●	●	●	●	●
6	**3,0 - 5,9**	1	10	6,0	8	1,0	●	●	●	●	●
7	**3,0 - 6,9**	1	10	7,0	10	1,0	●	●	●	●	●
8	**4,0 - 7,9**	1,5	13	8,0	10	1,0	●	●	●	●	●
9	**4,5 - 8,9**	1,5	13	9,0	11	1,0	●	●	●	●	●
10	**5,0 - 9,9**	1,5	17	10,0	12	1,0	●	●	●	●	●
11	**5,0 -10,9**	1,5	17	11,0	13	1,5	●	●	●	●	●
12	**6,0 -11,9**	1,5	17	12,0	14	1,5	●	●	●	●	●
13	**9,0 -12,9**	1,5	17	13,0	15	1,5	●	●	●	●	●
14	**9,5 -13,9**	1,5	17	14,0	16	1,5	●	●	●	●	●
15	**10,0-14,9**	2,3	17	15,0	17	1,5	●	●	●	●	●
16	**12,0-15,9**	2,3	17	16,0	18	2,0	●	●	●	●	●

Schneidstempel 30° Kopf, abgesetzter Schaft
Punches 30° head, shouldered shank
SCHNEIDELEMENTE / CUTTING ELEMENTS

SE 733 . . .

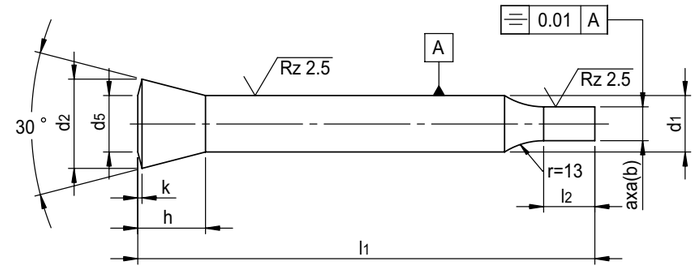
Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

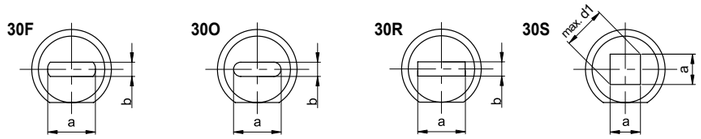
Länge l2 frei wählbar!
Stempel ohne Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).
Fehlende Maße siehe **SE 730** (Seite SE.23)

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
Punches without rotation prevention available, please specify when ordering.
for missing dimensions please see **SE 730** (page SE.23)

SE 733 30F / 6 x 100 / a x b





CAD MAIL

d1 h6	a x b ±0,01 Stufung/step 0,01 ≥ ≤	l2 +0,5	d5	h	k	l1 +1 71	80	90	100	120
4	**1,6 - 3,9**	10	3,8	6	1,0	●	●	●	●	
5	**2,5 - 4,9**	10	5,0	7	1,0	●	●	●	●	●
6	**3,0 - 5,9**	10	6,0	8	1,0	●	●	●	●	●
7	**3,0 - 6,9**	10	7,0	10	1,0	●	●	●	●	●
8	**4,0 - 7,9**	13	8,0	10	1,0	●	●	●	●	●
9	**4,5 - 8,9**	13	9,0	11	1,0	●	●	●	●	●
10	**5,0 - 9,9**	17	10,0	12	1,0	●	●	●	●	●
11	**5,0 -10,9**	17	11,0	13	1,5	●	●	●	●	●
12	**6,0 -11,9**	17	12,0	14	1,5	●	●	●	●	●
13	**9,0 -12,9**	17	13,0	15	1,5	●	●	●	●	●
14	**9,5 -13,9**	17	14,0	16	1,5	●	●	●	●	●
15	**10,0-14,9**	17	15,0	17	1,5	●	●	●	●	●
16	**12,0-15,9**	17	16,0	18	2,0	●	●	●	●	●

SE 736 . . .

mit federndem Auswerferstift

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 50 ±5 HRC

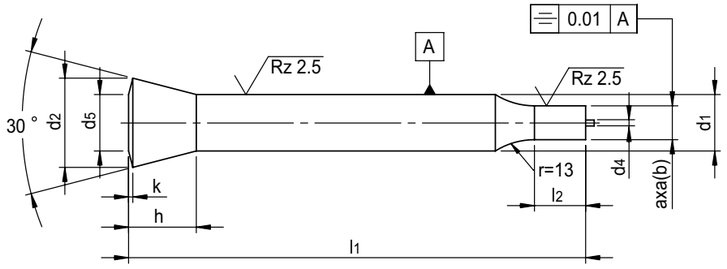
Länge l2 frei wählbar!
Stempel ohne Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).
Fehlende Maße siehe **SE 730** (Seite SE.23)

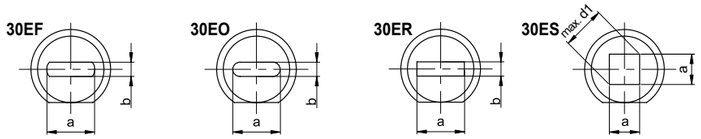
with spring ejector

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 50 ±5 HRC

Length l2 freely selectable!
Punches without rotation prevention available, please specify when ordering.
for missing dimensions please see **SE 730** (page SE.23)

SE 736 30EF / 6 x 100 / a x b



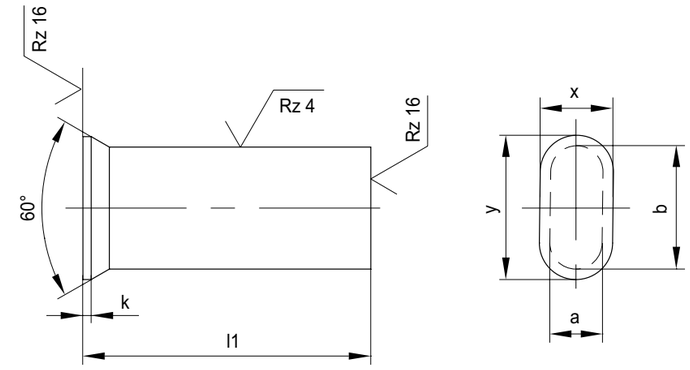


d1 h6	a x b ±0,01 Stufung/step 0,01 ≥ ≤	d4	l2 +0,5	d5	h	k	l1 +1 71	80	90	100	120
5	**2,5 - 4,9**	1	10	5,0	7	1,0	●	●	●	●	●
6	**3,0 - 5,9**	1	10	6,0	8	1,0	●	●	●	●	●
7	**3,0 - 6,9**	1	10	7,0	10	1,0	●	●	●	●	●
8	**4,0 - 7,9**	1,5	13	8,0	10	1,0	●	●	●	●	●
9	**4,5 - 8,9**	1,5	13	9,0	11	1,0	●	●	●	●	●
10	**5,0 - 9,9**	1,5	17	10,0	12	1,0	●	●	●	●	●
11	**5,0 -10,9**	1,5	17	11,0	13	1,5	●	●	●	●	●
12	**6,0 -11,9**	1,5	17	12,0	14	1,5	●	●	●	●	●
13	**9,0 -12,9**	1,5	17	13,0	15	1,5	●	●	●	●	●
14	**9,5 -13,9**	1,5	17	14,0	16	1,5	●	●	●	●	●
15	**10,0-14,9**	2,3	17	15,0	17	1,5	●	●	●	●	●
16	**12,0-15,9**	2,3	17	16,0	18	2,0	●	●	●	●	●

[06.05.2020]

mit Senkkopf

with countersunk head



SE 744

Qualitätsausführung
Kopf und Schaft feinstgeschliffen
Kopf gestaucht

Mat.: HWS
Härte Schaft: 62 ±2 HRC
Kopf: 45 ±5 HRC

ohne Toleranzangabe
a/b: ±0,02
l: +0,5 / +1,0

Kopfmaße können nach Ihren Angaben gefertigt werden!

Grade A - finish
Head and shank finish-ground
Jolted head

Mat.: HWS (e.g. A2)
Hardness shank: 62 ±2 HRC
Head: 45 ±5 HRC

untoleranced
a/b: ±0,02
l: +0,5 / +1,0

Head-dimensions can be produced as per customers request!

SE 744 / a x b x l1 x c x d x k

SE 745

Qualitätsausführung
Kopf und Schaft feinstgeschliffen
Kopf gestaucht

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 45 ±5 HRC

ohne Toleranzangabe
a/b: ±0,02
l: +0,5 / +1,0

Kopfmaße können nach Ihren Angaben gefertigt werden!

Grade A - finish
Head and shank finish-ground
Jolted head

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 45 ±5 HRC

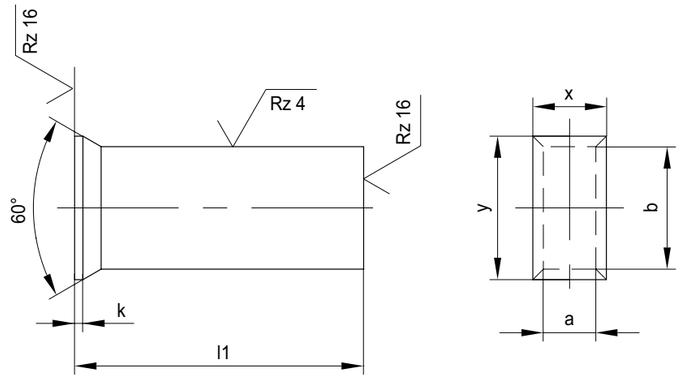
untoleranced
a/b: ±0,02
l: +0,5 / +1,0

Head-dimensions can be produced as per customers request!

SE 745 / a x b x l1 x c x d x k

[06.05.2020]

mit Senkkopf | with countersunk head



SE 748

SE 748 / a x b x l1 x c x d x k

Qualitätsausführung
Kopf und Schaft feinstgeschliffen
Kopf gestaucht

Mat.: HWS
Härte Schaft: 62 ±2 HRC
Kopf: 45 ±5 HRC

ohne Toleranzangabe
a/b: ±0,02
l: +0,5 / +1,0

Kopfmaße können nach Ihren Angaben gefertigt werden!

Grade A - finish
Head and shank finish-ground
Jolted head

HWS (e.g. A2)
Hardness shank: 62 ±2 HRC
Head: 45 ±5 HRC

untoleranced
a/b: ±0,02
l: +0,5 / +1,0

Head-dimensions can be produced as per customers request!

MAIL

SE 749

SE 749 / a x b x l1 x c x d x k

Qualitätsausführung
Kopf und Schaft feinstgeschliffen
Kopf gestaucht

Mat.: HSS
Härte Schaft: 64 ±2 HRC
Kopf: 45 ±5 HRC

ohne Toleranzangabe
a/b: ±0,02
l: +0,5 / +1,0

Kopfmaße können nach Ihren Angaben gefertigt werden!

Grade A - finish
Head and shank finish-ground
Jolted head

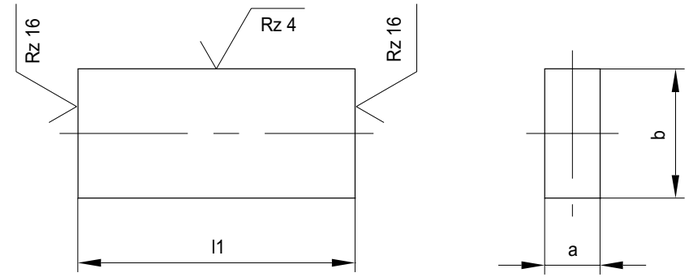
Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC
Head: 45 ±5 HRC

untoleranced
a/b: ±0,02
l: +0,5 / +1,0

Head-dimensions can be produced as per customers request!

MAIL

Schneidstempel mit Rechteckprofil über die Gesamtlänge
Punches with rectangular shape over total length
SCHNEIDELEMENTE / CUTTING ELEMENTS
[SE]



SE 738

SE 738 / a x b x l1

Mat.: HWS
Härte Schaft: 62 ±2 HRC

ohne Toleranzangabe
a/b: ±0,02
l: +0,5 / +1,0

Mat.: HWS (e.g. A2)
Hardness shank: 62 ±2 HRC

untoleranced
a/b: ±0,02
l: +0,5 / +1,0

MAIL

SE 739

SE 739 / a x b x l1

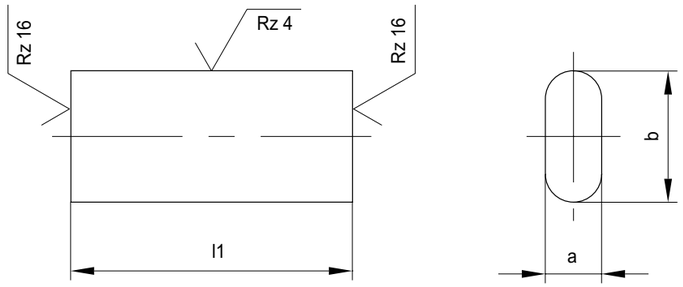
Mat.: HSS
Härte Schaft: 64 ±2 HRC

ohne Toleranzangabe
a/b: ±0,02
l: +0,5 / +1,0

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC

untoleranced
a/b: ±0,02
l: +0,5 / +1,0

MAIL



SE 740

Mat.: HWS
Härte Schaft: 62 ±2 HRC

ohne Toleranzangabe
a/b: ±0,02
l: +0,5 / +1,0

Mat.: HWS (e.g. A2)
Hardness shank: 62 ±2 HRC

untoleranced
a/b: ±0,02
l: +0,5 / +1,0

SE 740 / a x b x l1

MAIL

SE 741

Mat.: HSS
Härte Schaft: 64 ±2 HRC

ohne Toleranzangabe
a/b: ±0,02
l: +0,5 / +1,0

Mat.: HSS (e.g. M2)
Hardness shank: 64 ±2 HRC

untoleranced
a/b: ±0,02
l: +0,5 / +1,0

SE 741 / a x b x l1

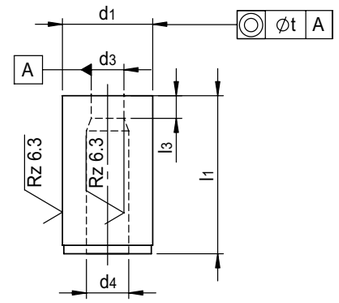
MAIL

SE 791

Mat.: HSS
Härte: 64 ±2 HRC

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

SE 791 / 3,0 x 28



CAD MAIL

d3 H8	Stufung Graduation	d1 n6	d4	kurze Ausführung short version l1 +0,5	kurze Ausführung short version l3	lange Ausführung long version l1 +0,5	lange Ausführung long version l3	t
1,0	0,1	5	d3 + 0,3	**20**	2	**–**	–	0,01
1,1 - 2,0	0,1	6	d3 + 0,3	**20**	3	**28**	3	0,01
2,1 - 3,0	0,1	7	d3 + 0,5	**20**	3	**28**	3	0,01
3,1 - 4,0	0,1	8	d3 + 0,5	**20**	3	**28**	3	0,01
4,1 - 5,0	0,1	10	d3 + 0,7	**20**	4	**28**	4	0,01
5,1 - 6,0	0,1	12	d3 + 0,7	**20**	4	**28**	4	0,02
6,1 - 8,0	0,1	15	d3 + 0,7	**20**	4	**28**	4	0,02
8,1 - 10,0	0,1	18	d3 + 1,0	**20**	4	**28**	4	0,02
10,1 - 12,0	0,1	22	d3 + 1,0	**20**	5	**28**	5	0,02
12,1 - 15,0	0,1	26	d3 + 1,0	**20**	5	**28**	5	0,02
15,5 - 18,0	0,5	30	d3 + 1,0	**–**	–	**28**	5	0,02

Schneidbuchsen DIN 9845 mit Bund, Form B

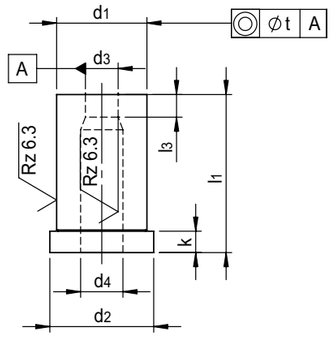
Die buttons DIN 9845 with collar, Form B

SE 792

Mat.: HSS
Härte: 64 ±2 HRC

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

SE 792 / 3,0 x 28



CAD MAIL

d3 H8	Stufung Graduation	d1 k6	d2	d4	kurze Ausführung short version l1 +0,5	l3	k	lange Ausführung long version l1 +0,5	l3	k	t
1,0	0,1	5	7	d3 + 0,3	**20**	2	4	**–**	–	–	0,01
1,1 - 2,0	0,1	6	8	d3 + 0,3	**20**	3	4	**28**	3	4	0,01
2,1 - 3,0	0,1	7	9	d3 + 0,5	**20**	3	4	**28**	3	4	0,01
3,1 - 4,0	0,1	8	10	d3 + 0,5	**20**	3	4	**28**	3	4	0,01
4,1 - 5,0	0,1	10	12	d3 + 0,7	**20**	4	4	**28**	4	4	0,01
5,1 - 6,0	0,1	12	14	d3 + 0,7	**20**	4	4	**28**	4	4	0,02
6,1 - 8,0	0,1	15	17	d3 + 0,7	**20**	4	4	**28**	4	4	0,02
8,1 - 10,0	0,1	18	20	d3 + 1,0	**20**	4	4	**28**	4	4	0,02
10,1 - 12,0	0,1	22	24	d3 + 1,0	**20**	5	4	**28**	5	4	0,02
12,1 - 15,0	0,1	26	28	d3 + 1,0	**20**	5	4	**28**	5	4	0,02
15,5 - 18,0	0,5	30	32	d3 + 1,0	**–**	–	–	**28**	5	4	0,02

Schneidbuchsen, Typ ED, ohne Bund, ISO 8977A

Die buttons, type ED, without collar, ISO 8977A

SE 711 ED

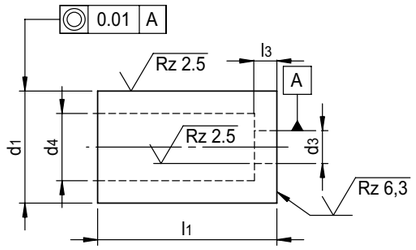
Mat.: HSS
Härte: 64 ±2 HRC

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

SE 711 ED / 20 x 25 / d3

Buchsen mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Bushings with rotation prevention available, please specify when ordering.



CAD MAIL

d1 m5	l3	d3 +0,02 Stufung/step 0,01	d4	l1 +0,5 16	19	20	22	25	28	30	32	35
5	2	**1,0-2,4**	2,8	●		●	●	●	●	●	●	●
6	3	**1,6-3,0**	3,5	●		●	●	●	●	●	●	●
8	4	**2,0-3,5**	4,0	●		●	●	●	●	●	●	●
10	4	**2,5-5,0**	5,8	●		●	●	●	●	●	●	●
13	5	**3,0-7,0**	8,0			●	●	●	●	●	●	●
16	5	**4,0-9,0**	9,5			●	●	●	●	●	●	●
19*	4	**5,0-10,0**	11,0		●			●		●	●	
20	8	**6,0-11,0**	12,0			●	●	●	●	●	●	●
22	8	**8,0-11,0**	15,0			●	●	●	●	●	●	●
25	8	**8,0-16,0**	17,3			●	●	●	●	●	●	●
32	8	**8,0-20,0**	20,7			●	●	●	●	●	●	●
38*	6	**16,0-26,0**	28,0							●	●	
40	8	**19,0-27,0**	27,7			●	●	●	●	●	●	●
50	8	**26,0-36,0**	37,0			●	●	●	●	●	●	●
55*	8	**35,0-41,0**	42,0							●	●	
*	= nicht nach ISO 8977A / not in acc. with ISO 8977A											

[06.05.2020] [06.05.2020]

SE 713 EKD

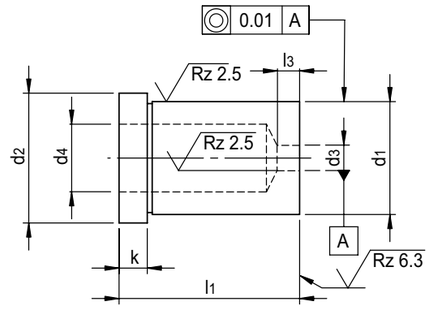
Mat.: HSS
Härte: 64 ±2 HRC

Buchsen mit Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

Bushings with rotation prevention available, please specify when ordering.

SE 713 EKD / 20 x 25 / d3



CAD MAIL

d1 m5	d2 +0,3	l3	k	**d3** +0,02 Stufung/step 0,01	d4	**l1** +0,5							
						16	**20**	**22**	**25**	**28**	**30**	**32**	**35**
5	8	2	5	**1,0 - 2,4**	2,8	●	●	●	●	●	●	●	●
6	9	3	5	**1,6 - 3,0**	3,5	●	●	●	●	●	●	●	●
8	11	4	5	**2,0 - 3,5**	4,0	●	●	●	●	●	●	●	●
10	13	4	5	**2,5 - 5,0**	5,8	●	●	●	●	●	●	●	●
13	16	5	5	**3,0 - 7,0**	8,0		●	●	●	●	●	●	●
16	19	5	5	**4,0 - 9,0**	9,5		●	●	●	●	●	●	●
19*	22	4	5	**5,0 - 10,0**	11,0				●	●	●	●	●
20	23	8	5	**6,0 - 11,0**	12,0		●	●	●	●	●	●	●
22	25	8	5	**8,0 - 14,0**	15,0		●	●	●	●	●	●	●
25	28	8	5	**8,0 - 16,0**	17,3		●	●	●	●	●	●	●
32	35	8	5	**8,0 - 20,0**	20,7		●	●	●	●	●	●	●
38*	42	6	5	**16,0 - 26,0**	28,0					●		●	●
40	43	8	5	**19,0 - 27,0**	27,7		●	●	●	●	●	●	●
50	53	8	5	**26,0 - 36,0**	37,0		●	●	●	●	●	●	●
55*	58	8	5	**35,0 - 41,0**	42,0								●
*	= nicht nach ISO 8977B / not in acc. with ISO 8977B												

SE 715 . . .

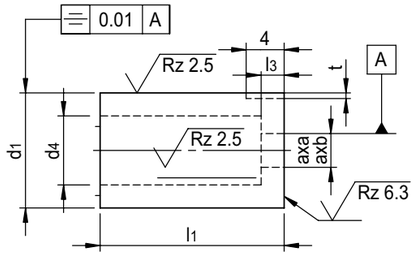
Mat.: HSS
Härte: 64 ±2 HRC

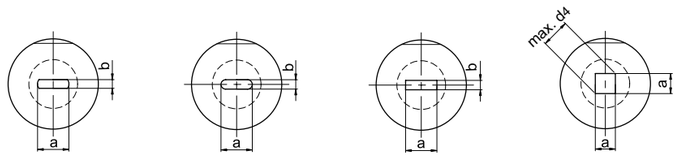
Buchsen ohne Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

Bushings without rotation prevention available, please specify when ordering.

SE 715 EDF / 20 x 25 / a x b





CAD MAIL

d1 n5	**a x b** ±0,01 Stufung/step 0,01 ≥ ≤	l3	d4	t	**l1** +0,5								
					16	**19**	**20**	**22**	**25**	**28**	**30**	**32**	**35**
5	**1,0 - 2,4**	2	2,8	0,5	●		●	●	●	●	●	●	●
6	**1,6 - 3,0**	3	3,5	0,5	●		●	●	●	●	●	●	●
8	**2,0 - 3,5**	4	4,0	0,5	●		●	●	●	●	●	●	●
10	**2,5 - 5,0**	4	5,8	2,0	●		●	●	●	●	●	●	●
13	**3,0 - 7,0**	5	8,0	2,0			●	●	●	●	●	●	●
16	**4,0 - 9,0**	5	9,5	2,0			●	●	●	●	●	●	●
19*	**5,0 - 10,0**	4	11,0	2,0		●			●		●	●	
20	**6,0 - 11,0**	8	12,0	2,0			●	●	●	●	●	●	●
22	**8,0 - 11,0**	8	12,0	2,0			●	●	●	●	●	●	●
25	**8,0 - 16,0**	8	17,3	2,0			●	●	●	●	●	●	●
32	**8,0 - 20,0**	8	20,7	2,0			●	●	●	●	●	●	●
38*	**16,0 - 26,0**	6	28,0	2,0							●	●	
40	**19,0 - 27,0**	8	27,7	2,0			●	●	●	●	●	●	●
50	**26,0 - 36,0**	8	37,0	2,0			●	●	●	●	●	●	●
55*	**35,0 - 41,0**	8	42,0	2,0							●	●	
*	= nicht nach ISO 8977A / not in acc. with ISO 8977A												

SE 717 . . . .

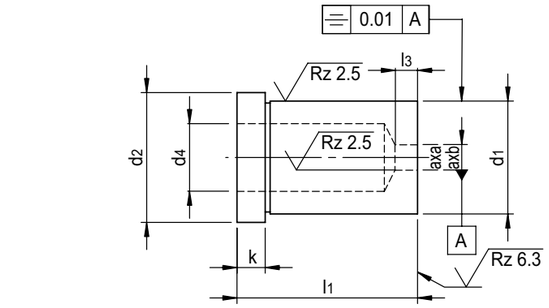
Mat.: HSS
Härte: 64 ±2 HRC

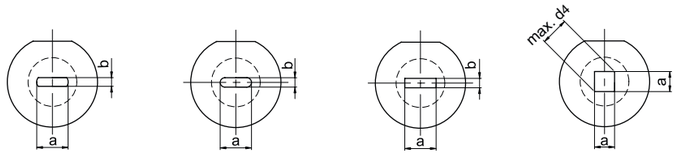
Buchsen ohne Verdrehsicherung auf Wunsch lieferbar (bei Bestellung angeben).

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

Bushings without rotation prevention available, please specify when ordering.

SE 717 EKDO / 20 x 25 / a x b





EKDF **EKDO** **EKDR** **EKDS**

CAD MAIL

d1 m5	a x b ±0,01 Stufung/step 0,01 ≥ ≤	d2 +0,3	l3	k +0,25	d4	l1 +0,5 16	20	22	25	28	30	32	35
5	**1,0 - 2,4**	8	2	5	2,8	●	●	●	●	●	●	●	●
6	**1,6 - 3,0**	9	3	5	3,5	●	●	●	●	●	●	●	●
8	**2,0 - 3,5**	11	4	5	4,0	●	●	●	●	●	●	●	●
10	**2,5 - 5,0**	13	4	5	5,8	●	●	●	●	●	●	●	●
13	**3,0 - 7,0**	16	5	5	8,0		●	●	●	●	●	●	●
16	**4,0 - 9,0**	19	5	5	9,5		●	●	●	●	●	●	●
19*	**5,0 - 10,0**	22	4	5	11,0				●	●	●	●	●
20	**6,0 - 11,0**	23	8	5	12,0		●	●	●	●	●	●	●
22	**8,0 - 14,0**	25	8	5	15,0		●	●	●	●	●	●	●
25	**8,0 - 16,0**	28	8	5	17,3		●	●	●	●	●	●	●
32	**8,0 - 20,0**	35	8	5	20,7		●	●	●	●	●	●	●
38*	**16,0 - 26,0**	42	6	5	28,0					●		●	●
40	**19,0 - 27,0**	43	8	5	27,7		●	●	●	●	●	●	●
50	**26,0 - 36,0**	53	8	5	37,0		●	●	●	●	●	●	●
55*	**35,0 - 41,0**	58	8	5	42,0								●
*	= nicht nach ISO 8977B / not in acc. with ISO 8977B												

SE 711 EDL

Typ EDL, ohne Bund

Mat.: HSS
Härte: 64 ±2 HRC

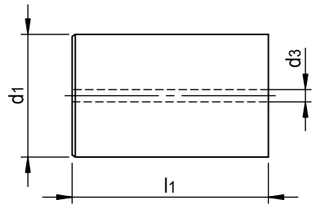
Andere Längen auf Wunsch lieferbar.

Type EDL, without collar

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

Other lengths available on request.

SE 711 EDL / 20 x 35



CAD MAIL

d1 n5	d3	l1 +0,5 35
5	1,5	●
6	1,5	●
8	2	●
10	3	●
13	3	●
16	3	●
19*	3	●
20	4	●
22	4	●
25	4	●
32	4	●
38*	5	●
40	5	●
50	5	●
55*	5	●
* = nicht nach ISO 8977A / not in acc. with ISO 8977A		

SE 713 EKDL

Typ EKDL, mit Bund

Mat.: HSS
Härte: 64 ±2 HRC

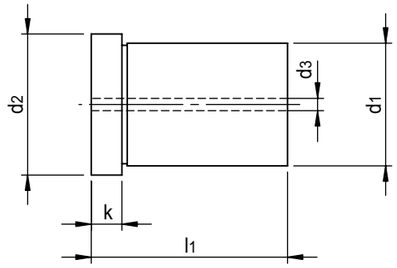
Andere Längen auf Wunsch lieferbar.

Type EKDL, with collar

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

Other lengths available on request.

SE 713 EKDL / 20 x 35



CAD MAIL

d1 m5	d2	d3	k +0,25	l1 +0,5 35
5	8	1,5	5	●
6	9	1,5	5	●
8	11	2	5	●
10	13	3	5	●
13	16	3	5	●
16	19	3	5	●
19*	22	3	5	●
20	23	4	5	●
22	25	4	5	●
25	28	4	5	●
32	35	4	5	●
38*	42	5	5	●
40	43	5	5	●
50	53	5	5	●
55*	58	5	5	●

* = nicht nach ISO 8977B / not in acc. with ISO 8977B

[06.05.2020]

SE 711 EDM

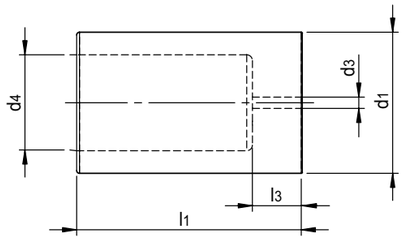
Typ EDM, ohne Bund

Mat.: HSS
Härte: 64 ±2 HRC

Type EDM, without collar

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

SE 711 EDM / 20 x 35



CAD MAIL

d1 n5	d3	l3	d4	l1 +0,5 16	19	20	22	25	28	30	32	35
5	1,5	2	2,8	●		●	●	●	●	●	●	●
6	1,5	3	3,5	●		●	●	●	●	●	●	●
8	2,0	4	4,0	●		●	●	●	●	●	●	●
10	3,0	4	5,8	●		●	●	●	●	●	●	●
13	3,0	5	8,0			●	●	●	●	●	●	●
16	3,0	5	9,5			●	●	●	●	●	●	●
19*	3,0	5	11,0		●			●		●	●	
20	4,0	8	12,0			●	●	●	●	●	●	●
22	4,0	8	15,0			●	●	●	●	●	●	●
25	4,0	8	17,3			●	●	●	●	●	●	●
32	4,0	8	20,7			●	●	●	●	●	●	●
38*	5,0	6	28,0							●	●	
40	5,0	8	27,7			●	●	●	●	●	●	●
50	5,0	8	37,0			●	●	●	●	●	●	●
55*	5,0	8	42,0							●	●	

* = nicht nach ISO 8977A / not in acc. with ISO 8977A

[06.05.2020]

SE 713 EKDM

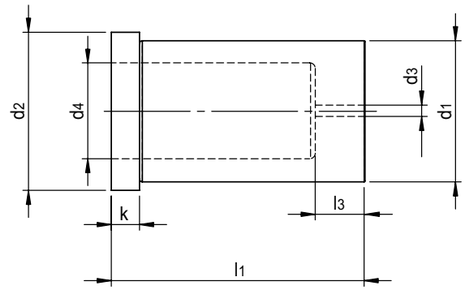
Typ EKDM, mit Bund

Mat.: HSS
Härte: 64 ±2 HRC

Type EKDM, with collar

Mat.: HSS (e.g. M2)
Hardness: 64 ±2 HRC

SE 713 EKDM / 20 x 35



d1 m5	d3	d2 +0,3	l3	d4	k +0,25	l1 +0,5 16	20	22	25	28	30	32	35
5	1,5	8	2,0	2,8	5	●	●	●	●	●	●	●	●
6	1,5	9	3,0	3,5	5	●	●	●	●	●	●	●	●
8	2,0	11	4,0	4,0	5	●	●	●	●	●	●	●	●
10	3,0	13	4,0	5,8	5	●	●	●	●	●	●	●	●
13	3,0	16	5,0	8,0	5		●	●	●	●	●	●	●
16	3,0	19	5,0	9,5	5		●	●	●	●	●	●	●
19*	3,0	22	4,0	11,0	5				●	●	●	●	●
20	4,0	23	8,0	12,0	5		●	●	●	●	●	●	●
22	4,0	25	8,0	15,0	5		●	●	●	●	●	●	●
25	4,0	28	8,0	17,3	5		●	●	●	●	●	●	●
32	4,0	35	8,0	20,7	5		●	●	●	●	●	●	●
38*	5,0	42	6,0	28,0	5					●		●	●
40	5,0	43	8,0	27,7	5		●	●	●	●	●	●	●
50	5,0	53	8,0	37,0	5		●	●	●	●	●	●	●
55*	5,0	58	8,0	42,0	5								●

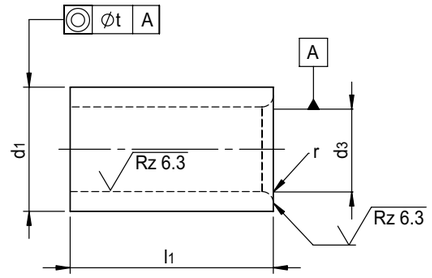
* = nicht nach ISO 8977B / not in acc. with ISO 8977B

SE 793

Mat.: Einsatzstahl
Härte: 62 ±2 HRC

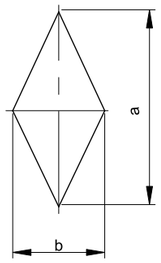
Mat.: Case-hardening steel
Hardness: 62 ±2 HRC

SE 793 / 3,0

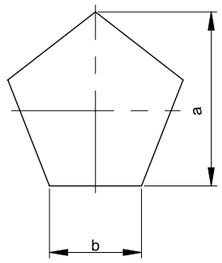


d3 H7	Stufung Graduation	d1 n6	l1	r	t
1,0	0,1	5	9	1,0	0,01
1,1-2,0	0,1	6	12	1,0	0,01
2,1-3,0	0,1	7	12	1,0	0,01
3,1-4,0	0,1	8	12	1,0	0,01
4,1-5,0	0,1	10	16	1,0	0,01
5,1-6,0	0,1	12	16	1,5	0,02
6,1-8,0	0,1	15	20	1,5	0,02
8,1-10,0	0,1	18	20	2,0	0,02
10,1-12,0	0,1	22	28	2,0	0,02
12,1-15,0	0,1	26	28	2,0	0,02
15,5-18,0	0,5	30	36	2,0	0,02

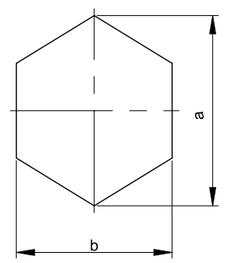
SP1



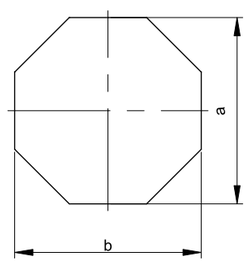
SP2



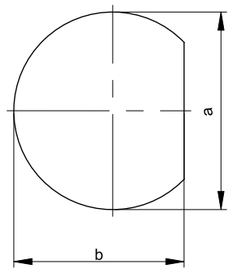
SP3



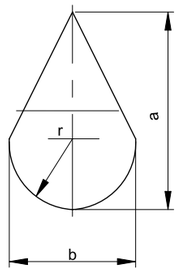
SP4



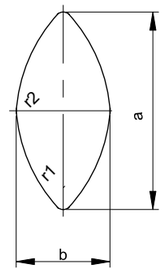
SP5



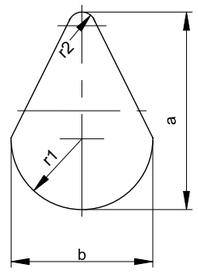
SP6



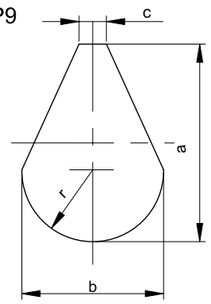
SP7



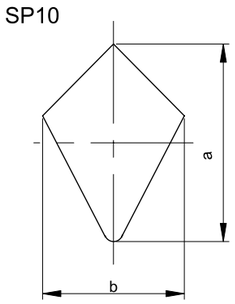
SP8



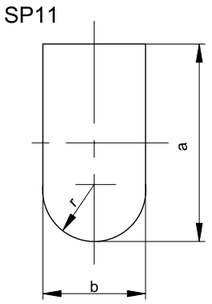
SP9



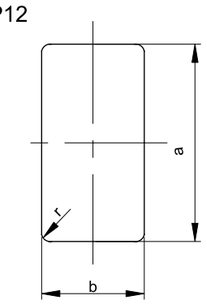
SP10



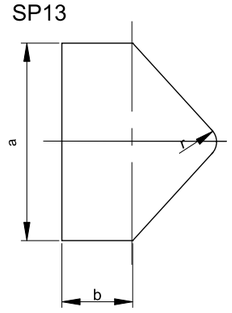
SP11



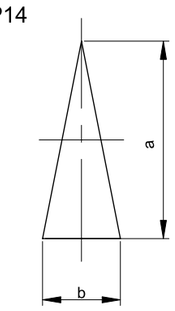
SP12



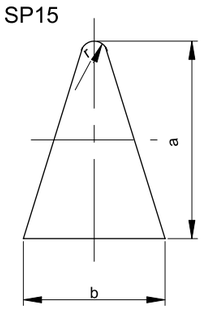
SP13



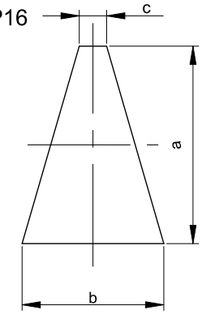
SP14



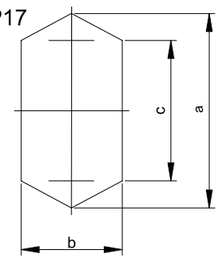
SP15



SP16



SP17



SE 300

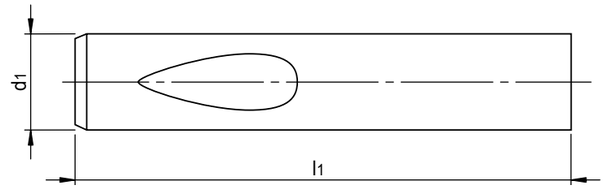
Schwere Ausführung

Mat.: HSS
Härte: 60 - 63 HRC

Heavy duty

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

SE 300 / 13 x 80



d1 g5	l1 +0,3						
	63	71	80	90	100	110	125
10	●	●	●	●	●	●	●
13	●	●	●	●	●	●	●
16	●	●	●	●	●	●	●
20	●	●	●	●	●	●	●
25		●	●	●	●	●	●
32		●	●	●	●	●	●
40			●	●	●	●	●

SE 320

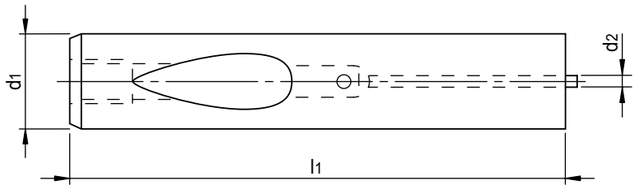
Schwere Ausführung mit federndem Auswerferstift

Mat.: HSS
Härte: 60 - 63 HRC

Heavy duty with spring ejector

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

SE 320 / 13 x 80



MAIL

d1 g5	d2	l1 +0,3						
		63	71	80	90	100	110	125
10	1,5	●	●	●	●	●		
13	1,5	●	●	●	●	●	●	●
16	1,5	●	●	●	●	●	●	●
20	2,4	●	●	●	●	●	●	●
25	2,4		●	●	●	●	●	●
32	2,4		●	●	●	●	●	●
40	2,4			●	●	●	●	●

SE 301

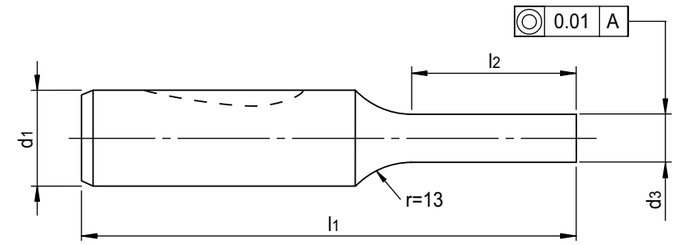
Schwere Ausführung

Mat.: HSS
Härte: 60 - 63 HRC

Heavy duty

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

SE 301 / 20 x 19 x 80 / d3



MAIL

d1 g5	d3 min. +0,01	l2 +1				l1 +0,3						
		10	13	19	25	63	71	80	90	100	110	125
10	2,1	●	●	●		●	●	●	●	●	●	●
13	5		●	●		●	●	●	●	●	●	●
16	8		●	●	●	●	●	●	●	●	●	●
20	12		●	●	●	●	●	●	●	●	●	●
25	16		●	●	●		●	●	●	●	●	●
32	24		●	●	●		●	●	●	●	●	●
40	30			●	●			●	●	●	●	●

SE 321

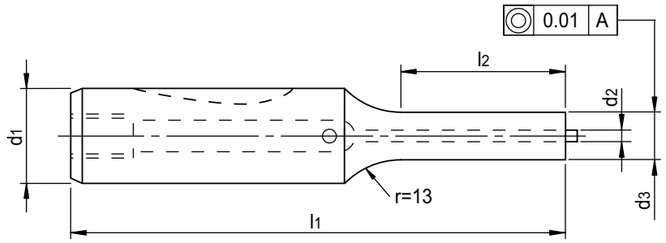
Schwere Ausführung mit federndem Auswerferstift

Mat.: HSS
Härte: 60 - 63 HRC

Heavy duty with spring ejector

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

SE 321 / 20 x 13 x 80 / d3



MAIL

d1 g5	d2	d3 min. +0,01	l2 +1				l1 +0,3						
			10	13	19	25	63	71	80	90	100	110	125
10	1,5	**2,1**	●	●	●		●	●	●	●	●	●	
13	1,5	**5**		●	●		●	●	●	●	●	●	●
16	1,5	**8**		●	●	●	●	●	●	●	●	●	●
20	2,4	**12**		●	●	●	●	●	●	●	●	●	●
25	2,4	**16**		●	●	●		●	●	●	●	●	●
32	2,4	**24**		●	●	●		●	●	●	●	●	●
40	2,4	**30**			●	●			●	●	●	●	●

[06.05.2020]

Schnellwechsel-Schneidstempel, abgesetzter Schaft
Ball lock punches, shouldered shank
SCHNEIDELEMENTE / CUTTING ELEMENTS

SE 302 .

Schwere Ausführung

Mat.: HSS
Härte: 60 - 63 HRC

Bei der Bestellung bitte die Position der Kugellage angeben (Bild 1).

Heavy duty

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

When ordering, please specify the ball position (Fig. 1).

SE 302 O/ 20 x 19 x 80 / a x b / 45°

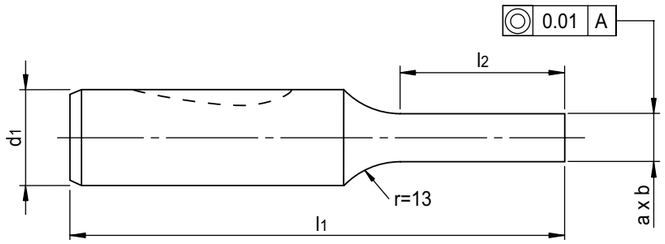
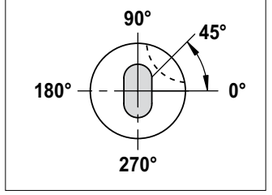
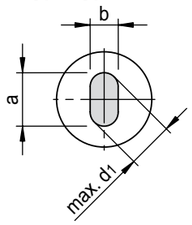


Bild 1/ Fig. 1

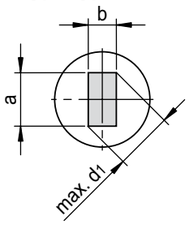


Typ / Type O



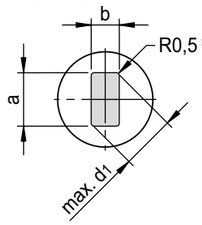
Langloch / oblong

Typ / Type S



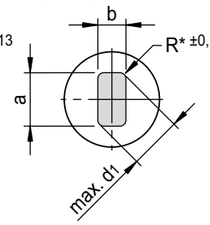
Quadrat, Rechteck / square, rectangular

Typ / Type H



Profil mit Radius R0,5 / Profile with radius R0,5

Typ / Type L



Profil mit frei wählbarem Radius / Profile with freely selectable radius

* Bei Typ L ist der Radius R frei wählbar. Bitte bei der Bestellung den Radius angeben.

* With type L the radius R is freely selectable. Please specify the radius when ordering.

MAIL

d1 g5	a min. ±0,01	b min. ±0,01	l2 +1				l1 +0,3						
			10	13	19	25	63	71	80	90	100	110	125
10	2,1	2,1	●	●	●		●	●	●	●	●	●	●
13	5	4,5		●	●		●	●	●	●	●	●	●
16	8	6		●	●	●	●	●	●	●	●	●	●
20	12	8		●	●	●	●	●	●	●	●	●	●
25	16	10		●	●	●		●	●	●	●	●	●
32	24	12,5		●	●	●		●	●	●	●	●	●
40	30	14			●	●			●	●	●	●	●

[06.05.2020]

SE 322 .

Schwere Ausführung mit federndem Auswerferstift

Mat.: HSS
Härte: 60 - 63 HRC

Bei der Bestellung bitte die Position der Kugellage angeben (Bild 1).

Heavy duty with spring ejector

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

When ordering, please specify the ball position (Fig. 1).

SE 322 O/ 20 x 19 x 80 / a x b / 45°

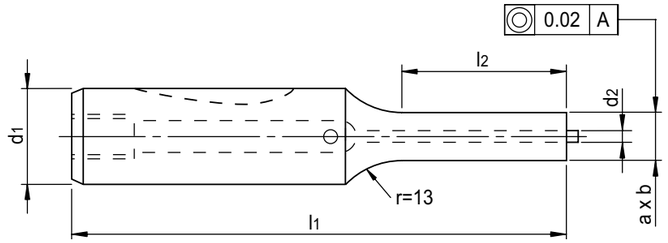
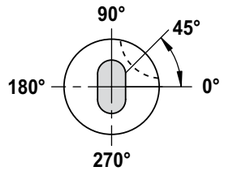
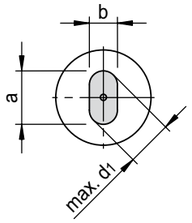


Bild 1/ Fig. 1

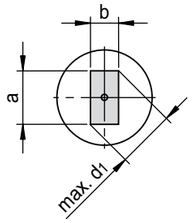


Typ / Type O



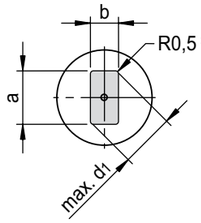
Langloch / oblong

Typ / Type S



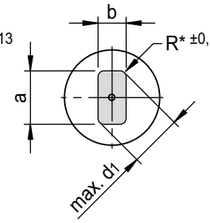
Quadrat, Rechteck / square, rectangular

Typ / Type H



Profil mit Radius R0,5 / Profile with radius R0,5

Typ / Type L



Profil mit frei wählbarem Radius / Profile with freely selectable radius

* Bei Typ L ist der Radius R frei wählbar. Bitte bei der Bestellung den Radius angeben.

* With type L the radius R is freely selectable. Please specify the radius when ordering.

MAIL

d1 g5	d2	a min. ±0,01	b min. ±0,01	l2 +1				l1 +0,3						
				10	13	19	25	63	71	80	90	100	110	125
10	1,5	**2,1**	**2,1**	●	●	●		●	●	●	●	●	●	
13	1,5	**5**	**4,5**		●	●		●	●	●	●	●	●	●
16	1,5	**8**	**6**		●	●	●	●	●	●	●	●	●	●
20	2,4	**12**	**8**		●	●	●	●	●	●	●	●	●	●
25	2,4	**16**	**10**		●	●	●		●	●	●	●	●	●
32	2,4	**24**	**12,5**		●	●	●		●	●	●	●	●	●
40	2,4	**30**	**14**			●	●			●	●	●	●	●

[06.05.2020]

[06.05.2020]

SE 303

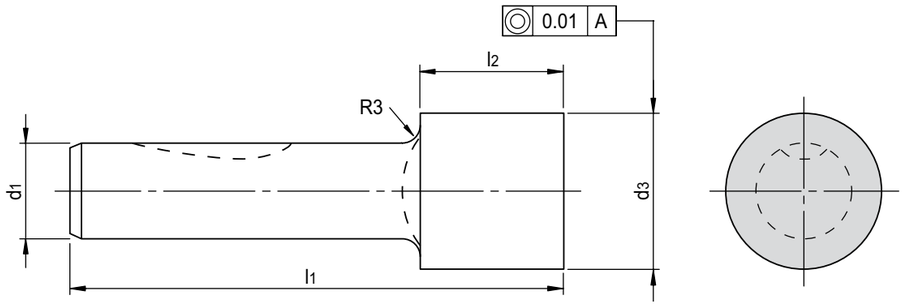
Schwere Ausführung

Mat.: HSS
Härte: 60 - 63 HRC

Heavy duty

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

SE 303 / 20 x 30 x 71 / d3



MAIL

d1 g5	d3 min. +0,01	d3 max. +0,01	l2 +1		l1 +0,3			
			19	30	71	80	90	100
13	13,1	**32**	●	●	●	●	●	●
16	16,1	**38**	●	●	●	●	●	●
20	20,1	**40**	●	●	●	●	●	●
25	25,1	**44**	●	●	●	●	●	●
32	32,1	**50**	●	●		●	●	●
40	40,1	**56**	●	●		●	●	●

SE 323

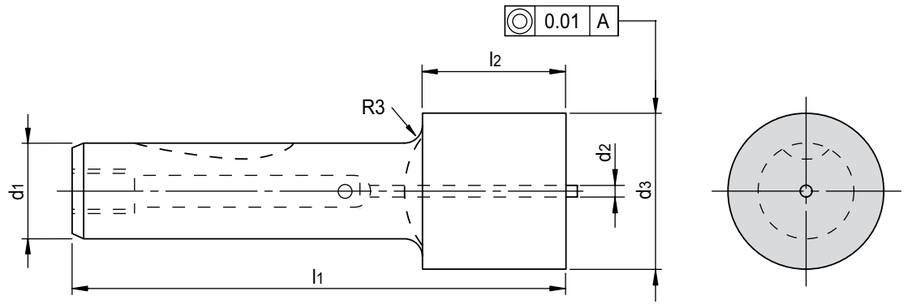
Schwere Ausführung mit federndem Auswerferstift

Mat.: HSS
Härte: 60 - 63 HRC

Heavy duty with spring ejector

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

SE 323 / 20 x 30 x 71 / d3



MAIL

d1 g5	d2	d3 min. +0,01	d3 max. +0,01	l2 +1		l1 +0,3			
				19	30	71	80	90	100
13	1,5	**13,1**	**32**	●	●	●	●	●	●
16	1,5	**16,1**	**38**	●	●	●	●	●	●
20	2,4	**20,1**	**40**	●	●	●	●	●	●
25	2,4	**25,1**	**44**	●	●	●	●	●	●
32	2,4	**32,1**	**50**	●	●		●	●	●
40	2,4	**40,1**	**56**	●	●		●	●	●

[06.05.2020]

[06.05.2020]

SE 304 .

Schwere Ausführung

Mat.: HSS
Härte: 60 - 63 HRC

Bei der Bestellung bitte die Position der Kugellage angeben (Bild 1).

Heavy duty

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

When ordering, please specify the ball position (Fig. 1).

SE 304 O/ 20 x 30 x 80 / a x b / 45°

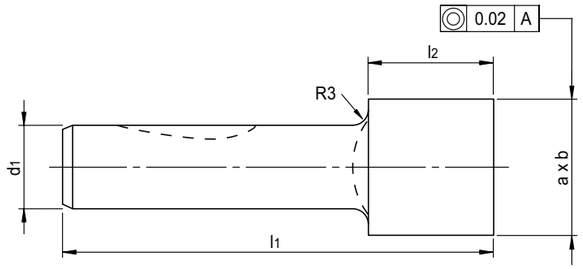
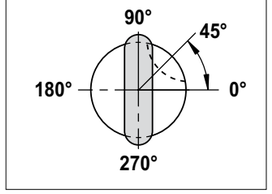
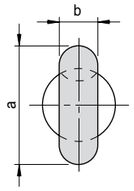


Bild 1/ Fig. 1

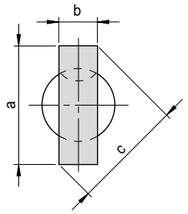


Typ / Type O



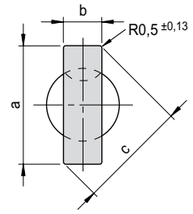
Langloch / oblong

Typ / Type S



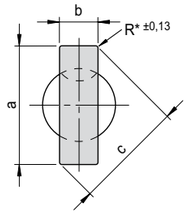
Quadrat, Rechteck / square, rectangular

Typ / Type H



Profil mit Radius R0,5 / Profile with radius R0,5

Typ / Type L



Profil mit frei wählbarem Radius / Profile with freely selectable radius

* Bei Typ L ist der Radius R frei wählbar. Bitte bei der Bestellung den Radius angeben.

* With type L the radius R is freely selectable. Please specify the radius when ordering.

MAIL

d1 g5	a max. ±0,01	b min. ±0,01	c max.	l2 +1		l1 +0,3			
				19	30	71	80	90	100
13	**32**	**5**	32	●	●	●	●	●	●
16	**38**	**6,5**	38	●	●	●	●	●	●
20	**40**	**8**	40	●	●	●	●	●	●
25	**44**	**11**	44	●	●	●	●	●	●
32	**50**	**12,5**	50	●	●		●	●	●
40	**56**	**14**	56	●	●		●	●	●

[SE]

Schnellwechsel-Schneidstempel, Schneide größer Schaft

Ball lock punches, inverted

SE 324 .

Schwere Ausführung
mit federndem Auswerferstift

Mat.: HSS
Härte: 60 - 63 HRC

Bei der Bestellung bitte die Position der Kugellage angeben (Bild 1).

Heavy duty
with spring ejector

Mat.: HSS (e.g. M2)
Hardness: 60 - 63 HRC

When ordering, please specify the ball position (Fig. 1).

SE 324 O/ 20 x 30 x 80 / a x b / 45°

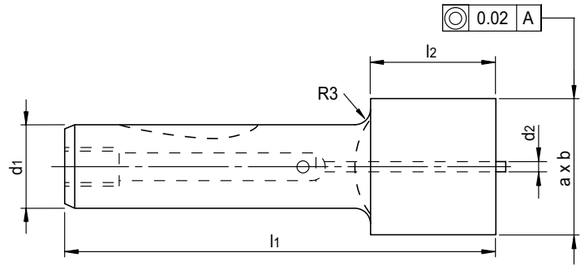
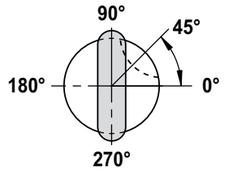
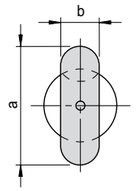


Bild 1/ Fig. 1

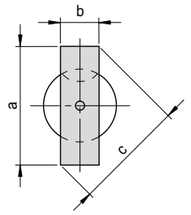


Typ / Type O



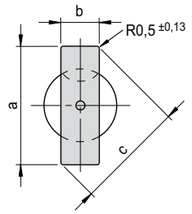
Langloch / oblong

Typ / Type S



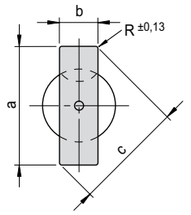
Quadrat, Rechteck / square, rectangular

Typ / Type H



Profil mit Radius R0,5 / Profile with radius R0,5

Typ / Type L



Profil mit frei wählbarem Radius / Profile with freely selectable radius

* Bei Typ L ist der Radius R frei wählbar. Bitte bei der Bestellung den Radius angeben.

* With type L the radius R is freely selectable. Please specify the radius when ordering.

d1 g5	d2	**a** **max.** ±0,01	**b** **min.** ±0,01	c max.	**l2** +1		**l1** +0,3			
					19	**30**	**71**	**80**	**90**	**100**
13	1,5	**32**	**5**	32	●	●	●	●	●	●
16	1,5	**38**	**6,5**	38	●	●	●	●	●	●
20	2,4	**40**	**8**	40	●	●	●	●	●	●
25	2,4	**44**	**11**	44	●	●	●	●	●	●
32	2,4	**50**	**12,5**	50	●	●		●	●	●
40	2,4	**56**	**14**	56	●	●		●	●	●

[06.05.2020]

[06.05.2020]

Schnellwechsel-Schneidbuchsen, rund

Ball lock die buttons, round

SCHNEIDELEMENTE / CUTTING ELEMENTS

SE 340

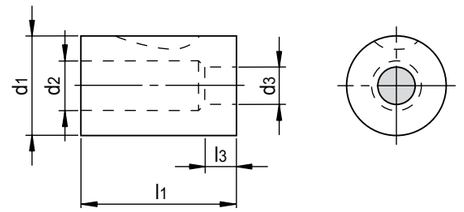
Leichte Ausführung

Mat.: HWS
Härte: 60 - 63 HRC

Light duty

Mat.: HWS (e.g. A2)
Hardness: 60 - 63 HRC

SE 340 / 20 / d3



d1 g5	**d3** +0,01 ≥ ≤	d2 max.	l1 +0,3	l3
13	**1,5 - 5,0**	6	32	4
16	**3,2 - 7,0**	8	32	5
20	**4,0 - 11,0**	12	32	5
25	**8,0 - 15,0**	16	32	6
32	**11,0 - 19,0**	20	32	6
38	**16,5 - 26,0**	27	32	8

[SE]

SE 341 .

Leichte Ausführung

Mat.: HWS
Härte: 60 - 63 HRC

Bei der Bestellung bitte die Position der Kugellage angeben (Bild 1).

Light duty

Mat.: HWS (e.g. A2)
Hardness: 60 - 63 HRC

When ordering, please specify the ball position (Fig. 1).

SE 341 S / 16 / a x b / 45°

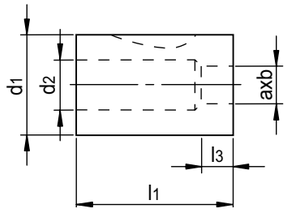
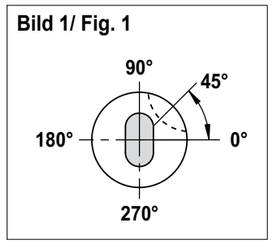
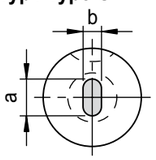


Bild 1/ Fig. 1

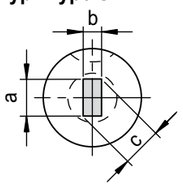


Typ / Type O



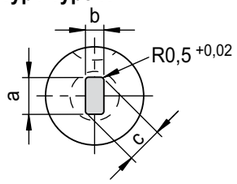
Langloch / oblong

Typ / Type S



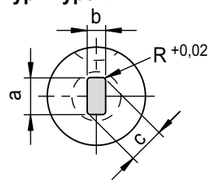
Quadrat, Rechteck / square, rectangular

Typ / Type H



Profil mit Radius R0,5 / Profile with radius R0,5

Typ / Type L



Profil mit frei wählbarem Radius / Profile with freely selectable radius

* Bei Typ L ist der Radius R frei wählbar. Bitte bei der Bestellung den Radius angeben.

* With type L the radius R is freely selectable. Please specify the radius when ordering.

MAIL

d1 g5	a +0,02 ≥ ≤	b +0,02 ≥ ≤	d2 max.	c max.	l1 +0,3	l3
13	**1,5 - 5,0**	**1,2 - 5,0**	6	5,0	32	4
16	**3,2 - 7,0**	**2,0 - 7,0**	8	7,0	32	5
20	**4,0 - 11,0**	**2,4 - 11,0**	12	11,0	32	5
25	**8,0 - 15,0**	**4,0 - 15,0**	16	15,0	32	6
32	**11,0 - 19,0**	**4,8 - 19,0**	20	19,0	32	6
38	**16,5 - 26,0**	**6,4 - 26,0**	27	26,0	32	8

[06.05.2020]

SE 390

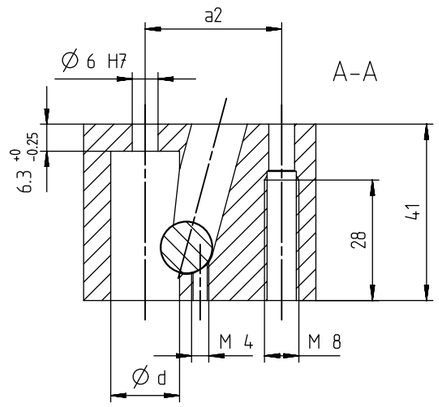
Schwere Ausführung

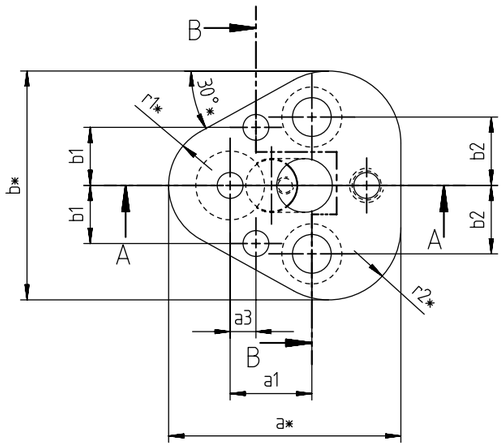
Lieferumfang:
Zylinderkopfschrauben, Zylinderstifte und Gewindestift

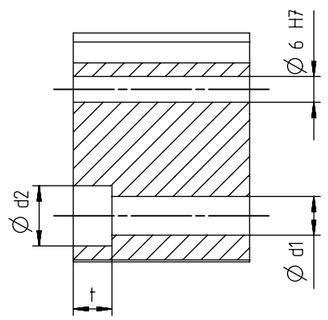
Heavy duty

Included:
Socket head cap screws, dowel pins and headless screw

SE 390 / 13







MAIL

d H6	a*	b*	a3 ±0,01	a1 ±0,13	a2 ±0,01	r1*	r2*	b1 ±0,01	b2 ±0,13	d1	d2	t	Kugel-Ø Ball-Ø	Schraube Screw
10	44,5	43,7	7,5	19,0	26,93	9,5	12,0	9,0	11,1	9,0	15	9	10	M8
13	50,8	50,0	6,5	19,0	29,97	12,7	15,2	12,0	14,3	9,0	15	9	12	M8
16	54,0	53,2	6,0	19,0	31,75	14,3	16,8	13,5	15,9	9,0	15	9	12	M8
20	60,3	59,5	5,0	19,0	33,53	17,5	20,0	16,5	17,5	11,0	18	11	12	M10
25	69,9	69,1	7,0	23,8	40,64	22,2	24,7	22,0	19,8	13,5	20	13	12	M12
32	69,9	69,1	7,0	23,8	40,64	22,2	24,7	22,0	19,8	13,5	20	13	12	M12
40	77,4	76,6	10,0	27,0	43,99	26,0	28,5	26,0	24,0	13,5	20	13	12	M12

* Konturen können variieren. Größtmaße sind in der Tabelle angegeben.

* Contours may vary. Maximum dimensions are given in the table.

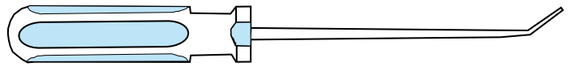
[06.05.2020]

[SE]

SE 360

abgewinkelte Ausführung | angular

SE 360

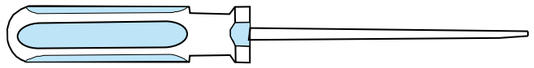


MAIL

SE 361

gerade Ausführung | straight

SE 361

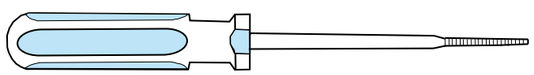


MAIL

SE 362

Gewindeausführung | threaded

SE 362



MAIL

[06.05.2020]

[06.05.2020]

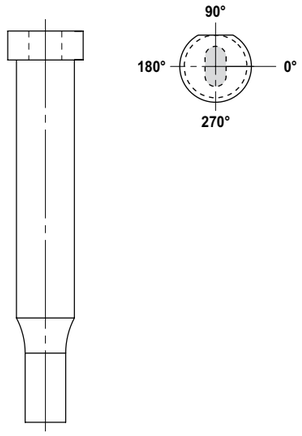
[SE]

INFO

Profilierte Schneidstempel und die dazu passenden Schneidbuchsen werden von uns generell mit Verdrehsicherung ausgeliefert, wobei diese parallel zur langen Seite des Profils angebracht wird. Sollen Schneidelemente ohne Verdrehsicherung geliefert werden, muss darauf bei der Bestellung hingewiesen werden. Ebenso wenn die Verdrehsicherung an anderen Positionen oder in anderer Form gewählt werden soll, wie sie auf dieser Seite aufgeführt werden. Die Gradzahl ist frei wählbar und muss der Bestellnummer angehängt werden.

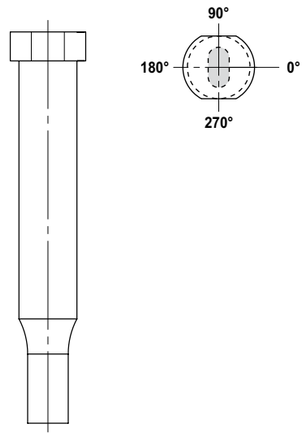
Shaped punches as well as the corresponding bushes are in general equipped with a rotation prevention, positioned alongside the longer side of the punching shape (round punches and bushes only upon request). If punches or bushes without a rotation prevention are needed, please specify during the ordering process. If a different location, shape or size (as shown below) for this purpose is requested, please specify as well. The angle is freely selectable and needs to be stated at the end of the ordering-number.

Verdrehsicherung **Typ V1**
Rotation prevention **Type V1**



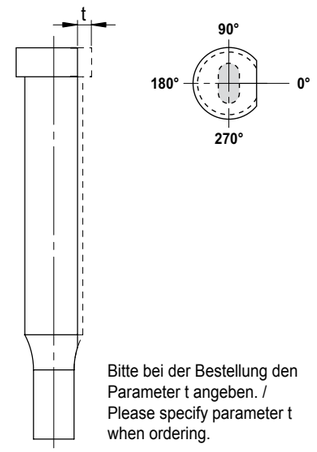
SE ... V1/ 90°

Verdrehsicherung **Typ V2**
Rotation prevention **Type V2**



SE ... V2/ 90°

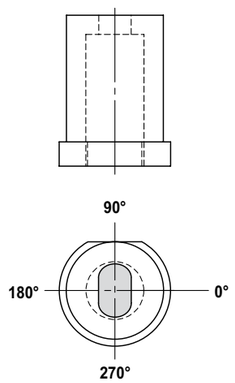
Verdrehsicherung **Typ V3**
Rotation prevention **Type V3**



Bitte bei der Bestellung den Parameter t angeben. / Please specify parameter t when ordering.

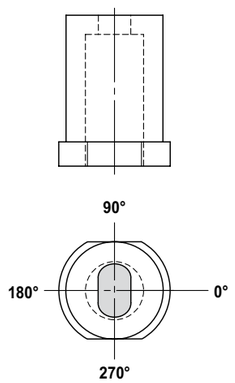
SE ... V3/ 4 / 0°

Verdrehsicherung **Typ V4**
Rotation prevention **Type V4**



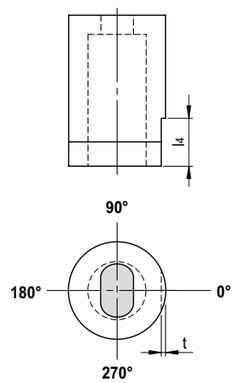
SE ... V4/ 90°

Verdrehsicherung **Typ V5**
Rotation prevention **Type V5**



SE ... V5/ 90°

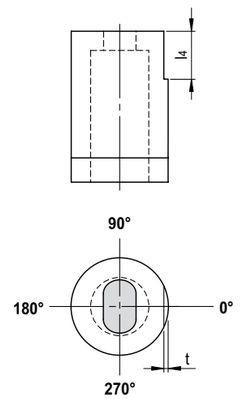
Verdrehsicherung **Typ V6**
Rotation prevention **Type V6**



Bitte bei der Bestellung die Parameter t und l4 angeben. / Please specify parameter t and l4 when ordering.

SE ... V6/ 2 x 14 / 0°

Verdrehsicherung **Typ V7**
Rotation prevention **Type V7**



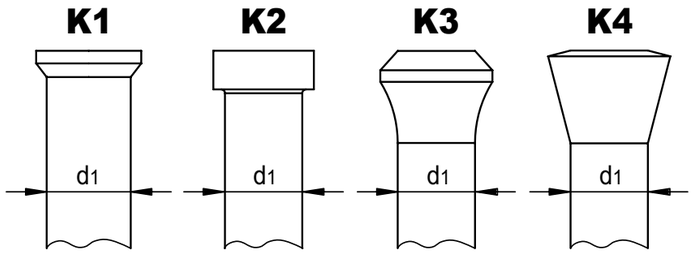
Bitte bei der Bestellung die Parameter t und l4 angeben. / Please specify parameter t and l4 when ordering.

SE ... V7/ 2 x 14 / 0°

Bestellbeispiele / Ordering examples

SE	K3	10	90	13	P2	-	8,0	5,0	A1	45°	X1	B1	5
	Stempelkopf Punches head	d1	l1	l2	Profil Profile	d3	a	b	Auswerferstift Spring ejector	Verdreh-sicherung Rotation prevention	Material Material	Beschich-tung Coating	Menge Quantity

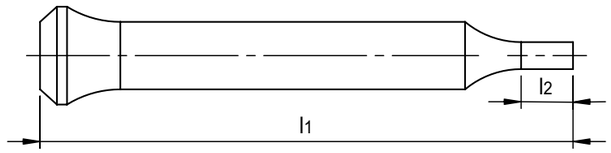
Stempelkopf / Punches head



Beschichtung / Coating

B0 = ohne / without
B1 = TiN
B2 = TiCN
B3 = CrN
B4 = Bitte angeben / Please specify

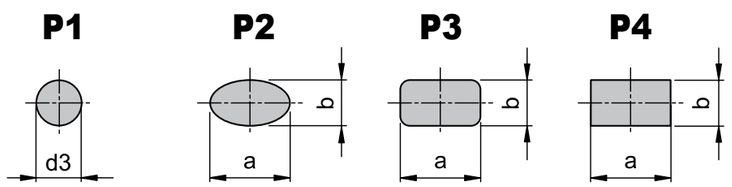
Längen / Length



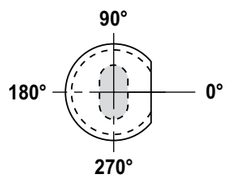
Material

X1 = HSS
X2 = Vanadis 10
X3 = ASP 23
X4 = CPM 10 V
X5 = REX M4
X6 = Böhler S290
X7 = Bitte angeben / Please specify

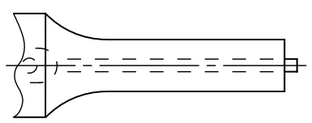
Profil / Profile



Verdrehsicherung / Rotation prevention



Auswerferstift / Spring ejector



A0 = ohne/without
A1 = mit/with

SE													
SE													

Datum:

Schneidstempel ☐ Anfrage ☐ Auftrag Schneidbuchse ☐ Anfrage ☐ Auftrag

Vordruck bitte kopieren, ausfüllen und an MSPN faxen.
+49 2351 6610777

Firma:

Straße/Hausnummer:

PLZ/Ort:

Ansprechpartner:

Telefon: Telefax:

E-Mail:

Anfrage-Nr. Auftrags-Nr.

Material: Beschichtung:

Für Sonderausführungen erbitten wir eine Zeichnung oder CAD-Daten!

Stückzahl:

Date:

Punches ☐ Inquiry ☐ Order Die buttons ☐ Inquiry ☐ Order

Please copy form, fill out and fax to MSPN
+49 2351 6610777

Company:

Street / number:

Postal code / city / country:

Contact:

Phone: Fax:

Mail:

Inquiry-no. Order-No.

Mat.: Coating:

For special, custom made parts please provide drawing or CAD data!

Quantity:

zertifiziert ISO 9001 for you Cert

MSPN GMBH

Märkische Stanz-Partner



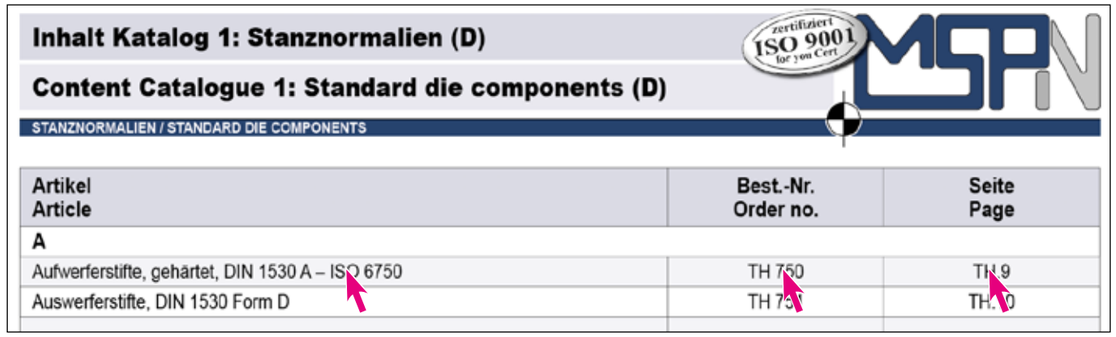
[**technische**Hilfsmittel]

[**general**diecomponents]

Stand / Revision Status 30.10.2020

Inhalt Katalog 1: Stanznormalien (D)
Content Catalogue 1: Standard die components (D)

STANZNORMALIEN / STANDARD DIE COMPONENTS



Artikel Article	Best.-Nr. Order no.	Seite Page
A		
Aufwerferstifte, gehärtet, DIN 1530 A – ISO 6750	TH 750	TH.9
Auswerferstifte, DIN 1530 Form D	TH 75[illegible]	TH.[illegible]

Ein „Klick“ auf Artikelbezeichnung, Bestell-Nummer oder Seite im vorangestellten Inhaltsverzeichnis bringt Sie zum gewünschten Artikel.

„Clicking“ on the Article name, the Order- or Page-no. in the main table of contents opens the corresponding article-page.

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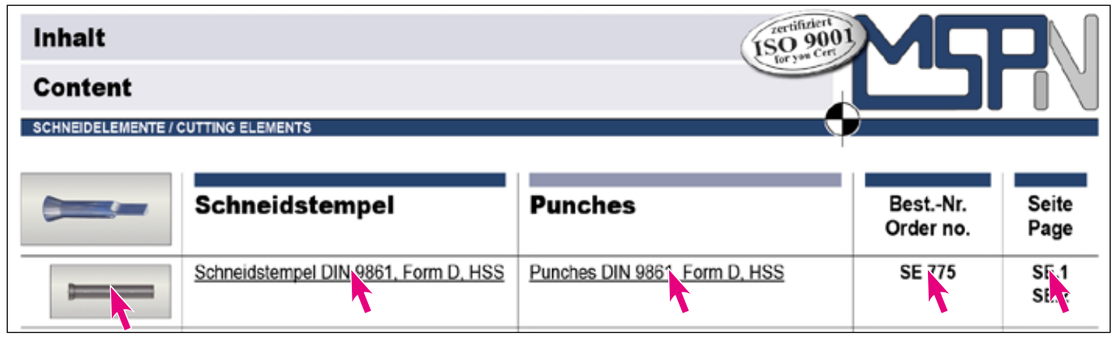
SCHNEIDELEMENTE / CUTTING ELEMENTS



	Schneidstempel	Punches	Best.-Nr. Order no.	Seite Page
	Schneidstempel DIN 9861, Form D, HSS	Punches DIN 9861, Form D, HSS	SE 775	SE.1 SE.[illegible]

Ein „Klick“ auf Foto, Artikelbezeichnung, Bestell-Nummer oder Seite im Inhaltsverzeichnis des Registers bringt Sie unmittelbar zum gewünschten Artikel im Katalog.

„Clicking“ on the Photo, the Article name, the Order- or Page-no. in any register‘s table of contents opens the corresponding article-page.

Ein „Klick“ auf das CAD-Logo bringt Sie zu den CAD-Daten des gewünschten Artikels im CADENAS-Downloadportal.

„Clicking“ on the CAD-logo leads you to the CAD-file(s) of the corresponding article within the Cadenas download-portal.

Ein „Klick“ auf das MAIL-Logo generiert eine an die Märkischen Stanz-Partner adressierte e-mail, mit der Normbezeichnung des gewünschten Artikels in der Betreffzeile.

„Clicking“ on the MAIL-logo generates an e-mail addressed to the Stanz-Partners, showing the requested article in the subject heading.

Ein „Klick“ auf das RETURN-Logo unten auf jeder Katalogseite bringt Sie zurück auf das Inhaltsverzeichnis des entsprechenden Registers.

„Clicking“ on the RETURN-logo at the bottom of each catalog-page opens that specific register‘s table of contents.

[11.03.2020]

	Bohrbuchsen	Drill bushings	Best.-Nr. Order no.	Seite Page
	Bohrbuchsen mit Bund DIN 172, Form A	Drill bushings with collar DIN 172, Form A	TH 795	TH.2
	Bohrbuchsen ohne Bund DIN 179, Form A	Drill bushings without collar DIN 179, Form A	TH 794	TH.1

	Befestigungselemente, Zentrierhilfen, etc.	Mounting accessories, locators, ejectors, etc.	Best.-Nr. Order no.	Seite Page
	Aufnahmen für Kennzeichnungsstempel Norm-39D 647	Retainers for identification punches Standard-39D 647	TH 39D 647	TH.109 TH.110
	Auswerferstifte DIN 1530 Form D	Ejector pins DIN 1530 Form D	TH 751	TH.10
	Aufwerferstifte, gehärtet DIN 1530 A – ISO 6750	Ejector pins, hardened DIN 1530 A – ISO 6750	TH 750	TH.9
	Federnde Druckstücke mit Bolzen und Schlitz, Type B	Spring plungers with round ended bolt and slot, Type B	TH 330	TH.13
	Federnde Druckstücke mit Innensechskant und Bolzen, Type A	Spring plungers with round ended bolt and hexagon socket, Type A	TH 340	TH.14
	Federnde Druckstücke mit Kugel und Schlitz, Type K	Spring plungers with ball and with slot, Type K	TH 310	TH.11
	Federnde Druckstücke mit Kugel und Schlitz, Type KN	Spring plungers with ball and with slot, Type KN	TH 320	TH.12
	Federnde Druckstücke, lange Ausführung, Type L	Spring plungers, long version, Type L	TH 350	TH.15
	Gewindestifte mit Innensechskant DIN 913 / ISO 4026	Hexagon socket set screws DIN 913 / ISO 4026	TH 113	TH.8
	Handstempelgeräte, pneumatisch	Manual stamping tool, pneumatic	TH 930 TH 931 TH 932	TH.113 TH.114
	Kennzeichnungsstempel Norm-39V 1079	Identification punches Standard-39V 1079	TH 39V 1079	TH.108
	Platinen-Einweiser	Pilot gages	TH 900 TH 900 CH	TH.41 TH.42
	Platinen-Einweiser mit Teillagekontrolle	Pilot gages with part position control	TH 901	TH.43
	Prägewerke	Numbering heads	TH 933 TH 934 TH 935	TH.115 TH.116
	Prägewerke Norm-39D 991 A, Norm-39D 991 B	Numbering heads Standard-39D 991 A, Standard-39D 991 B	TH 39D 991 A TH 39D 991 B	TH.111 TH.112
	Prägewerk-Ringe für TH 39D 991 B	Numbering head rings for TH 39D 991 B	TH 927	TH.112

	Befestigungselemente, Zentrierhilfen, etc.	Mounting accessories, locators, ejectors, etc.	Best.-Nr. Order no.	Seite Page
	Schulterpasschrauben	Hexagon socket head shoulder screws	TH 413	TH.3
	Senkschrauben mit Innensechskant DIN 7991 / ISO 10642	Countersunk head screws with hexagon socket DIN 7991 / ISO 10642	TH 111	TH.5
	Zentrierbolzen	Locating pins	TH 943 TH 944	TH.45
	Zentriereinheiten mit Distanzscheibe	Tapered interlocks with spacer disc	TH 920	TH.44
	Zylinderschrauben mit Innensechskant DIN 912 / ISO 4762	Hexagon socket head cap screws DIN 912 / ISO 4762	TH 110	TH.4
	Zylinderstifte DIN EN 28734 Form A (DIN 6325)	Dowel pins DIN EN 28734 Form A (DIN 6325)	TH 700	TH.6
	Zylinderstifte mit Innengewinde ähnlich DIN EN ISO 8375	Dowel pins with internal thread similar DIN EN ISO 8375	TH 705	TH.7

	Lehrenbänder, Unterlagsfolien	Feeler gage stock and calibrated shimsteel	Best.-Nr. Order no.	Seite Page
	Präzisions-Lehrenband	Precision feeler gages steel	TH 422, TH 423 TH 424	TH.16 - TH.18
	Unterlagsfolien	Calibrated shimsteels	TH 432 TH 433	TH.19 TH.20
	Unterlagsfolien im Sortiment	Calibrated shimsteels, sorted	TH 434	TH.21

	Tragelemente	Lifting elements	Best.-Nr. Order no.	Seite Page
	Einspannzapfen mit Gewindeschaft ähnlich DIN 9859, Form CE	Shanks with screwed shaft, similar DIN 9859, Form CE	TH 380	TH.22
	Lastböcke - drehbar, Standard/Vario	Hoist rings - rotatable; Standard / Vario	TH 56 R	TH.35
	Oberluftbolzen, VDI 3002	Upper air pins, VDI 3002	TH 910	TH.29
	Ringmuttern, hochfest	Lifting eye nuts, high-strength	TH 58 R	TH.33
	Ringschrauben - drehbar, STAR POINT	Eyebolts - rotatable, STAR POINT	TH 55 R	TH.34
	Ringschrauben, hochfest	Eyebolts, high-strength	TH 57 R	TH.32

[11.03.2020]

[11.03.2020]

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	Tragelemente	Lifting elements	Best.-Nr. Order no.	Seite Page
	Steckbolzen, Form 1, VDI 3366	Pad retainer pins, Form 1, VDI 3366	TH 911	TH.30
	Steckbolzen, Form 2, VDI 3366	Pad retainer pins, Form 1, VDI 3366	TH 912	TH.31
	Tragbolzen mit Fallsicherung, VDI 3366	Lifting pins, VDI 3366	TH 250	TH.26
	Tragschrauben, VDI 3366	Lifting pins, VDI 3366	TH 230	TH.25
	Tragzapfen	Lifting brackets	TH 220	TH.23
	Tragzapfen mit Seilsicherung, VDI 3366	Lifting brackets with rope stop safety, VDI 3366	TH 221	TH.24
	Unterluftbolzen	Lower air pins	TH 908 TH 909	TH.27 TH.28
	Wirbelböcke - Gewinde	Lifting points, threaded	TH 59 R	TH.37
	Wirbelböcke - Gewinde, Standard/Vario	Lifting points, threaded, Standard / Vario	TH 54 R	TH.36
	Wirbelböcke mit Ösenhaken, doppelt - kugelgelagert	Universal lifting points with eye hook, double ball bearing	TH 53 R	TH.38
	Wirbelböcke mit Ovalglied für direkten Kettenanschluss	Lifting points with oval ring for direct chain connection	TH 60 R TH 61 R	TH.39 TH.40

	Rollenschieber-Einheiten	Cam-units	Best.-Nr. Order no.	Seite Page
	Rollenschieber-Einheiten	Roller cam-units	ACX, FCX, JCX	TH.46 - 92

	Teileförderer	Part conveyors	Best.-Nr. Order no.	Seite Page
	Teileförderer	Part conveyors	NCV....	TH.93 - 106
	Stützblock aus Teflon	Support blocks, teflon	NCVA.4	TH.99
	Stützelemente	Supports	NCVA....	TH.98

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	Chemieprodukte	Chemical auxiliary products	Best.-Nr. Order no.	Seite Page
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	Hochtemperatur Trenn- und Gleitmittel mit Cu	High-temperature release- and antiseize-agent with Cu	TH 015	TH.122
	Kaltentfetter	Cold degreaser	TH 010	TH.117
	Korrosionsschutz	Corrosion prevention	TH 012	TH.119
	Leckspray für Fluide	Leakage spray for fluids	TH 019	TH.126
	Rostlöser	Rust remover	TH 011	TH.118
	Schmierstoffpaste	Lubrication paste	TH 014	TH.121
	Schraubensicherung	Screw locking	TH 016	TH.123
	Sekundenkleber	Instant adhesive	TH 018	TH.125
	Sprühfett	Spray grease	TH 013	TH.120

[11.03.2020]

Bohrbuchsen ohne Bund DIN 179, Form A

Drill bushings without collar DIN 179, Form A

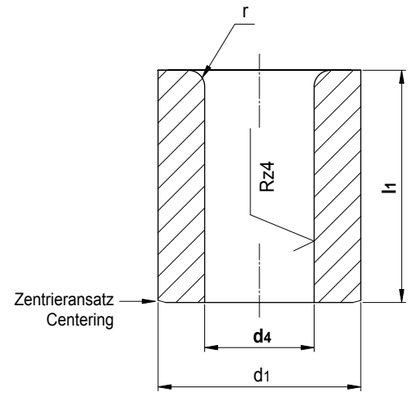
[TH]

TH 794

Härte: 740 +80HV10

Hardness: 740 +80HV10

TH 794 / 8,1 x 12



CAD MAIL

d4 F7	Stufung Graduation	l1 kurz / short	l1 mittel / medium	d1 n6	r
-1	0,1/0,25	**6**	**9**	3	1,0
1,1 - 1,8	0,1/0,25	**6**	**9**	4	1,0
1,9 - 2,6	0,1/0,25	**6**	**9**	5	1,0
2,7 - 3,3	0,1/0,25	**8**	**12**	6	1,0
3,4 - 4,0	0,1/0,25	**8**	**12**	7	1,0
4,1 - 5,0	0,1/0,25	**8**	**12**	8	1,0
5,1 - 6,0	0,1/0,25	**10**	**16**	10	1,5
6,1 - 8,0	0,1/0,25	**10**	**16**	12	1,5
8,1 - 10,0	0,1/0,25	**12**	**20**	15	2,0
10,1 - 12,0	0,1/0,25	**12**	**20**	18	2,0
12,1 - 15,0	0,1/0,25	**16**	**28**	22	2,0
15,5 - 18,0	0,5	**16**	**28**	26	2,0
18,5 - 22,0	0,5	**20**	**36**	30	3,0
22,5 - 26,0	0,5	**20**	**36**	35	3,0
26,5 - 30,0	0,5	**25**	**45**	42	3,0

Bohrbuchsen mit Bund DIN 172, Form A

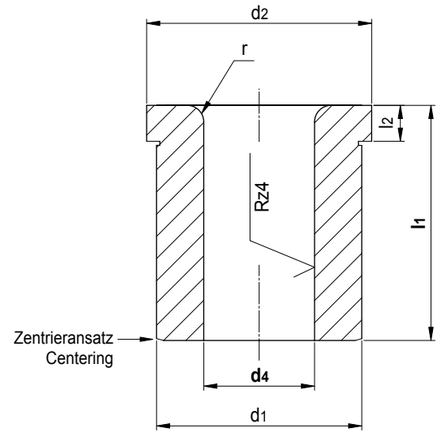
Drill bushings with collar DIN 172, Form A

TH 795

Härte: 740 +80HV10

Hardness: 740 +80HV10

TH 795 / 8,1 x 12



CAD MAIL

d4 F7	Stufung Graduation	l1 kurz / short	l1 mittel / medium	l2	d1 n6	d2	r
-1	0,1/0,25	**6**	**9**	2,0	3	6	1,0
1,1 - 1,8	0,1/0,25	**6**	**9**	2,0	4	7	1,0
1,9 - 2,6	0,1/0,25	**6**	**9**	2,0	5	8	1,0
2,7 - 3,3	0,1/0,25	**8**	**12**	2,5	6	9	1,0
3,4 - 4,0	0,1/0,25	**8**	**12**	2,5	7	10	1,0
4,1 - 5,0	0,1/0,25	**8**	**12**	2,5	8	11	1,0
5,1 - 6,0	0,1/0,25	**10**	**16**	3,0	10	13	1,5
6,1 - 8,0	0,1/0,25	**10**	**16**	3,0	12	15	1,5
8,1 - 10,0	0,1/0,25	**12**	**20**	3,0	15	18	2,0
10,1 - 12,0	0,1/0,25	**12**	**20**	4,0	18	22	2,0
12,1 - 15,0	0,1/0,25	**16**	**28**	4,0	22	26	2,0
15,5 - 18,0	0,5	**16**	**28**	4,0	26	30	2,0
18,5 - 22,0	0,5	**20**	**36**	5,0	30	34	3,0
22,5 - 26,0	0,5	**20**	**36**	5,0	35	39	3,0
26,5 - 30,0	0,5	**25**	**45**	5,0	42	46	3,0

[11.03.2020]

[11.03.2020]

Schulterpassschrauben

Hexagon socket head shoulder screws

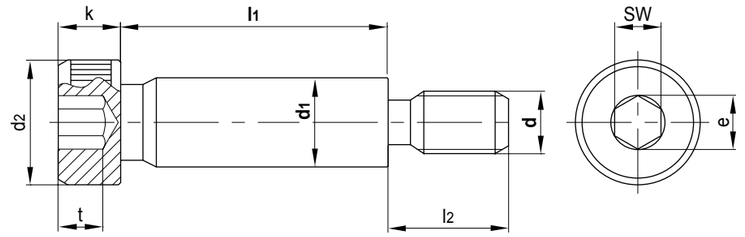
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

TH 413

Mat.: Einsatzstahl
Festigkeitsklasse 12.9

Mat.: case-hardened steel
Property class 12.9

TH 413 / 10 x M8 x 40



MAIL

d1 h8	d	l2	d2	k	t	e	SW	l1 10	16	20	25	30	40	50	55	60	65	70	80	90	100	120
6	**M5**	9,5	10	4,5	2,4	3,6	3	●	●	●	●	●	●	●	●	●	●					
8	**M6**	11,0	13	5,5	3,3	4,7	4		●	●	●	●	●	●	●	●	●	●	●	●	●	
10	**M8**	13,0	16	7,0	4,1	5,9	5		●	●	●	●	●	●	●	●	●	●	●	●	●	
12	**M10**	16,0	18	9,0	4,9	7,0	6		●	●	●	●	●	●	●	●	●	●	●	●	●	●
16	**M12**	18,0	24	11,0	6,2	9,4	8					●	●	●	●	●	●	●	●	●	●	●
20	**M16**	22,0	30	14,0	8,8	11,7	10						●	●	●	●	●	●	●	●	●	●
24	**M20**	27,0	36	16,0	10,0	14,0	12							●		●		●	●	●	●	●

[TH]

Zylinderschrauben m. Innensechskant, DIN 912 / ISO 4762

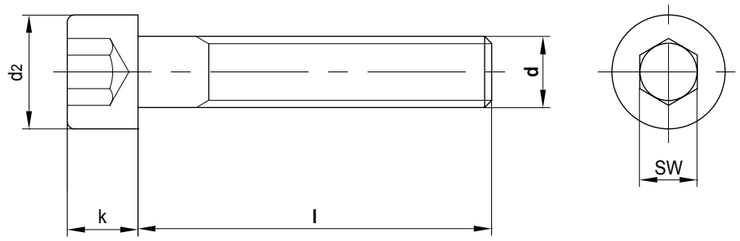
Hexagon socket head cap screws, DIN 912 / ISO 4762

TH 110

Mat.: Einsatzstahl
Festigkeitsklasse 10.9

Mat.: case-hardened steel
Property class 10.9

TH 110 / M12 x 60



CAD MAIL

d	d2	k	SW	l																													
				10	12	16	20	25	30	35	40	45	50	55	60	65	70	75	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	240
M3	5,5	3	2,5	●	●	●	●	●																										
M4	7,0	4	3,0	●	●	●	●	●																										
M5	8,5	5	4,0	●	●	●	●	●	●	●	●	●	●	●	●																			
M6	10,0	6	5,0	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●		●											
M8	13,0	8	6,0	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●							
M10	16,0	10	8,0	●		●	●	●	●	●	●	●	●	●	●		●		●	●	●	●	●	●	●	●	●		●		●			
M12	18,0	12	10,0			●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●		●		●	●	●	●
M16	24,0	16	14,0				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M20	30,0	20	17,0								●		●		●		●		●		●		●		●		●		●		●			

[11.03.2020]

Senkschrauben m. Innensechskant, DIN 7991 / ISO 10642

Countersunk screws w. hexagon socket, DIN 7991 / ISO 10642

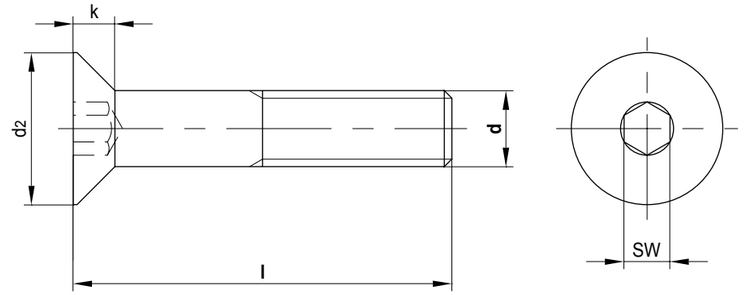
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

TH 111

Mat.: Einsatzstahl
Festigkeitsklasse 8.8

Mat.: case-hardened steel
Property class 8.8

TH 111 / M8 x 20



CAD MAIL

d	d2	k	SW	l							
				10	**12**	**16**	**20**	**25**	**30**	**35**	**40**
M3	6	1,7	2,0	●	●	●	●	●	●	●	●
M4	8	2,3	2,5	●	●	●	●	●	●	●	●
M5	10	2,8	3,0	●	●	●	●	●	●	●	●
M6	12	3,3	4,0	●	●	●	●	●	●	●	●
M8	16	4,4	5,0	●	●	●	●	●	●	●	●
M10	20	5,5	6,0	●	●	●	●	●	●	●	●

[TH]

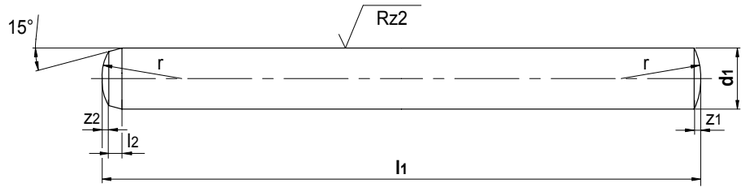
[11.03.2020]

TH 700

Mat.: Einsatzstahl
Härte: 60 ±2 HRc

Mat.: case-hardened steel
Hardness: 60 ±2 HRc

TH 700 / 5,0 x 12



CAD MAIL

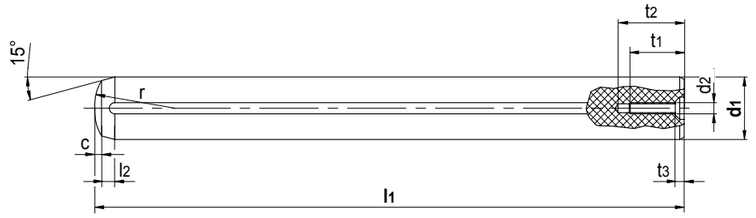
d1 m5	l2	r	z1	z2	l1 4	5	6	8	10	12	14	16	18	20	24	28	32	36	40	45	50	55	60	70	80	90	100
1,5	0,5	1,6	0,23	0,12	●	●	●	●	●	●	●	●															
2,0	0,6	2,0	0,30	0,18			●	●	●	●	●	●	●	●													
2,5	0,7	2,5	0,40	0,25			●	●	●	●	●	●	●	●	●												
3,0	0,8	3,0	0,45	0,30				●	●	●	●	●	●	●	●	●	●										
4,0	1,0	4,0	0,60	0,40					●	●	●	●	●	●	●	●	●	●	●								
5,0	1,2	5,0	0,75	0,50						●	●	●	●	●	●	●	●	●	●	●	●						
6,0	1,5	6,0	0,90	0,60							●	●	●	●	●	●	●	●	●	●	●	●	●				
8,0	1,8	8,0	1,20	0,80									●	●	●	●	●	●	●	●	●	●	●	●	●		●
10,0	2,0	10,0	1,50	1,00											●	●	●	●	●	●	●	●	●	●	●	●	●
12,0	2,5	12,0	1,80	1,30													●	●	●	●	●	●	●	●	●	●	●

TH 705

Mat.: Einsatzstahl
Härte: 60 ±2 HRc

Mat.: case-hardened steel
Hardness: 60 ±2 HRc

TH 705 / 10 x 80



CAD MAIL

d1 m6	l2	r	c	d2	t1	t2	t3	l1 20	24	28	32	36	40	45	50	60	70	80	90	100
6	1,5	6	0,6	M4	6	10	1,0	●	●	●	●	●	●	●	●	●				
8	1,8	8	0,8	M5	8	13	1,2	●	●	●	●	●	●	●	●	●	●	●		
10	2,0	10	1,0	M6	10	16	1,2		●	●	●	●	●	●	●	●	●	●		
12	2,5	12	1,3	M6	12	18	1,2				●	●	●	●	●	●	●	●	●	●
14	2,5	14	1,3	M8	12	18	1,2				●	●	●	●	●	●		●		●
16	3,0	16	1,7	M8	16	23	1,6						●	●	●	●		●		●
20	4,0	20	2,0	M10	20	27	1,6								●	●		●		●

Gewindestifte mit Innensechskant, DIN 913 / ISO 4026

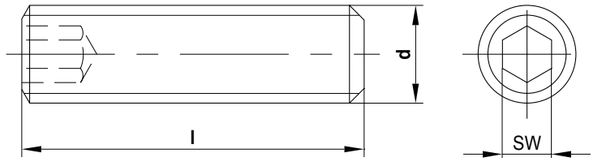
Hexagon socket set screws, DIN 913 / ISO 4026

TH 113

Mat.: Einsatzstahl
Festigkeitsklasse 45H

Mat.: case-hardened steel
Property class 45H

TH 113 / M3 x 5



CAD MAIL

d	SW	l											
		5	6	8	10	12	16	20	25	30	35	40	50
M3	1,5	●	●	●	●		●						
M4	2,0	●	●	●	●	●	●	●					
M5	2,5	●	●	●	●	●	●	●	●				
M6	3,0		●	●	●	●	●	●	●	●		●	
M8	4,0			●	●	●	●	●	●	●			
M10	5,0				●	●	●	●	●	●	●	●	●
M12	6,0					●	●	●	●	●	●	●	●
M16	8,0						●	●	●	●	●	●	●

[11.03.2020]

Auswerferstifte, gehärtet, DIN 1530 A – ISO 6750

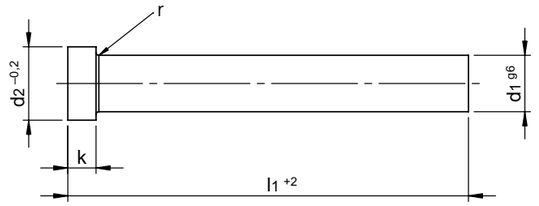
Ejector pins, hardened, DIN 1530 A – ISO 6750

TH 750

Mat.: WS - legierter Werkzeugstahl
Härte Schaft: 62 –2 HRC
Kopf: 45 ±5 HRC
Schaft feinstgeschliffen
Kopf warmgestaucht

Mat.: WS - alloyed tool steel
Hardness shaft: 62 –2 HRC
Head: 45 ±5 HRC
Shaft finish ground
Head warm-upset

TH 750 / 4 x 100



CAD MAIL

d1 g6	d2 -0,2	k	r	l1 +2 100	l1 +2 160
2	4	2	0,2	●	●
3	6	3	0,3	●	●
4	8	3	0,3	●	●
5	10	3	0,3	●	●
6	12	5	0,5	●	●
7	12	5	0,5	●	●
8	14	5	0,5	●	●
9	14	5	0,5	●	●
10	16	5	0,5	●	●
12	18	7	0,8	●	●
14	22	7	0,8	●	●
16	22	7	0,8	●	●

[11.03.2020]

[TH]

Auswerferstifte, DIN 1530 Form D

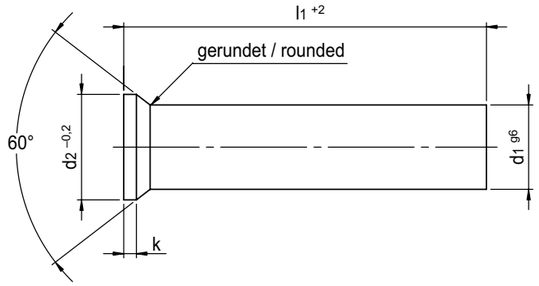
Ejector pins, DIN 1530 Form D

TH 751

Mat.: WS - legierter Werkzeugstahl
Härte Schaft: 62 –2 HRC
Kopf: 45 ±5 HRC
Schaft feinstgeschliffen
Kopf warmgestaucht

Mat.: WS - alloyed tool steel
Hardness shaft: 62 –2 HRC
Head: 45 ±5 HRC
Shaft finish ground
Head warm-upset

TH 751 / 10,0 x 160



CAD MAIL

d1 g6	d2 -0,02	k	l1 +2 100	l1 +2 160
2,0	3,0	0,5	●	●
2,5	3,5	0,5	●	●
3,0	4,5	0,5	●	●
3,5	5,0	0,5	●	●
4,0	5,5	0,5	●	●
4,5	6,0	0,5	●	●
5,0	6,5	0,5	●	●
5,5	7,0	0,5	●	●
6,0	8,0	0,5	●	●
6,5	9,0	1,0	●	●
7,0	9,0	1,0	●	●
8,0	10,0	1,0	●	●
8,5	11,0	1,0	●	●
9,0	11,0	1,0	●	●
10,0	12,0	1,0	●	●
12,0	14,0	1,0	●	●
14,0	16,0	1,5	●	●
16,0	18,0	1,5	●	●

Federnde Druckstücke mit Kugel und Schlitz, Typ K

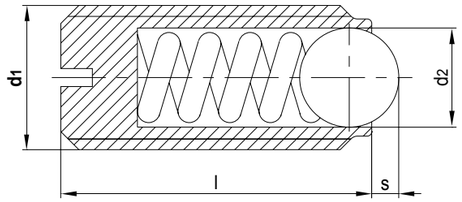
Spring plungers with ball and slot, Type K

TH 310

Mat.: Automatenstahl

Mat.: Free cutting steel

TH 310 / M4



CAD MAIL

d1	l	s	d2	F1 N	Fmax. N
M4	9	0,8	2,5	8,5	14
M5	12	0,9	3,0	8,0	14
M6	14	1,0	3,5	11,0	18
M8	16	1,5	5,0	18,0	31
M10	19	2,0	6,0	24,0	45
M12	22	2,5	8,0	26,0	49
M16	24	3,5	10,0	41,0	86

[11.03.2020]

[TH]

Federnde Druckstücke mit Kugel und Schlitz, Typ KN

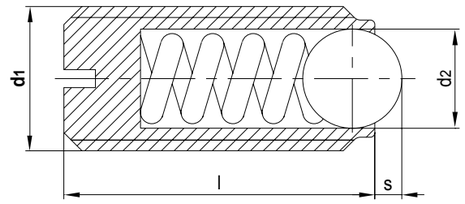
Spring plungers with ball and slot, Type KN

TH 320

Mat.: nichtrostender Stahl
Hitzebeständigkeit bis 250 °C

Mat.: stainless steel
Heat resistant up to 250 °C

TH 320 / M4



CAD MAIL

d1	l	s	d2	F1 N	Fmax. N
M4	9	0,8	2,5	8,5	14
M5	12	0,9	3,0	8,0	14
M6	14	1,0	3,5	11,0	18
M8	16	1,5	5,0	18,0	31
M10	19	2,0	6,0	24,0	45
M12	22	2,5	8,0	26,0	49
M16	24	3,5	10,0	41,0	86

[11.03.2020]

Federnde Druckstücke mit Bolzen und Schlitz, Typ B

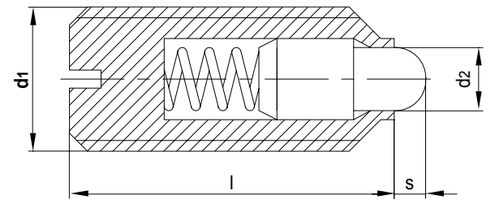
Spring plungers with round ended bolt and slot, Type B

TH 330

Mat.: Automatenstahl

Mat.: Free cutting steel

TH 330 / M8



CAD MAIL

d1	l	s	d2	F1 N	Fmax. N
M8	16	2,0	4,0	16	33
M10	19	2,5	4,5	19	42
M12	22	3,5	6,0	22	57
M16	24	4,5	8,5	38	78

[11.03.2020]

[TH]

Fed. Druckstücke mit Innensechskant und Bolzen, Typ A

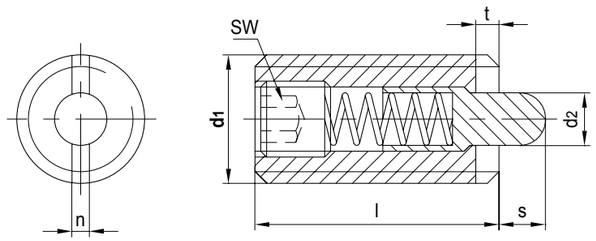
Spring plungers with round ended bolt and hex. socket, Type A

TH 340

Mat.: Automatenstahl

Mat.: Free cutting steel

TH 340 / M4



CAD MAIL

d1	l	s	d2	n	t	SW	F1 N	Fmax. N
M4	15	1,5	1,5	0,6	0,6	1,3	4,5	16
M5	18	2,3	2,4	1,2	0,8	1,5	6,0	19
M6	20	2,5	2,7	1,3	0,9	2,0	6,0	19
M8	22	3,0	3,5	1,5	1,4	2,5	10,0	39
M10	22	3,0	4,0	1,5	1,4	3,0	10,0	39
M12	28	4,0	6,0	2,7	2,0	4,0	12,0	53
M16	32	5,0	7,5	3,2	2,5	5,0	45,0	100

[11.03.2020]

[11.03.2020]

Federnde Druckstücke, lange Ausführung, Typ L

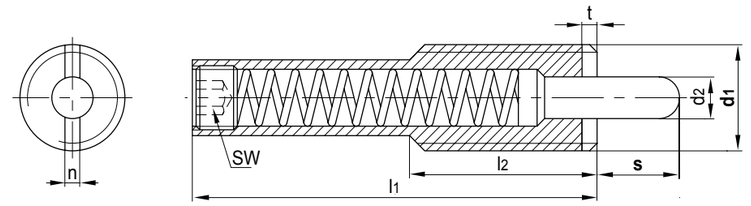
Spring plungers, long version, Type L

TH 350

Mat.: Automatenstahl

Mat.: Free cutting steel

TH 350 / M16 x 30



CAD MAIL

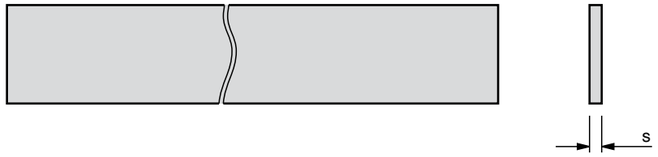
d1	d2	l1	l2	s	n	t	SW	F1 N	Fmax. N
M12	5,5	43	35	**10**	2,7	2,0	4	4	18
M16	7,5	60	35	**15**	3,2	2,5	5	7	24
M16	7,5	120	35	**30**	3,2	2,5	5	15	42

[TH]

TH 422

Mat.:	1.1274	Mat.:	1.1274
Länge:	1000 mm	Length:	1000 mm
Breite:	12,7 mm	Width:	12,7 mm
Packungseinheit:	Rolle	Packaging unit:	Roll

TH 422 / 0,01



MAIL

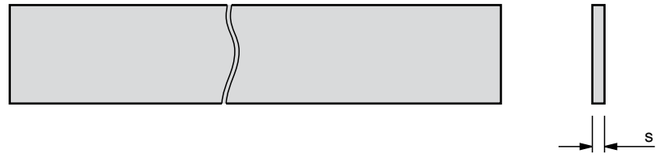
s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,01 ±0,002	2000-2200
0,02 ±0,002	2000-2200
0,03 ±0,002	2000-2200
0,04 ±0,003	2000-2200
0,05 ±0,003	2000-2200
0,06 ±0,003	2000-2200
0,07 ±0,004	2000-2200
0,08 ±0,004	2000-2200
0,09 ±0,004	2000-2200
0,10 ±0,004	2000-2200
0,12 ±0,004	2000-2200
0,15 ±0,005	2000-2200
0,18 ±0,005	2000-2200
0,20 ±0,006	1800-2000
0,25 ±0,007	1800-2000
0,30 ±0,007	1800-2000
0,35 ±0,008	1800-2000
0,40 ±0,009	1600-1800
0,45 ±0,009	1600-1800
0,50 ±0,010	1600-1800

s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,55 ±0,010	1600-1800
0,60 ±0,010	1600-1800
0,65 ±0,012	1400-1600
0,70 ±0,012	1400-1600
0,75 ±0,012	1400-1600
0,80 ±0,013	1400-1600
0,85 ±0,013	1400-1600
0,90 ±0,013	1400-1600
0,95 ±0,013	1400-1600
1,00 ±0,013	1400-1600
1,10 ±0,017	1400-1600
1,20 ±0,017	1400-1600
1,30 ±0,020	1400-1600
1,40 ±0,020	1400-1600
1,50 ±0,020	1400-1600
1,60 ±0,023	1400-1600
1,70 ±0,023	1400-1600
1,80 ±0,023	1400-1600
1,90 ±0,023	1400-1600
2,00 ±0,035	1400-1600

TH 423

Mat.:	1.1274	Mat.:	1.1274
Länge:	5000 mm	Length:	5000 mm
Breite:	12,7 mm	Width:	12,7 mm
Packungseinheit:	Rolle	Packaging unit:	Roll

TH 423 / 0,01



MAIL

s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,01 ±0,002	2000-2200
0,02 ±0,002	2000-2200
0,03 ±0,002	2000-2200
0,04 ±0,003	2000-2200
0,05 ±0,003	2000-2200
0,06 ±0,003	2000-2200
0,07 ±0,004	2000-2200
0,08 ±0,004	2000-2200
0,09 ±0,004	2000-2200
0,10 ±0,004	2000-2200
0,12 ±0,004	2000-2200
0,15 ±0,005	2000-2200
0,18 ±0,005	2000-2200
0,20 ±0,006	1800-2000
0,25 ±0,007	1800-2000
0,30 ±0,007	1800-2000
0,35 ±0,008	1800-2000
0,40 ±0,009	1600-1800
0,45 ±0,009	1600-1800
0,50 ±0,010	1600-1800

s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,55 ±0,010	1600-1800
0,60 ±0,010	1600-1800
0,65 ±0,012	1400-1600
0,70 ±0,012	1400-1600
0,75 ±0,012	1400-1600
0,80 ±0,013	1400-1600
0,85 ±0,013	1400-1600
0,90 ±0,013	1400-1600
0,95 ±0,013	1400-1600
1,00 ±0,013	1400-1600
1,10 ±0,017	1400-1600
1,20 ±0,017	1400-1600
1,30 ±0,020	1400-1600
1,40 ±0,020	1400-1600
1,50 ±0,020	1400-1600
1,60 ±0,023	1400-1600
1,70 ±0,023	1400-1600
1,80 ±0,023	1400-1600
1,90 ±0,023	1400-1600
2,00 ±0,035	1400-1600

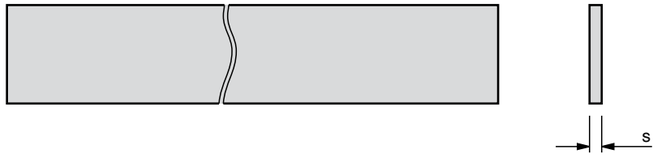
Präzisions-Lehrenband

Precision feeler gages steel

TH 424

Mat.:	1.1274	Mat.:	1.1274
Länge:	5000 mm	Length:	5000 mm
Breite:	50,0 mm	Width:	50,0 mm
Packungseinheit:	Rolle	Packaging unit:	Roll

TH 424 / 0,03



MAIL

s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,03 ±0,002	2000-2200
0,04 ±0,003	2000-2200
0,05 ±0,003	2000-2200
0,06 ±0,003	2000-2200
0,07 ±0,004	2000-2200
0,08 ±0,004	2000-2200
0,09 ±0,004	2000-2200
0,10 ±0,004	2000-2200
0,12 ±0,004	2000-2200
0,15 ±0,005	2000-2200
0,18 ±0,005	2000-2200
0,20 ±0,006	1800-2000

s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,25 ±0,007	1800-2000
0,30 ±0,007	1800-2000
0,35 ±0,008	1800-2000
0,40 ±0,009	1600-1800
0,45 ±0,009	1600-1800
0,50 ±0,010	1600-1800
0,60 ±0,010	1600-1800
0,70 ±0,012	1400-1600
0,80 ±0,013	1400-1600
0,90 ±0,013	1400-1600
1,00 ±0,013	1400-1600

[11.03.2020]

Unterlagsfolien

Calibrated shimsteels

TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

TH 432

Mat.:	1.1274	Mat.:	1.1274
Länge:	300 mm	Length:	300 mm
Breite:	50,0 mm	Width:	50,0 mm
Packungseinheit:	10 Stück	Packaging unit:	10 pieces

TH 432 / 0,03



MAIL

s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,01 ±0,002	2000-2200
0,02 ±0,002	2000-2200
0,03 ±0,002	2000-2200
0,04 ±0,003	2000-2200
0,05 ±0,003	2000-2200
0,06 ±0,003	2000-2200
0,07 ±0,004	2000-2200
0,08 ±0,004	2000-2200
0,09 ±0,004	2000-2200
0,10 ±0,004	2000-2200
0,15 ±0,005	2000-2200
0,20 ±0,006	1800-2000

s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,25 ±0,007	1800-2000
0,30 ±0,007	1800-2000
0,40 ±0,009	1600-1800
0,50 ±0,010	1600-1800
0,60 ±0,010	1600-1800
0,70 ±0,012	1400-1600
0,80 ±0,013	1400-1600
0,90 ±0,013	1400-1600
1,00 ±0,013	1400-1600

[TH]

Unterlagsfolien

Calibrated shimsteels

TH 433

Mat.:	1.4310	Mat.:	1.4310
Länge:	500 mm	Length:	500 mm
Breite:	100 mm	Width:	100 mm
Packungseinheit:	5 Stück	Packaging unit:	5 pieces

TH 433 / 0,02



MAIL

s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,02 ±0,002	2000-2200
0,05 ±0,003	1850-2100
0,10 ±0,004	1600-1800
0,15 ±0,005	1600-1800
0,20 ±0,006	1600-1800
0,25 ±0,007	1600-1800
0,30 ±0,007	1600-1800
0,35 ±0,008	1600-1800
0,40 ±0,009	1600-1800
0,45 ±0,009	1600-1800
0,50 ±0,010	1600-1800
0,55 ±0,010	1600-1800

s	zulässige Zugfestigkeit allowed tensile strength [N/mm²]
0,60 ±0,010	1600-1800
0,65 ±0,010	1600-1800
0,70 ±0,012	1600-1800
0,75 ±0,012	1600-1800
0,80 ±0,013	1600-1800
0,85 ±0,013	1600-1800
0,90 ±0,013	1600-1800
0,95 ±0,013	1600-1800
1,00 ±0,013	1600-1800

[11.03.2020]

Unterlagsfolien im Sortiment

Calibrated shimsteels, sorted

TH 434

TH 434 / 1



MAIL

Typ Type	Format Size	Anzahl Blätter Number of sheets	Inhalt: je 1 Blatt Content: 1 sheet each	Mat.
1	50 x 300	25	s = 0,01 - 1,00 mm	1.1274
2	100 x 500	9	s = 0,02 / 0,05 / 0,10 / 0,15 / 0,20 / 0,30 / 0,40 / 0,50 / 1,00 mm	1.4310

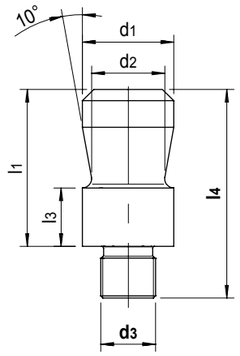
[TH]

TH 380

Mat.: C45

Mat.: C45

TH 380 / M16 x 1,5 x 58



CAD MAIL

d3	d1 d9	d2	l1	l3	l4
M16 x 1,5	20	15	40	12	**58**
M16 x 1,5	25	20	45	16	**68**
M20 x 1,5	25	20	45	16	**68**
M20 x 1,5	32	25	56	16	**79**
M24 x 1,5	32	25	56	16	**79**
M24 x 1,5	40	32	70	26	**93**
M30 x 2,0	40	32	70	26	**93**
M30 x 2,0	50	42	80	26	**108**

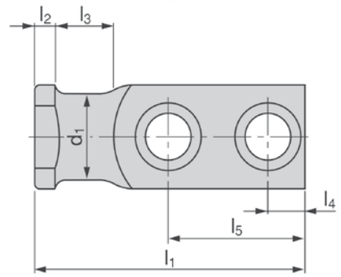
TH 220

Mat.: CK45
Zugfestigkeit: 700 - 800 N/mm²

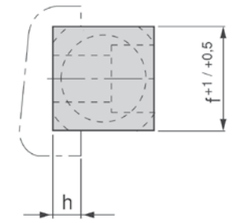
Mat.: CK45
Tensile strength: 700 - 800 N/mm²

TH 220 / 20

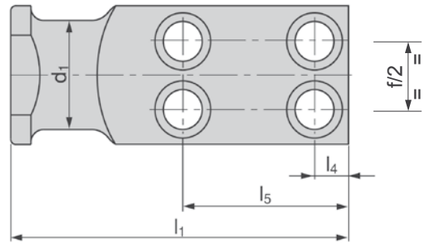
Form - A



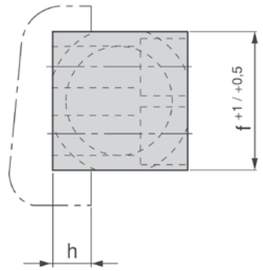
Passung / Seat



Form - B



Passung / Seat



CAD MAIL

d1 ±0,1	Tragfähigkeit Lifting capacity [N]	Form	f	h	l1	l2	l3	l4	l5	• DIN 912 min. 8.8
16	3200	A	20	6	80	6	20	10	44	M8 x 25
20	6300	A	25	8	90	8	25	10	47	M10 x 30
25	12500	A	35	10	100	8	30	12	50	M12 x 40
32	20000	A	40	10	120	10	32	16	62	M16 x 45
40	32000	A	50	12	140	10	40	18	72	M20 x 60
50	50000	A	60	14	160	12	45	22	81	M24 x 70
63	80000	B	80	16	200	12	50	20	98	M20 x 90
80	125000	B	100	18	250	15	65	25	125	M24 x 110
100	200000	B	120	20	300	15	80	30	155	M30 x 130

Tragzapfen mit Seilsicherung, VDI 3366

Lifting brackets with rope stop safety, VDI 3366

TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

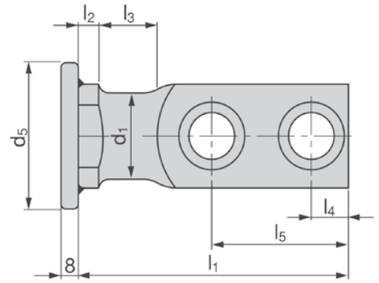
TH 221

Mat.: CK45
Zugfestigkeit: 700 - 800 N/mm²

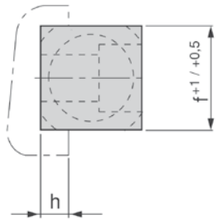
Mat.: CK45
Tensile strength: 700 - 800 N/mm²

TH 221 / 20

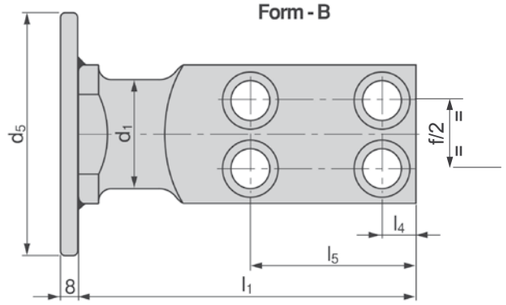
Form - A



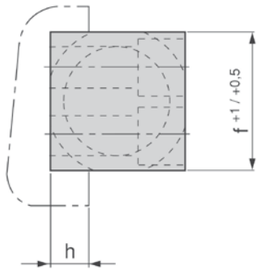
Passung / Seat



Form - B



Passung / Seat



MAIL

d1	Tragfähigkeit Lifting capacity [N]	Form	d5	f	h	l1	l2	l3	l4	l5	• DIN 912 min. 8.8
16	3200	A	60	20	6	80	6	20	10	44	M8 x 25
20	6300	A	70	25	8	90	8	25	10	47	M10 x 30
25	12500	A	70	35	10	100	8	30	12	50	M12 x 40
32	20000	A	110	40	10	120	10	32	16	62	M16 x 45
40	32000	A	110	50	12	140	10	40	18	72	M20 x 60
50	50000	A	150	60	14	160	12	45	22	81	M24 x 70
63	80000	B	150	80	16	200	12	50	20	98	M20 x 90
80	125000	B	150	100	18	250	15	65	25	125	M24 x 110
100	200000	B	150	120	20	300	15	80	30	155	M30 x 130

[11.03.2020]

Tragschrauben, VDI 3366

Lifting pins, VDI 3366

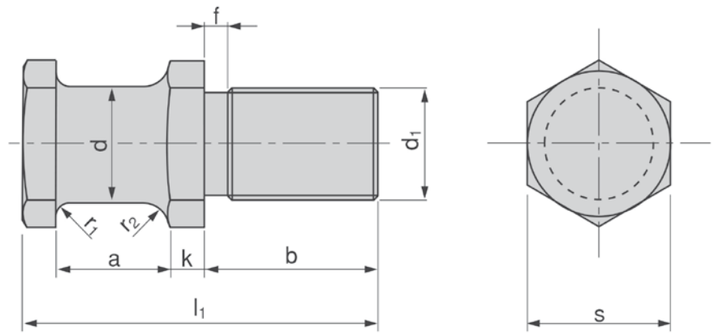
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

TH 230

Mat.: CK45
Zugfestigkeit: 700 - 800 N/mm²

Mat.: CK45
Tensile strength: 700 - 800 N/mm²

TH 230 / 20



CAD

MAIL

d ±0,1	Tragfähigkeit Lifting capacity [N]	d1	a	b ±0,5	f	k	l1 ±1	r1	r2	s
16	2500	M16	20	28	3	5	58	5	8	24
20	5000	M20	22	34	3	6	68	5	8	30
25	10000	M24	25	38	4	8	78	6	10	36
32	15000	M30	32	45	5	10	95	6	10	41
40	25000	M36	40	56	5	12	118	8	12	50

[11.03.2020]

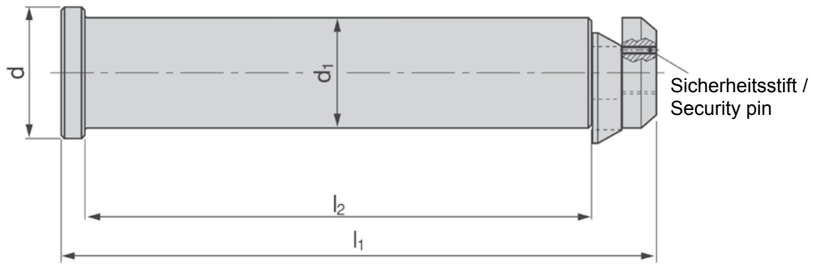
[TH]

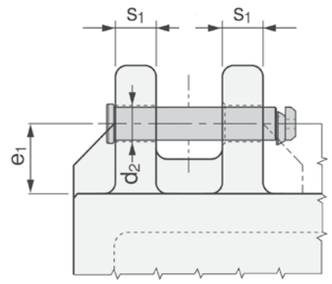
Tragbolzen mit Fallringsicherung, VDI 3366

Lifting pins, VDI 3366

TH 250

TH 250 / 63





MAIL

d1 H11	Tragfähigkeit Lifting capacity [N]	d	d2 +1	e1	l1 +1	l2 +1	s1	Mat.
32	32000	40	34	63	175	145	40	CK45
40	50000	50	42	80	225	188	50	CK45
50	80000	60	52	100	273	230	60	CK45
63	125000	75	65	125	347	295	80	CK45
76	315000	95	78	160	422	360	100	42CrMo4

[11.03.2020]

[11.03.2020]

Unterluftbolzen

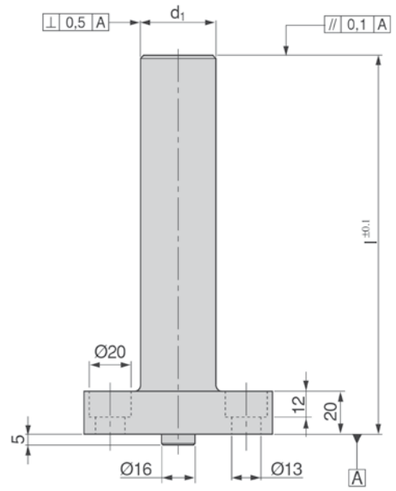
Lower air pins

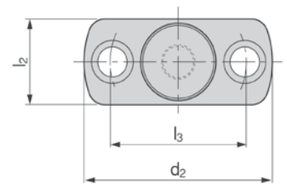
TH 908

Mat.: CK45
Zugfestigkeit: 800 - 1000 N/mm²

Mat.: CK45
Tensile strength: 800 - 1000 N/mm²

TH 908 / 36 x 185





MAIL

d1	$l_{max.}$	d2	l2	l3	Tragfähigkeit Lifting capacity [N]
36	**360**	90	40	65	50000
45	**360**	100	50	75	70000

[TH]

Unterluftbolzen

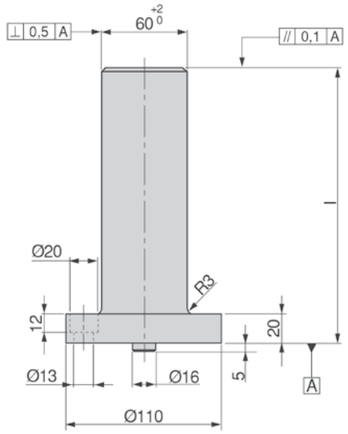
Lower air pins

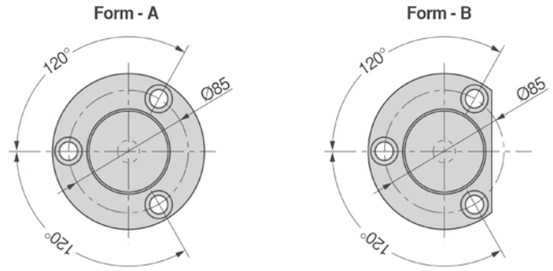
TH 909

Mat.: CK45
Zugfestigkeit: 800 - 1000 N/mm²

Mat.: CK45
Tensile strength: 800 - 1000 N/mm²

TH 909 / A x 205





MAIL

Form	$l_{max.}$	Tragfähigkeit Lifting capacity [N]
A	**400**	80000
B	**400**	80000

[11.03.2020]

[11.03.2020]

Oberluftbolzen, VDI 3002

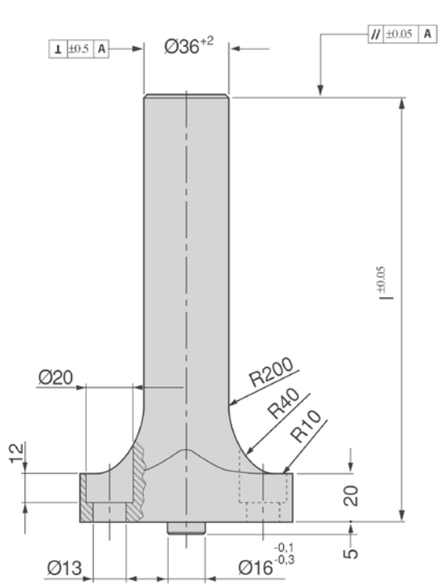
Upper air pins, VDI 3002

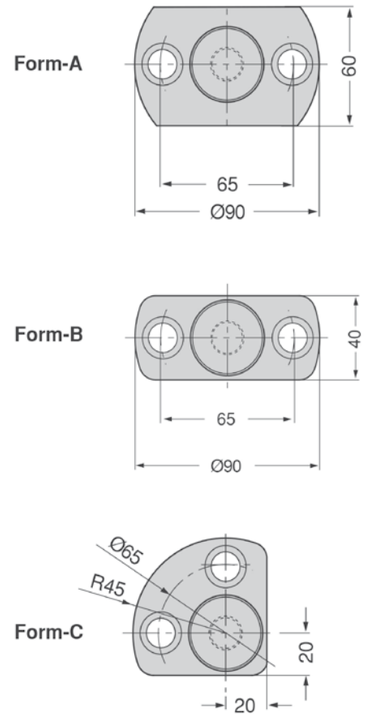
TH 910

Mat.: CK45
Zugfestigkeit: 800 - 1000 N/mm²

Mat.: CK45
Tensile strength: 800 - 1000 N/mm²

TH 910 / A x 285





MAIL

Form	$l_{max.}$	Tragfähigkeit Lifting capacity [N]
A	**360**	50000
B	**360**	50000
C	**360**	50000

Steckbolzen, Form 1, VDI 3365

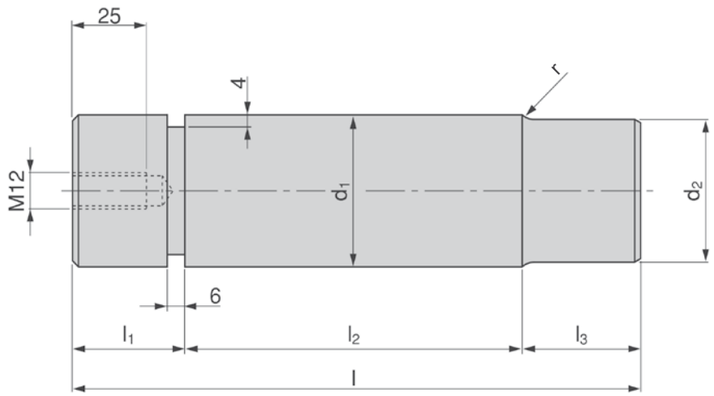
Pad retainer pins, Form 1, VDI 3365

TH 911

Mat.: CK45
Zugfestigkeit: 800 - 1000 N/mm²

Mat.: CK45
Tensile strength: 800 - 1000 N/mm²

TH 911 / 32 x 122



MAIL

d1 e8	l	Dynamische Belastbarkeit Dynamic load [N]	d2 +0,05	l1	l2	l3	r
32	**105**	5000	29	22	58	25	4
32	**122**	5000	29	22	75	25	4
40	**139**	7500	37	32	75	32	5
40	**159**	7500	37	32	95	32	5
50	**167**	12500	47	32	95	40	6
50	**192**	12500	47	32	120	40	6
63	**202**	25000	60	32	120	50	6
63	**237**	25000	60	32	155	50	6

Steckbolzen, Form 2, VDI 3365

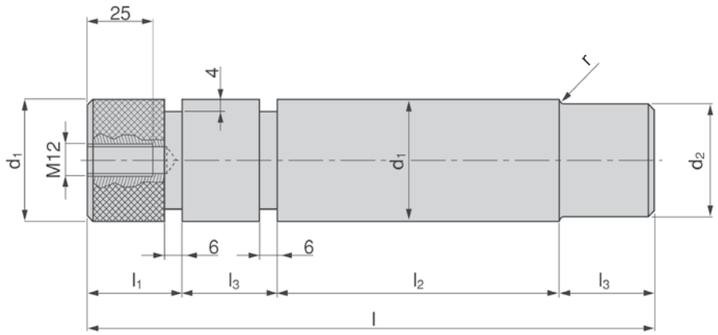
Pad retainer pins, Form 2, VDI 3365

TH 912

Mat.: 42CrMo5
Zugfestigkeit: 800 - 1000 N/mm²

Mat.: 42CrMo5
Tensile strength: 800 - 1000 N/mm²

TH 912 / 32 x 147



MAIL

d1 e8	l	Dynamische Belastbarkeit Dynamic load [N]	d2 +0,05	l1	l2	l3	r
32	**130**	5000	29	22	58	25	4
32	**147**	5000	29	22	75	25	4
40	**171**	7500	37	32	75	32	5
40	**191**	7500	37	32	95	32	5
50	**207**	12500	47	32	95	40	6
50	**232**	12500	47	32	120	40	6
63	**252**	25000	60	32	120	50	6
63	**287**	25000	60	32	155	50	6

[TH]

[11.03.2020]

[11.03.2020]

Ringschrauben, hochfest

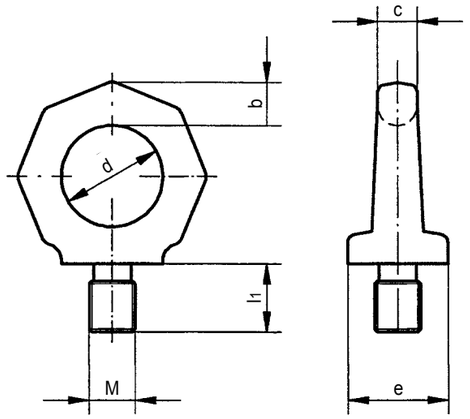
Eyebolts, high-strength

TH 57 R

Minimum-Einschraublänge:
1 x M in Stahl (min. St. 37)
1,25 x M in Guss
2 x M in Alluminium

Min. depth of thread engagement:
1 x M in steel (St.37 min)
1,25 x M in cast iron
2 x M in aluminum

TH 57 R / M36



MAIL

M	Tragfähigkeit [t] Lifting capacity [t]		l1	b	c	d	e
	G	G					
M6	0,4	0,10	35	10	12	25	25
M8	0,8	0,20	35	10	12	25	25
M10	1,0	0,25	35	10	15	25	25
M12	1,6	0,40	41	12	18	30	30
M14	3,0	0,75	48	14	21	35	35
M16	4,0	1,0	48	16	24	35	35
M20	6,0	1,5	55	20	30	40	40
M24	8,0	2,0	70	20	36	50	50
M30	12,0	3,0	85	24	45	60	60
M36	16,0	4,0	130	43	54	90	100
M42	24,0	6,0	130	43	63	90	100
M48	32,0	8,0	130	43	68	90	100

Transportgewicht „G“ in „t“ bei verschiedenen Anschlagsarten. / Transport weigth „G“ in „t“ under various lifting conditions (t = Tonnen / tons)

[11.03.2020]

Ringmuttern, hochfest

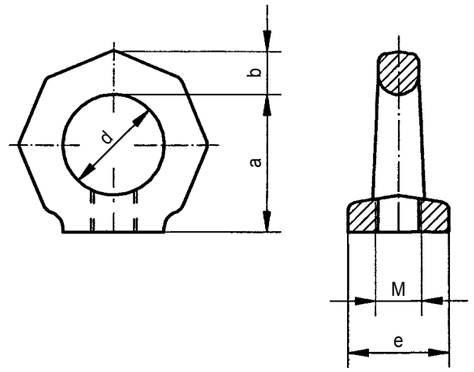
Lifting eye nuts, high-strength

TH 58 R

Das Gewindeanschlussteil muss min. die Güte 8.8 haben.

The thread connection must have at least a property grade of 8.8.

TH 58 R / M36



MAIL

M	Tragfähigkeit [t] Lifting capacity [t]		a	b	d	e
	G	G				
M6	0,4	0,10	35	10	25	25
M8	0,8	0,20	35	10	25	25
M10	1,0	0,25	35	10	25	25
M12	1,6	0,40	41	12	30	30
M14	3,0	0,75	48	14	35	35
M16	4,0	1,0	48	16	35	35
M20	6,0	1,5	55	20	40	40
M24	8,0	2,0	70	20	50	50
M30	12,0	3,0	85	24	60	60
M36	16,0	4,0	130	43	90	100
M42	24,0	6,0	130	43	90	100
M48	32,0	8,0	130	43	90	100

Transportgewicht „G“ in „t“ bei verschiedenen Anschlagsarten. / Transport weigth „G“ in „t“ under various lifting conditions (t = Tonnen / tons)

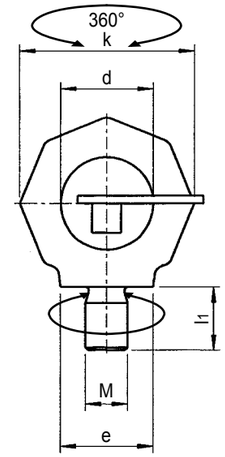
[TH]

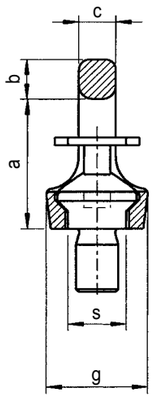
TH 55 R

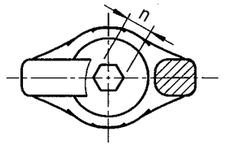
Minimum-Einschraublänge:
1 x M in Stahl (min. St. 37)
1,25 x M in Guss
2 x M in Alluminium

Min. depth of thread engagement:
1 x M in steel (St.37 min)
1,25 x M in cast iron
2 x M in aluminum

TH 55 R / M36







CAD MAIL

M	Tragfähigkeit [t] Lifting capacity [t]		a	b	c	d	e	g	k	l1	n	s
	G	G										
M8	0,8	0,40	34	11	8,5	25	25	28	47	12	6	16,0
M10	1,0	0,40	34	11	8,5	25	25	28	47	15	6	15,0
M12	2,0	0,75	42	13	10,0	30	30	34	56	18	8	18,0
M16	4,0	1,5	49	15	14,0	35	35	40	65	24	10	22,0
M20	6,0	2,3	57	17	16,0	40	40	50	75	30	12	27,5
M24	8,0	3,2	69	21	19,0	48	48	60	90	36	14	33,0
M30	12,0	4,5	86	26	24,0	60	60	75	112	45	17	41,5
M36	16,0	7,0	103	32	29,0	72	75	90	135	54	22	49,5
M42	24,0	9,0	120	38	34,0	82	85	105	158	63	24	58,0
M48	32,0	12,0	137	43	38,0	94	100	125	180	72	27	66,0

Transportgewicht „G“ in „t“ bei verschiedenen Anschlagsarten. / Transport weigth „G“ in „t“ under various lifting conditions (t = Tonnen / tons)

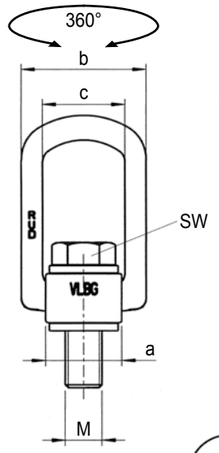
TH 56 R

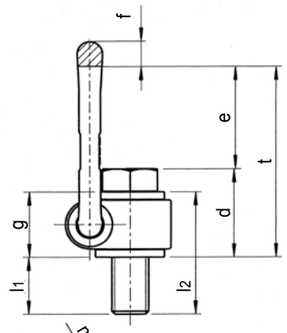
Lastbock um 360° drehbar, in Zugrichtung einstellbar, Lastbügel klappbar, volle Tragfähigkeit in allen Richtungen, Typ Vario für Durchgangsbohrungen geeignet.

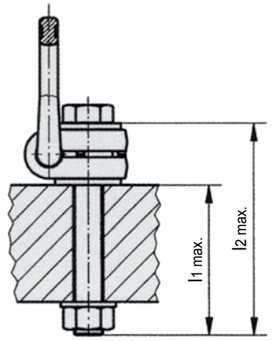
Hoist ring is stowable and pivots in all directions. The hoist ring must be flexible and adjusted to the load direction before being loaded. Ensure that there is no contact between the ring and the edges of the work piece.

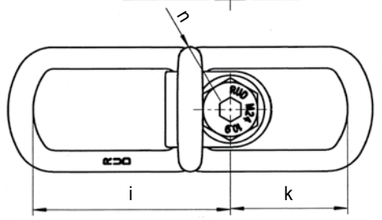
TH 56 R / M27 / Standard

Avoid swiveling under full load. A single threaded hole or a through hole is necessary. A very small construction.









CAD MAIL

M	Tragfähigkeit [t] Lifting capacity [t]		a	b	c	d	e	f	g	l1 Standard	l1 Vario	i	k	l2 Standard	l2 Vario	n	SW	t	Anzugsmoment Fastening torque
	G	G																	
M8	0,3	0,3	30	54	34	35	40	10,0	29	11	76	77	45	40	105	5	13	75	30
M10	0,63	0,63	30	54	34	36	39	10,0	29	16	96	77	45	45	125	6	17	75	60
M12	1,0	1,0	32	54	34	37	38	10,0	29	21	116	77	45	50	145	8	19	75	100
M16	1,5	1,5	33	63	36	46	39	13,5	36	24	149	76	35	60	185	10	24	73	150
M20	2,2	2,2	50	82	54	55	55	16,5	43	32	187	95	45	75	230	12	30	92	250
M24	4,0	4,0	50	82	54	58	66	18,0	43	37	222	95	45	80	265	14	36	125	350
M27	4,0	4,0	60	110	65	78	69	22,5	61	39	–	138	67	78	–	–	41	133	400
M30	5,0	5,0	60	110	65	80	67	22,5	61	49	279	138	67	110	340	17	46	132	500
M36	6,5	6,5	60	110	65	72	74	22,5	55	52	–	138	67	107	–	–	55	132	650
M42	10,0	10,0	75	145	80	103	110	36,0	77	73	273	170	80	150	350	24	65	162	1000
M48	20,0	20,0	95	185	100	117	105	36,0	87	73	303	200	100	160	390	27	70	192	2000

Transportgewicht „G“ in „t“ bei verschiedenen Anschlagsarten. / Transport weigth „G“ in „t“ under various lifting conditions (t = Tonnen / tons)

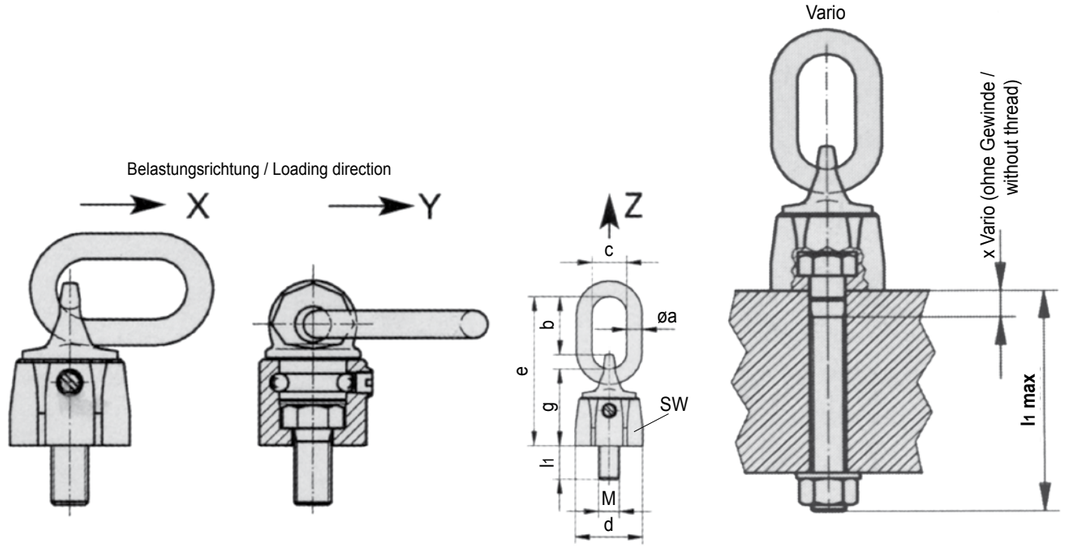
TH 54 R

Kugelgelagert unter Last 360° drehbar. Allseitig belastbar bei vierfacher Sicherheit. Nicht unter Volllast bei 90° zur Gewindeebene (XY) drehbar. Typ Vario für Durchgangsbohrungen geeignet.

Suitable for all loads which swivel and tilt. Can be loaded in all directions with a 4 : 1 safety factor. Swiveling under full load is permitted provided the inclination angle is not perpendicular to the screw - in direction.

TH 54 R / M12 / Standard

Not suitable for permanent swiveling under full load. Suitable for through bores.



CAD MAIL

M	Tragfähigkeit [t] Lifting capacity [t]		a	b	c	d	e	l1 Standard	l1 Vario	g	SW	x Vario
	G	G										
M8	0,6	0,3	8	33	29	36	76	13	102	36	28	18
M10	0,9	0,45	8	33	29	36	78	17	122	38	30	19
M12	1,2	0,6	10	51	35	42	105	21	140	45	36	19
M16	2,6	1,3	10	49	35	48	114	30	180	54	41	28
M20	4,0	2,0	13	56	35	64	135	33	223	65	55	30
M24	7,0	3,5	18	68	40	81	172	40	255	87	70	25
M30	10,0	5,0	22	93	50	99	220	50	330	105	85	32
M30	5,0	5,0	60	110	65	80	67	49	279	138	67	340

Transportgewicht „G“ in „t“ bei verschiedenen Anschlagsarten. / Transport weigth „G“ in „t“ under various lifting conditions (t = Tonnen / tons)

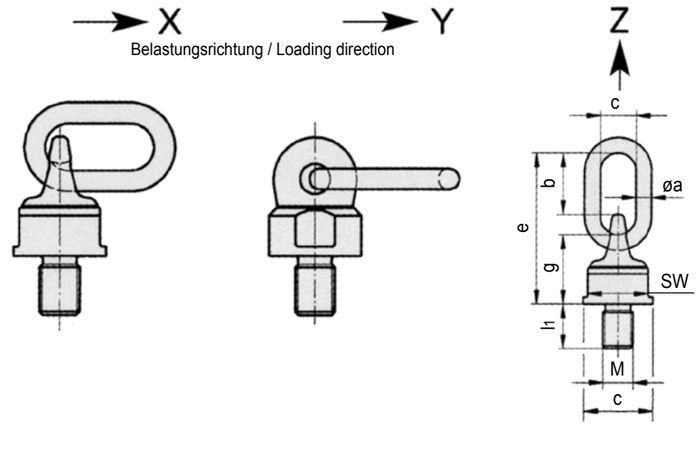
TH 59 R

Kugelgelagert unter Last 360° drehbar. Allseitig belastbar bei vierfacher Sicherheit. Nicht für Dauer-Drehbewegungen und für Drehen 90° unter Volllast geeignet.

Suitable for all loads which swivel and tilt. Can be loaded in all directions with a 4 : 1 design factor. Swiveling under full load is permitted provided the inclination angle is not perpendicular to the screw - in direction.

TH 59 R / M56

Not suitable for permanent swiveling under full load. Suitable for through bores.



CAD MAIL

M	Tragfähigkeit [t] Lifting capacity [t]		a	b	c	d	e	l1	g	SW
	G	G								
M36	12,5	8,0	22	87	50	90	210	54	99	80
M42	16,0	10,0	26	112	65	98	240	63	100	85
M48	25,0	15,0	26	112	65	98	240	68	100	85
M56	35,0	25,0	32	120	70	120	–	84	130	95
M64	35,0	30,0	32	120	70	120	–	95	130	95
M90	35,0	35,0	40	170	80	170	345	135	165	130

Transportgewicht „G“ in „t“ bei verschiedenen Anschlagsarten. / Transport weigth „G“ in „t“ under various lifting conditions (t = Tonnen / tons)

Universal-Wirbelböcke m. Ösenhaken, doppelt-kugelgelagert

Universal lifting points with eye hook, double ball-bearing

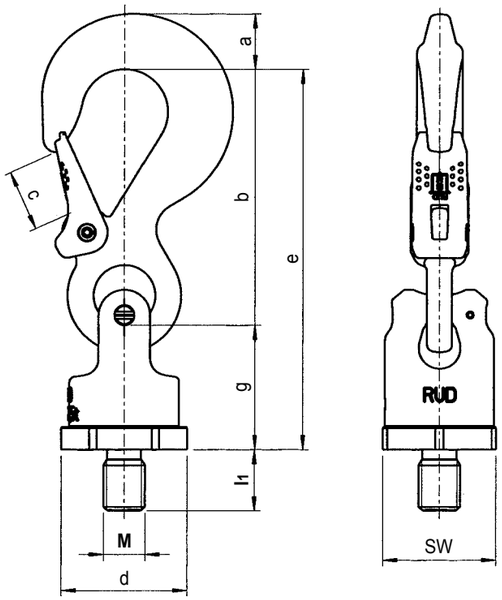
TH 53 R

Doppelt kugelgelagert für Ruckfreies Kippen, Drehen und Wenden. Passen für alle Anschlagmittel - wie Haken, Ösen oder Schlingen. Nicht drehbar bei 90° unter Vollast zur Gewindeebene.

The first generation of lifting points with a universal connection for all slinging means (hook and ring assemblies, endless slings, round slings, loops etc). With a double ball bearing

TH 53 R / M24

for jerk - free turning, swiveling and tilting. Even under full load can be turned in a 90° position from the bolt centre line. Not suitable for permanent swiveling under full load.



CAD MAIL

M	Tragfähigkeit [t] Lifting capacity [t]		a	b	c	d	e	l1	g	SW
	G	G								
M16	1,5	1,5	20	97	25	46	147	25	50	41
M20	2,5	2,5	28	126	30	61	187	30	61	55
M24	4,0	4,0	36	150	35	78	227	36	77	70
M30	6,5	6,5	37	174	40	95	267	45	93	85
M36	8,0	8,0	49	208	48	100	310	54	102	90

Transportgewicht „G“ in „t“ bei verschiedenen Anschlagsarten. / Transport weigth „G“ in „t“ under various lifting conditions (t = Tonnen / tons)

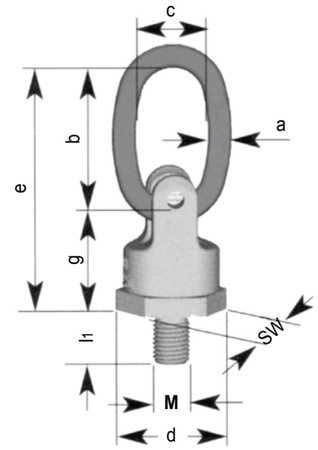
[11.03.2020]

Wirbelböcke mit Ovalglied für direkten Kettenanschluss

Lifting points with oval ring for direct chain connection

TH 60 R

TH 60 R / M20



CAD MAIL

M	Tragfähigkeit [t] Lifting capacity [t]		a	b	c	d	e	l1	g	SW
	G	G								
M12	0,63	0,63	9	65	35	40	105	18	41	36
M16	1,5	1,5	11	65	35	46	115	24	50	41
M20	2,5	2,5	13	75	40	61	135	30	61	55
M24	4,0	4,0	16	95	45	78	172	36	78	70
M30	5,0	5,0	21	130	60	95	223	45	93	85
M36	8,0	8,0	24	140	65	100	242	54	102	90

Transportgewicht „G“ in „t“ bei verschiedenen Anschlagsarten. / Transport weigth „G“ in „t“ under various lifting conditions (t = Tonnen / tons)

[TH]

Wirbelböcke mit Ovalglied für direkten Kettenanschluss

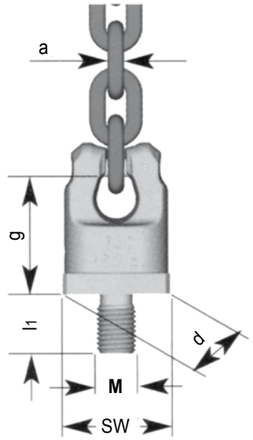
Lifting points with oval ring for direct chain connection

TH 61 R

Wirbelböcke für Ketten. Nur Ketten der Güteklasse 10 verwenden.

Lifting points with a double ball bearing for direct connection of the chain. Even under full load, can be turned in a 90° position from the bolt centre line. Not suitable for permanent swiveling under full load.

TH 61 R / M24



M	Tragfähigkeit [t] Lifting capacity [t]		Kettenanschluss a Chain connection a	d	l_1	g	SW
	G	G					
M12	0,63	0,63	4	40	18	41	36
M16	1,5	1,5	6	46	25	50	41
M20	2,5	2,5	8	61	30	61	55
M24	4,0	4,0	10	78	36	77	70
M30	5,0	5,0	13	95	45	93	85
M36	8,0	8,0	16	100	54	102	90

Transportgewicht „G“ in „t“ bei verschiedenen Anschlagsarten. / Transport weigth „G“ in „t“ under various lifting conditions (t = Tonnen / tons)

[11.03.2020]

[11.03.2020]

Platinen-Einweiser, Automobil-Ausführung

Pilot gages, automotive style

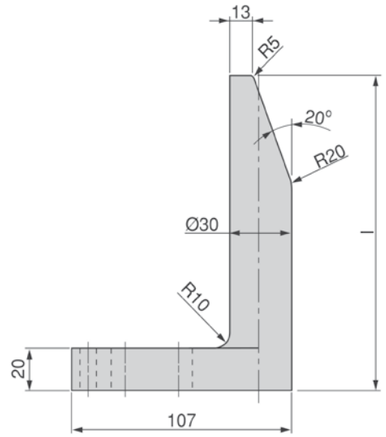
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

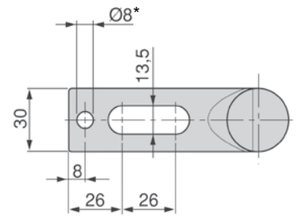
TH 900

Mat.: CK45, gegossen

Mat.: CK45, casted

TH 900 / 090





* Vorbohrung für Zylinderstift

Platinen-Einweiser immer in eine Nut einsetzen.

* Pilot hole for dowel pin

Always place pilot gage into groove.

l
065
090
120
150
180
250
300
350

[TH]

Platinen-Einweiser, induktiv gehärtet

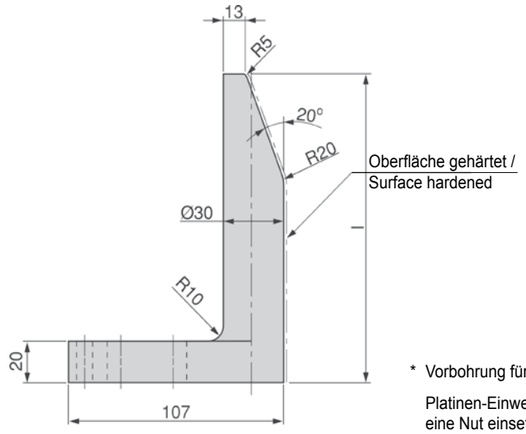
Pilot gages, inductively hardened

TH 900 … CH

Mat.: CK45, gegossen induktiv gehärtet
Härte: 50 - 55 HRC

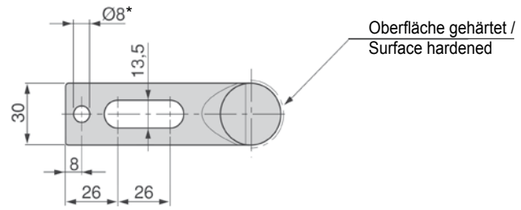
Mat.: CK45, casted inductively hardened
Hardness: 50 - 55 HRC

TH 900 / 065 / CH



* Vorbohrung für Zylinderstift
Platinen-Einweiser immer in eine Nut einsetzen.

* Pilot hole for dowel pin
Always place pilot gage into groove.



CAD MAIL

l
065
090
120
150
180
250
300
350

[11.03.2020]

[11.03.2020]

Platinen-Einweiser mit Teillagekontrolle, induktiv gehärtet

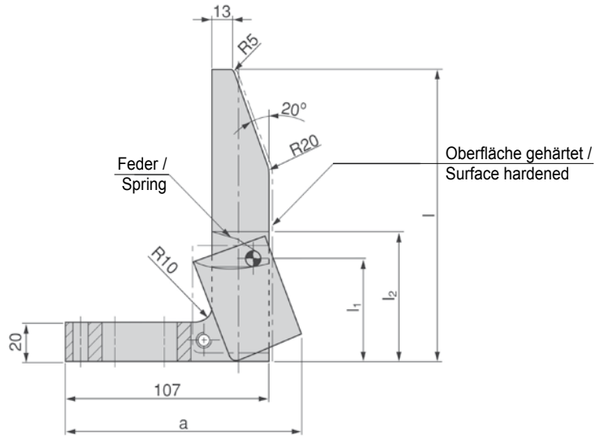
Pilot gages with part position control, inductively hardened

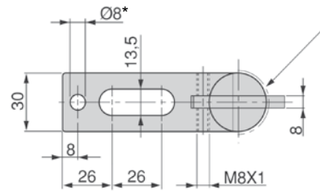
TH 901

Mat.: CK45, gegossen induktiv gehärtet
Härte: 50 - 55 HRC

Mat.: CK45, casted inductively hardened
Hardness: 50 - 55 HRC

TH 901 / 150





* Vorbohrung für Zylinderstift
Platinen-Einweiser immer in eine Nut einsetzen.

* Pilot hole for dowel pin
Always place pilot gage into groove.

MAIL

l	l1	l2	a
120	56	70	120
150	56	70	120
180	107	120	124
250	107	120	124

[TH]

Zentriereinheiten mit Distanzscheibe

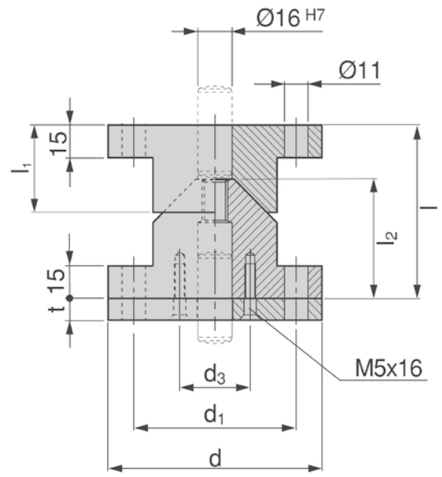
Tapered interlocks with spacer disc

TH 920

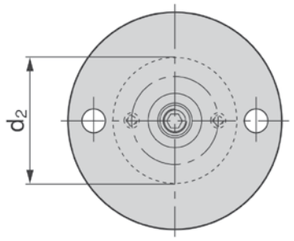
Mat.: 16MnCr5, gehärtet
Randschichthärte: 60 - 64 HRC

Mat.: 16MnCr5, hardened
Surface hardness: 60 - 64 HRC

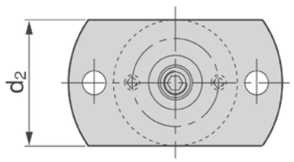
TH 920 / A x 100



Form-A



Form-B



CAD MAIL

Form	d	d1	d2	d3	l	l2	t
A	**100**	76	58	40,5	80	55	10,5
B	**100**	76	58	40,5	80	55	10,5
A	**120**	96	78	50,5	90	65	10,5
B	**120**	96	78	50,5	90	65	10,5

[11.03.2020]

[11.03.2020]

Zentrierbolzen

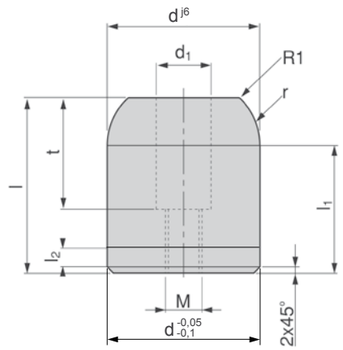
Locating pins

TH 943

Mat.: 16MnCr5, gehärtet
Randschichthärte: 60 - 64 HRC

Mat.: 16MnCr5, hardened
Surface hardness: 60 - 64 HRC

TH 943 / 32 x 50



MAIL

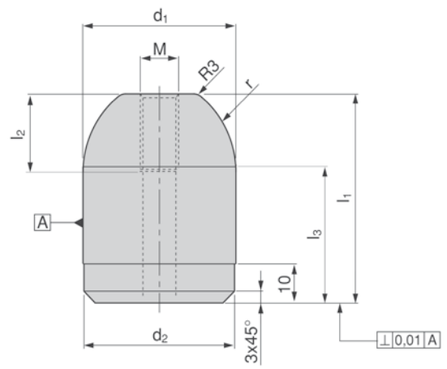
d	l	d1 +0,2	l1	l2	M	r	t
22	**45**	14	37,5	8	M10	12,5	25
32	**50**	18	40	10	M12	20	35
40	**55**	18	40	10	M12	20	35
50	**55**	18	40	10	M12	20	35

TH 944

Mat.: 16MnCr5, gehärtet
Randschichthärte: 60 - 64 HRC

Mat.: 16MnCr5, hardened
Surface hardness: 60 - 64 HRC

TH 944 / 32 x 50



MAIL

d1 h6	l1 +0,2	d2 -0,05	l2 +0,2	l3 +0,2	M	r +0,2
22	**45**	22	16	35	M8	15
22	**55**	22	16	45	M8	15
32	**50**	32	20	37,5	M10	20
40	**55**	40	20	35	M10	25
40	**65**	40	20	45	M10	25
40	**85**	40	20	65	M10	25
50	**55**	50	20	41,25	M10	25
56	**80**	56	20	60	M10	30

Die neue Generation, die den wachsenden Ansprüchen an Schieber für Stanz- und Umform-Operationen Rechnung trägt, zeichnet sich aus durch:

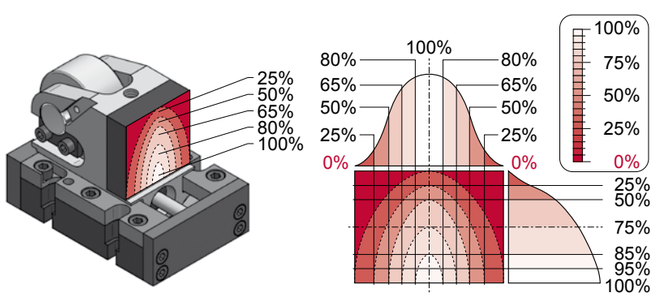
- hohe Präzision
- lange Standzeiten
- große Treiberauswahl
- sicheren Betrieb durch optionale Zwangsrückholung
- Rückstellung durch einfach zugängliche Gasdruckfedern

The new generation of Roller Cams is designed to meet growing demands regarding bending and punching operations in metal stamping:

- high precision
- superior performance and longevity
- wide variety of drivers
- safe operation by means of optional positive return
- resetting by easily accessible gas springs



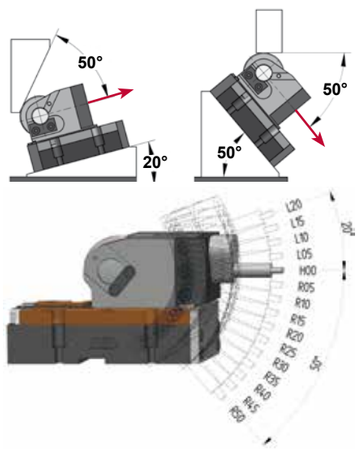
Maximale Schneidkraft / Maximum working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken, um einen unregelmäßigen Verschleiß der Komponenten zu verhindern und die Lebensdauer zu verlängern.

It is recommended to use punching force as much centered as possible on the surface of the cam slider working area to prevent irregular wearing of components and enlarge life expectancy.

Max. Schrägeinbau / Max. working angles



[11.03.2020]

[11.03.2020]

Rollenschieber-Einheiten
Roller cam-units
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

Typ ACX

mir separater Aktivteil-Aufnahme mit seitlicher Fixierung
- zur Aufnahme von Stanz- / Umform-Werkzeugen
- einfach zu montieren



Type ACX

with separate head slider, laterally fixed
- to accomodate tools for the punching and bending processes
- easy to install

Typ FCX

mit kleiner Einbaubreite
- große Arbeitsfläche
- hohe Kraft für Stanz- und Umformprozesse
- hohe Rückstellkraft



Type FCX

with small width
- large mounting surface
- high force for metal stamping processes
- high resetting force

Typ JCX

mit hoher Arbeitskraft
- große Arbeitsfläche
- hohe Kraft für Stanz- und Umformprozesse
- hohe Rückstellkraft
- kompaktes Design



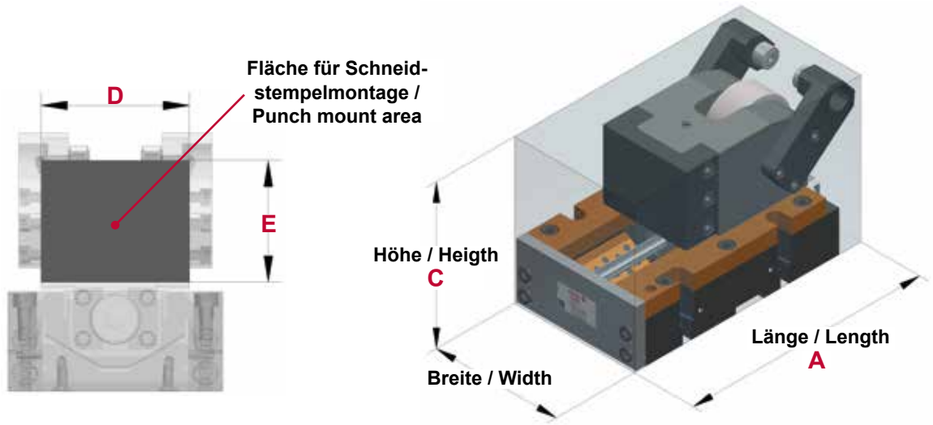
Type JCX

with high working force
- large mounting surface
- high force for metal stamping processes
- high resetting force
- compact design

Typ Type	Hub Stroke	Kraft / Force [daN]					
		3000 siehe / see	5000 siehe / see	7000 siehe / see	15000 siehe / see	16000 siehe / see	20000 siehe / see
ACX	50	**TH.52**	**TH.54**	—	**TH.56**	—	**TH.58**
ACX	80	**TH.52**	**TH.54**	—	**TH.56**	—	**TH.58**
ACX	100	**TH.52**	**TH.54**	—	**TH.56**	—	**TH.58**
FCX	50	—	—	**TH.68**	**TH.70**	—	—
FCX	80	—	—	**TH.68**	**TH.70**	—	—
FCX	100	—	—	—	**TH.70**	—	—
JCX	50	—	—	**TH.80**	**TH.82**	**TH.84**	—
JCX	80	—	—	**TH.80**	**TH.82**	**TH.84**	—
JCX	100	—	—	—	**TH.82**	**TH.84**	—

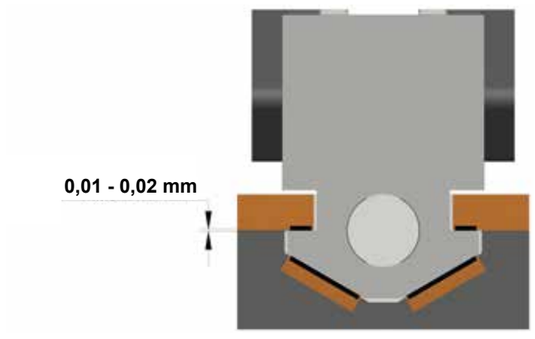
Technische Daten / Technical data

Abmessungen / Dimensions



Aufbau / Structure

Abstand / Clearance

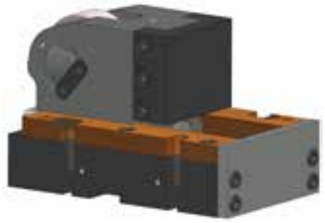


[11.03.2020]

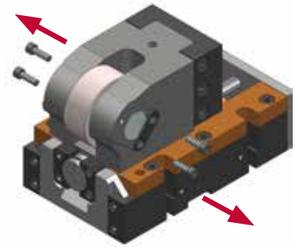
[11.03.2020]

Befestigung der Zwangsrückführung / Fitting positive return

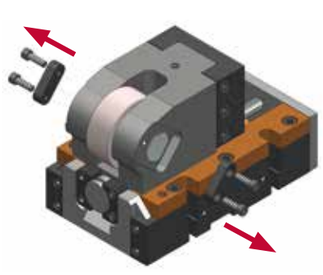
① Stellen Sie sicher, dass der Rollenschieberkörper vollständig zurückgefahren ist. / Make sure the cam slider is fully moved back.



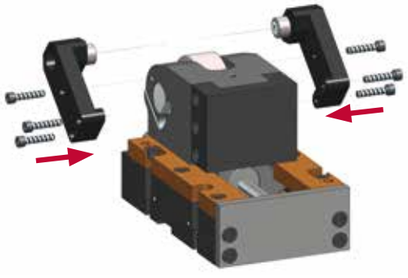
② Lösen Sie die Schrauben von den 2 Passfedern, auf jeder Seite des Rollenschieberkörpers eine. / Unscrew the screws from the 2 keys, one on each side of the cam slider.



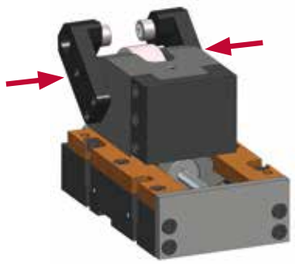
③ Entfernen Sie die Passfedern. / Remove the keys.



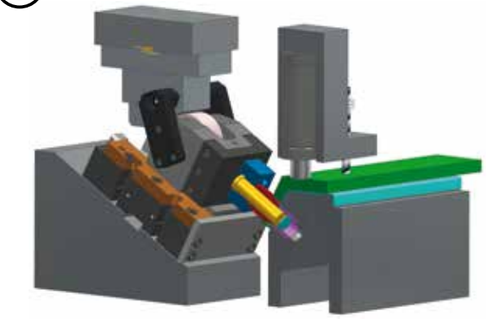
④ Passen Sie die 2 Zwangsrückführungen an, und zwar eine auf jeder Seite des Rollenschieberkörpers. / Fit the 2 positive returns, one on each side of the cam slider.



⑤ Ziehen Sie die Schrauben der Zwangsrückführung auf dem Rollenschieberkörper fest. / Screw in an fasten the screws of the positive returns to the cam slider.

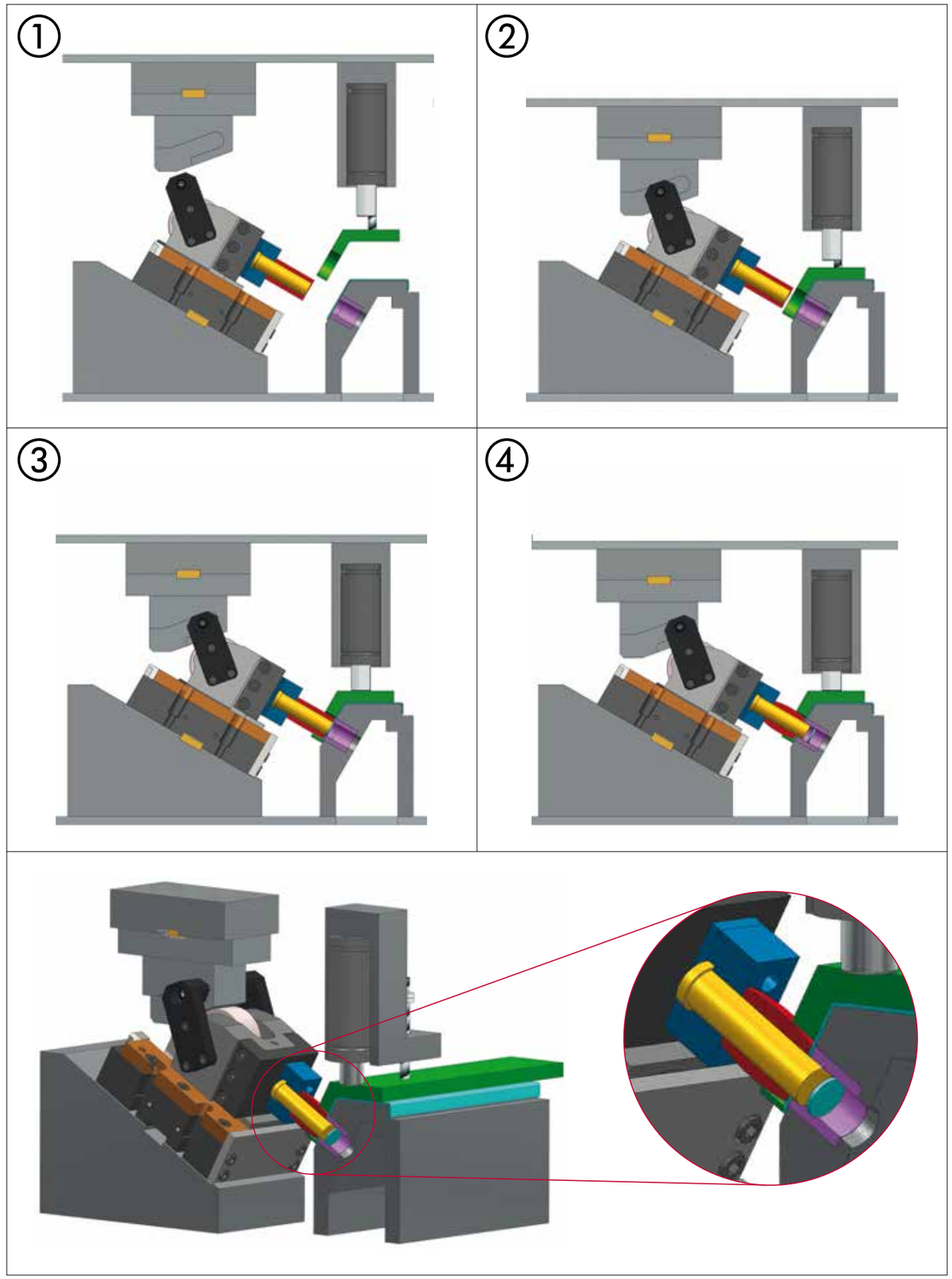


⑥ Beispiel eines Rollenschiebers mit Zwangsrückführung (DRU) und Treiber (DR). / Example of a roller cam with positive return (DRU) and driver (DR).



Anwendungsbeispiel

Example of application



[11.03.2020]

[11.03.2020]

Die neue Generation, die den wachsenden Ansprüchen an Schieber für Stanz- und Umform-Operationen Rechnung trägt, zeichnet sich aus durch:

- hohe Präzision
- lange Standzeiten
- große Treiberauswahl
- sicheren Betrieb durch optionale Zwangsrückholung
- Rückstellung durch einfach zugängliche Gasdruckfedern

- **separate Aktivteil-Aufnahme mit seitlicher Fixierung zur Aufnahme von Stanz- / Umform-Werkzeugen**
- **einfache Montage**

The new generation of Roller Cams is designed to meet growing demands regarding bending and punching operations in metal stamping:

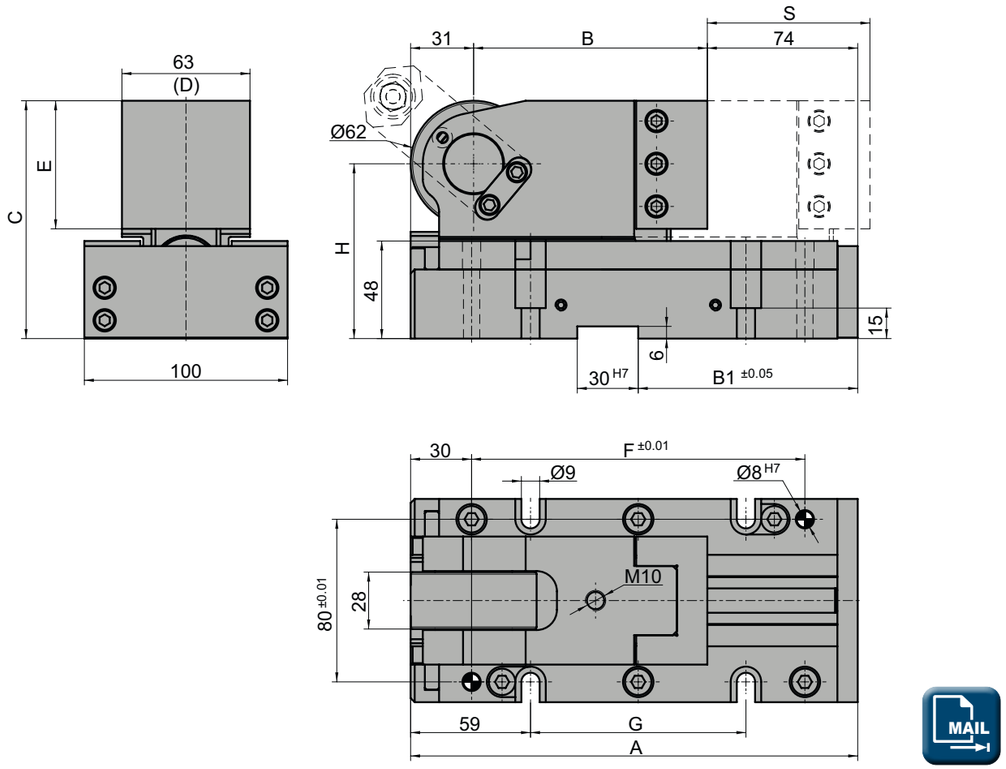
- high precision
- superior performance and longevity
- wide variety of drivers
- safe operation by means of optional positive return
- resetting by easily accessible gas springs

- **with separate head retainer, laterally fixed to accomodate tools for the punching and bending processes**
- **easy to install**



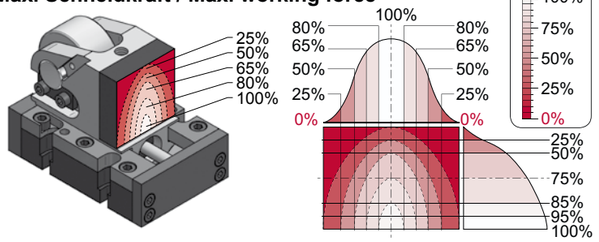
ACX 03

ACX 03 050



Hub Stroke S	A	B	B1	C	E	F	G	H	Schneidkraft Cutting force daN max.	Rückstellkraft Return force daN	Typ Gasdruckfedern Type Gas springs
050	190	85	78	117	63	134	76	86	3000	150	NC.060.10.00150.063
080	220	115	108	117	63	164	106	86	3000	150	NC.060.10.00150.080
100	260	155	148	141	87	204	146	110	3000	150	NC.060.10.00150.100

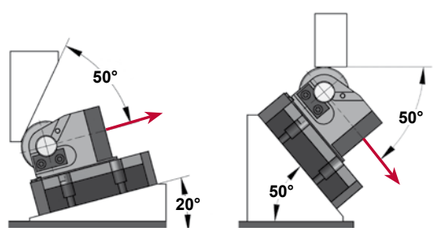
Max. Schneidkraft / Max. working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken.

Working force should be as centered as possible on the working area surface.

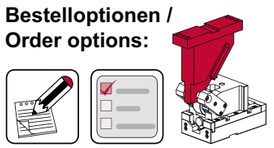
Max. Schrägeinbau / Max. working angle



Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke
ACX	03	050

Bestelloptionen / Order options:



Treiber / Driver: **DR . A**

Zwangsrückführung / Positive Return: **DRU . 0**

[11.03.2020]

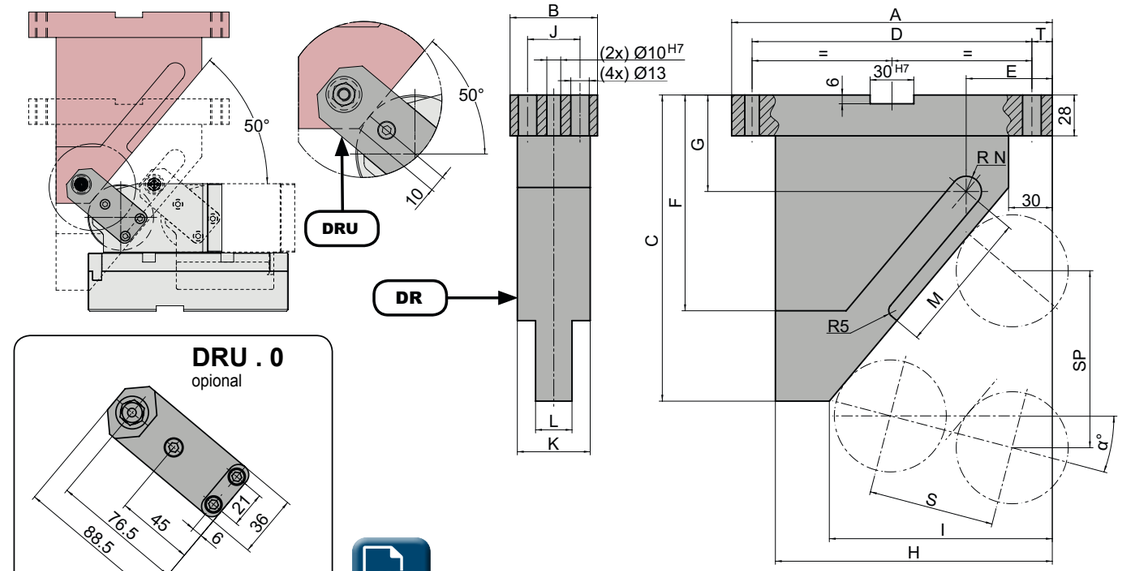
[11.03.2020]

DR.A

Es wird eine gehärtete Kontaktfläche (60 HRC) empfohlen.

Hardened (60 HRC) contact surface is recommended.

DR.A.1.L.20

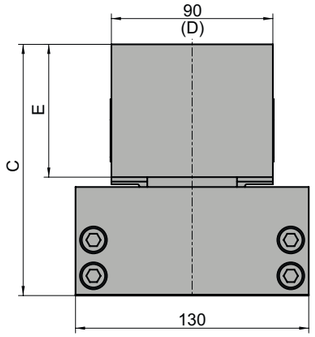


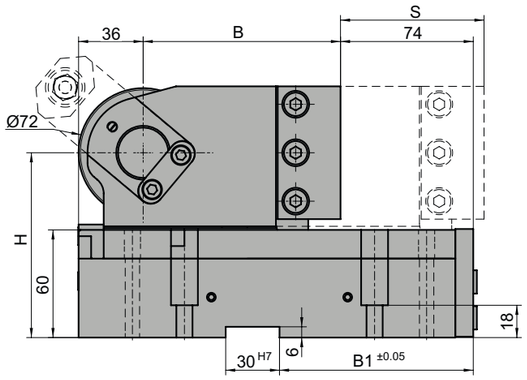
DRU . 0
opional

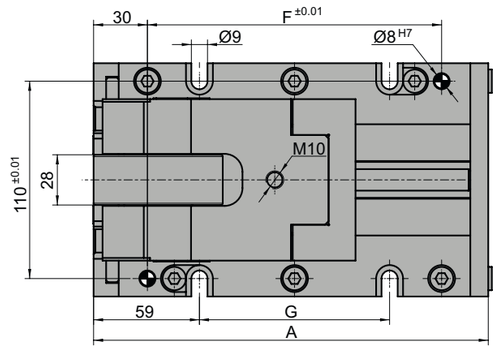
für Hub for stroke	Größe Size		α		A	B	C	D	E	F	G	H	I	J	K	L	M	R N	T	SP S=50	SP S=80	SP S=100
50	1		-20	**L.20**	160	60	220	130	65,1	140	69,8	130	98	36	50	25	69,0	10,5	15	111,9		
50	1		-15	**L.15**	160	60	190	130	61,9	130	64,2	130	98	36	50	25	63,8	10,5	15	90,6		
50	1		-10	**L.10**	160	60	165	130	59,0	120	56,2	130	98	36	50	25	65,7	10,5	15	76,6		
50	1		-05	**L.05**	160	60	155	130	56,4	110	59,8	130	98	36	50	25	65,0	10,5	15	66,8		
50	1	horizontal	00	**H.00**	160	60	145	130	56,1	100	60,7	130	100	36	50	25	68,9	10,5	15	59,6		
50	1		05	**R.05**	160	60	145	130	54,1	105	70,1	130	100	36	50	25	64,7	10,5	15	54,2		
50	1		10	**R.10**	160	60	130	130	54,4	90	63,3	130	102	36	50	25	58,5	10,5	15	50,0		
50	1		15	**R.15**	160	60	130	130	53,2	90	70,8	130	102	36	50	25	53,0	10,5	15	46,8		
50	1		20	**R.20**	160	60	120	130	55,3	85	67,6	130	105	36	50	25	48,0	10,5	15	44,2		
50	1		25	**R.25**	160	60	120	130	54,8	85	74,0	130	105	36	50	25	43,4	10,5	15	42,3		
50	1		30	**R.30**	160	60	100	130	51,6	70	59,8	130	102	36	50	25	39,0	10,5	15	40,8		
50	1		35	**R.35**	160	60	100	130	51,9	70	65,3	130	102	36	50	25	34,8	10,5	15	39,7		
50	1		40	**R.40**	160	60	90	130	55,5	60	60,5	130	105	36	50	25	30,6	10,5	15	38,9		
50	1		45	**R.45**	160	60	90	130	56,5	60	65,2	130	105	36	50	25	26,5	10,5	15	38,4		
50	1		50	**R.50**	160	60	80	130	67,9	49	59,5	130	115	36	50	25	22,3	10,5	15	38,3		
80 / 100	2		-20	**L.20**	220	60	380	192	70,2	195	100,7	190	150	36	50	25	98,8	10,5	14		179,2	224,0
80 / 100	2		-15	**L.15**	220	60	320	192	66,6	160	90,6	190	151	36	50	25	96,8	10,5	14		145,0	181,3
80 / 100	2		-10	**L.10**	220	60	250	192	62,8	125	56,2	190	151	36	50	25	100,8	10,5	14		122,6	153,2
80 / 100	2		-05	**L.05**	220	60	225	192	59,6	145	58,7	190	151	36	50	25	96,2	10,5	14		106,8	133,6
80 / 100	2	horizontal	00	**H.00**	220	60	210	192	59,1	148	66,2	190	153	36	50	25	98,4	10,5	14		95,3	119,2
80 / 100	2		05	**R.05**	220	60	205	192	57,3	135	80,3	190	153	36	50	25	97,1	10,5	14		86,7	108,3
80 / 100	2		10	**R.10**	220	60	185	192	58,2	125	77,0	190	155	36	50	25	93,2	10,5	14		80,0	100,0
80 / 100	2		15	**R.15**	220	60	180	192	57,9	135	87,0	190	155	36	50	25	87,2	10,5	14		74,8	93,5
80 / 100	2		20	**R.20**	220	60	165	192	61,3	120	85,5	190	158	36	50	25	80,6	10,5	14		70,8	88,5
80 / 100	2		25	**R.25**	220	60	165	192	62,4	120	97,8	190	158	36	50	25	73,4	10,5	14		67,6	84,5
80 / 100	2		30	**R.30**	220	60	145	192	66,3	105	89,1	190	160	36	50	25	66,7	10,5	14		65,2	81,5
80 / 100	2		35	**R.35**	220	60	145	192	68,9	105	99,4	190	160	36	50	25	60,2	10,5	14		63,4	79,3
80 / 100	2		40	**R.40**	220	60	115	172	52,2	75	78,7	170	140	36	50	25	54,0	10,5	14		62,2	77,8
80 / 100	2		45	**R.45**	220	60	115	172	56,1	85	87,1	170	140	36	50	25	47,8	10,5	14		61,5	76,9
80 / 100	2		50	**R.50**	220	60	95	172	80,7	64	74,5	170	160	36	50	25	41,6	10,5	14		61,3	76,6

ACX 05

ACX 05 050



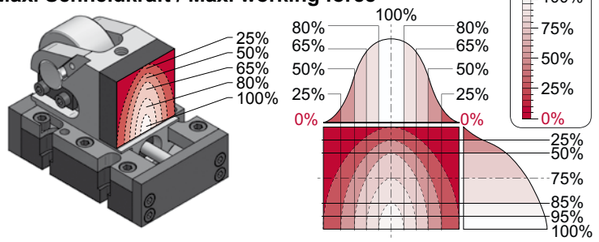




MAIL

Hub Stroke S	A	B	B1	C	E	F	G	H	Schneidkraft Cutting force daN max.	Rückstellkraft Return force daN	Typ Gasdruckfedern Type Gas springs
050	190	80	78	140	74	134	76	103	5000	150	NC.060.10.00150.063
080	220	110	108	140	74	164	106	103	5000	150	NC.060.10.00150.080
100	260	150	148	157	91	204	146	120	5000	150	NC.060.10.00150.100

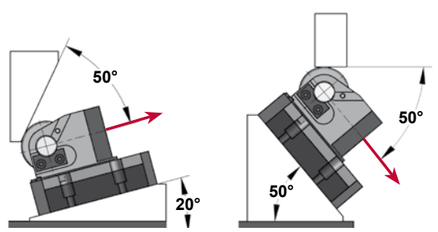
Max. Schneidkraft / Max. working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken.

Working force should be as centered as possible on the working area surface.

Max. Schrägeinbau / Max. working angle

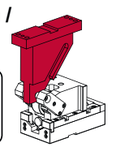


Bestellbeispiel / Order

Typ / Type: **ACX**
Kraft / Force: **05**
Hub / Stroke: **050**

ACX 05 050

Bestelloptionen / Order options:



Treiber / Driver: **DR . A**



Zwangsrückführung / Positive Return: **DRU . 2**

[11.03.2020]

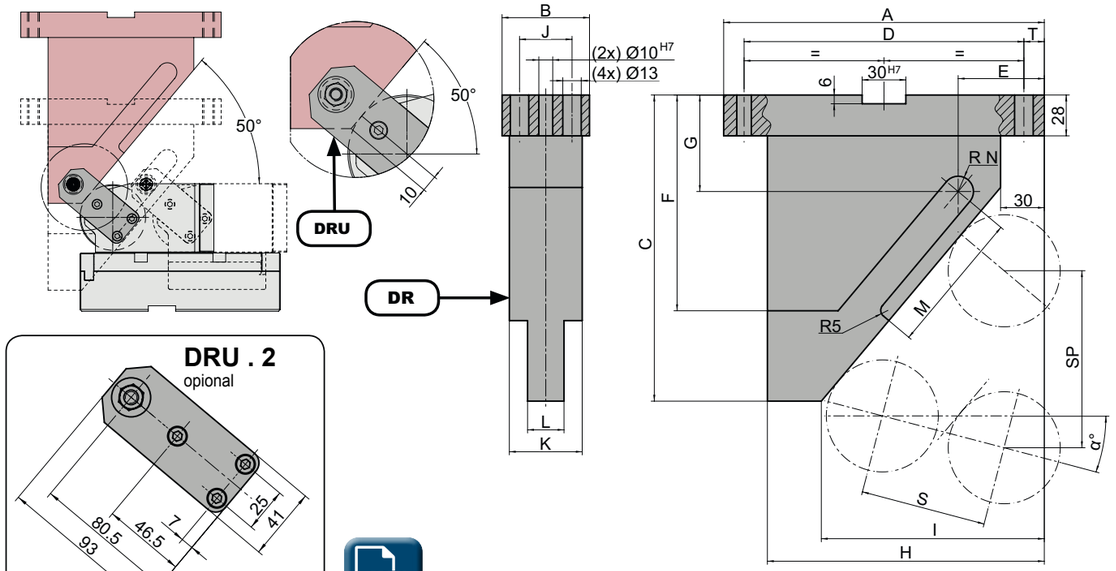
[11.03.2020]

DR.A

Es wird eine gehärtete Kontaktfläche (60 HRC) empfohlen.

Hardened (60 HRC) contact surface is recommended.

DR.A.1.L.20



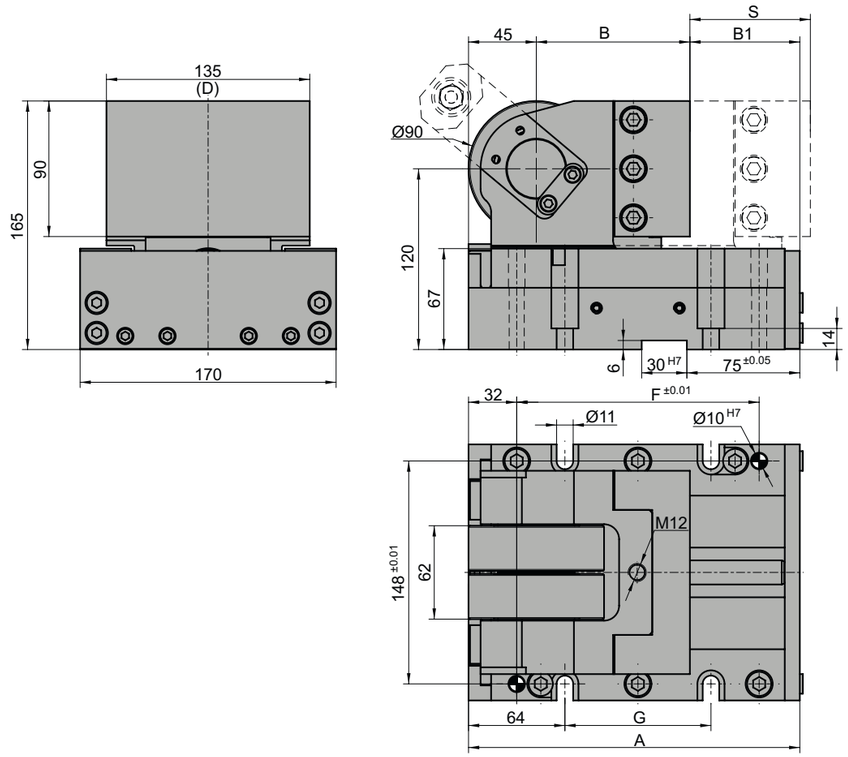
DRU . 2
opional

MAIL

für Hub for stroke	Größe Size		α		A	B	C	D	E	F	G	H	I	J	K	L	M	R N	T	SP S=50	SP S=80	SP S=100
50	1		-20	**L.20**	160	60	220	130	65,1	140	69,8	130	98	36	50	25	69,0	10,5	15	111,9		
50	1		-15	**L.15**	160	60	190	130	61,9	130	64,2	130	98	36	50	25	63,8	10,5	15	90,6		
50	1		-10	**L.10**	160	60	165	130	59,0	120	56,2	130	98	36	50	25	65,7	10,5	15	76,6		
50	1		-05	**L.05**	160	60	155	130	56,4	110	59,8	130	98	36	50	25	65,0	10,5	15	66,8		
50	1	horizontal	00	**H.00**	160	60	145	130	56,1	100	60,7	130	100	36	50	25	68,9	10,5	15	59,6		
50	1		05	**R.05**	160	60	145	130	54,1	105	70,1	130	100	36	50	25	64,7	10,5	15	54,2		
50	1		10	**R.10**	160	60	130	130	54,4	90	63,3	130	102	36	50	25	58,5	10,5	15	50,0		
50	1		15	**R.15**	160	60	130	130	53,2	90	70,8	130	102	36	50	25	53,0	10,5	15	46,8		
50	1		20	**R.20**	160	60	120	130	55,3	85	67,6	130	105	36	50	25	48,0	10,5	15	44,2		
50	1		25	**R.25**	160	60	120	130	54,8	85	74,0	130	105	36	50	25	43,4	10,5	15	42,3		
50	1		30	**R.30**	160	60	100	130	51,6	70	59,8	130	102	36	50	25	39,0	10,5	15	40,8		
50	1		35	**R.35**	160	60	100	130	51,9	70	65,3	130	102	36	50	25	34,8	10,5	15	39,7		
50	1		40	**R.40**	160	60	90	130	55,5	60	60,5	130	105	36	50	25	30,6	10,5	15	38,9		
50	1		45	**R.45**	160	60	90	130	56,5	60	65,2	130	105	36	50	25	26,5	10,5	15	38,4		
50	1		50	**R.50**	160	60	80	130	67,9	49	59,5	130	115	36	50	25	22,3	10,5	15	38,3		
80 / 100	2		-20	**L.20**	220	60	380	192	70,2	195	100,7	190	150	36	50	25	98,8	10,5	14		179,2	224,0
80 / 100	2		-15	**L.15**	220	60	320	192	66,6	160	90,6	190	151	36	50	25	96,8	10,5	14		145,0	181,3
80 / 100	2		-10	**L.10**	220	60	250	192	62,8	125	56,2	190	151	36	50	25	100,8	10,5	14		122,6	153,2
80 / 100	2		-05	**L.05**	220	60	225	192	59,6	145	58,7	190	151	36	50	25	96,2	10,5	14		106,8	133,6
80 / 100	2	horizontal	00	**H.00**	220	60	210	192	59,1	148	66,2	190	153	36	50	25	98,4	10,5	14		95,3	119,2
80 / 100	2		05	**R.05**	220	60	205	192	57,3	135	80,3	190	153	36	50	25	97,1	10,5	14		86,7	108,3
80 / 100	2		10	**R.10**	220	60	185	192	58,2	125	77,0	190	155	36	50	25	93,2	10,5	14		80,0	100,0
80 / 100	2		15	**R.15**	220	60	180	192	57,9	135	87,0	190	155	36	50	25	87,2	10,5	14		74,8	93,5
80 / 100	2		20	**R.20**	220	60	165	192	61,3	120	85,5	190	158	36	50	25	80,6	10,5	14		70,8	88,5
80 / 100	2		25	**R.25**	220	60	165	192	62,4	120	97,8	190	158	36	50	25	73,4	10,5	14		67,6	84,5
80 / 100	2		30	**R.30**	220	60	145	192	66,3	105	89,1	190	160	36	50	25	66,7	10,5	14		65,2	81,5
80 / 100	2		35	**R.35**	220	60	145	192	68,9	105	99,4	190	160	36	50	25	60,2	10,5	14		63,4	79,3
80 / 100	2		40	**R.40**	220	60	115	172	52,2	75	78,7	170	140	36	50	25	54,0	10,5	14		62,2	77,8
80 / 100	2		45	**R.45**	220	60	115	172	56,1	85	87,1	170	140	36	50	25	47,8	10,5	14		61,5	76,9
80 / 100	2		50	**R.50**	220	60	95	172	80,7	64	74,5	170	160	36	50	25	41,6	10,5	14		61,3	76,6

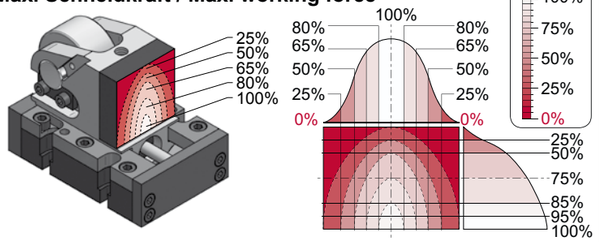
ACX 15

ACX 15 100



Hub Stroke S	A	B	B1	C	E	F	G	H	Schneidkraft Cutting force daN max.	Rückstellkraft Return force daN	Typ Gasdruckfedern Type Gas springs
050	190	102	43	165	90	131	67	120	15000	150	NC.060.10.00250.063
080	220	102	73	165	90	161	97	120	15000	150	NC.060.10.00250.080
100	260	142	73	165	90	201	137	120	15000	150	NC.060.10.00250.100

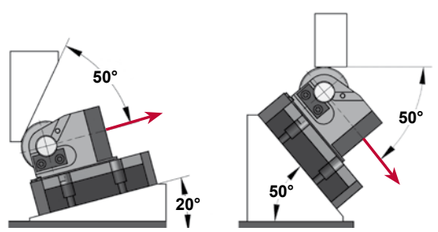
Max. Schneidkraft / Max. working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken.

Working force should be as centered as possible on the working area surface.

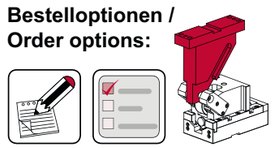
Max. Schrägeinbau / Max. working angle



Bestellbeispiel / Order

Typ / Type: ACX 15 | Kraft / Force: 050 | Hub / Stroke

Bestelloptionen / Order options:



Treiber / Driver: **DR . B**

Zwangsrückführung / Positive Return: **DRU . 3**

[11.03.2020]

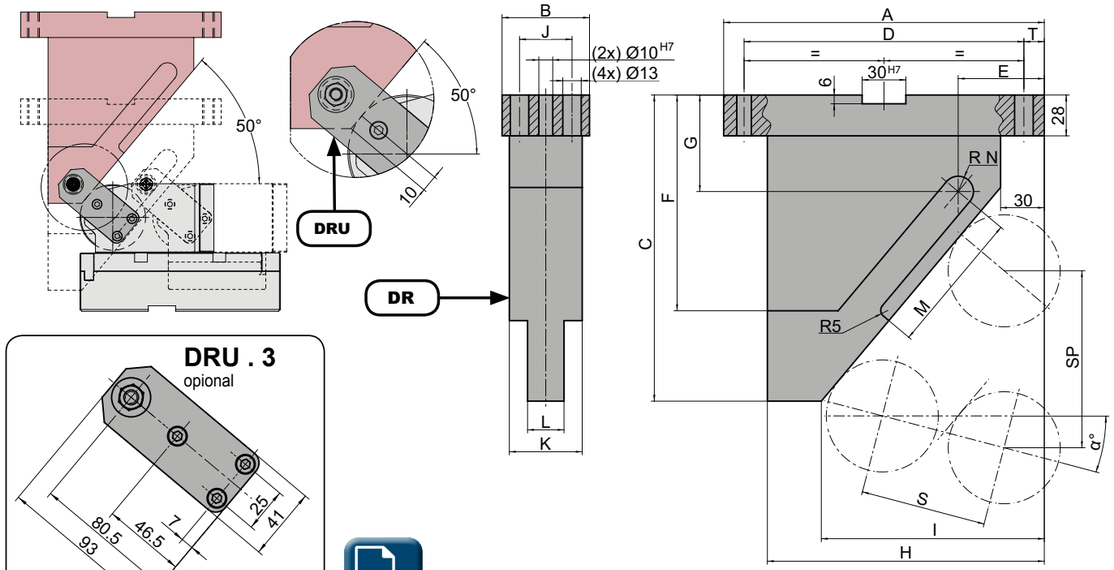
[11.03.2020]

DR.B

Es wird eine gehärtete Kontaktfläche (60 HRC) empfohlen.

Hardened (60 HRC) contact surface is recommended.

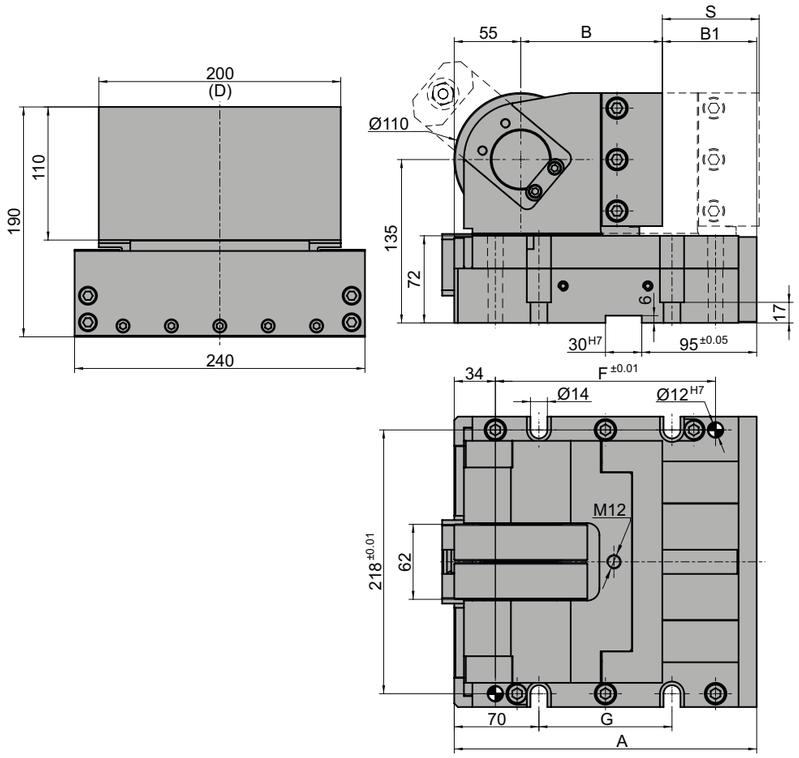
DR.B.1.L.20



für Hub for stroke	Größe Size		α		A	B	C	D	E	F	G	H	I	J	K	L	M	R N	T	SP S=50	SP S=80	SP S=100
50	1		-20	**L.20**	160	95	220	130	73.1	155	66.9	130	98	71	66	39	126.8	14	15	111.9		
50	1		-15	**L.15**	160	95	200	130	69.6	120	70.6	130	98	71	66	39	105,6	14	15	90.6		
50	1		-10	**L.10**	160	95	165	130	66.4	120	52.2	130	98	71	66	39	90.7	14	15	76.6		
50	1		-05	**L.05**	160	95	155	130	65.3	100	54.9	130	100	71	66	39	79.6	14	15	66.8		
50	1	**horizontal**	00	**H.00**	160	95	145	130	62.6	100	55.3	130	100	71	66	39	70.7	14	15	59.6		
50	1		05	**R.05**	160	95	145	130	60.1	100	64.1	130	100	71	66	39	63.3	14	15	54.2		
50	1		10	**R.10**	160	95	130	130	59.9	90	56.8	130	102	71	66	39	56.9	14	15	50.0		
50	1		15	**R.15**	160	95	130	130	58.1	90	63.8	130	102	71	66	39	51.2	14	15	46.8		
50	1		20	**R.20**	160	95	120	130	59.5	80	60.3	130	105	71	66	39	46.0	14	15	44.2		
50	1		25	**R.25**	160	95	120	130	58.3	80	66.2	130	105	71	66	39	41.3	14	15	42.3		
50	1		30	**R.30**	160	95	100	130	54.5	60	51.9	130	102	71	66	39	36.6	14	15	40.8		
50	1		35	**R.35**	160	95	100	130	54.1	60	57.1	130	102	71	66	39	32.1	14	15	39.7		
50	1		40	**R.40**	160	95	90	130	57.0	50	52.1	130	105	71	66	39	27.7	14	15	38.9		
50	1		45	**R.45**	160	95	90	130	57.2	48	56.7	130	105	71	66	39	23.3	14	15	38.4		
50	1		50	**R.50**	160	95	80	130	67.9	37	51.0	130	115	71	66	39	18.8	14	15	38.3		
80 / 100	2		-20	**L.20**	220	95	380	192	78.2	250	97.8	190	150	71	66	39	132.6	14	14		179.2	224.0
80 / 100	2		-15	**L.15**	220	95	320	192	74.4	220	87.0	190	151	71	66	39	137.0	14	14		145.0	181.3
80 / 100	2		-10	**L.10**	220	95	250	192	70.1	170	51.9	190	151	71	66	39	149.2	14	14		122.6	153.2
80 / 100	2		-05	**L.05**	220	95	225	192	67.0	150	54.5	190	151	71	66	39	143.8	14	14		106.8	133.6
80 / 100	2	**horizontal**	00	**H.00**	220	95	210	192	65.6	150	60.7	190	153	71	66	39	148.5	14	14		95.3	119.2
80 / 100	2		05	**R.05**	220	95	210	192	63.3	150	79.3	190	153	71	66	39	133.7	14	14		86.7	108.3
80 / 100	2		10	**R.10**	220	95	185	192	63.7	135	70.5	190	155	71	66	39	121.2	14	14		80.0	100.0
80 / 100	2		15	**R.15**	220	95	185	192	62.8	135	85.0	190	155	71	66	39	110.2	14	14		74.8	93.5
80 / 100	2		20	**R.20**	220	95	165	192	65.5	125	78.1	190	158	71	66	39	100.3	14	14		70.8	88.5
80 / 100	2		25	**R.25**	220	95	165	192	66.0	125	90.1	190	158	71	66	39	91.2	14	14		67.6	84.5
80 / 100	2		30	**R.30**	220	95	145	192	69.2	105	81.1	190	160	71	66	39	82.6	14	14		65.2	81.5
80 / 100	2		35	**R.35**	220	95	145	192	71.1	105	91.2	190	160	71	66	39	74.5	14	14		63.4	79.3
80 / 100	2		40	**R.40**	200	95	115	172	53.7	75	70.3	170	140	71	66	39	66.6	14	14		62.2	77.8
80 / 100	2		45	**R.45**	200	95	115	172	56.9	72	78.6	170	140	71	66	39	58.8	14	14		61.5	76.9
80 / 100	2		50	**R.50**	200	95	95	172	80.7	52	66.0	170	160	71	66	39	51.0	14	14		61.3	76.6

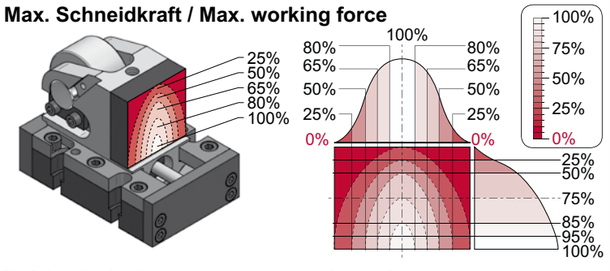
ACX 20

ACX 20 050



Hub Stroke S	A	B	B1	C	E	F	G	H	Schneidkraft Cutting force daN max.	Rückstellkraft Return force daN	Typ Gasdruckfedern Type Gas springs
050	220	117	48	190	110	152	80	135	20000	500	NC.015.00.00750.075.1
080	250	117	78	190	110	182	110	135	20000	500	NC.015.00.00750.080.1
100	270	137	78	190	110	202	130	135	20000	500	NC.015.00.00750.100.1

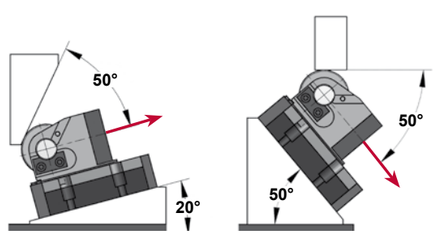
Max. Schneidkraft / Max. working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken.

Working force should be as centered as possible on the working area surface.

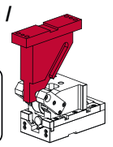
Max. Schrägeinbau / Max. working angle



Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke
ACX	20	050

Bestelloptionen / Order options:



Treiber / Driver

DR . B

Zwangs-rückführung / Positive Return



DRU . 4

[11.03.2020]

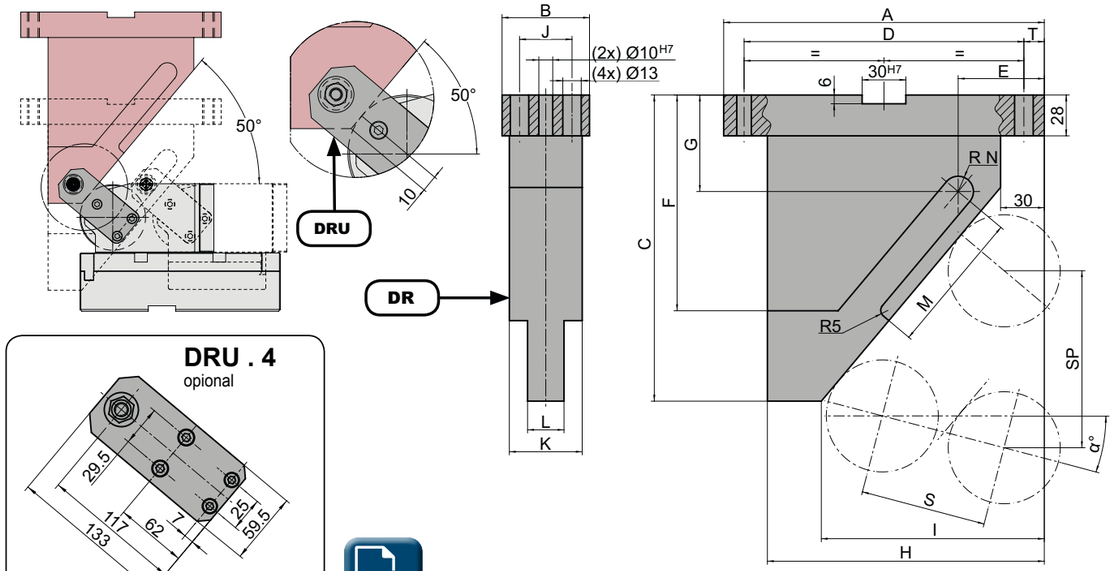
[11.03.2020]

DR.B

Es wird eine gehärtete Kontaktfläche (60 HRC) empfohlen.

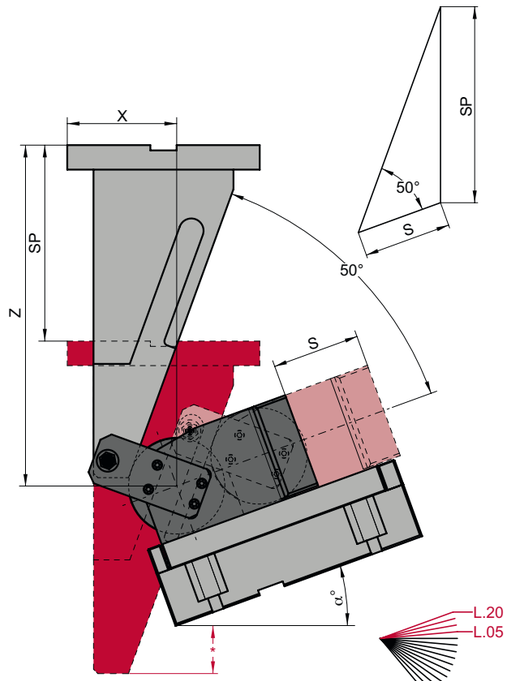
Hardened (60 HRC) contact surface is recommended.

DR.B.1.L.20

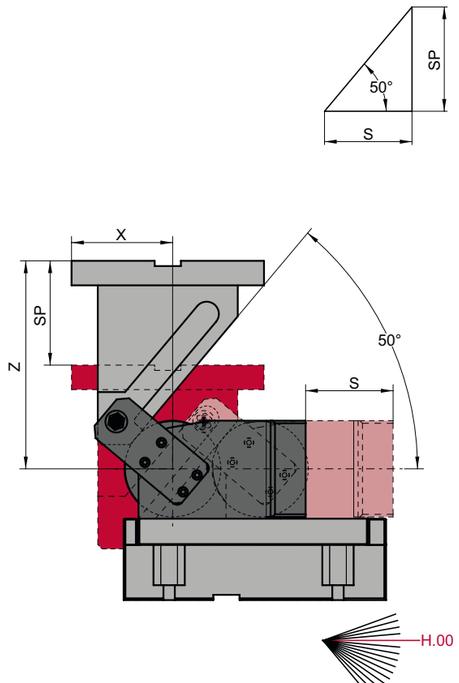


für Hub for stroke	Größe Size		α		A	B	C	D	E	F	G	H	I	J	K	L	M	R N	T	SP S=50	SP S=80	SP S=100
50	1		-20	**L.20**	160	95	220	130	73.1	155	66.9	130	98	71	66	39	126.8	14	15	111.9		
50	1		-15	**L.15**	160	95	200	130	69.6	120	70.6	130	98	71	66	39	105,6	14	15	90.6		
50	1		-10	**L.10**	160	95	165	130	66.4	120	52.2	130	98	71	66	39	90.7	14	15	76.6		
50	1		-05	**L.05**	160	95	155	130	65.3	100	54.9	130	100	71	66	39	79.6	14	15	66.8		
50	1	horizontal	00	**H.00**	160	95	145	130	62.6	100	55.3	130	100	71	66	39	70.7	14	15	59.6		
50	1		05	**R.05**	160	95	145	130	60.1	100	64.1	130	100	71	66	39	63.3	14	15	54.2		
50	1		10	**R.10**	160	95	130	130	59.9	90	56.8	130	102	71	66	39	56.9	14	15	50.0		
50	1		15	**R.15**	160	95	130	130	58.1	90	63.8	130	102	71	66	39	51.2	14	15	46.8		
50	1		20	**R.20**	160	95	120	130	59.5	80	60.3	130	105	71	66	39	46.0	14	15	44.2		
50	1		25	**R.25**	160	95	120	130	58.3	80	66.2	130	105	71	66	39	41.3	14	15	42.3		
50	1		30	**R.30**	160	95	100	130	54.5	60	51.9	130	102	71	66	39	36.6	14	15	40.8		
50	1		35	**R.35**	160	95	100	130	54.1	60	57.1	130	102	71	66	39	32.1	14	15	39.7		
50	1		40	**R.40**	160	95	90	130	57.0	50	52.1	130	105	71	66	39	27.7	14	15	38.9		
50	1		45	**R.45**	160	95	90	130	57.2	48	56.7	130	105	71	66	39	23.3	14	15	38.4		
50	1		50	**R.50**	160	95	80	130	67.9	37	51.0	130	115	71	66	39	18.8	14	15	38.3		
80 / 100	2		-20	**L.20**	220	95	380	192	78.2	250	97.8	190	150	71	66	39	132.6	14	14		179.2	224.0
80 / 100	2		-15	**L.15**	220	95	320	192	74.4	220	87.0	190	151	71	66	39	137.0	14	14		145.0	181.3
80 / 100	2		-10	**L.10**	220	95	250	192	70.1	170	51.9	190	151	71	66	39	149.2	14	14		122.6	153.2
80 / 100	2		-05	**L.05**	220	95	225	192	67.0	150	54.5	190	151	71	66	39	143.8	14	14		106.8	133.6
80 / 100	2	horizontal	00	**H.00**	220	95	210	192	65.6	150	60.7	190	153	71	66	39	148.5	14	14		95.3	119.2
80 / 100	2		05	**R.05**	220	95	210	192	63.3	150	79.3	190	153	71	66	39	133.7	14	14		86.7	108.3
80 / 100	2		10	**R.10**	220	95	185	192	63.7	135	70.5	190	155	71	66	39	121.2	14	14		80.0	100.0
80 / 100	2		15	**R.15**	220	95	185	192	62.8	135	85.0	190	155	71	66	39	110.2	14	14		74.8	93.5
80 / 100	2		20	**R.20**	220	95	165	192	65.5	125	78.1	190	158	71	66	39	100.3	14	14		70.8	88.5
80 / 100	2		25	**R.25**	220	95	165	192	66.0	125	90.1	190	158	71	66	39	91.2	14	14		67.6	84.5
80 / 100	2		30	**R.30**	220	95	145	192	69.2	105	81.1	190	160	71	66	39	82.6	14	14		65.2	81.5
80 / 100	2		35	**R.35**	220	95	145	192	71.1	105	91.2	190	160	71	66	39	74.5	14	14		63.4	79.3
80 / 100	2		40	**R.40**	200	95	115	172	53.7	75	70.3	170	140	71	66	39	66.6	14	14		62.2	77.8
80 / 100	2		45	**R.45**	200	95	115	172	56.9	72	78.6	170	140	71	66	39	58.8	14	14		61.5	76.9
80 / 100	2		50	**R.50**	200	95	95	172	80.7	52	66.0	170	160	71	66	39	51.0	14	14		61.3	76.6

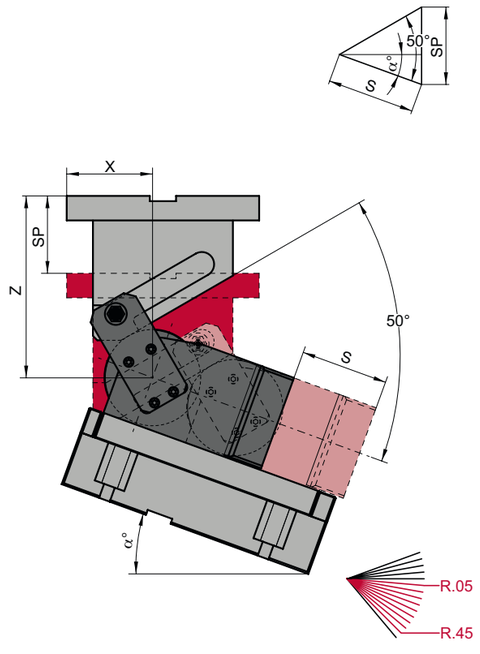
α° → L.20 - L.05



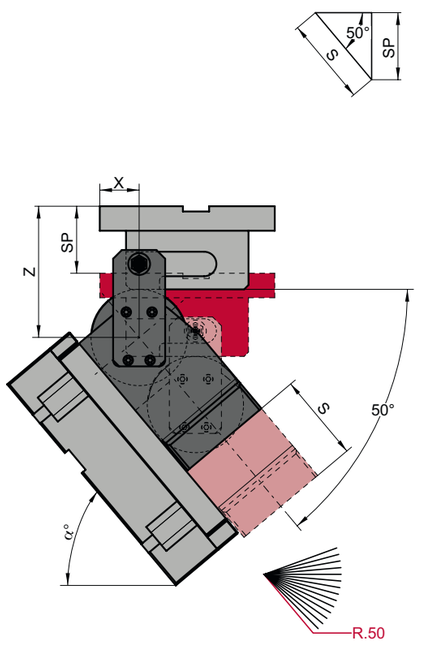
α° → H.00



α° → R.05 - R.45



α° → R.50



Treiberposition für Rollenschieber-Einheiten
Driver positioning for roller cam-units
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

[TH]

Typ / Type		α° L.20	L.15	L.10	L.05	H.00	R.05	R.10	R.15	R.20	R.25	R.30	R.35	R.40	R.45	R.50
	X	94.55*	94.32	93.85	93.13	90.17	88.99	85.59	83.97	79.16	77.16	78.00	75.68	70.23	67.66	55.00
ACX 03 050	Z	221.21*	194.04	171.84	164.59	157.27	159.85	147.32	149.66	141.84	143.87	125.71	127.36	118.79	120.01	111.00
	SP	111.99*	90.63	76.60	66.78	59.59	54.17	50.00	46.76	44.23	42.26	40.76	39.65	38.89	38.45	38.30
	X	102.55*	101.32*	100.85*	100.13*	97.18	95.99	92.59	90.97	86.16	84.16	80.00	77.68	75.23	72.67	50.00
ACX 03 080	Z	381.20*	324.04*	256.84*	234.59*	222.27	219.85	202.32	199.66	186.85	188.87	170.71	172.36	143.79	145.01	126.00
	SP	179.18*	145.01*	122.57*	106.84*	95.34	86.67	80.00	74.81	70.76	67.62	65.22	63.45	62.23	61.52	61.28
	X	102.55*	101.32*	100.85*	100.13*	97.17	95.99	92.59	90.97	86.16	84.16	80.00	77.69	75.23	72.67	50.00
ACX 03 100	Z	381.20*	324.03*	256.84*	234.59*	222.27	219.85	202.32	199.66	186.85	188.87	170.71	172.35	143.79	145.01	126.00
	SP	223.97*	181.26*	153.21*	133.56*	119.17	219.85	100.00	93.52	88.46	84.52	81.52	79.31	77.79	76.90	76.60
	X	99.25	98.85	98.18	97.23	94.00	92.53	88.80	86.84	81.66	79.28	79.71	76.98	71.09	68.10	55.00
ACX 05 050	Z	222.92	196.15	174.34	167.46	160.48	163.38	151.15	153.75	146.18	148.40	130.41	132.18	123.72	124.99	116.00
	SP	111.99	90.63	76.60	66.78	59.59	54.17	50.00	46.76	44.23	42.26	40.76	39.65	38.89	38.45	38.30
	X	107.25*	105.85*	105.18*	104.23	101.00	99.53	95.80	93.84	88.66	86.28	81.71	78.98	76.09	73.10	50.00
ACX 05 080	Z	382.92*	326.15*	259.34*	237.46	225.48	223.38	206.15	203.75	191.18	193.40	175.41	177.18	148.72	149.99	131.00
	SP	179.18*	145.01*	122.57*	106.84	95.34	86.67	80.00	74.81	70.76	67.62	65.22	63.45	62.23	61.52	61.28
	X	107.25*	105.86*	105.18*	104.22	101.00	99.52	95.80	93.84	88.66	86.28	81.71	78.98	76.10	73.10	50.00
ACX 05 100	Z	382.91*	326.15*	259.34*	237.46	225.48	223.39	206.15	203.75	191.18	193.40	175.41	177.18	148.72	149.99	131.00
	SP	223.98*	181.26*	153.21*	133.56	119.18	108.34	100.00	93.52	88.46	84.52	81.52	79.31	77.79	76.90	76.60
	X	107.70	107.01	105.97	102.60	100.90	98.89	94.59	92.01	86.16	83.08	82.79	79.30	72.67	68.88	55.00
ACX 15 050	Z	226.00	209.95	178.84	172.62	166.26	169.75	158.04	161.12	153.97	156.56	138.86	140.88	132.58	133.96	125.00
	SP	111.99	90.63	76.60	66.78	59.59	54.17	50.00	46.76	44.23	42.26	40.76	39.65	38.89	38.45	38.30
	X	115.70*	114.01*	112.97	111.60	107.90	105.89	101.59	99.01	93.16	90.08	84.79	81.30	77.67	73.88	50.00
ACX 15 080	Z	386.00*	329.95*	263.84	242.62	231.26	234.75	213.04	216.12	198.97	201.56	183.86	185.88	157.58	158.96	140.00
	SP	179.18*	145.01*	122.57	106.84	95.34	86.67	80.00	74.81	70.76	67.62	65.22	63.45	62.23	61.52	61.28
	X	115.70*	114.01*	112.97*	111.60	107.90	105.89	101.59	99.01	93.16	90.08	84.79	81.30	77.67	73.88	50.00
ACX 15 100	Z	386.00*	329.95*	263.84*	242.62	231.26	234.75	213.04	216.12	198.97	201.56	183.86	185.88	157.58	158.96	140.00
	SP	223.98*	181.26*	153.21*	133.56	119.18	108.34	100.00	93.52	88.46	84.52	81.52	79.31	77.79	76.90	76.60
	X	117.10	116.07	114.63	110.79	108.56	105.96	101.01	97.74	91.16	87.31	86.21	81.89	74.40	69.75	55.00
ACX 20 050	Z	229.42	214.18	183.84	178.35	172.69	176.82	165.70	169.32	162.63	165.62	148.26	150.54	142.43	143.92	135.00
	SP	111.99	90.63	76.60	66.78	59.59	54.17	50.00	46.76	44.23	42.26	40.76	39.65	38.89	38.45	38.30
	X	125.10*	123.07	121.63	119.79	115.56	112.96	108.01	104.74	98.16	94.31	88.21	83.89	79.40	74.75	50.00
ACX 20 080	Z	389.42*	334.18	268.84	248.35	237.69	241.82	220.70	224.32	207.63	210.62	193.26	195.54	167.43	168.92	150.00
	SP	179.18*	145.01	122.57	106.84	95.34	86.67	80.00	74.81	70.76	67.62	65.22	63.45	62.23	61.52	61.28
	X	125.10*	123.07*	121.63	119.79	115.56	112.96	108.01	104.74	98.16	94.31	88.21	83.89	79.40	74.75	50.00
ACX 20 100	Z	389.42*	334.18*	268.84	248.35	237.69	241.82	220.70	224.32	207.63	210.62	193.26	195.54	167.43	168.92	150.00
	SP	223.98*	181.26*	153.21	133.56	119.18	108.34	100.00	93.52	88.46	84.52	81.52	79.31	77.79	76.90	76.60

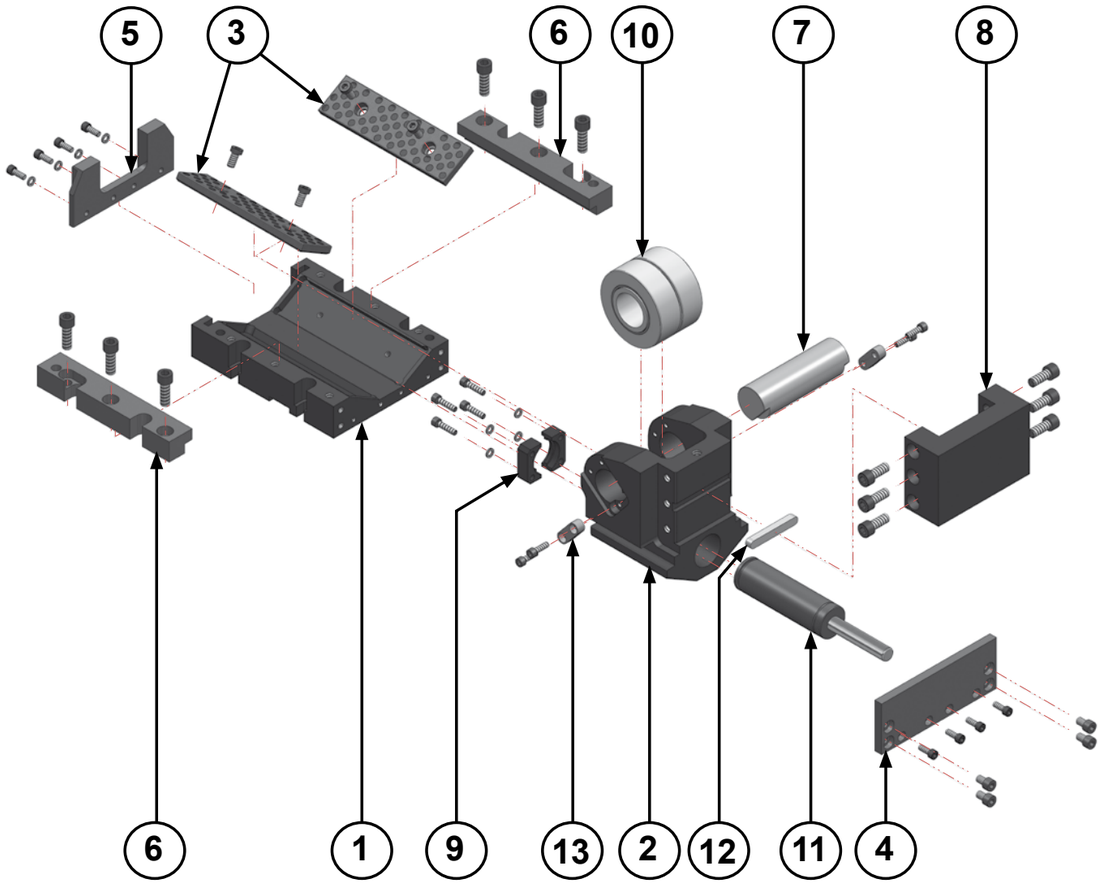
* Der Treiber befindet sich am Ende des Arbeitshubes auf einer niedrigeren Ebene als der Fuß des Rollenschiebers. Bitte berücksichtigen Sie, dass ausreichend Freiraum zur Verfügung steht.

* At the end of the working stroke the driver is positioned at a lower level than the roller cam base. The necessary clearance must be provided accordingly.

[11.03.2020]

Stückliste Rollenschieber-Einheiten ACX

Parts roller cam-units ACX



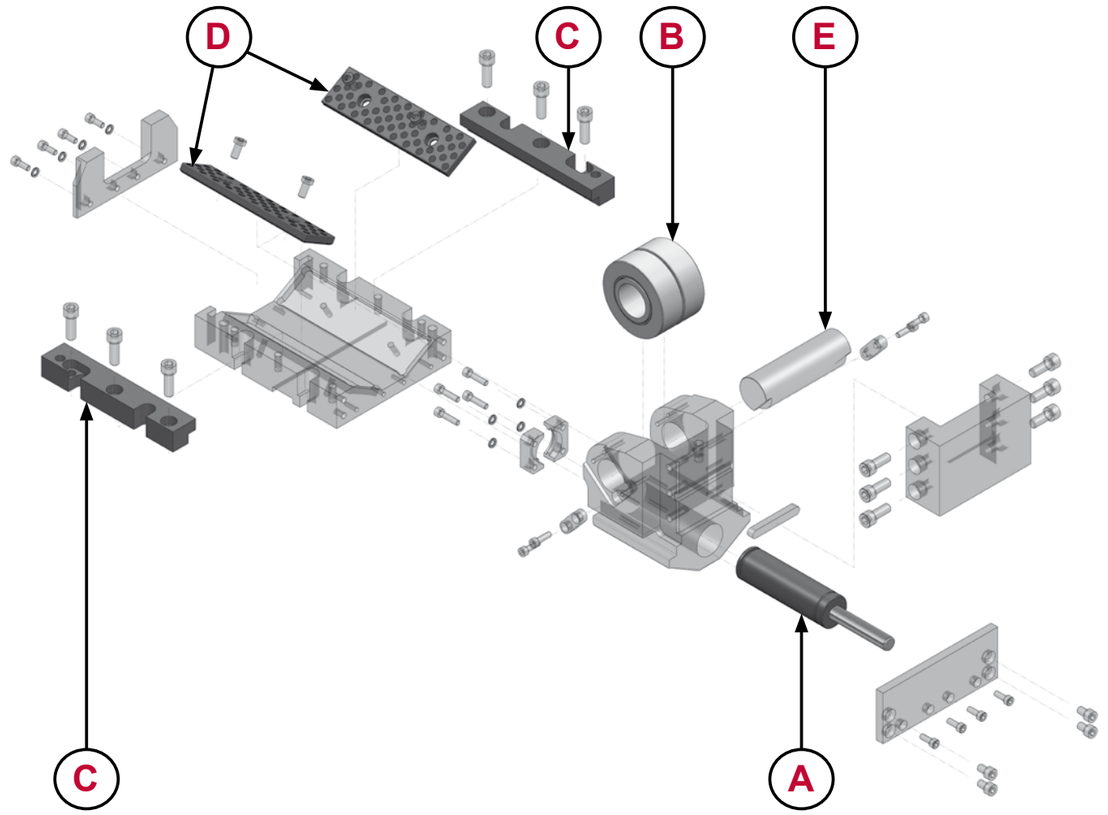
Nr. / No.	Artikel	Description	Material
①	Rollenschieberbasis	Cam base	CK45
②	Rollenschieberkörper	Cam slider	CK45
③	Gleitplatten (2x)	Wear plates (2x)	CuZn25A15 + G
④	Anschlagleiste, vorne	Front stop plate	CK45
⑤	Anschlagleiste, hinten	Rear stop plate	CK45
⑥	Gleitleisten (2x)	Wear plates (2x)	CuZn25A15 + G
⑦	Achse	Axle	16NiCrMo4
⑧	Frontplatte Schieberkörper	Head cam slider	CK45
⑨	Flansch	Flange	CK45
⑩	Antriebsrolle (ACX 15 und 20: 2x)	Roller (ACX 15 and 20: 2x)	100Cr6
⑪	Gasdruckfeder	Gas spring	-
⑫	Passfeder DIN 6885	Key DIN 6885	CK45
⑬	Passfeder	Key	CK45

[11.03.2020]

[11.03.2020]

Ersatzteile Rollenschieber-Einheiten ACX

Spare parts roller cam-units ACX



Nr. / No.	Artikel / Description	ACX 03	ACX 05	ACX 15	ACX 20
Ⓐ	Gasdruckfeder Gas spring	ACX 03 050 A	ACX 05 050 A	ACX 15 050 A	ACX 20 050 A
		ACX 03 080 A	ACX 05 080 A	ACX 15 080 A	ACX 20 080 A
		ACX 03 100 A	ACX 05 100 A	ACX 15 100 A	ACX 20 100 A
Ⓑ	Antriebsrolle (ACX 15 und 20: 2x) Roller (ACX 15 and 20: 2x)	ACX 03 050 B	ACX 05 050 B	ACX 15 050 B	ACX 20 050 B
		ACX 03 080 B	ACX 05 080 B	ACX 15 080 B	ACX 20 080 B
		ACX 03 100 B	ACX 05 100 B	ACX 15 100 B	ACX 20 100 B
Ⓒ	Gleitleisten (2x) Wear plates (2x)	ACX 03 050 C	ACX 05 050 C	ACX 15 050 C	ACX 20 050 C
		ACX 03 080 C	ACX 05 080 C	ACX 15 080 C	ACX 20 080 C
		ACX 03 100 C	ACX 05 100 C	ACX 15 100 C	ACX 20 100 C
Ⓓ	Gleitplatten (2x) Wear plates (2x)	ACX 03 050 D	ACX 05 050 D	ACX 15 050 D	ACX 20 050 D
		ACX 03 080 D	ACX 05 080 D	ACX 15 080 D	ACX 20 080 D
		ACX 03 100 D	ACX 05 100 D	ACX 15 100 D	ACX 20 100 D
Ⓔ	Achse Axle	ACX 03 050 E	ACX 05 050 E	ACX 15 050 E	ACX 20 050 E
		ACX 03 080 E	ACX 05 080 E	ACX 15 080 E	ACX 20 080 E
		ACX 03 100 E	ACX 05 100 E	ACX 15 100 E	ACX 20 100 E

Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke	Teil / Part	Serien-Nr. / Serial No.
KIT ACX	20	050	D	XXXX

Doppelte Teile / Double parts: C, D

1 x = 2 x =

Auswechseln der Gasdruckfeder

Replacing the gas spring

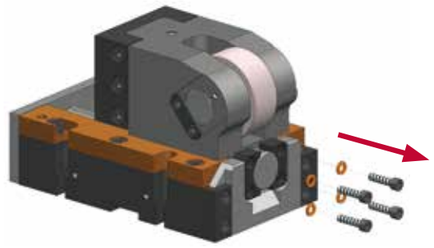
①



Stellen Sie sicher, dass die Gasdruckfeder vollständig ausgefahren ist.

Make sure the gas spring is fully extended.

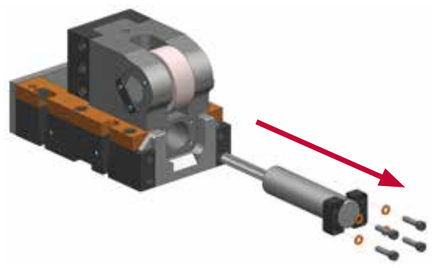
②



Schrauben Sie die Befestigungsschrauben heraus.

Unscrew the mount screws.

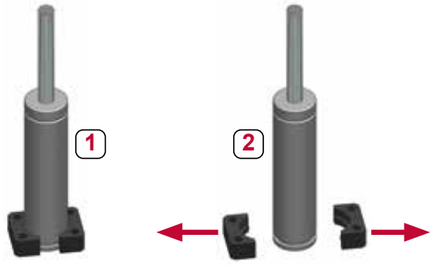
③



Entfernen Sie den Flansch und die Gasdruckfeder.

Remove the flange and the gas spring

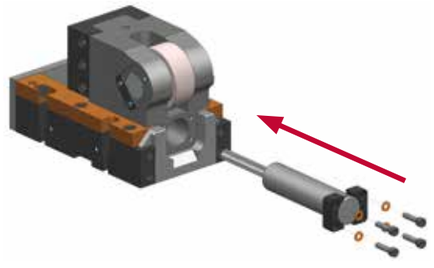
④



Demontieren Sie den Flansch von Hand (1) und tauschen Sie die Gasdruckfeder aus (2).

Separate mount parts by hand (1) and replace gas spring by new one (2).

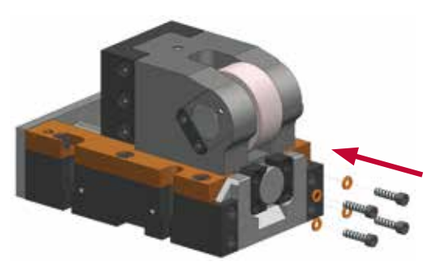
⑤



Setzen Sie Flansch und Gasdruckfeder in die Aussparung ein.

Insert the flange and gas spring into the groove.

⑥



Schrauben Sie die Befestigungsschrauben ein.

Screw in and fasten the mount screws.

[11.03.2020]

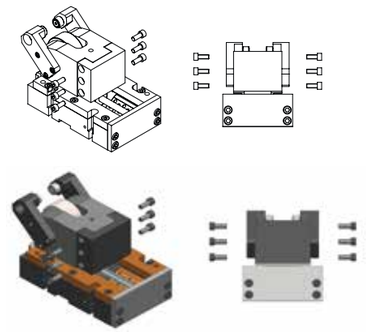
[11.03.2020]

Rollenschieber-Einheiten ACX
Roller cam-units ACX
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

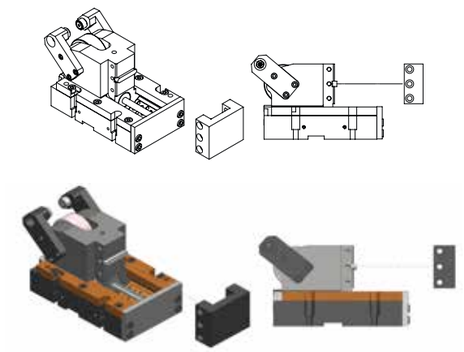
Schneidstempelmontage

Punch mount

①



②



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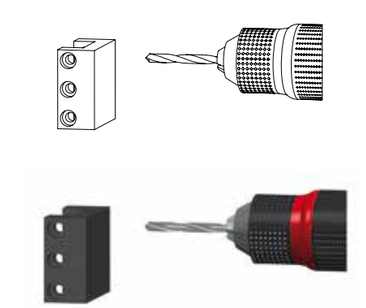

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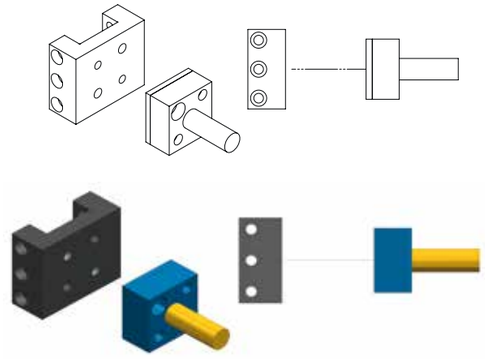

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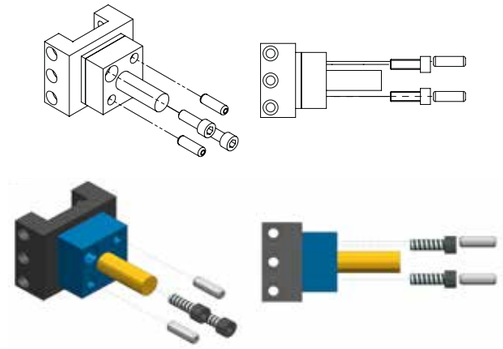

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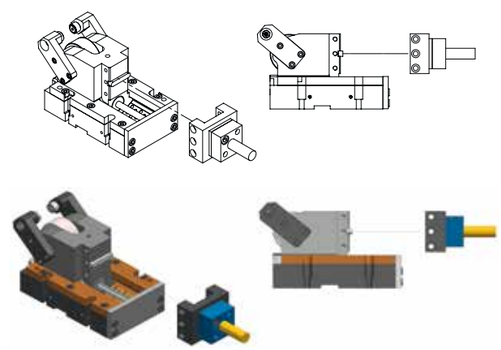
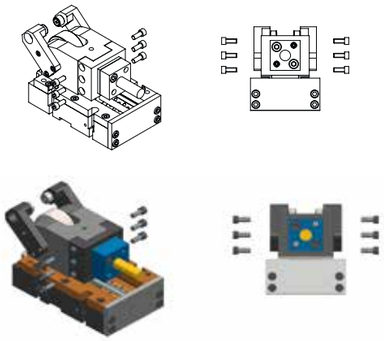


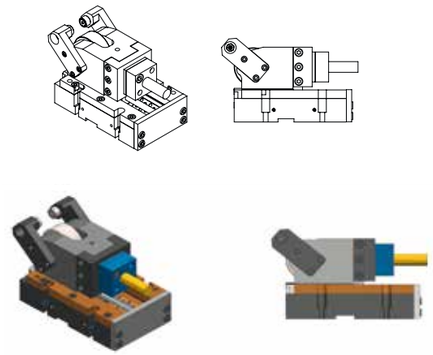
Schneidstempelmontage

Punch mount

⑦



⑧



[11.03.2020]

[11.03.2020]

Die neue Generation, die den wachsenden Ansprüchen an Schieber für Stanz- und Umform-Operationen Rechnung trägt, zeichnet sich aus durch:

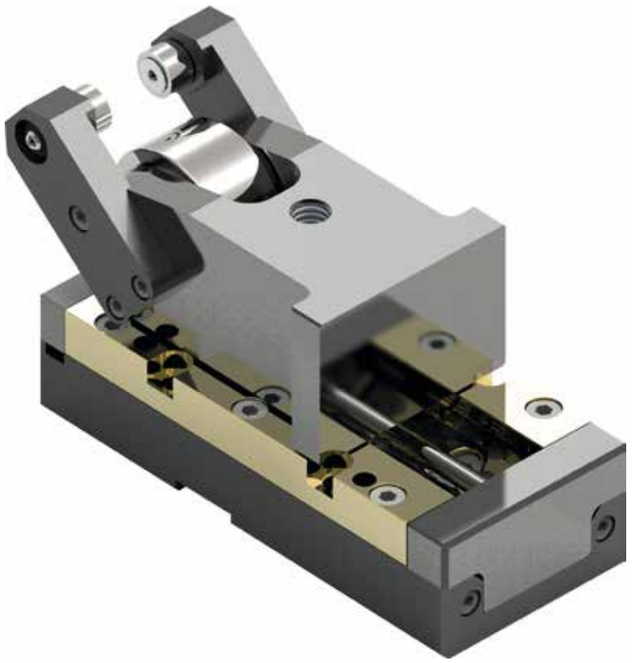
- hohe Präzision
- lange Standzeiten
- große Treiberauswahl
- sicheren Betrieb durch optionale Zwangsrückholung
- Rückstellung durch einfach zugängliche Gasdruckfedern

- **kleine Einbaubreite**
- **große Arbeitsfläche**
- **hohe Kraft für Stanz- und Umformprozesse**
- **hohe Rückstellkraft**

The new generation of Roller Cams is designed to meet growing demands regarding bending and punching operations in metal stamping:

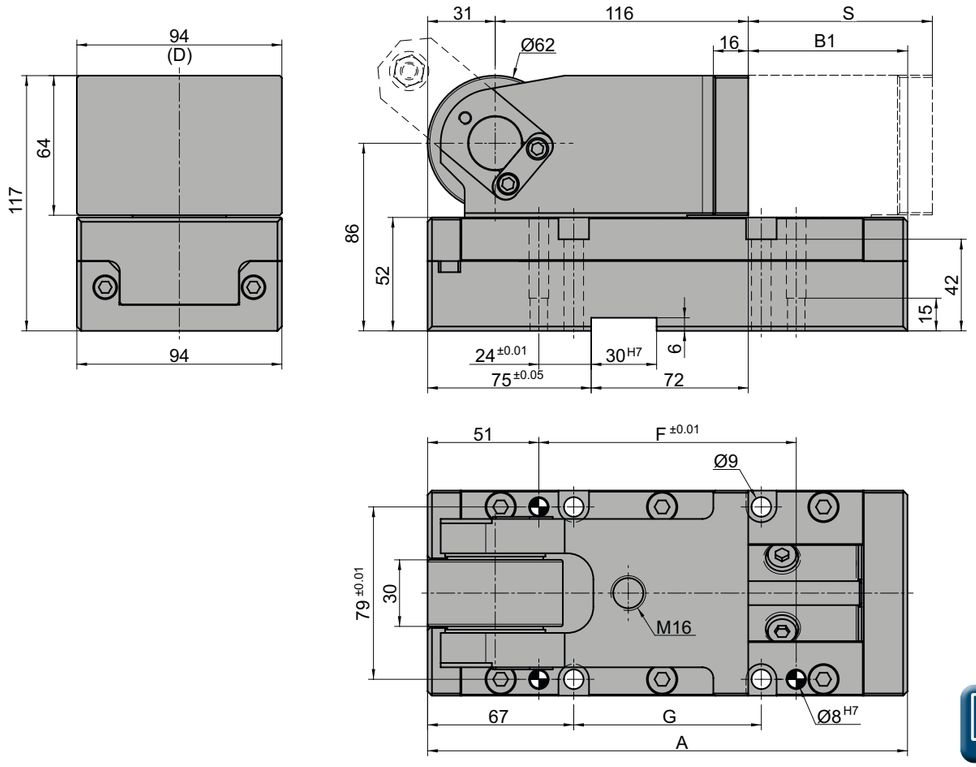
- high precision
- superior performance and longevity
- wide variety of drivers
- safe operation by means of optional positive return
- resetting by easily accessible gas springs

- **small width**
- **large mounting surface**
- **high force for metal stamping processes**
- **high resetting force**



FCX 07

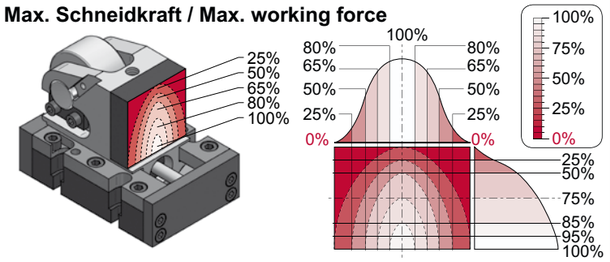
FCX 07 050



MAIL

Hub Stroke S	A	B1	C	E	F	G	H	Schneidkraft Cutting force daN max.	Rückstellkraft Return force daN	Typ Gasdruckfedern Type Gas springs
050	190	43	117	64	88	56	86	7200	340	NC.015.00.00170.050.1
080	220	73	117	64	118	86	86	7200	340	NC.015.00.00170.080.1

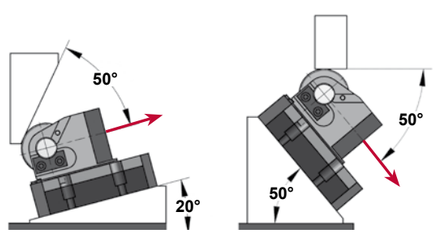
Max. Schneidkraft / Max. working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken.

Working force should be as centered as possible on the working area surface.

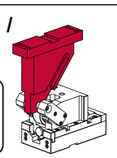
Max. Schrägeinbau / Max. working angle



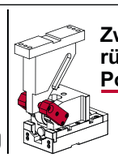
Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke
FCX	07	050

Bestelloptionen / Order options:



Treiber / Driver — DR . A



Zwangsrückführung / Positive Return — DRU . 1

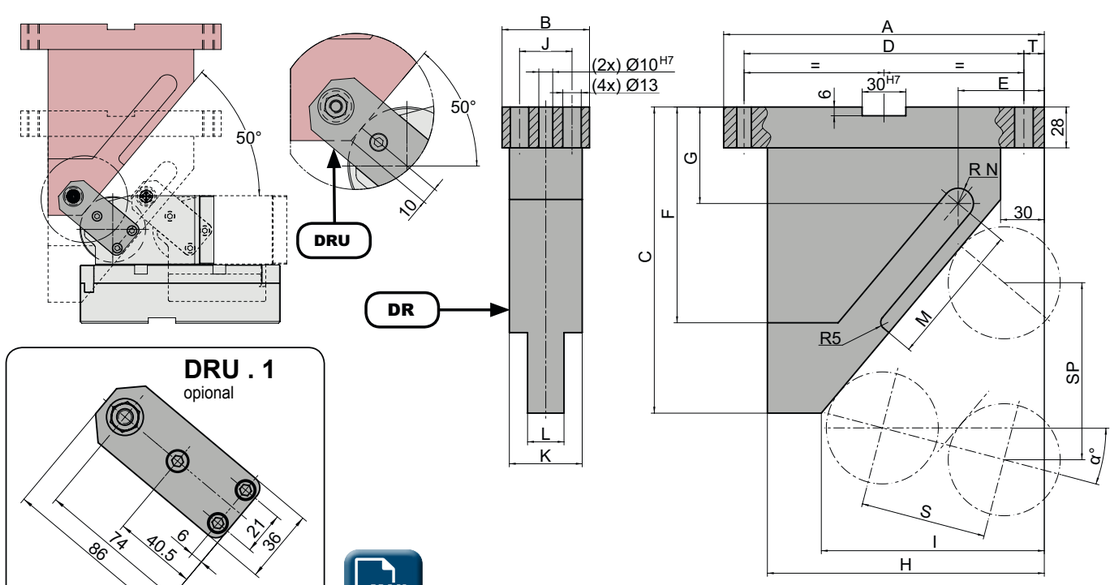
[11.03.2020]

DR.A

Es wird eine gehärtete Kontaktfläche (60 HRC) empfohlen.

Hardened (60 HRC) contact surface is recommended.

DR.A.1.L.20



DRU . 1
opional

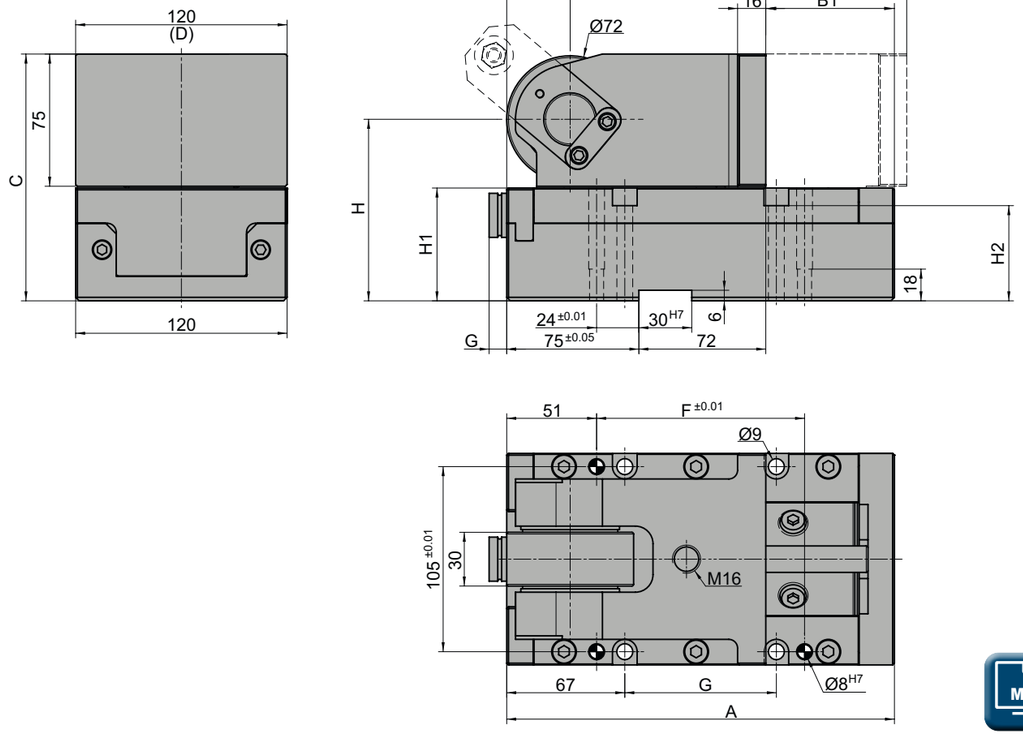
MAIL

für Hub for stroke	Größe Size		α		A	B	C	D	E	F	G	H	I	J	K	L	M	R N	T	SP S=50	SP S=80	SP S=100
50	1		-20	**L.20**	160	60	220	130	65,1	140	69,8	130	98	36	50	25	69,0	10,5	15	111,9		
50	1		-15	**L.15**	160	60	190	130	61,9	130	64,2	130	98	36	50	25	63,8	10,5	15	90,6		
50	1		-10	**L.10**	160	60	165	130	59,0	120	56,2	130	98	36	50	25	65,7	10,5	15	76,6		
50	1		-05	**L.05**	160	60	155	130	56,4	110	59,8	130	98	36	50	25	65,0	10,5	15	66,8		
50	1	horizontal	00	**H.00**	160	60	145	130	56,1	100	60,7	130	100	36	50	25	68,9	10,5	15	59,6		
50	1		05	**R.05**	160	60	145	130	54,1	105	70,1	130	100	36	50	25	64,7	10,5	15	54,2		
50	1		10	**R.10**	160	60	130	130	54,4	90	63,3	130	102	36	50	25	58,5	10,5	15	50,0		
50	1		15	**R.15**	160	60	130	130	53,2	90	70,8	130	102	36	50	25	53,0	10,5	15	46,8		
50	1		20	**R.20**	160	60	120	130	55,3	85	67,6	130	105	36	50	25	48,0	10,5	15	44,2		
50	1		25	**R.25**	160	60	120	130	54,8	85	74,0	130	105	36	50	25	43,4	10,5	15	42,3		
50	1		30	**R.30**	160	60	100	130	51,6	70	59,8	130	102	36	50	25	39,0	10,5	15	40,8		
50	1		35	**R.35**	160	60	100	130	51,9	70	65,3	130	102	36	50	25	34,8	10,5	15	39,7		
50	1		40	**R.40**	160	60	90	130	55,5	60	60,5	130	105	36	50	25	30,6	10,5	15	38,9		
50	1		45	**R.45**	160	60	90	130	56,5	60	65,2	130	105	36	50	25	26,5	10,5	15	38,4		
50	1		50	**R.50**	160	60	80	130	67,9	49	59,5	130	115	36	50	25	22,3	10,5	15	38,3		
80	2		-20	**L.20**	220	60	380	192	70,2	195	100,7	190	150	36	50	25	98,8	10,5	14		179,2	
80	2		-15	**L.15**	220	60	320	192	66,6	160	90,6	190	151	36	50	25	96,8	10,5	14		145,0	
80	2		-10	**L.10**	220	60	250	192	62,8	125	56,2	190	151	36	50	25	100,8	10,5	14		122,6	
80	2		-05	**L.05**	220	60	225	192	59,6	145	58,7	190	151	36	50	25	96,2	10,5	14		106,8	
80	2	horizontal	00	**H.00**	220	60	210	192	59,1	148	66,2	190	153	36	50	25	98,4	10,5	14		95,3	
80	2		05	**R.05**	220	60	205	192	57,3	135	80,3	190	153	36	50	25	97,1	10,5	14		86,7	
80	2		10	**R.10**	220	60	185	192	58,2	125	77,0	190	155	36	50	25	93,2	10,5	14		80,0	
80	2		15	**R.15**	220	60	180	192	57,9	135	87,0	190	155	36	50	25	87,2	10,5	14		74,8	
80	2		20	**R.20**	220	60	165	192	61,3	120	85,5	190	158	36	50	25	80,6	10,5	14		70,8	
80	2		25	**R.25**	220	60	165	192	62,4	120	97,8	190	158	36	50	25	73,4	10,5	14		67,6	
80	2		30	**R.30**	220	60	145	192	66,3	105	89,1	190	160	36	50	25	66,7	10,5	14		65,2	
80	2		35	**R.35**	220	60	145	192	68,9	105	99,4	190	160	36	50	25	60,2	10,5	14		63,4	
80	2		40	**R.40**	220	60	115	172	52,2	75	78,7	170	140	36	50	25	54,0	10,5	14		62,2	
80	2		45	**R.45**	220	60	115	172	56,1	85	87,1	170	140	36	50	25	47,8	10,5	14		61,5	
80	2		50	**R.50**	220	60	95	172	80,7	64	74,5	170	160	36	50	25	41,6	10,5	14		61,3	

[11.03.2020]

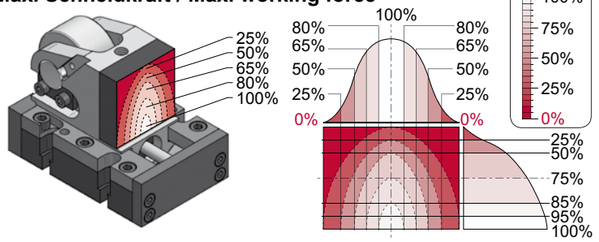
FCX 15

FCX 15 050



Hub Stroke S	A	B1	C	E	F	G	H	H1	H2	Schneidkraft Cutting force daN max.	Rückstellkraft Return force daN	Typ Gasdruckfedern Type Gas springs
050	190	43	190	110	152	80	135	64	54	15300	670	NC.015.00.00320.050.1
080	220	73	190	110	182	110	135	64	54	15300	670	NC.015.00.00320.080.1
100	240	93	190	110	202	130	135	81	71	15300	670	NC.015.00.00320.100.1

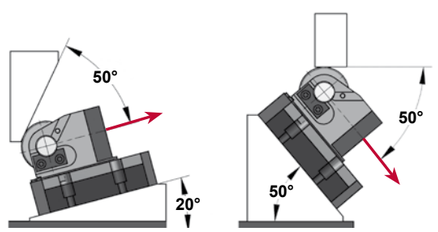
Max. Schneidkraft / Max. working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken.

Working force should be as centered as possible on the working area surface.

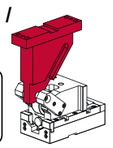
Max. Schrägeinbau / Max. working angle



Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke
FCX	15	050

Bestelloptionen / Order options:



Treiber / Driver: **DR . A**



Zwangsrückführung / Positive Return: **DRU . 2**

[11.03.2020]

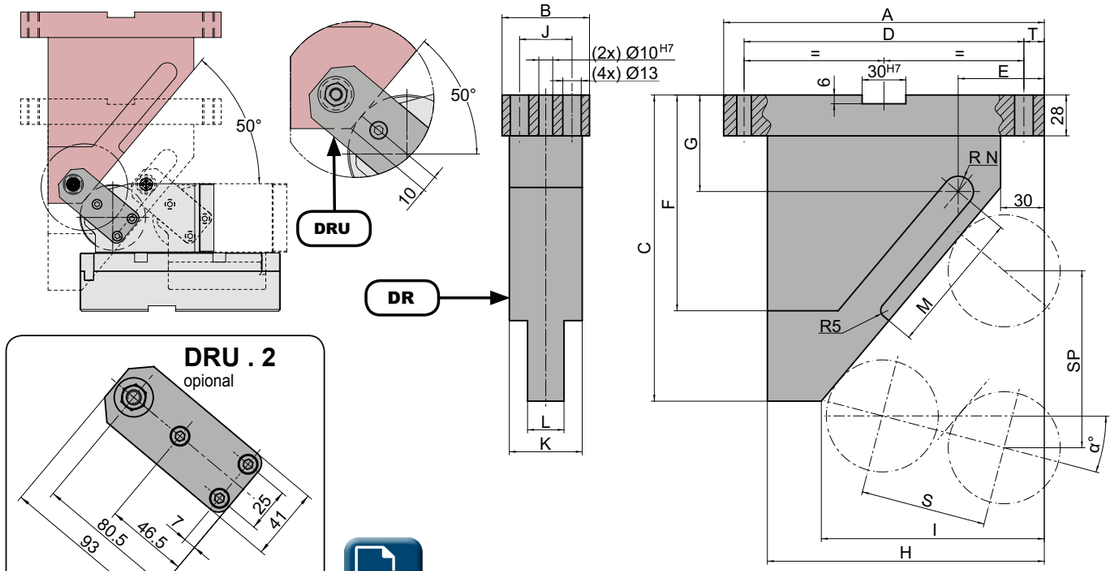
[11.03.2020]

DR.A

Es wird eine gehärtete Kontaktfläche (60 HRC) empfohlen.

Hardened (60 HRC) contact surface is recommended.

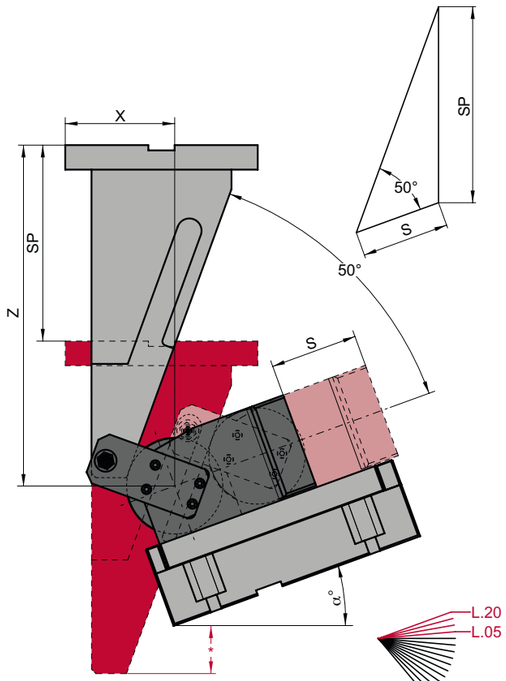
DR.A.1.L.20



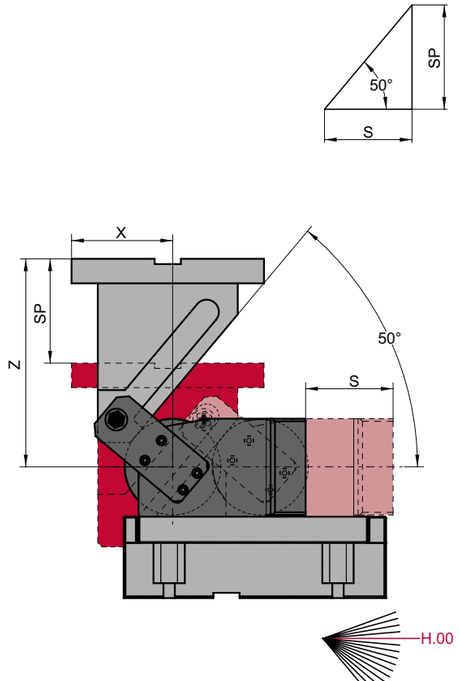
DRU . 2
opional

für Hub for stroke	Größe Size		α		A	B	C	D	E	F	G	H	I	J	K	L	M	R N	T	SP S=50	SP S=80	SP S=100
50	1		-20	**L.20**	160	60	220	130	65,1	140	69,8	130	98	36	50	25	69,0	10,5	15	111,9		
50	1		-15	**L.15**	160	60	190	130	61,9	130	64,2	130	98	36	50	25	63,8	10,5	15	90,6		
50	1		-10	**L.10**	160	60	165	130	59,0	120	56,2	130	98	36	50	25	65,7	10,5	15	76,6		
50	1		-05	**L.05**	160	60	155	130	56,4	110	59,8	130	98	36	50	25	65,0	10,5	15	66,8		
50	1	**horizontal**	00	**H.00**	160	60	145	130	56,1	100	60,7	130	100	36	50	25	68,9	10,5	15	59,6		
50	1		05	**R.05**	160	60	145	130	54,1	105	70,1	130	100	36	50	25	64,7	10,5	15	54,2		
50	1		10	**R.10**	160	60	130	130	54,4	90	63,3	130	102	36	50	25	58,5	10,5	15	50,0		
50	1		15	**R.15**	160	60	130	130	53,2	90	70,8	130	102	36	50	25	53,0	10,5	15	46,8		
50	1		20	**R.20**	160	60	120	130	55,3	85	67,6	130	105	36	50	25	48,0	10,5	15	44,2		
50	1		25	**R.25**	160	60	120	130	54,8	85	74,0	130	105	36	50	25	43,4	10,5	15	42,3		
50	1		30	**R.30**	160	60	100	130	51,6	70	59,8	130	102	36	50	25	39,0	10,5	15	40,8		
50	1		35	**R.35**	160	60	100	130	51,9	70	65,3	130	102	36	50	25	34,8	10,5	15	39,7		
50	1		40	**R.40**	160	60	90	130	55,5	60	60,5	130	105	36	50	25	30,6	10,5	15	38,9		
50	1		45	**R.45**	160	60	90	130	56,5	60	65,2	130	105	36	50	25	26,5	10,5	15	38,4		
50	1		50	**R.50**	160	60	80	130	67,9	49	59,5	130	115	36	50	25	22,3	10,5	15	38,3		
80 / 100	2		-20	**L.20**	220	60	380	192	70,2	195	100,7	190	150	36	50	25	98,8	10,5	14		179,2	224,0
80 / 100	2		-15	**L.15**	220	60	320	192	66,6	160	90,6	190	151	36	50	25	96,8	10,5	14		145,0	181,3
80 / 100	2		-10	**L.10**	220	60	250	192	62,8	125	56,2	190	151	36	50	25	100,8	10,5	14		122,6	153,2
80 / 100	2		-05	**L.05**	220	60	225	192	59,6	145	58,7	190	151	36	50	25	96,2	10,5	14		106,8	133,6
80 / 100	2	**horizontal**	00	**H.00**	220	60	210	192	59,1	148	66,2	190	153	36	50	25	98,4	10,5	14		95,3	119,2
80 / 100	2		05	**R.05**	220	60	205	192	57,3	135	80,3	190	153	36	50	25	97,1	10,5	14		86,7	108,3
80 / 100	2		10	**R.10**	220	60	185	192	58,2	125	77,0	190	155	36	50	25	93,2	10,5	14		80,0	100,0
80 / 100	2		15	**R.15**	220	60	180	192	57,9	135	87,0	190	155	36	50	25	87,2	10,5	14		74,8	93,5
80 / 100	2		20	**R.20**	220	60	165	192	61,3	120	85,5	190	158	36	50	25	80,6	10,5	14		70,8	88,5
80 / 100	2		25	**R.25**	220	60	165	192	62,4	120	97,8	190	158	36	50	25	73,4	10,5	14		67,6	84,5
80 / 100	2		30	**R.30**	220	60	145	192	66,3	105	89,1	190	160	36	50	25	66,7	10,5	14		65,2	81,5
80 / 100	2		35	**R.35**	220	60	145	192	68,9	105	99,4	190	160	36	50	25	60,2	10,5	14		63,4	79,3
80 / 100	2		40	**R.40**	220	60	115	172	52,2	75	78,7	170	140	36	50	25	54,0	10,5	14		62,2	77,8
80 / 100	2		45	**R.45**	220	60	115	172	56,1	85	87,1	170	140	36	50	25	47,8	10,5	14		61,5	76,9
80 / 100	2		50	**R.50**	220	60	95	172	80,7	64	74,5	170	160	36	50	25	41,6	10,5	14		61,3	76,6

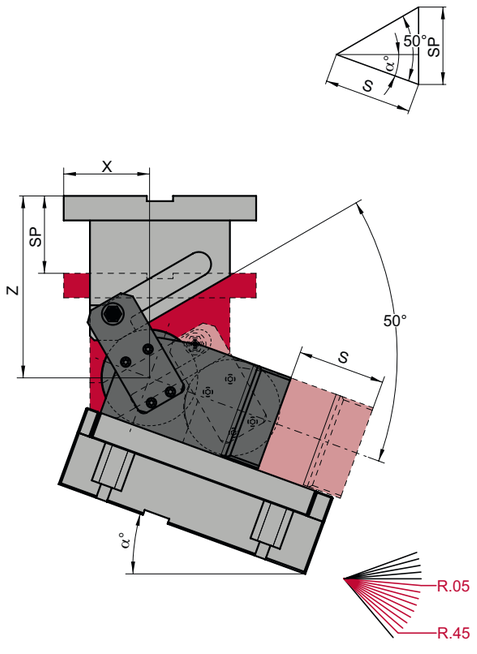
α° → L.20 - L.05



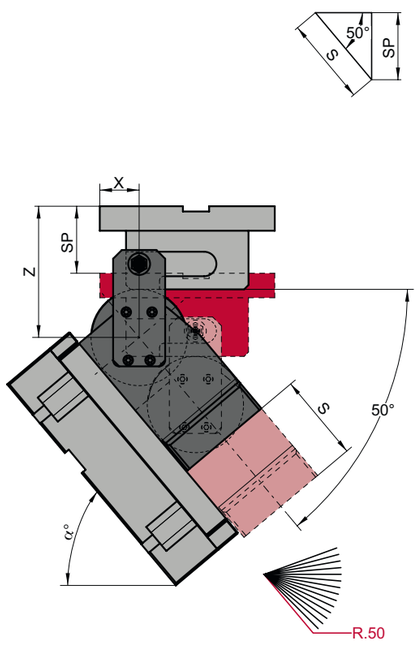
α° → H.00



α° → R.05 - R.45



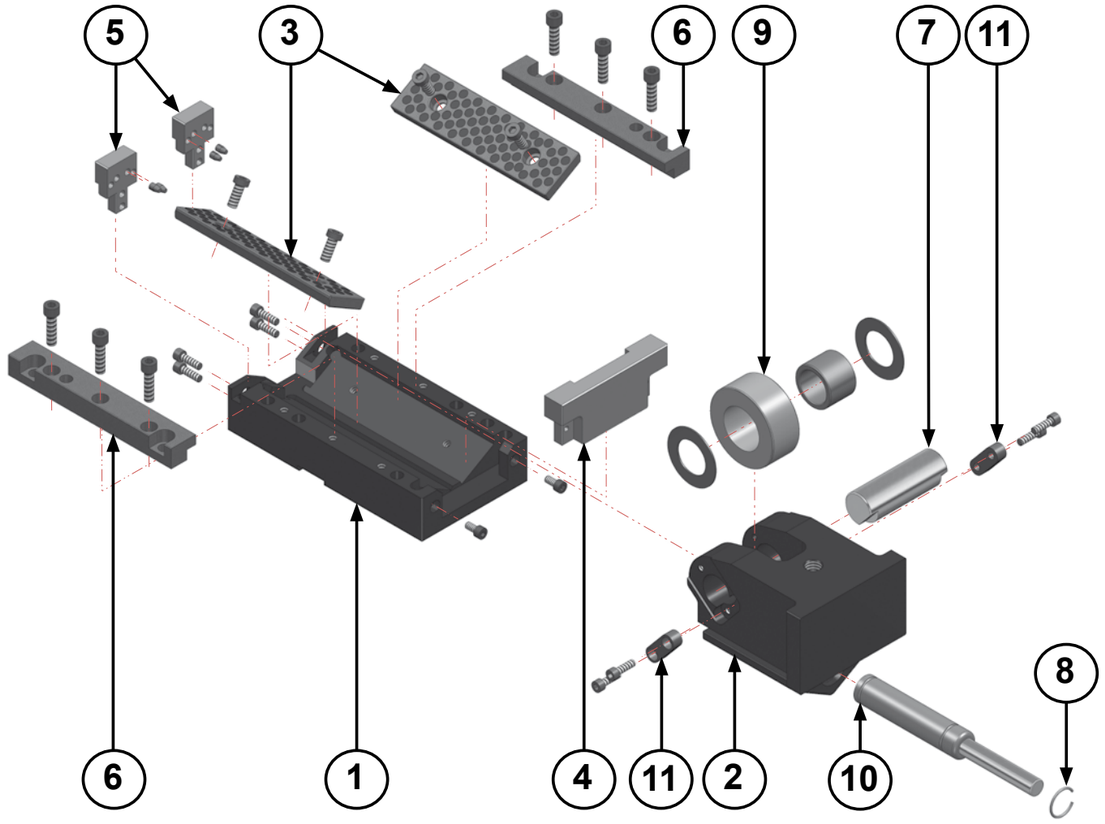
α° → R.50



Typ / Type		α° L.20	L.15	L.10	L.05	H.00	R.05	R.10	R.15	R.20	R.25	R.30	R.35	R.40	R.45	R.50
	X	94.55*	94.32	93.85	93.13	90.17	88.99	85.59	83.97	79.16	77.16	78.00	75.68	70.23	67.66	55.00
FCX 07 050	Z	221.21*	194.04	171.84	164.59	157.27	159.85	147.32	149.66	141.84	143.87	125.71	127.36	118.79	120.01	111.00
	SP	111.99*	90.63	76.60	66.78	59.59	54.17	50.00	46.76	44.23	42.26	40.76	39.65	38.89	38.45	38.30
	X	102.55*	101.32*	100.85*	100.13*	97.17	95.99	92.59	90.97	86.16	84.16	80.00	77.68	75.23	72.66	50.00
FCX 07 080	Z	381.20*	324.04*	256.84*	234.59*	222.27	219.85	202.32	199.66	186.85	188.87	170.71	172.36	143.79	145.01	126.00
	SP	179.18*	145.01*	122.57*	106.84*	95.34	86.67	80.00	74.81	70.76	67.62	65.22	63.45	62.23	61.52	61.28
	X	99.20	98.85	98.17	97.22	94.00	92.53	88.80	86.84	81.66	79.28	79.71	76.98	71.10	68.10	55.00
FCX 15 050	Z	222.92	196.15	174.34	167.46	160.48	163.39	151.15	153.75	146.18	148.40	130.41	132.18	123.72	124.99	116.00
	SP	111.99	90.63	76.60	66.78	59.59	54.17	50.00	46.76	44.23	42.26	40.76	39.65	38.89	38.45	38.30
	X	107.25*	105.85*	105.17*	104.23	101.00	99.53	95.80	93.84	88.66	86.28	81.71	78.98	76.10	73.10	50.00
FCX 15 080	Z	382.92*	326.15*	259.34*	237.46	225.48	223.39	206.15	203.75	191.18	193.40	175.41	177.18	148.72	149.99	131.00
	SP	179.18*	145.01*	122.57*	106.84	95.34	86.67	80.00	74.81	70.76	67.62	65.22	63.45	62.23	61.52	61.28
	X	107.25*	105.85*	105.18*	104.22	101.00	99.53	95.80	93.84	88.66	86.28	81.71	78.98	76.10	73.10	50.00
FCX 15 100	Z	382.92*	326.15*	259.34*	237.46	225.48	223.39	206.15	203.75	191.18	193.40	175.41	177.18	148.72	149.99	131.00
	SP	223.98*	181.26*	153.21*	133.56	119.18	108.34	100.00	93.52	88.46	84.52	81.52	79.31	77.79	76.90	76.60

* Der Treiber befindet sich am Ende des Arbeitshubes auf einer niedrigeren Ebene als der Fuß des Rollenschiebers. Bitte berücksichtigen Sie, dass ausreichend Freiraum zur Verfügung steht.

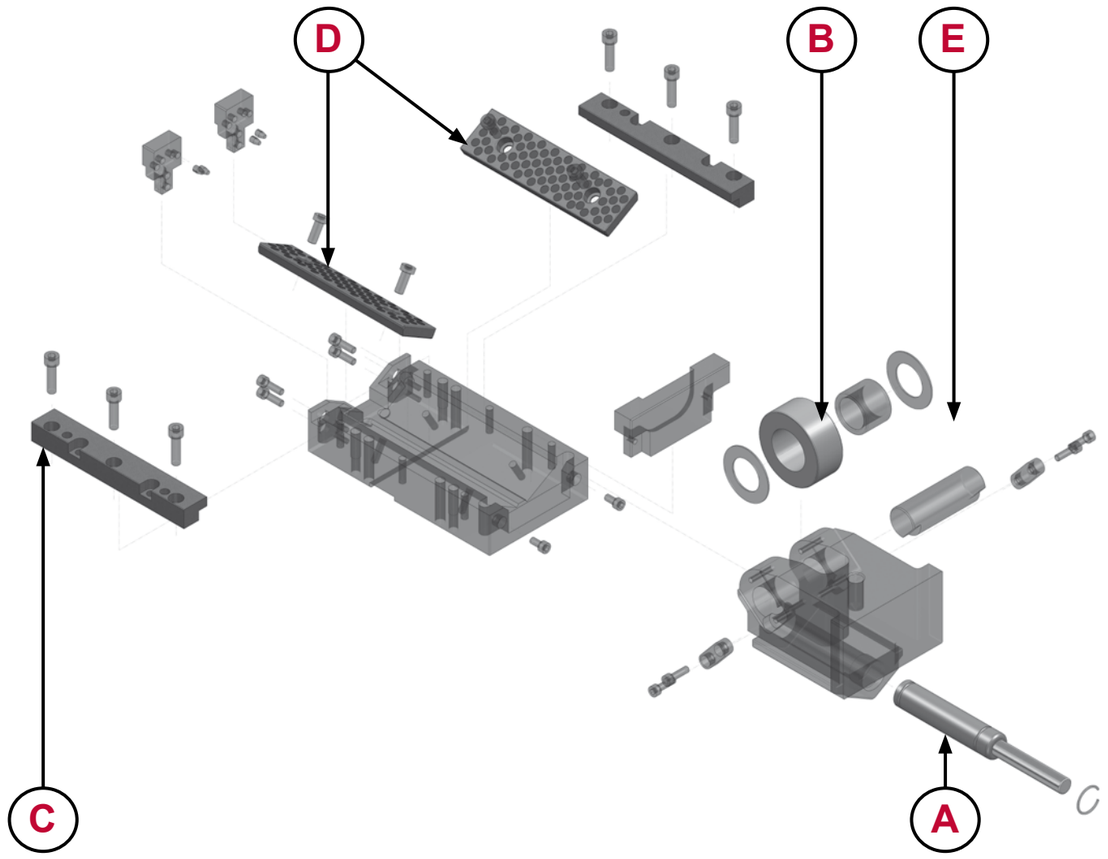
* At the end of the working stroke the driver is positioned at a lower level than the roller cam base. The necessary clearance must be provided accordingly.



Nr. / No.	Artikel	Description	Material
①	Rollenschieberbasis	Cam base	CK45
②	Rollenschieberkörper	Cam slider	CK45
③	Gleitplatten (2x)	Wear plates (2x)	CuZn25A15 + G
④	Anschlagleiste, vorne	Front stop plate	CK45
⑤	Anschlagleisten, hinten	Rear stop plates	CK45
⑥	Gleitleisten (2x)	Wear plates (2x)	CuZn25A15 + G
⑦	Achse	Axle	16NiCrMo4
⑧	Sicherungsring	Locking ring	CK45
⑨	Antriebsrolle	Roller	100Cr6
⑩	Gasdruckfeder	Gas spring	-
⑪	Passfeder	Key	CK45

[11.03.2020]

[11.03.2020]



Nr. / No.	Artikel / Description	FCX 07	FCX 15
Ⓐ	Gasdruckfeder Gas spring	FCX 07 050 A	FCX 15 050 A
		FCX 07 080 A	FCX 15 080 A
			FCX 15 100 A
Ⓑ	Antriebsrolle Roller	FCX 07 050 B	FCX 15 050 B
		FCX 07 080 B	FCX 15 080 B
			FCX 15 100 B
Ⓒ	Gleitleisten (2x) Wear plates (2x)	FCX 07 050 C	FCX 15 050 C
		FCX 07 080 C	FCX 15 080 C
			FCX 15 100 C
Ⓓ	Gleitplatten (2x) Wear plates (2x)	FCX 07 050 D	FCX 15 050 D
		FCX 07 080 D	FCX 15 080 D
			FCX 15 100 D
Ⓔ	Achse Axle	FCX 07 050 E	FCX 15 050 E
		FCX 07 080 E	FCX 15 080 E
			FCX 15 100 E

Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke	Teil / Part	Serien-Nr. / Serial No.
KIT FCX	15	050	D	XXXX

Doppelte Teile / Double parts: C, D

1 x = 2 x =

Auswechseln der Gasdruckfeder

Replacing gas spring

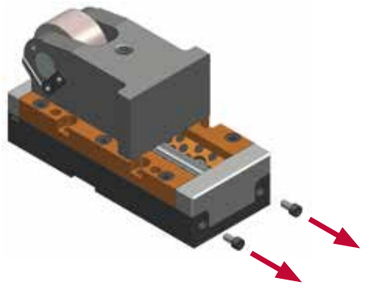
①



Stellen Sie sicher, dass die Gasdruckfeder vollständig ausgefahren ist.

Make sure the gas spring is fully extended.

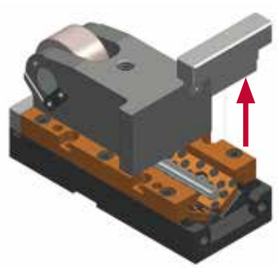
②



Schrauben Sie die Schrauben an der vorderen Anschlagleiste heraus.

Unscrew the mount screws.

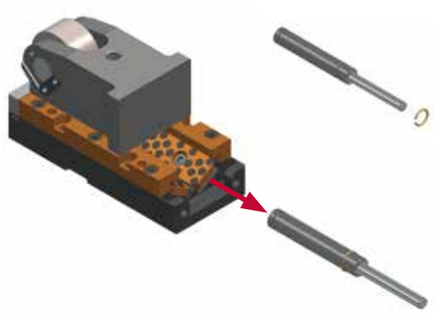
③



Entfernen Sie die vordere Anschlagleiste.

Remove the front stop plate.

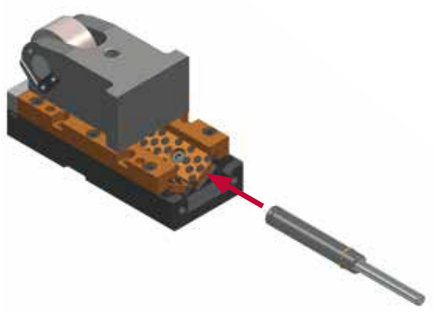
④



Demontieren Sie die Gasdruckfeder und ihren Sicherungsring.

Remove the gas spring and its locking ring.

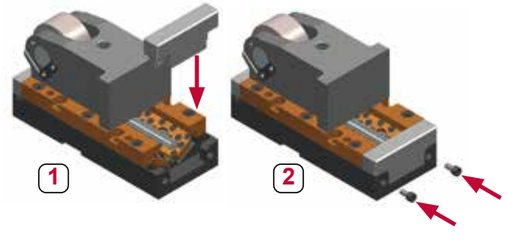
⑤



Setzen Sie die neue Gasdruckfeder und den Sicherungsring in die Aussparung ein.

Insert the new gas spring and locking ring into the groove.

⑥



Fixieren Sie die vordere Anschlagleiste mit den Befestigungsschrauben.

Mount front stop plate (1). Screw in and fasten the mount screws (2).

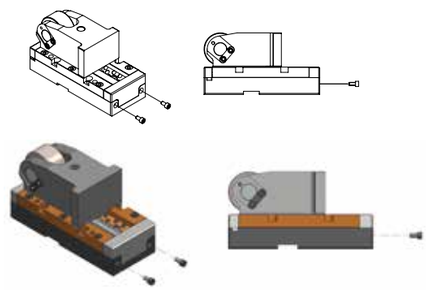
[11.03.2020]

Rollenschieber-Einheiten FCX
Roller cam-units FCX
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS
[TH]

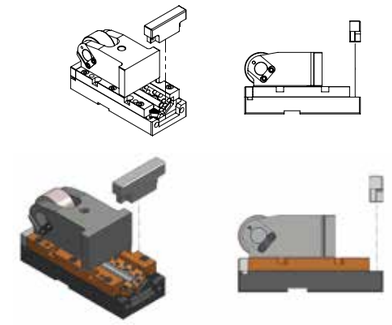
Schneidstempelmontage

Punch mount

①



②



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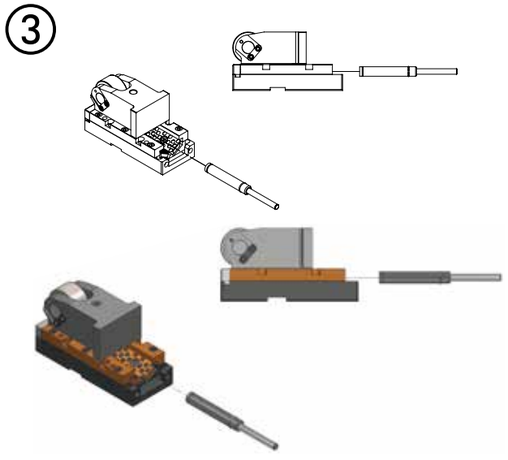

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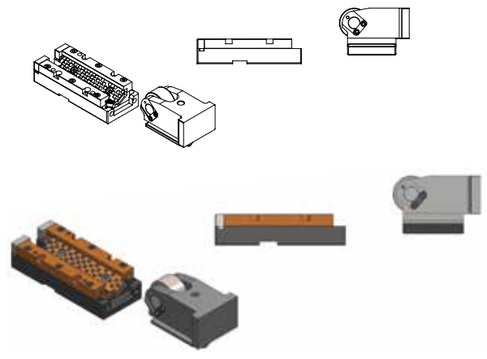

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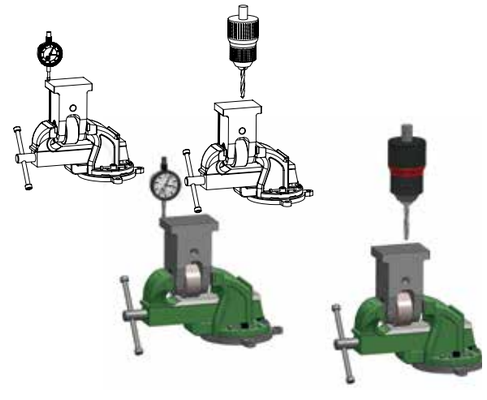

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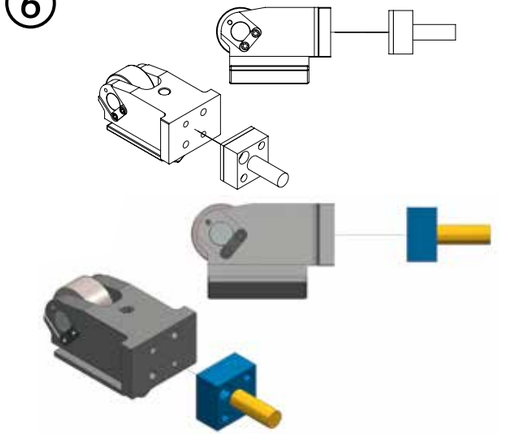
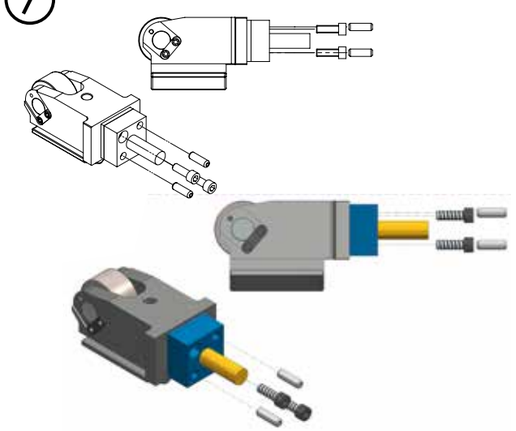


[11.03.2020]

Schneidstempelmontage

Punch mount

⑦



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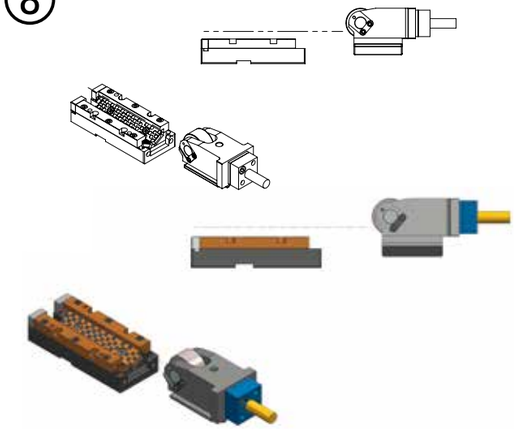

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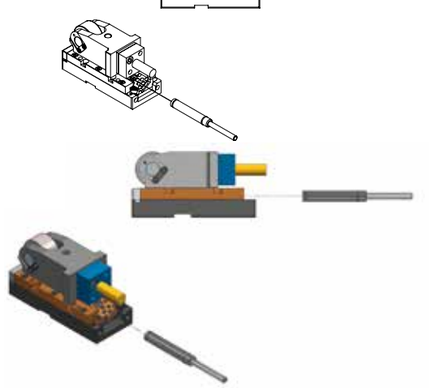

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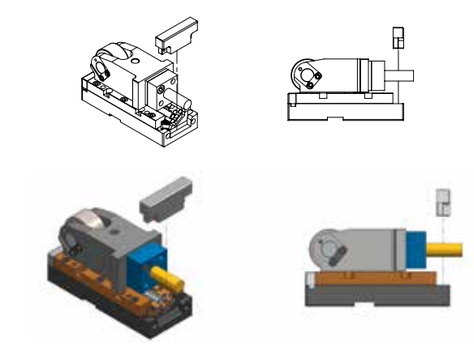
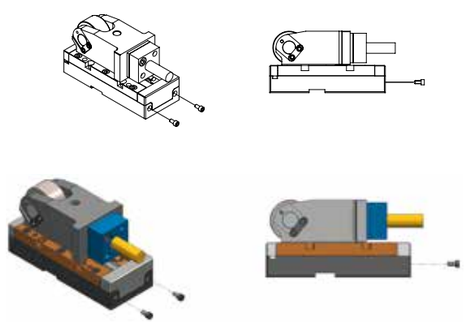


⑪



[11.03.2020]

[11.03.2020]

Die neue Generation, die den wachsenden Ansprüchen an Schieber für Stanz- und Umform-Operationen Rechnung trägt, zeichnet sich aus durch:

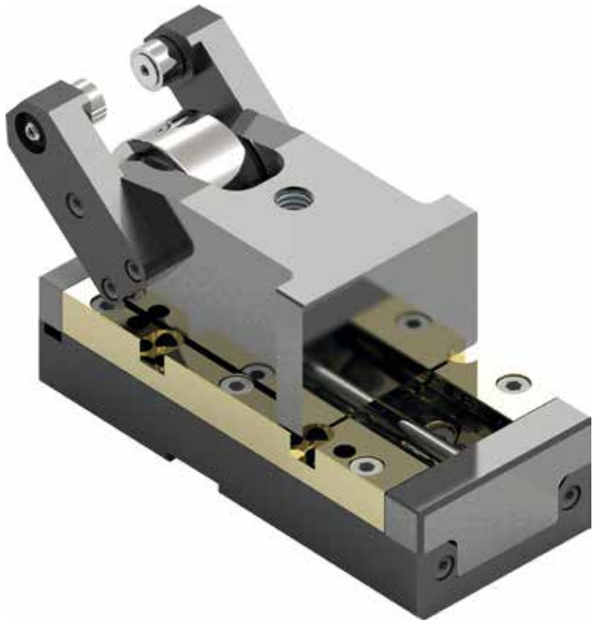
- hohe Präzision
- lange Standzeiten
- große Treiberauswahl
- sicheren Betrieb durch optionale Zwangsrückholung
- Rückstellung durch einfach zugängliche Gasdruckfedern

- **hohe Arbeitskraft**
- **große Arbeitsfläche**
- **hohe Kraft für Stanz- und Umformprozesse**
- **hohe Rückstellkraft**
- **kompaktes Design**

The new generation of Roller Cams is designed to meet growing demands regarding bending and punching operations in metal stamping:

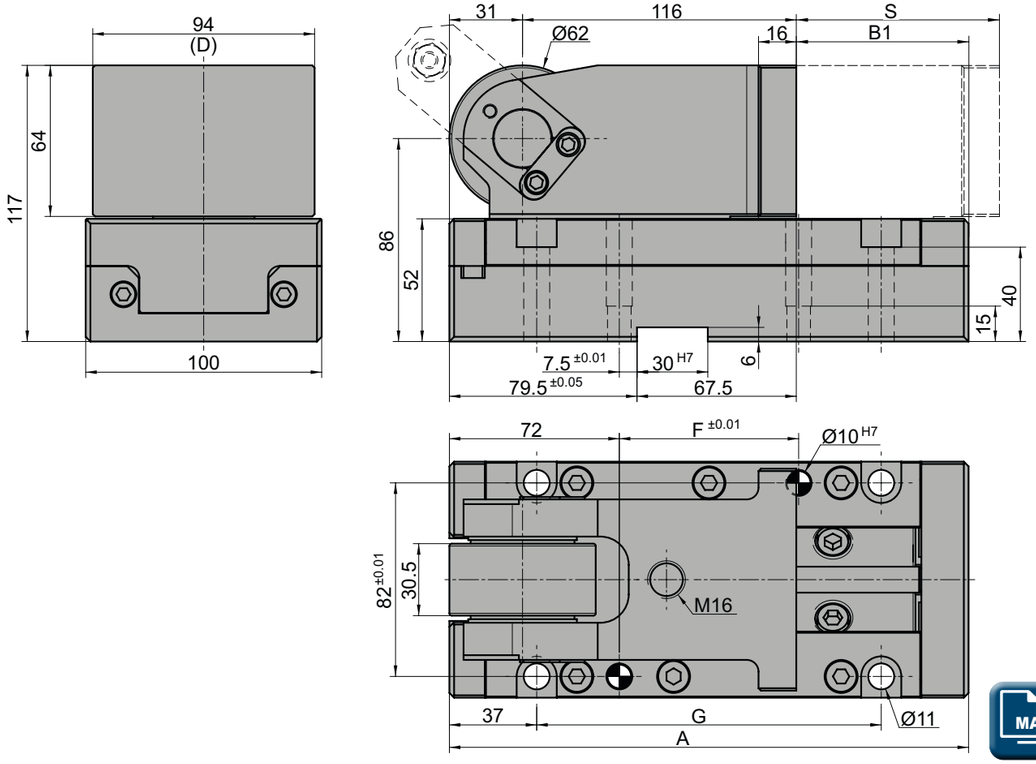
- high precision
- superior performance and longevity
- wide variety of drivers
- safe operation by means of optional positive return
- resetting by easily accessible gas springs

- **high working force**
- **large mounting surface**
- **high force for metal stamping processes**
- **high resetting force**
- **compact design**



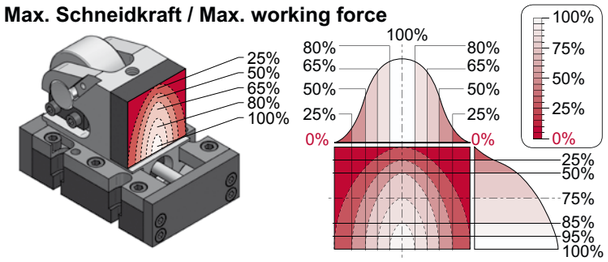
JCX 07

JCX 07 050



Hub Stroke S	A	B1	C	E	F	G	H	Schneidkraft Cutting force daN max.	Rückstellkraft Return force daN	Typ Gasdruckfedern Type Gas springs
050	190	43	117	64	46	116	86	7200	340	NC.015.00.00170.050.1
080	220	73	117	64	76	146	86	7200	340	NC.015.00.00170.080.1

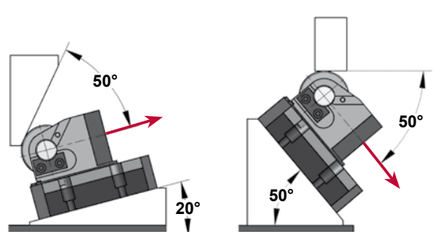
Max. Schneidkraft / Max. working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken.

Working force should be as centered as possible on the working area surface.

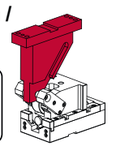
Max. Schrägeinbau / Max. working angle



Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke
JCX	07	050

Bestelloptionen / Order options:



Treiber / Driver: **DR . A**



Zwangsrückführung / Positive Return: **DRU . 1**

[11.03.2020]

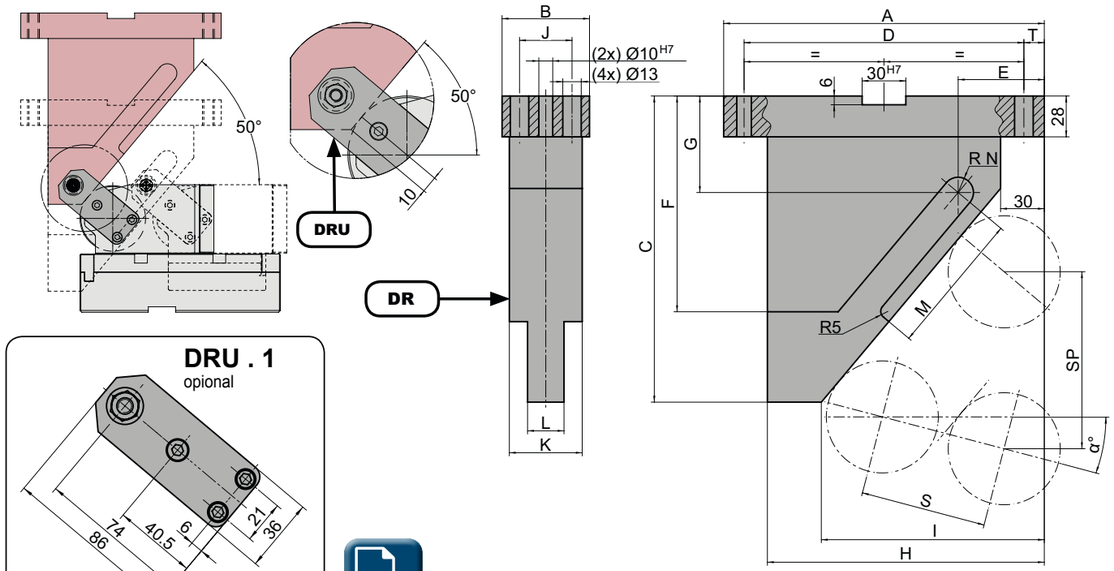
[11.03.2020]

DR.A

Es wird eine gehärtete Kontaktfläche (60 HRC) empfohlen.

Hardened (60 HRC) contact surface is recommended.

DR.A.1.L.20

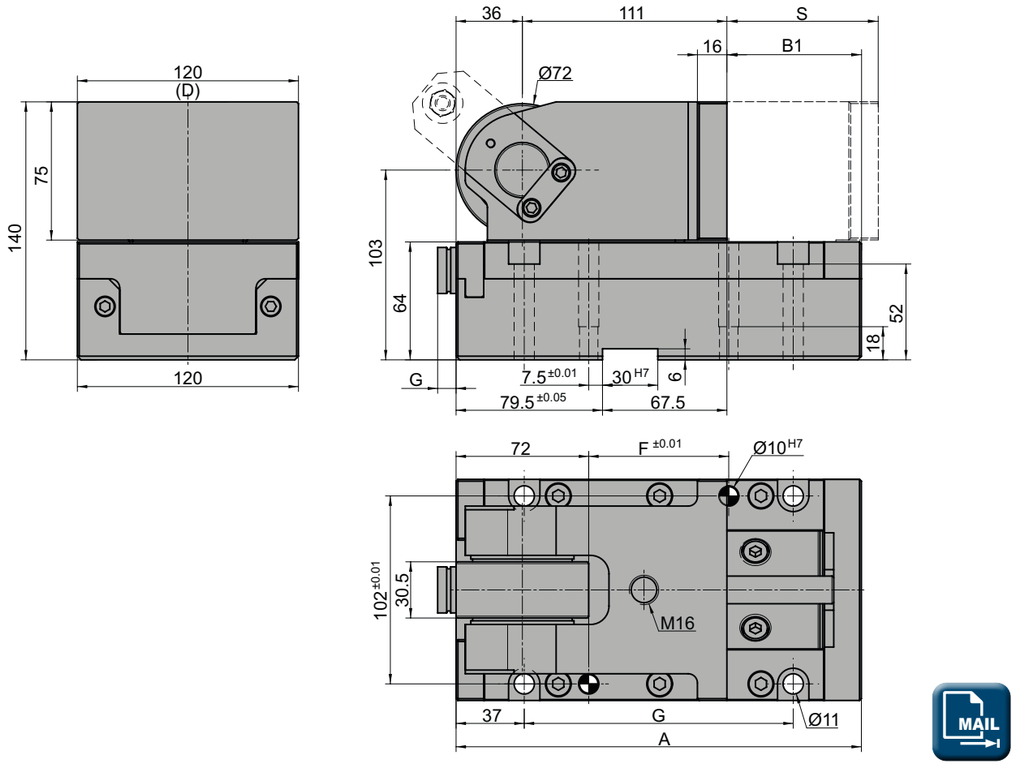


DRU . 1
opional

für Hub for stroke	Größe Size		α		A	B	C	D	E	F	G	H	I	J	K	L	M	R N	T	SP S=50	SP S=80	SP S=100
50	1		-20	**L.20**	160	60	220	130	65,1	140	69,8	130	98	36	50	25	69,0	10,5	15	111,9		
50	1		-15	**L.15**	160	60	190	130	61,9	130	64,2	130	98	36	50	25	63,8	10,5	15	90,6		
50	1		-10	**L.10**	160	60	165	130	59,0	120	56,2	130	98	36	50	25	65,7	10,5	15	76,6		
50	1		-05	**L.05**	160	60	155	130	56,4	110	59,8	130	98	36	50	25	65,0	10,5	15	66,8		
50	1	horizontal	00	**H.00**	160	60	145	130	56,1	100	60,7	130	100	36	50	25	68,9	10,5	15	59,6		
50	1		05	**R.05**	160	60	145	130	54,1	105	70,1	130	100	36	50	25	64,7	10,5	15	54,2		
50	1		10	**R.10**	160	60	130	130	54,4	90	63,3	130	102	36	50	25	58,5	10,5	15	50,0		
50	1		15	**R.15**	160	60	130	130	53,2	90	70,8	130	102	36	50	25	53,0	10,5	15	46,8		
50	1		20	**R.20**	160	60	120	130	55,3	85	67,6	130	105	36	50	25	48,0	10,5	15	44,2		
50	1		25	**R.25**	160	60	120	130	54,8	85	74,0	130	105	36	50	25	43,4	10,5	15	42,3		
50	1		30	**R.30**	160	60	100	130	51,6	70	59,8	130	102	36	50	25	39,0	10,5	15	40,8		
50	1		35	**R.35**	160	60	100	130	51,9	70	65,3	130	102	36	50	25	34,8	10,5	15	39,7		
50	1		40	**R.40**	160	60	90	130	55,5	60	60,5	130	105	36	50	25	30,6	10,5	15	38,9		
50	1		45	**R.45**	160	60	90	130	56,5	60	65,2	130	105	36	50	25	26,5	10,5	15	38,4		
50	1		50	**R.50**	160	60	80	130	67,9	49	59,5	130	115	36	50	25	22,3	10,5	15	38,3		
80	2		-20	**L.20**	220	60	380	192	70,2	195	100,7	190	150	36	50	25	98,8	10,5	14		179,2	
80	2		-15	**L.15**	220	60	320	192	66,6	160	90,6	190	151	36	50	25	96,8	10,5	14		145,0	
80	2		-10	**L.10**	220	60	250	192	62,8	125	56,2	190	151	36	50	25	100,8	10,5	14		122,6	
80	2		-05	**L.05**	220	60	225	192	59,6	145	58,7	190	151	36	50	25	96,2	10,5	14		106,8	
80	2	horizontal	00	**H.00**	220	60	210	192	59,1	148	66,2	190	153	36	50	25	98,4	10,5	14		95,3	
80	2		05	**R.05**	220	60	205	192	57,3	135	80,3	190	153	36	50	25	97,1	10,5	14		86,7	
80	2		10	**R.10**	220	60	185	192	58,2	125	77,0	190	155	36	50	25	93,2	10,5	14		80,0	
80	2		15	**R.15**	220	60	180	192	57,9	135	87,0	190	155	36	50	25	87,2	10,5	14		74,8	
80	2		20	**R.20**	220	60	165	192	61,3	120	85,5	190	158	36	50	25	80,6	10,5	14		70,8	
80	2		25	**R.25**	220	60	165	192	62,4	120	97,8	190	158	36	50	25	73,4	10,5	14		67,6	
80	2		30	**R.30**	220	60	145	192	66,3	105	89,1	190	160	36	50	25	66,7	10,5	14		65,2	
80	2		35	**R.35**	220	60	145	192	68,9	105	99,4	190	160	36	50	25	60,2	10,5	14		63,4	
80	2		40	**R.40**	220	60	115	172	52,2	75	78,7	170	140	36	50	25	54,0	10,5	14		62,2	
80	2		45	**R.45**	220	60	115	172	56,1	85	87,1	170	140	36	50	25	47,8	10,5	14		61,5	
80	2		50	**R.50**	220	60	95	172	80,7	64	74,5	170	160	36	50	25	41,6	10,5	14		61,3	

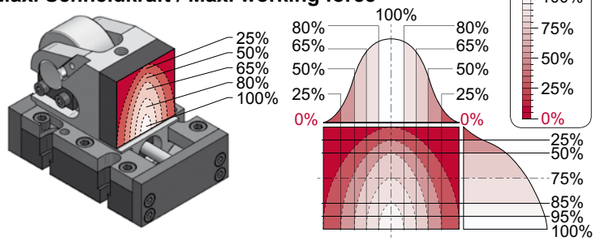
JCX 15

JCX 15 050



Hub Stroke S	A	B1	C	E	F	G	H	Schneidkraft Cutting force daN max.	Rückstellkraft Return force daN	Typ Gasdruckfedern Type Gas springs
050	190	43	140	75	46	116	103	15300	670	NC.015.00.00320.050.1
080	220	73	140	75	76	146	103	15300	670	NC.015.00.00320.080.1
100	240	93	140	75	96	166	103	15300	670	NC.015.00.00320.100.1

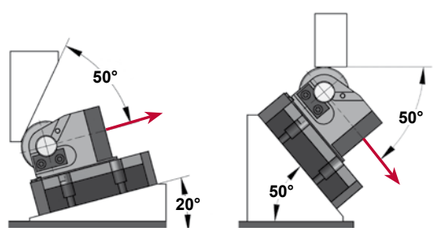
Max. Schneidkraft / Max. working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken.

Working force should be as centered as possible on the working area surface.

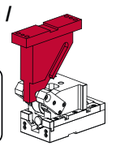
Max. Schrägeinbau / Max. working angle



Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke
JCX	15	050

Bestelloptionen / Order options:



Treiber / Driver: **DR . A**



Zwangsrückführung / Positive Return: **DRU . 2**

[11.03.2020]

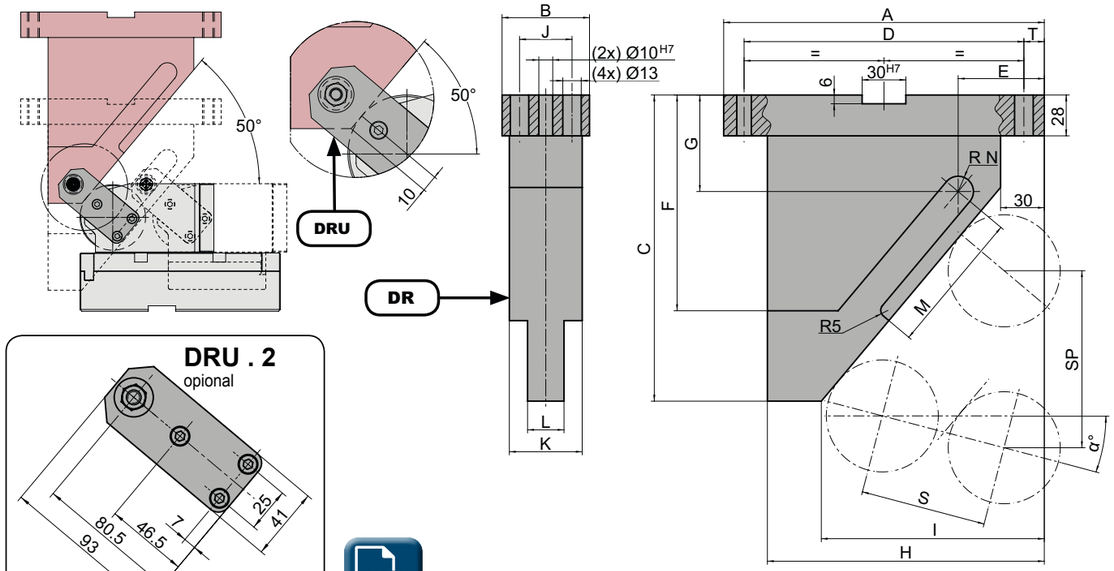
[11.03.2020]

DR.A

Es wird eine gehärtete Kontaktfläche (60 HRC) empfohlen.

Hardened (60 HRC) contact surface is recommended.

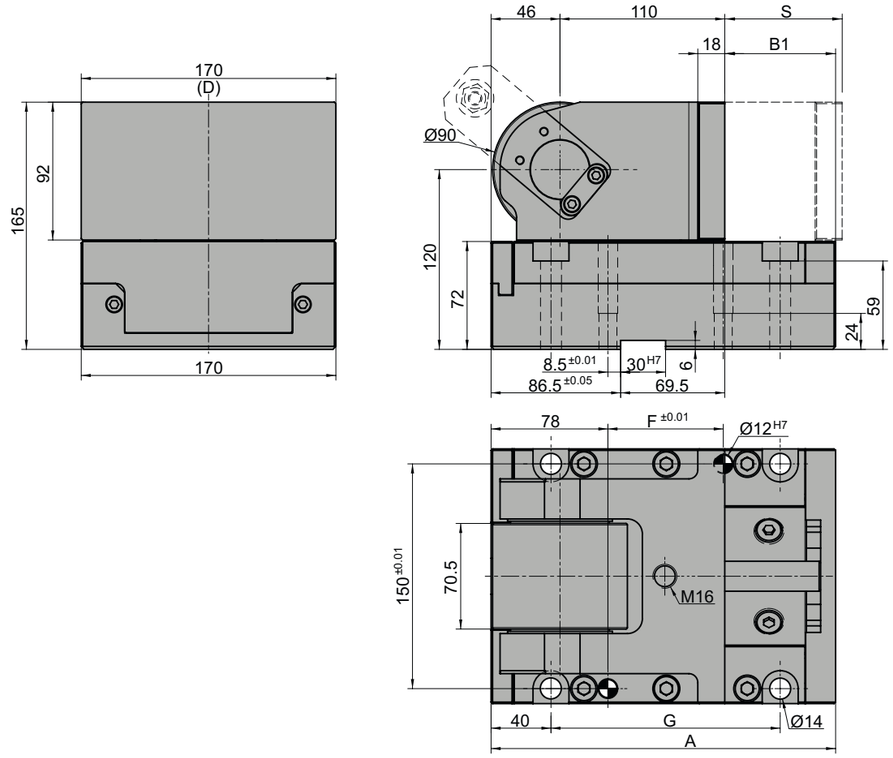
DR.A.1.L.20



für Hub for stroke	Größe Size		α		A	B	C	D	E	F	G	H	I	J	K	L	M	R N	T	SP S=50	SP S=80	SP S=100
50	1		-20	**L.20**	160	60	220	130	65,1	140	69,8	130	98	36	50	25	69,0	10,5	15	111,9		
50	1		-15	**L.15**	160	60	190	130	61,9	130	64,2	130	98	36	50	25	63,8	10,5	15	90,6		
50	1		-10	**L.10**	160	60	165	130	59,0	120	56,2	130	98	36	50	25	65,7	10,5	15	76,6		
50	1		-05	**L.05**	160	60	155	130	56,4	110	59,8	130	98	36	50	25	65,0	10,5	15	66,8		
50	1	**horizontal**	00	**H.00**	160	60	145	130	56,1	100	60,7	130	100	36	50	25	68,9	10,5	15	59,6		
50	1		05	**R.05**	160	60	145	130	54,1	105	70,1	130	100	36	50	25	64,7	10,5	15	54,2		
50	1		10	**R.10**	160	60	130	130	54,4	90	63,3	130	102	36	50	25	58,5	10,5	15	50,0		
50	1		15	**R.15**	160	60	130	130	53,2	90	70,8	130	102	36	50	25	53,0	10,5	15	46,8		
50	1		20	**R.20**	160	60	120	130	55,3	85	67,6	130	105	36	50	25	48,0	10,5	15	44,2		
50	1		25	**R.25**	160	60	120	130	54,8	85	74,0	130	105	36	50	25	43,4	10,5	15	42,3		
50	1		30	**R.30**	160	60	100	130	51,6	70	59,8	130	102	36	50	25	39,0	10,5	15	40,8		
50	1		35	**R.35**	160	60	100	130	51,9	70	65,3	130	102	36	50	25	34,8	10,5	15	39,7		
50	1		40	**R.40**	160	60	90	130	55,5	60	60,5	130	105	36	50	25	30,6	10,5	15	38,9		
50	1		45	**R.45**	160	60	90	130	56,5	60	65,2	130	105	36	50	25	26,5	10,5	15	38,4		
50	1		50	**R.50**	160	60	80	130	67,9	49	59,5	130	115	36	50	25	22,3	10,5	15	38,3		
80 / 100	2		-20	**L.20**	220	60	380	192	70,2	195	100,7	190	150	36	50	25	98,8	10,5	14		179,2	224,0
80 / 100	2		-15	**L.15**	220	60	320	192	66,6	160	90,6	190	151	36	50	25	96,8	10,5	14		145,0	181,3
80 / 100	2		-10	**L.10**	220	60	250	192	62,8	125	56,2	190	151	36	50	25	100,8	10,5	14		122,6	153,2
80 / 100	2		-05	**L.05**	220	60	225	192	59,6	145	58,7	190	151	36	50	25	96,2	10,5	14		106,8	133,6
80 / 100	2	**horizontal**	00	**H.00**	220	60	210	192	59,1	148	66,2	190	153	36	50	25	98,4	10,5	14		95,3	119,2
80 / 100	2		05	**R.05**	220	60	205	192	57,3	135	80,3	190	153	36	50	25	97,1	10,5	14		86,7	108,3
80 / 100	2		10	**R.10**	220	60	185	192	58,2	125	77,0	190	155	36	50	25	93,2	10,5	14		80,0	100,0
80 / 100	2		15	**R.15**	220	60	180	192	57,9	135	87,0	190	155	36	50	25	87,2	10,5	14		74,8	93,5
80 / 100	2		20	**R.20**	220	60	165	192	61,3	120	85,5	190	158	36	50	25	80,6	10,5	14		70,8	88,5
80 / 100	2		25	**R.25**	220	60	165	192	62,4	120	97,8	190	158	36	50	25	73,4	10,5	14		67,6	84,5
80 / 100	2		30	**R.30**	220	60	145	192	66,3	105	89,1	190	160	36	50	25	66,7	10,5	14		65,2	81,5
80 / 100	2		35	**R.35**	220	60	145	192	68,9	105	99,4	190	160	36	50	25	60,2	10,5	14		63,4	79,3
80 / 100	2		40	**R.40**	220	60	115	172	52,2	75	78,7	170	140	36	50	25	54,0	10,5	14		62,2	77,8
80 / 100	2		45	**R.45**	220	60	115	172	56,1	85	87,1	170	140	36	50	25	47,8	10,5	14		61,5	76,9
80 / 100	2		50	**R.50**	220	60	95	172	80,7	64	74,5	170	160	36	50	25	41,6	10,5	14		61,3	76,6

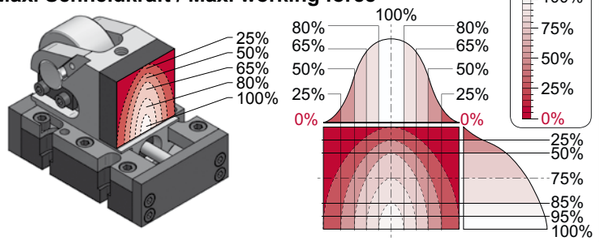
JCX 16

JCX 16 050



Hub Stroke S	A	B1	C	E	F	G	H	Schneidkraft Cutting force daN max.	Rückstellkraft Return force daN	Typ Gasdruckfedern Type Gas springs
050	200	44	165	92	47	123	120	16000	750	NC.015.00.00500.050.1
080	230	74	165	92	77	153	120	16000	750	NC.015.00.00500.080.1
100	250	94	165	92	97	173	120	16000	750	NC.015.00.00500.100.1

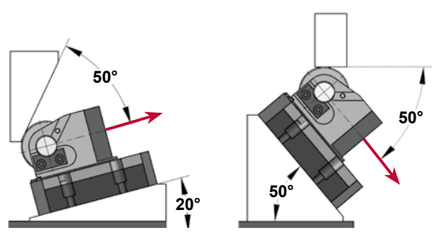
Max. Schneidkraft / Max. working force



Die Schneidkraft sollte so zentriert wie möglich auf die Arbeitsfläche wirken.

Working force should be as centered as possible on the working area surface.

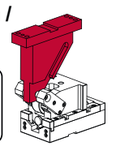
Max. Schrägeinbau / Max. working angle



Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke
JCX	16	050

Bestelloptionen / Order options:



Treiber / Driver: **DR . B**



Zwangsrückführung / Positive Return: **DRU . 3**

[11.03.2020]

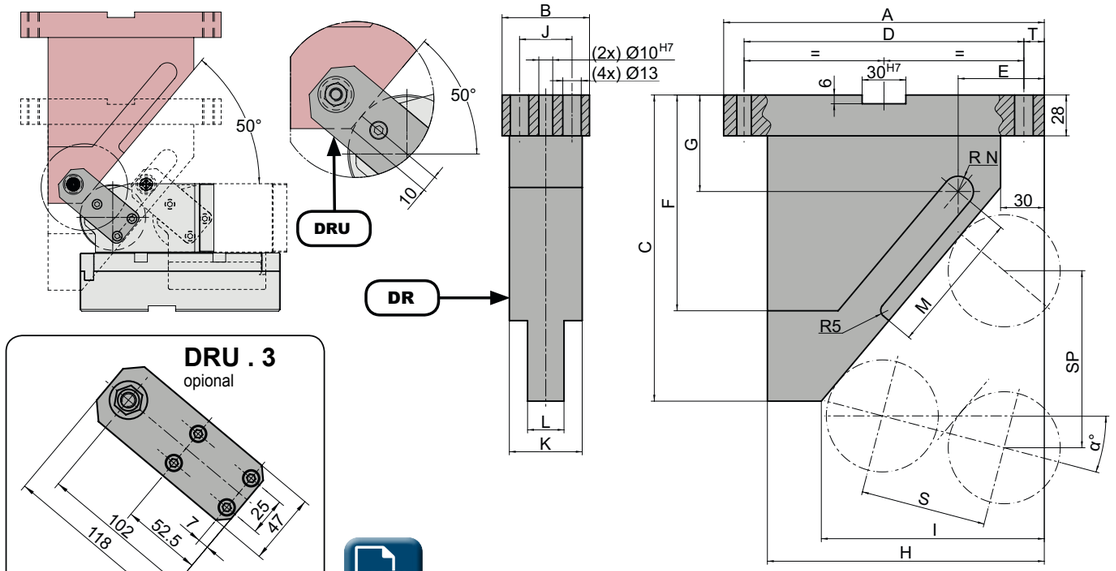
[11.03.2020]

DR.B

Es wird eine gehärtete Kontaktfläche (60 HRC) empfohlen.

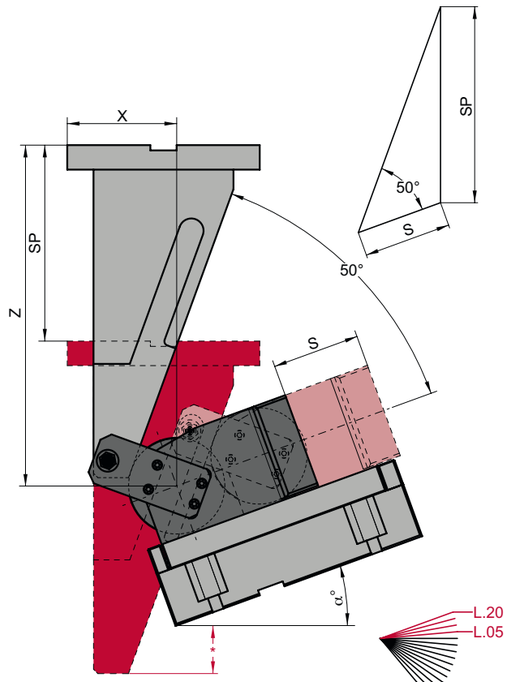
Hardened (60 HRC) contact surface is recommended.

DR.B.1.L.20

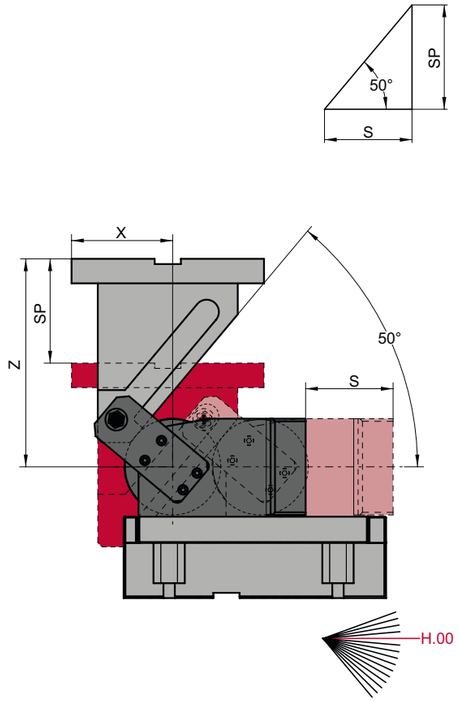


für Hub for stroke	Größe Size		α		A	B	C	D	E	F	G	H	I	J	K	L	M	R N	T	SP S=50	SP S=80	SP S=100
50	1		-20	**L.20**	160	95	220	130	73.1	155	66.9	130	98	71	66	39	126.8	14	15	111.9		
50	1		-15	**L.15**	160	95	200	130	69.6	120	70.6	130	98	71	66	39	105,6	14	15	90.6		
50	1		-10	**L.10**	160	95	165	130	66.4	120	52.2	130	98	71	66	39	90.7	14	15	76.6		
50	1		-05	**L.05**	160	95	155	130	65.3	100	54.9	130	100	71	66	39	79.6	14	15	66.8		
50	1	horizontal	00	**H.00**	160	95	145	130	62.6	100	55.3	130	100	71	66	39	70.7	14	15	59.6		
50	1		05	**R.05**	160	95	145	130	60.1	100	64.1	130	100	71	66	39	63.3	14	15	54.2		
50	1		10	**R.10**	160	95	130	130	59.9	90	56.8	130	102	71	66	39	56.9	14	15	50.0		
50	1		15	**R.15**	160	95	130	130	58.1	90	63.8	130	102	71	66	39	51.2	14	15	46.8		
50	1		20	**R.20**	160	95	120	130	59.5	80	60.3	130	105	71	66	39	46.0	14	15	44.2		
50	1		25	**R.25**	160	95	120	130	58.3	80	66.2	130	105	71	66	39	41.3	14	15	42.3		
50	1		30	**R.30**	160	95	100	130	54.5	60	51.9	130	102	71	66	39	36.6	14	15	40.8		
50	1		35	**R.35**	160	95	100	130	54.1	60	57.1	130	102	71	66	39	32.1	14	15	39.7		
50	1		40	**R.40**	160	95	90	130	57.0	50	52.1	130	105	71	66	39	27.7	14	15	38.9		
50	1		45	**R.45**	160	95	90	130	57.2	48	56.7	130	105	71	66	39	23.3	14	15	38.4		
50	1		50	**R.50**	160	95	80	130	67.9	37	51.0	130	115	71	66	39	18.8	14	15	38.3		
80 / 100	2		-20	**L.20**	220	95	380	192	78.2	250	97.8	190	150	71	66	39	132.6	14	14		179.2	224.0
80 / 100	2		-15	**L.15**	220	95	320	192	74.4	220	87.0	190	151	71	66	39	137.0	14	14		145.0	181.3
80 / 100	2		-10	**L.10**	220	95	250	192	70.1	170	51.9	190	151	71	66	39	149.2	14	14		122.6	153.2
80 / 100	2		-05	**L.05**	220	95	225	192	67.0	150	54.5	190	151	71	66	39	143.8	14	14		106.8	133.6
80 / 100	2	horizontal	00	**H.00**	220	95	210	192	65.6	150	60.7	190	153	71	66	39	148.5	14	14		95.3	119.2
80 / 100	2		05	**R.05**	220	95	210	192	63.3	150	79.3	190	153	71	66	39	133.7	14	14		86.7	108.3
80 / 100	2		10	**R.10**	220	95	185	192	63.7	135	70.5	190	155	71	66	39	121.2	14	14		80.0	100.0
80 / 100	2		15	**R.15**	220	95	185	192	62.8	135	85.0	190	155	71	66	39	110.2	14	14		74.8	93.5
80 / 100	2		20	**R.20**	220	95	165	192	65.5	125	78.1	190	158	71	66	39	100.3	14	14		70.8	88.5
80 / 100	2		25	**R.25**	220	95	165	192	66.0	125	90.1	190	158	71	66	39	91.2	14	14		67.6	84.5
80 / 100	2		30	**R.30**	220	95	145	192	69.2	105	81.1	190	160	71	66	39	82.6	14	14		65.2	81.5
80 / 100	2		35	**R.35**	220	95	145	192	71.1	105	91.2	190	160	71	66	39	74.5	14	14		63.4	79.3
80 / 100	2		40	**R.40**	200	95	115	172	53.7	75	70.3	170	140	71	66	39	66.6	14	14		62.2	77.8
80 / 100	2		45	**R.45**	200	95	115	172	56.9	72	78.6	170	140	71	66	39	58.8	14	14		61.5	76.9
80 / 100	2		50	**R.50**	200	95	95	172	80.7	52	66.0	170	160	71	66	39	51.0	14	14		61.3	76.6

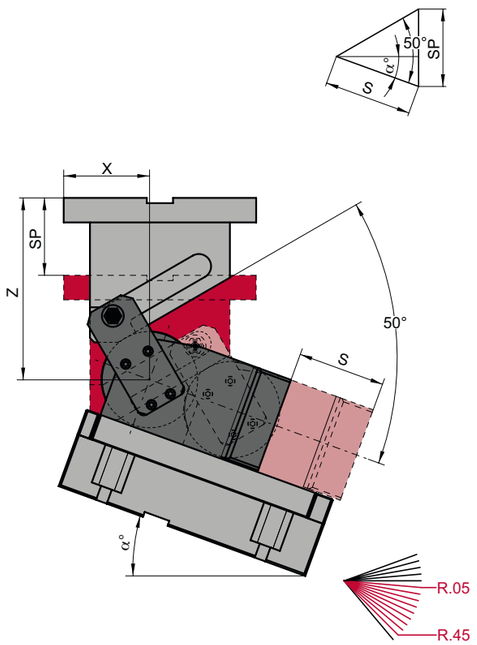
α° → L.20 - L.05



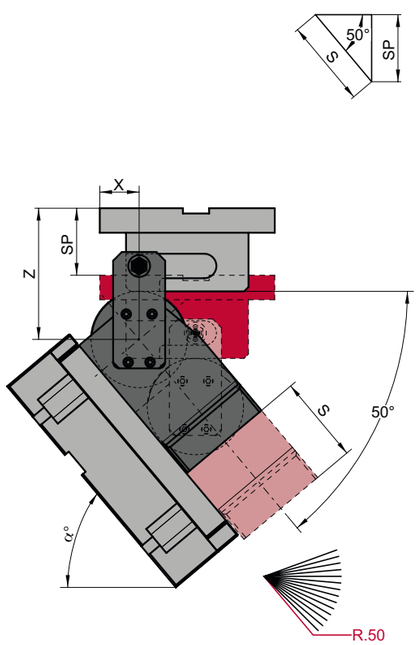
α° → H.00



α° → R.05 - R.45



α° → R.50



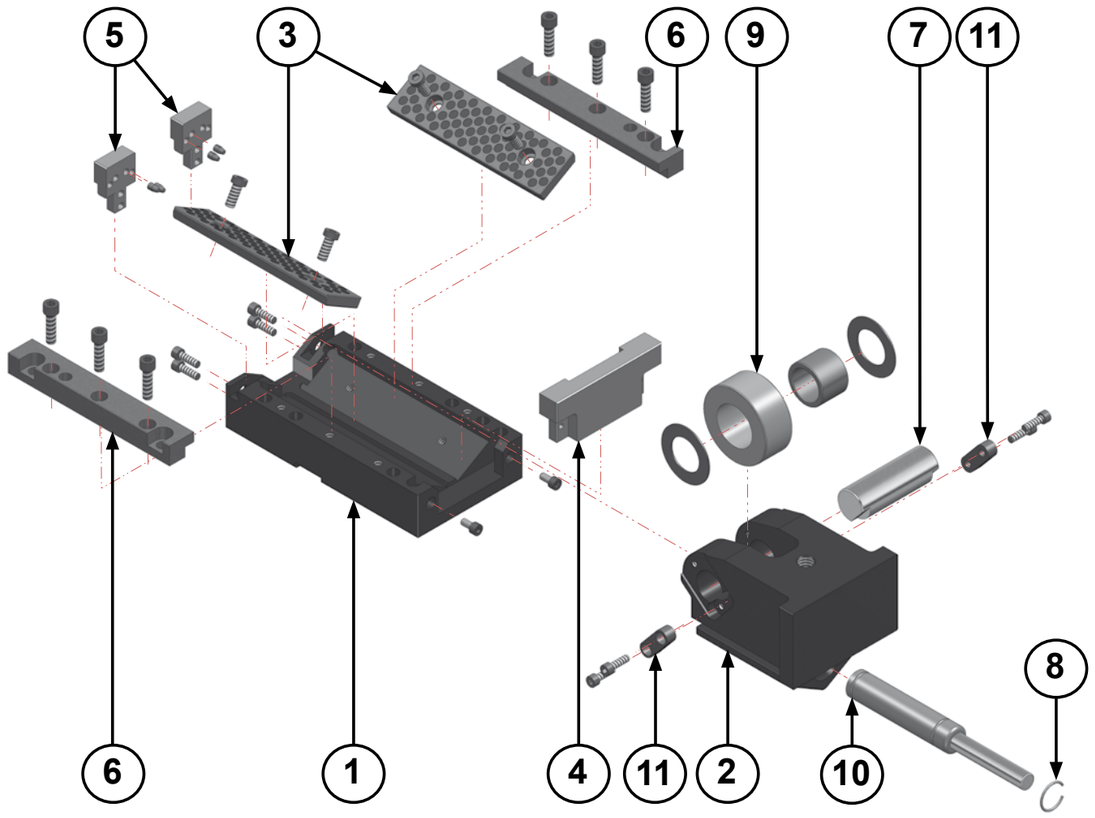
Typ / Type		α° L.20	L.15	L.10	L.05	H.00	R.05	R.10	R.15	R.20	R.25	R.30	R.35	R.40	R.45	R.50
	X	94.55*	94.32	93.85	93.13	90.17	88.99	85.59	83.97	79.16	77.16	78.00	75.68	70.23	67.66	55.00
JCX 07 050	Z	221.21*	194.04	171.84	164.59	157.27	159.85	147.32	149.66	141.84	143.87	125.71	127.36	118.79	120.01	111.00
	SP	111.99*	90.63	76.60	66.78	59.59	54.17	50.00	46.76	44.23	42.26	40.76	39.65	38.89	38.45	38.30
	X	102.55*	101.32*	100.85*	100.13*	97.18	95.99	92.59	90.97	86.16	84.17	80.00	77.68	75.23	72.66	50.00
JCX 07 080	Z	381.20*	324.04*	256.84*	234.59*	222.26	219.85	202.32	199.66	186.85	188.87	170.71	172.36	143.79	145.01	126.00
	SP	179.18*	145.01*	122.57*	106.84*	95.34	86.67	80.00	74.81	70.76	67.62	65.22	63.45	62.23	61.52	61.28
	X	99.25	98.85	98.17	97.23	94.01	92.53	88.80	86.84	81.66	79.28	79.71	76.98	71.10	68.10	55.00
JCX 15 050	Z	222.92	196.15	174.34	167.46	160.47	163.39	151.15	153.75	146.18	148.40	130.41	132.18	123.72	124.99	116.00
	SP	111.99	90.63	76.60	66.78	59.59	54.17	50.00	46.76	44.23	42.26	40.76	39.65	38.89	38.45	38.30
	X	107.25*	105.85*	105.17*	104.23	101.00	99.53	95.80	93.84	88.66	86.28	81.71	78.98	76.10	73.10	50.00
JCX 15 080	Z	382.92*	326.15*	259.34*	237.46	225.48	223.39	206.15	203.75	191.18	193.40	175.41	177.18	148.72	149.99	131.00
	SP	179.18*	145.01*	122.57*	106.84	95.34	86.67	80.00	74.81	70.76	67.62	65.22	63.45	62.23	61.52	61.28
	X	107.24*	105.85*	105.17*	104.22	101.01	99.53	95.80	93.84	88.66	86.28	81.71	78.98	76.10	73.10	50.00
JCX 15 100	Z	382.93*	326.16*	259.34*	237.46	225.47	223.38	206.15	203.75	191.18	193.40	175.41	177.18	148.72	149.99	131.00
	SP	223.98*	181.26*	153.21*	133.56	119.18	108.34	100.00	93.52	88.46	84.52	81.52	79.31	77.79	76.90	76.60
	X	107.71	107.01	105.97	102.59	100.90	98.89	94.59	92.00	86.16	83.08	82.79	79.30	72.67	68.89	55.00
JCX 16 050	Z	225.99	209.95	178.84	172.62	166.26	169.75	158.04	161.13	153.97	156.56	138.87	140.88	132.58	133.96	125.00
	SP	111.99	90.63	76.60	66.78	59.59	54.17	50.00	46.76	44.23	42.26	40.76	39.65	38.89	38.45	38.30
	X	115.71*	114.01*	112.97	111.60	107.90	105.89	101.59	99.00	93.16	90.08	84.79	81.30	77.67	73.89	50.00
JCX 16 080	Z	385.99*	329.95*	263.84	242.62	231.26	234.75	213.04	216.13	198.97	201.56	183.87	185.88	157.58	158.96	140.00
	SP	179.18*	145.01*	122.57	106.84	95.34	86.67	80.00	74.81	70.76	67.62	65.22	63.45	62.23	61.52	61.28
	X	115.71*	114.01*	112.97*	111.59	107.90	105.89	101.59	99.00	93.16	90.08	84.79	81.30	77.67	73.89	50.00
JCX 16 100	Z	385.99*	329.95*	263.84*	242.62	231.26	234.75	213.04	216.13	198.97	201.56	183.87	185.88	157.58	158.96	140.00
	SP	223.98*	181.26*	153.21*	133.56	119.18	108.34	100.00	93.52	88.46	84.52	81.52	79.31	77.79	76.90	76.60

* Der Treiber befindet sich am Ende des Arbeitshubes auf einer niedrigeren Ebene als der Fuß des Rollenschiebers. Bitte berücksichtigen Sie, dass ausreichend Freiraum zur Verfügung steht.

* At the end of the working stroke the driver is positioned at a lower level than the roller cam base. The necessary clearance must be provided accordingly.

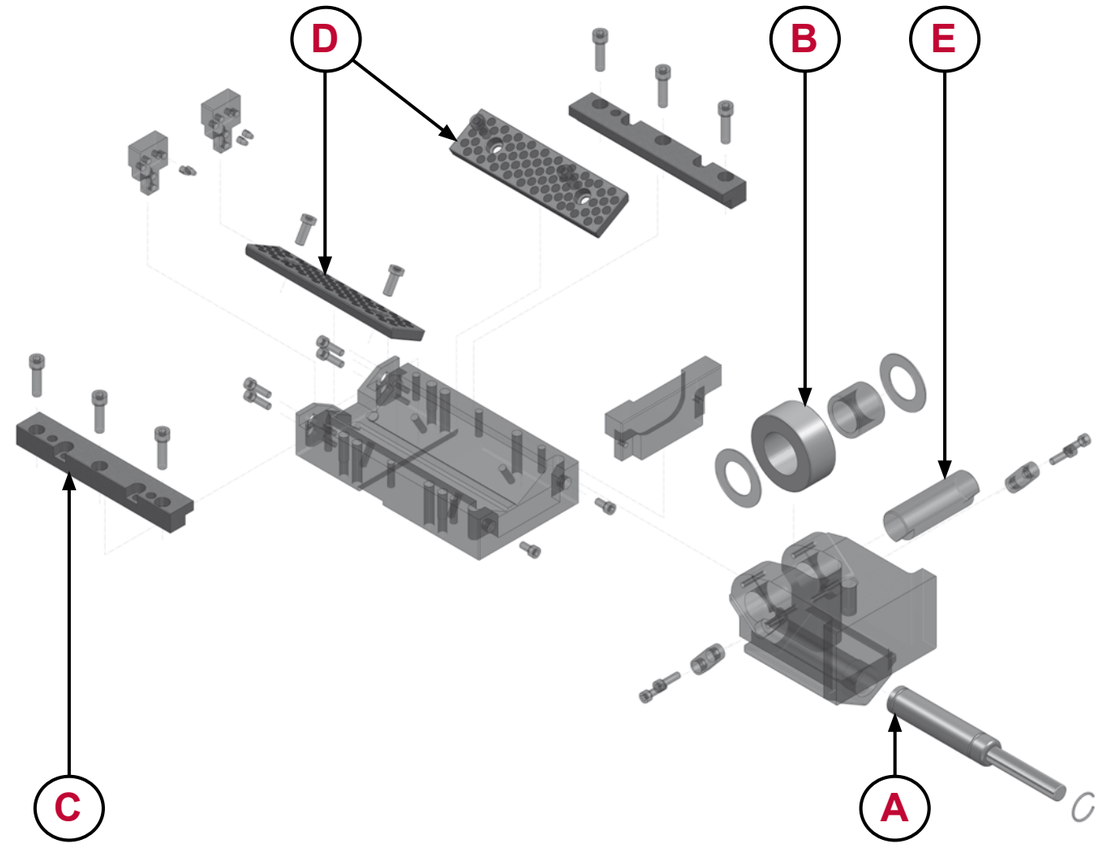
[11.03.2020]

[11.03.2020]



Nr. / No.	Artikel	Description	Material
①	Rollenschieberbasis	Cam base	CK45
②	Rollenschieberkörper	Cam slider	CK45
③	Gleitplatten (2x)	Wear plates (2x)	CuZn25A15 + G
④	Anschlagleiste, vorne	Front stop plate	CK45
⑤	Anschlagleisten, hinten	Rear stop plates	CK45
⑥	Gleitleisten (2x)	Wear plates (2x)	CuZn25A15 + G
⑦	Achse	Axle	16NiCrMo4
⑧	Sicherungsring	Locking ring	CK45
⑨	Antriebsrolle	Roller	100Cr6
⑩	Gasdruckfeder	Gas spring	-
⑪	Passfeder	Key	CK45

[11.03.2020]



Nr. / No.	Artikel / Description	JCX 07	JCX 15	JCX 16
Ⓐ	Gasdruckfeder Gas spring	JCX 07 050 A	JCX 15 050 A	JCX 16 050 A
		JCX 07 080 A	JCX 15 080 A	JCX 16 080 A
			JCX 15 100 A	JCX 16 100 A
Ⓑ	Antriebsrolle Roller	JCX 07 050 B	JCX 15 050 B	JCX 16 050 B
		JCX 07 080 B	JCX 15 080 B	JCX 16 080 B
			JCX 15 100 B	JCX 16 100 B
Ⓒ	Gleitleisten (2x) Wear plates (2x)	JCX 07 050 C	JCX 15 050 C	JCX 16 050 C
		JCX 07 080 C	JCX 15 080 C	JCX 16 080 C
			JCX 15 100 C	JCX 16 100 C
Ⓓ	Gleitplatten (2x) Wear plates (2x)	JCX 07 050 D	JCX 15 050 D	JCX 16 050 D
		JCX 07 080 D	JCX 15 080 D	JCX 16 080 D
			JCX 15 100 D	JCX 16 100 D
Ⓔ	Achse Axle	JCX 07 050 E	JCX 15 050 E	JCX 16 050 E
		JCX 07 080 E	JCX 15 080 E	JCX 16 080 E
			JCX 15 100 E	JCX 16 100 E

Bestellbeispiel / Order

Typ / Type	Kraft / Force	Hub / Stroke	Teil / Part	Serien-Nr. / Serial No.
KIT JCX	15	050	D	XXXX

Doppelte Teile / Double parts: C, D

1 x = 2 x =

[11.03.2020]

Auswechseln der Gasdruckfeder

Replacing gas spring

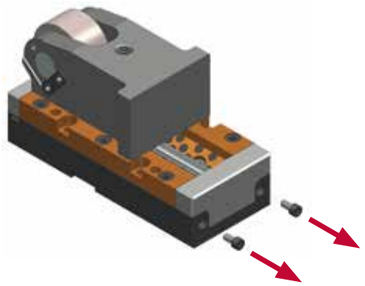
①



Stellen Sie sicher, dass die Gasdruckfeder vollständig ausgefahren ist.

Make sure the gas spring is fully extended.

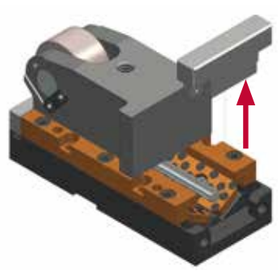
②



Schrauben Sie die Schrauben an der vorderen Anschlagleiste heraus.

Unscrew the mount screws.

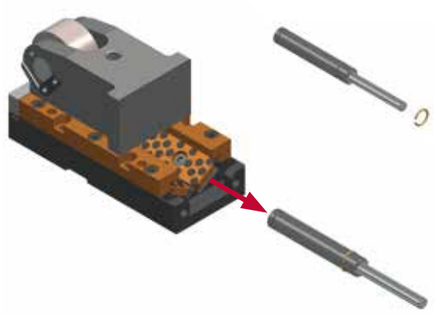
③



Entfernen Sie die vordere Anschlagleiste.

Remove the front stop plate.

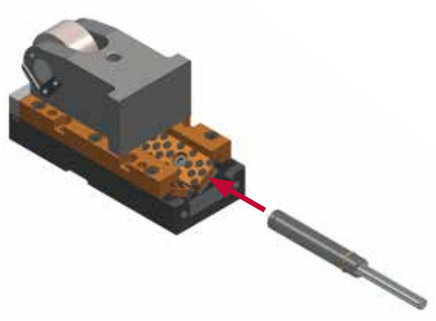
④



Demontieren Sie die Gasdruckfeder und ihren Sicherungsring.

Remove the gas spring and its locking ring.

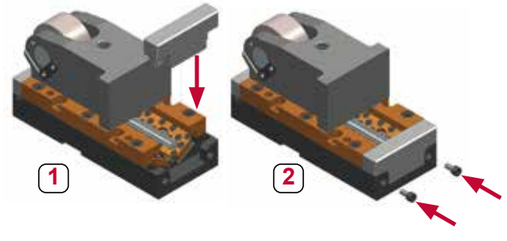
⑤



Setzen Sie die neue Gasdruckfeder und den Sicherungsring in die Aussparung ein.

Insert the new gas spring and locking ring into the groove.

⑥



Fixieren Sie die vordere Anschlagleiste mit den Befestigungsschrauben.

Mount front stop plate (1). Screw in and fasten the mount screws (2).

[11.03.2020]

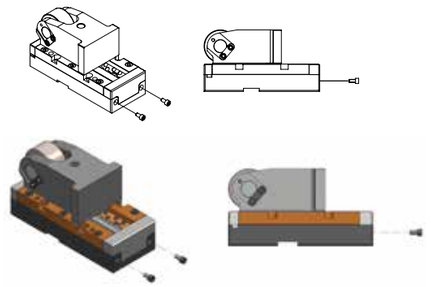
[11.03.2020]

Rollenschieber-Einheiten JCX
Roller cam-units JCX
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

Schneidstempelmontage

Punch mount

①



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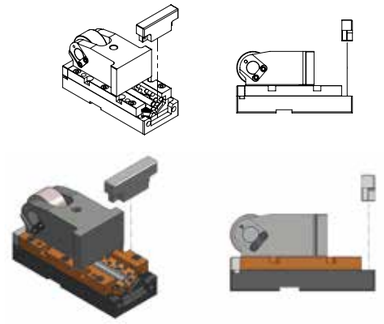

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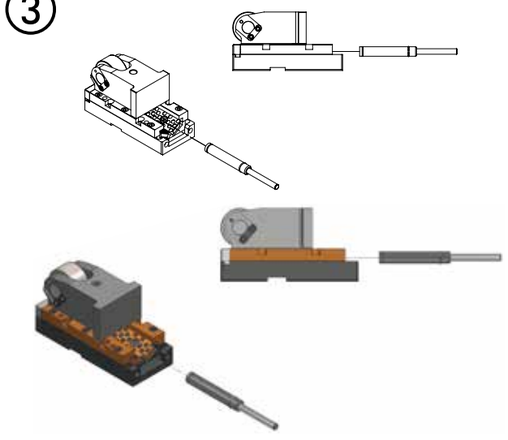

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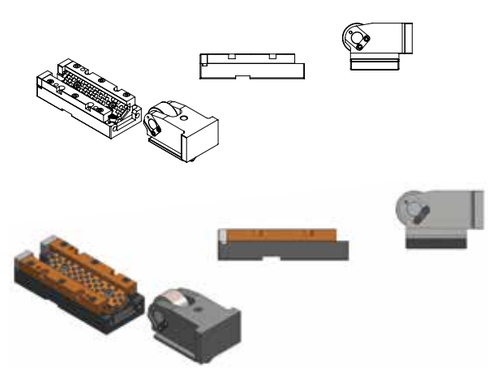

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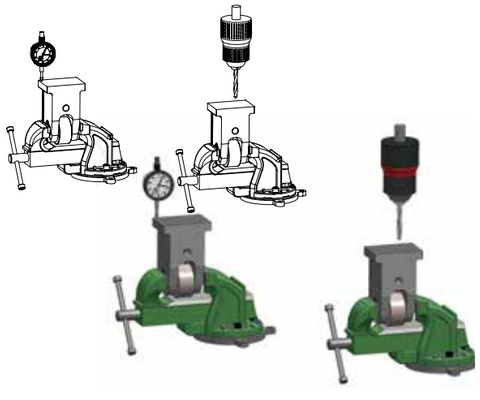

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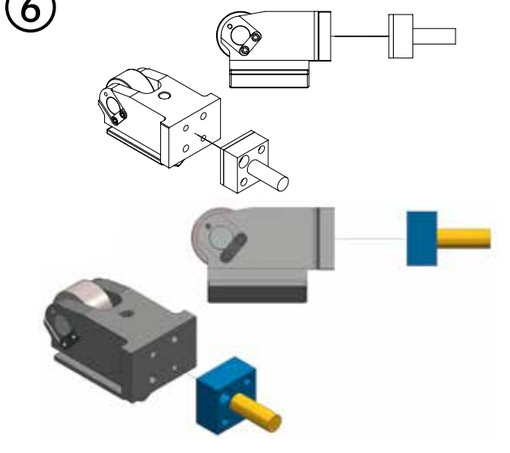
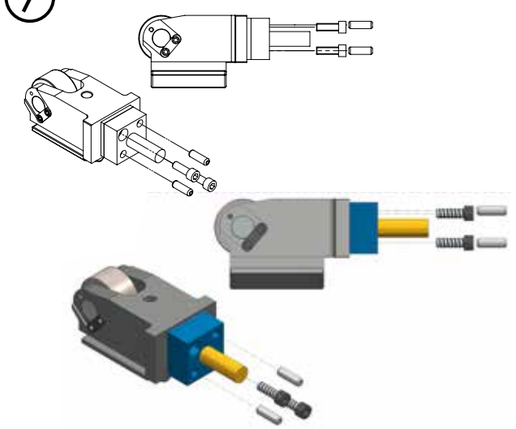


Schneidstempelmontage

Punch mount

⑦



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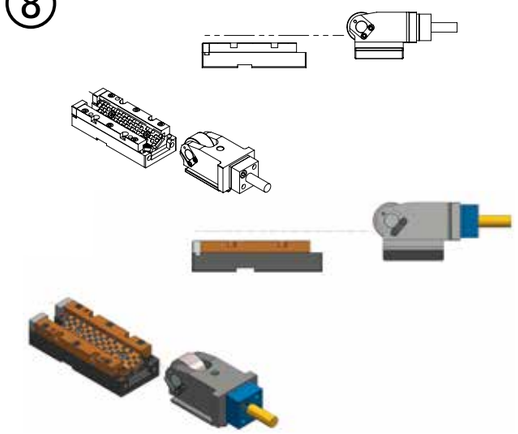

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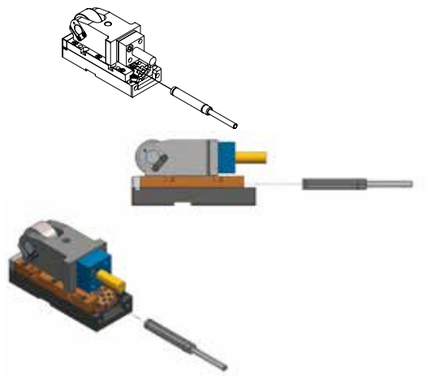

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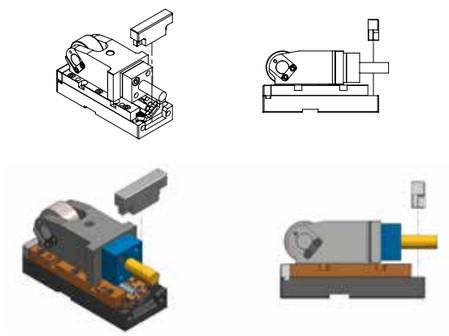

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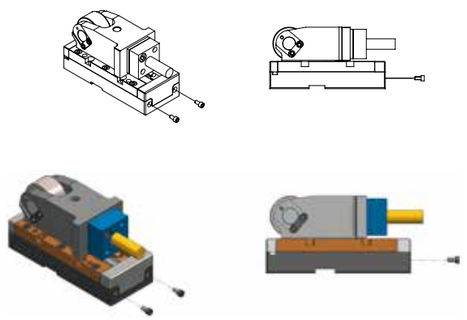


[11.03.2020]

[11.03.2020]

Die druckluftbetriebenen Teileförderer aus dem Hause NitroCyl wurden speziell zum schnellen und sicheren Abtransport von Stanzteilen und Stanzabfällen entwickelt. Durch die kompaktere Bauweise der Teileförderer gegenüber Transportbändern gelingt es auch auf engstem Raum, Teile automatisch abzuleiten. Der Anwender muss den Teileförderer einfach in den vorhandenen Bereich montieren und mit der benötigten Transportrinne bestücken.

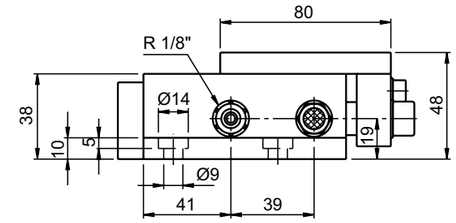
The NitroCyl part conveyors, driven by compressed air, were specifically designed for the quick and reliable transportation of sheet metal parts (and scrap) out of the die. Due to their more compact design (compared with belt-conveyors), they allow to work even in areas with limited space. The user simply has to fit the unit into the desired spot and equip it with the transport channel.

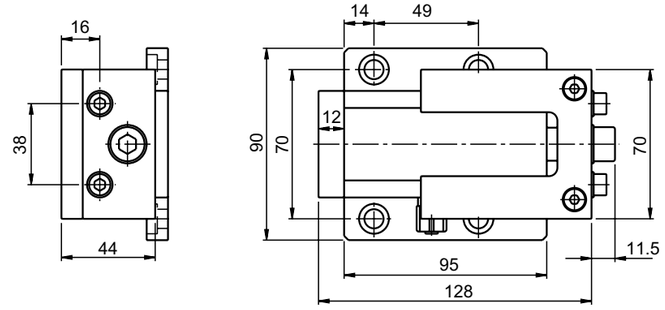
NCV.1.6.30

Auf Wunsch ist ein Elektro-Timer (E-Timer) erhältlich. Dieser sorgt z.B. bei Luftdruckschwankungen für einen störungsfreien Betrieb des Teileförderers.

Electrical Timer (E-Timer) available upon request. This unit provides an uninterrupted performance of the conveyor, even at times of uneven air-pressure-supplies.

NCV.1.6.30





CAD MAIL

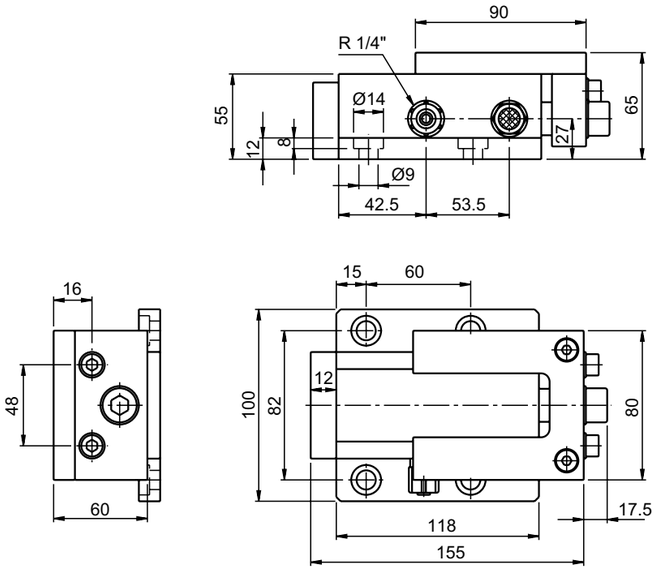
Medium	Arbeitsdruck Working pressure [bar]	Max. Hub Max. Stroke [mm]	Empf. Neigung in Transportrichtung Recommended inclination in transport-direction	Max. Belastbarkeit Max. load capacity [kg]
Luft / Air	4 / 6	30	6°	6

NCV.2.14.33

Auf Wunsch ist ein Elektro-Timer (E-Timer) erhältlich. Dieser sorgt z.B. bei Luftdruckschwankungen für einen störungsfreien Betrieb des Teileförderers.

Electrical Timer (E-Timer) available upon request. This unit provides an uninterrupted performance of the conveyor, even at times of uneven air-pressure-supplies.

NCV.2.14.33



CAD MAIL

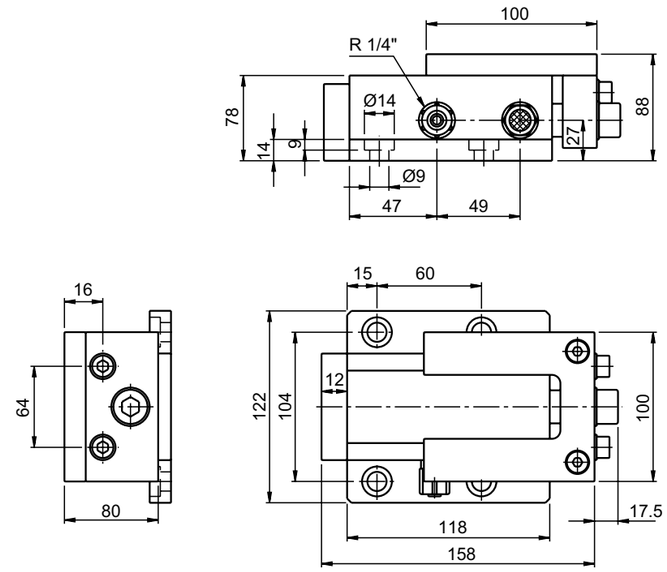
Medium	Arbeitsdruck Working pressure [bar]	Max. Hub Max. Stroke [mm]	Empf. Neigung in Transportrichtung Recommended inclination in transport-direction	Max. Belastbarkeit Max. load capacity [kg]
Luft / Air	4 / 6	33	6°	14

NCV.3.36.20

Auf Wunsch ist ein Elektro-Timer (E-Timer) erhältlich. Dieser sorgt z.B. bei Luftdruckschwankungen für einen störungsfreien Betrieb des Teileförderers.

Electrical Timer (E-Timer) available upon request. This unit provides an uninterrupted performance of the conveyor, even at times of uneven air-pressure-supplies.

NCV.3.36.20



CAD MAIL

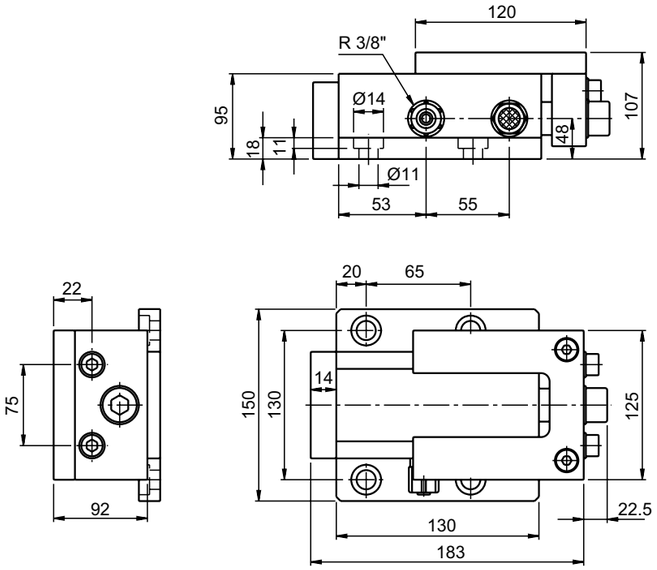
Medium	Arbeitsdruck Working pressure [bar]	Max. Hub Max. Stroke [mm]	Empf. Neigung in Transportrichtung Recommended inclination in transport-direction	Max. Belastbarkeit Max. load capacity [kg]
Luft / Air	4 / 6	20	6°	36

NCV.4.56.28

Auf Wunsch ist ein Elektro-Timer (E-Timer) erhältlich. Dieser sorgt z.B. bei Luftdruckschwankungen für einen störungsfreien Betrieb des Teileförderers.

Electrical Timer (E-Timer) available upon request. This unit provides an uninterrupted performance of the conveyor, even at times of uneven air-pressure-supplies.

NCV.4.56.28



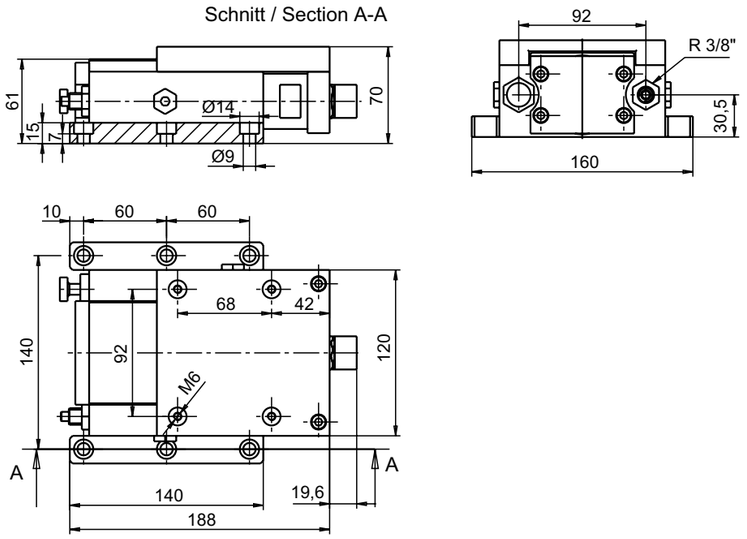
Medium	Arbeitsdruck Working pressure [bar]	Max. Hub Max. Stroke [mm]	Empf. Neigung in Transportrichtung Recommended inclination in transport-direction	Max. Belastbarkeit Max. load capacity [kg]
Luft / Air	4 / 6	28	6°	56

NCV.5.36.20

Auf Wunsch ist ein Elektro-Timer (E-Timer) erhältlich. Dieser sorgt z.B. bei Luftdruckschwankungen für einen störungsfreien Betrieb des Teileförderers.

Electrical Timer (E-Timer) available upon request. This unit provides an uninterrupted performance of the conveyor, even at times of uneven air-pressure-supplies.

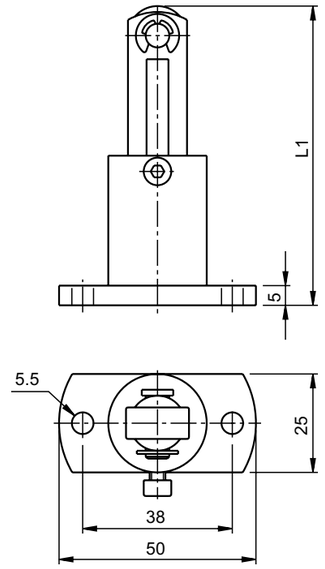
NCV.5.36.20



Medium	Arbeitsdruck Working pressure [bar]	Max. Hub Max. Stroke [mm]	Empf. Neigung in Transportrichtung Recommended inclination in transport-direction	Max. Belastbarkeit Max. load capacity [kg]
Luft / Air	4 / 6	20	6°	36

NCVA

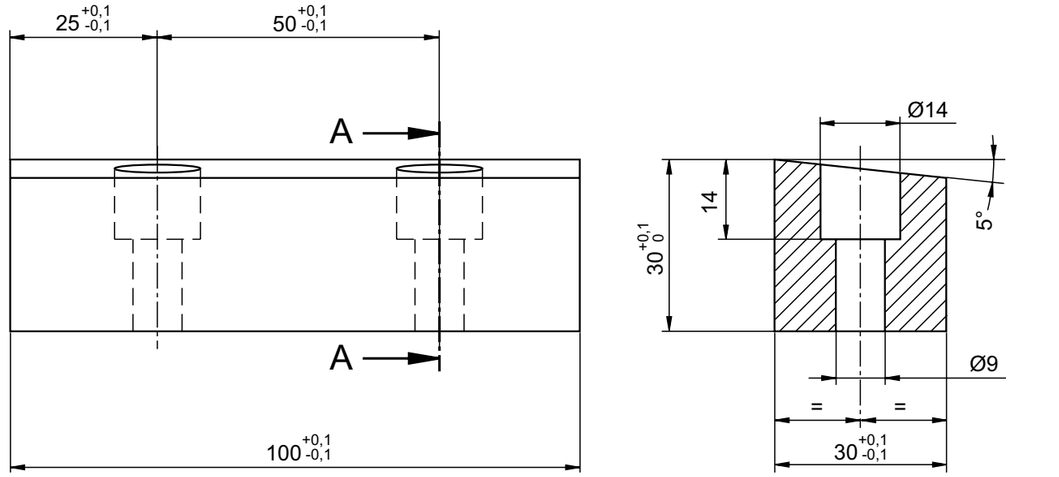
NCVA.1



Typ Type	Hub Stroke [mm]	L1 min.	L1 max.
1	12,5	38,5	51
2	25,0	51,0	76
3	50,0	76,0	126

NCVA.4

NCVA.4

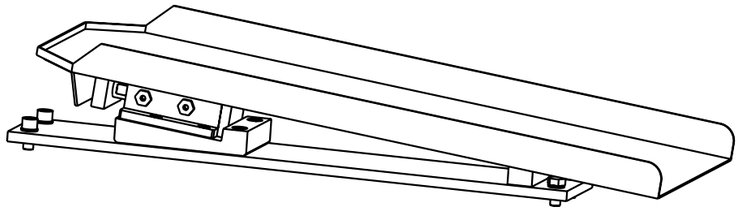


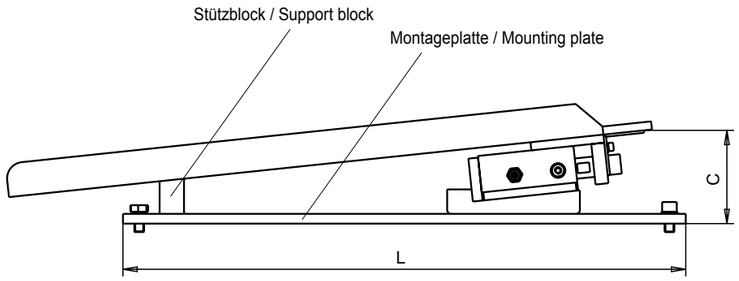
Aufbau Transport-Rinne

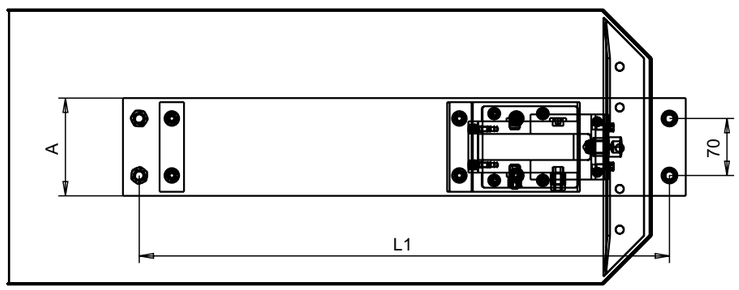
Dies sind die verfügbaren Standard-Abmessungen. Bei Applikationen mit kleineren Abmessungen können sowohl die Montage-Platte, wie auch die Transport-Rinne gekürzt werden. Bei größeren Abmessungen müssen die Höhen der Rinnen-Stützen verändert werden

Design of the transport-channel

These are the available standard sizes. Running applications with smaller dimensions, both the mounting plate and the transport channel can be cut.
If larger dimensions are needed, the heights of the channel support have to be altered.







für Typ for type		C (Maß ohne Rinne) (Distance without channel)	A	L1
NCV.1…	496,0	97,0	110	456
NCV.2…	691,0	116,0	120	651
NCV.3…	911,0	140,0	142	871
NCV.4…	1125,0	162,0	170	1085
NCV.5…	911,0	123,0	142	871

Teileförderer: Technische Richtlinien
Part conveyors: Technical recommendations
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

Aufbau Transport-Rinne

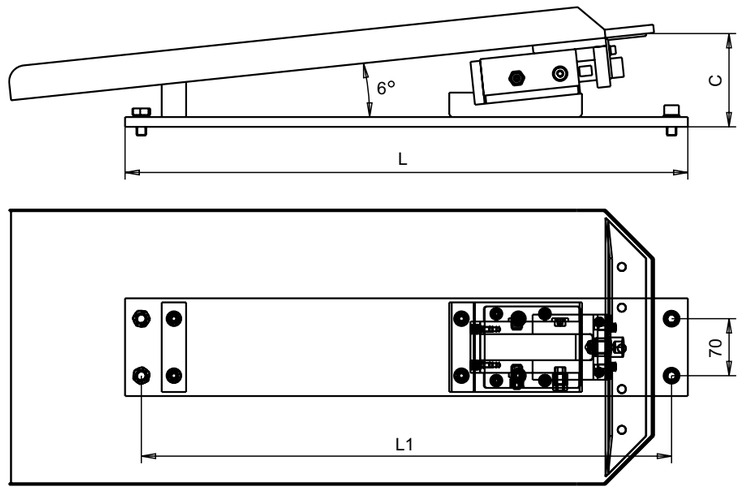
1. Mit Hilfe der Montageplatte können Teileförderer in engen und schwer zugänglichen Pressen-Bereichen sicher montiert werden
2. Wird die Montageplatte einbau-abhängig gekürzt, ändert sich die Höhe der Stützen.
3. Die angegebenen Längen der Montageplatten sind Beispiele. Bei größeren Abmessungen verändert sich die Höhe der Stütze, wobei der Arbeitswinkel von 6° bestehen bleibt.

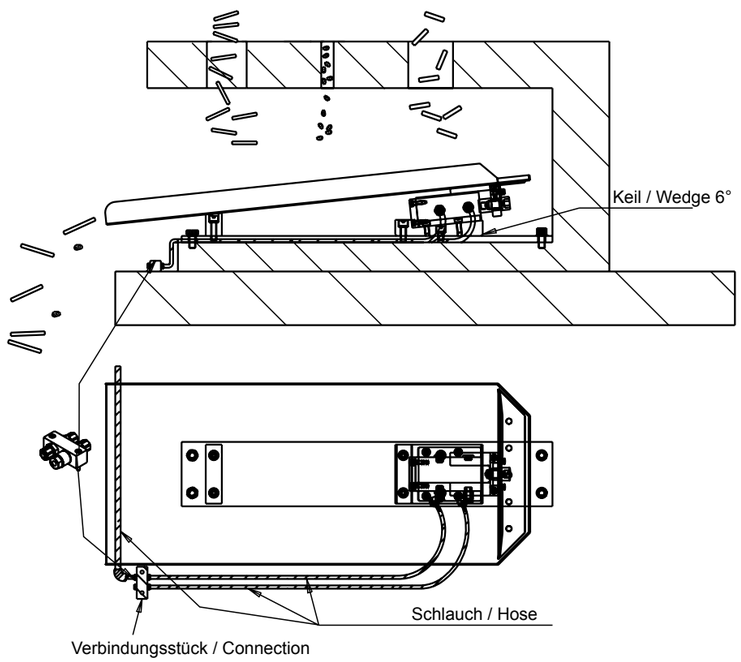
Δ C = (neue Länge – alte Länge) x tan 6°
(Δ C = Höhenveränderung)

Design of the transport-channel

1. Using the mounting-plate the conveyor can be safely fixed, even in narrow and difficult to reach areas in the die and press.
2. If due to the application the mounting plate needs to be shortened, the support height changes.
3. The measurements of the shown mounting plates are examples only. With their increasing sizes the height of the supports changes, keeping the working angle at 6°.

Δ C = (new length - old length) x tan 6°
(Δ C = height alteration)





Schlauch -ø:
für Typ NCV.1 und NCV.2: ø = 6 mm
für Typ NCV.3, NCV.4 u. NCV.5: ø = 8 mm

Hose-ø:
for type NCV.1 and NCV.2: ø = 6 mm
for type NCV.3, NCV.4 u. NCV.5: ø = 8 mm

Aufbau Transport-Rinne

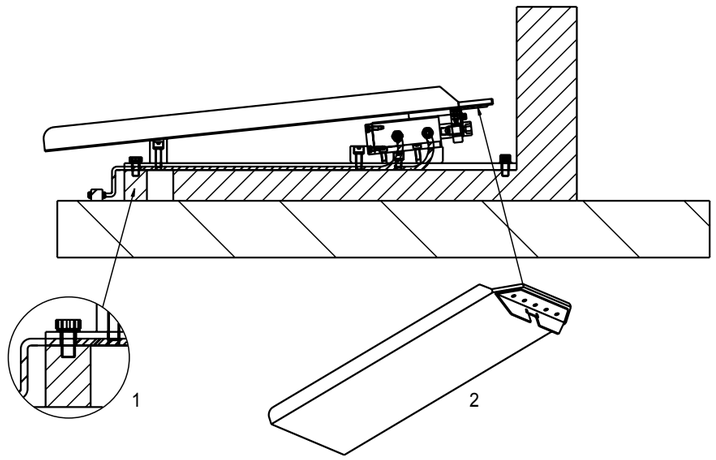
1. Die Montage-Platte kann durch Hilfsmittel (Leisten / Platten usw.) an Werkzeug oder Presse befestigt werden.
2. Das Befestigen der Transport-Rinne mit dem Teileförderer erfolgt mittels eines Winkels, welcher mit der Rinne verschweißt wird. Jetzt kann die Rinne mit dem Teileförderer verschraubt werden. Achten Sie darauf, dass Winkel und Rinne ausreichend verschweißt sind.
3. Die Ablaufseite (vorn) sollte abgewinkelt werden, um einen Stau der Stanzabfälle zu vermeiden.
4. Durch Anbringen von z. B. Moosgummi zwischen den Stützen und dem Teileförderer kann Lärm minimiert werden.

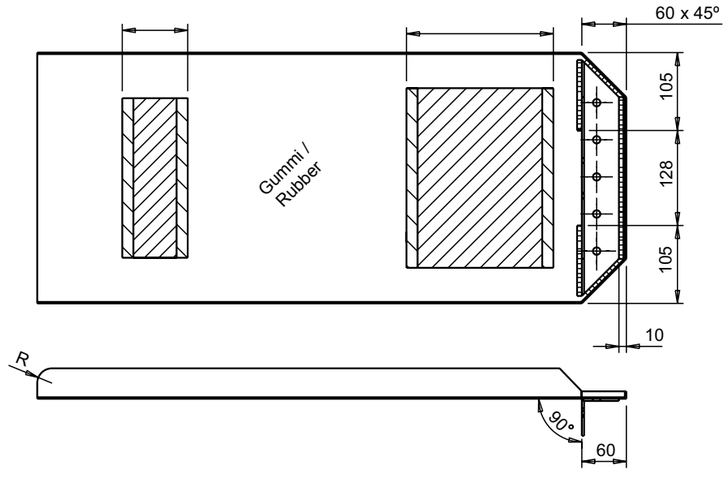
Wir liefern keine fertigen Transport-Rinnen, können Ihnen aber das Grundmaterial und konstruktive Hilfe bieten.

Design of the transport-channel

1. The mounting plate can, if needed, be fixed to the die or press by means of supporting plates or bars.
2. An elbow-connector, welded to the transport channel, fixes it to the conveyor body … afterwards these two parts are additionally screwed together.
3. The discharging end of the channel should be bent to avoid a congestion of the scrap.
4. Cellular rubber put in between the supports and the conveyor does reduce noise.

We do not supply ready-to-use transport channels, but offer the basis material and support during design.





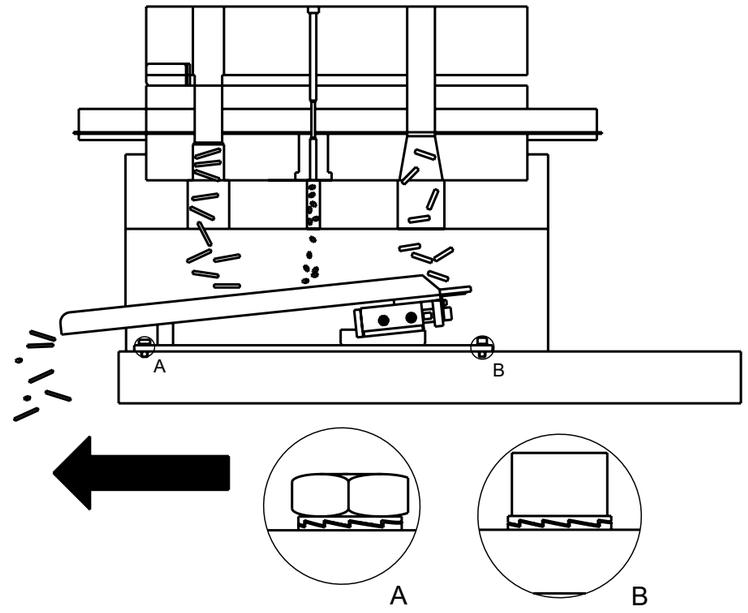
Teileförderer: Technische Richtlinien
Part conveyors: Technical recommendations
TECHNISCHE HILFSMITTEL / GENERAL DIE COMPONENTS

Befestigung

Befestigen Sie den Teileförderer mit 2 Stück Sechskantschrauben (vorn) und mit 2 Stück Innensechskantschrauben (hinten) am Werkzeug oder der Presse. Selbsthemmende oder Federscheiben verhindern ein vibrationsbedingtes Lösen.

Mounting

Mount the part conveyor with 2 hexagon head screws (front) and 2 Allen screws (back) to the die or the press. Self-locking srews or spring discs avoid loosening based on vibration.



Luftanschluss

Der Arbeitsdruck der Teileförderer liegt bei 4-6 bar. Obwohl üblicherweise 6-7 bar zur Verfügung stehen, müsste im Einsatzfall überprüft werden, inwieweit bei Anschluss mehrerer Teileförderer der System-Druck abfällt.
Es ist daher zu empfehlen, die einzelnen Teileförderer nicht in Reihe, sondern parallel zu schalten und jeden Teileförderer mit einem Manometer zu bestücken, um sicher zu stellen, dass jeder Förderer mit dem benötigten Arbeitsdruck beaufschlagt wird. Sollte bei einzelnen Teileförderern der benötigte Arbeitsdruck nicht zur Verfügung stehen, muss der Durchmesser der entsprechenden Zuleitung vergrößert werden.

1. Das Luftdruck-System muss mit einer Wartungseinheit ausgerüstet sein, die Kondensation vermeidet. Diese „Trockner-Funktion“ ist ein MUSS um Oxidation auszuschließen.
2. Des Weiteren muss über diese Wartungseinheit Öl zugeführt werden können, welches den Teileförderer schmiert. Das gewählte Öl sollte eine niedrige Viskosität aufweisen.

Air supply

The conveyors run with a working pressure of 4-6 bar. Although usually compressed air systems provide around 6-7 bar it has to be checked, whether it still allows the connection of multiple conveyors to one system.

We therefore do recommend, to not align the conveyors in series, but parallely and equip each one with a manometer, thereby making sure, that each unit runs on the required working pressure. If needed, the diameter of the pressure supplying hoses has to be enlarged.

1. The air system must be equipped with a air maintenance unit to avoid condensation. This dryer-function is a MUST.

2. The maintenance system must have the possibility to provide a low viscosity oil to grease the conveyor.

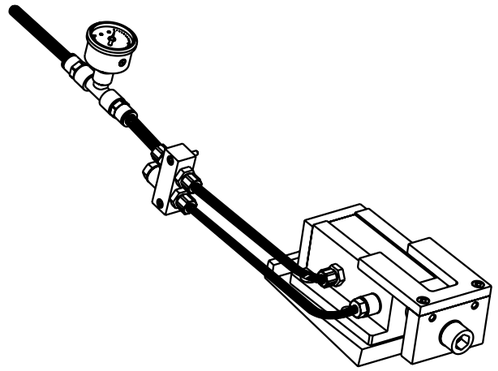


Tabelle für min. Außen-ø der Luftschläuche / Table showing minimal outside diameters of air hoses

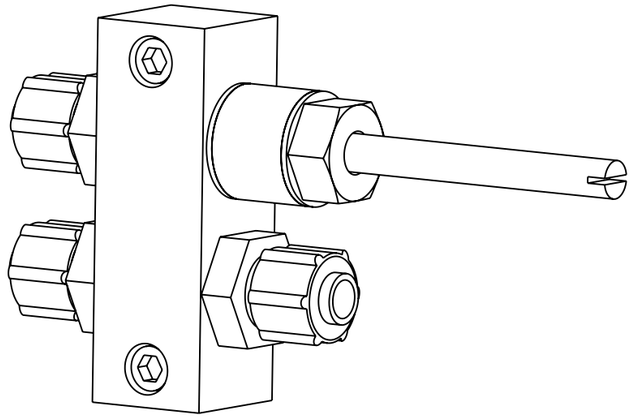
für Typ for type	Anzahl Teileförderer Number of part conveyor					
	1	2	3	4	5	6
NCV.1…	6	10	12	12	14	16
NCV.2…	6	10	12	12	14	16
NCV.3…	8	12	14	16	18	20
NCV.4…	8	12	14	16	18	20
NCV.5…	8	12	14	16	18	20

Hinweise

1. Um die beste Leistung zu erzielen, sollte die Drossel weit genug geöffnet sein.
2. Bevor Sie die Teileförderer an das Luftdrucksystem anschließen, überprüfen Sie noch einmal alle Verbindungen.
3. Sollte der Teileförderer nur eine Hubbewegung machen und dann stehen, überprüfen Sie die Drossel. In den meisten Fällen ist die Drossel zu weit geschlossen. Der Teileförderer muss bei geöffneter Drossel einwandfrei funktionieren.
4. Sollte der Teileförderer bei geringem Gegendruck oder nach wenigen Hubbewegungen still stehen, ist der eingehende Luftdruck wahrscheinlich zu gering (unter 5 bar). Bitte beachten Sie, ob am Werkzeug oder der Maschine eventuell weitere Luftabnehmer vorhanden sind, welche zur Druckminimierung führen können.
5. Es ist darauf zu achten, dass es zwischen dem Teileförderer und dem Werkzeug, der Maschine oder anderen Teilen nicht zu Berührung kommt.
6. Wichtig ist, dass die Transport-Rinne richtig abgestützt ist, um ein Hüpfen zu vermeiden.

Notice:

1. For best results, fully open air regulator.
2. Before connecting the conveyor to the air-pressure system, please double-check all junctions.
3. In case the conveyor moves just one stroke and stops, please check the air regulator. In most cases it has not been opened wide enough. After opening the regulator it should work fine.
4. In case the conveyor does not operate with no obvious overload or after only a few strokes, the working pressure might be too low (under 5 bar). Please check, whether there are more pressure consuming devices hooked to the same air-system.
5. Please make sure, that the conveyor can work freely, and there is no contact between it and the die, the machine or any other parts.
6. Important: the transport channel needs to be properly supported to avoid bouncing.



Hinweise

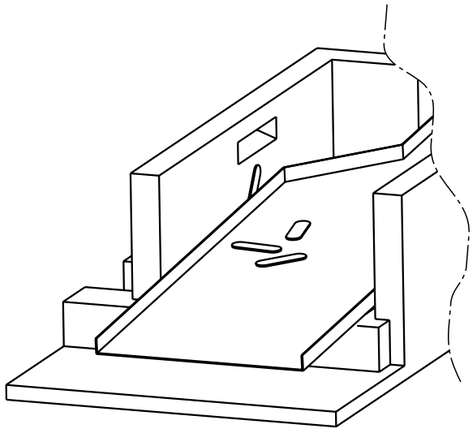
1. Achten Sie darauf, dass keine Kontaktpunkte zwischen der Transport-Rinne, dem Werkzeug und der Maschine oder sonstigen Anbauten bestehen. Es könnte sonst der Fall eintreten, dass der Teileförderer in seiner Hub-Bewegung gestoppt wird. Das gleiche könnte geschehen, wenn einzelne Abfallstücke zwischen der Transport-Rinne und Werkzeug oder andere Anbauten gelangen. Unterbinden Sie diese Möglichkeit durch so genannte Abfall-Leitbleche.
2. Bitte verlegen Sie die Druckluft-Zuleitung so, dass keine Berührung zwischen der Transport-Rinne und den Schläuchen besteht. Wird das Zuleitungs-System beschädigt, kommt es zum Druckverlust, was zu einem Funktions-Ausfall führt. „Also keine Produkt-Fertigung“.

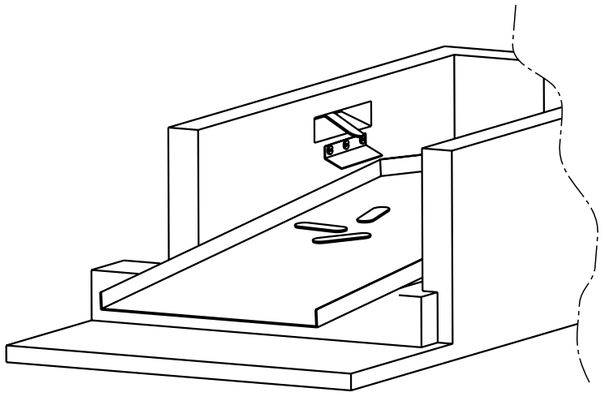
Es muss sichergestellt sein, dass keine Abfälle zwischen die Transport-Rinne und das Werkzeug bzw. die Anbauten gelangen können, da dies zum Ausfall / Stillstand des Teileförderers führen kann.
Montieren Sie daher (wie dargestellt) kleine Leitbleche.

Notice:

1. Make sure, there is no contact between the transport channel and the die, respectively the machine, which could result in stopping the transporter. The same could be caused by waste falling of the channel into spaces between the transporter and the die. This can be avoided using little waste-guiding metal sheets.
2. Please install hoses for compressed air in a way that there is no contact between the transport channel and the hoses. If the hose-system leaks, air-pressure will vanish, shutting down the whole unit.

It is important, that no scrap can fall between spaces between the conveyor and the die / the machine, since that could result in a failure of the unit.
Please provide small scrap-sheets





Kennzeichnungsstempel
Norm-39V 1079 Seite TH.108



Identification punches
Standard-39V 1079 Page TH.108

Aufnahmen für Kennzeichnungsstempel
Norm-39D 647
Ausführung 12/13 Seite TH.109
Ausführung 21-26 Seite TH.109
Ausführung 30-39 Seite TH.110



Retainers for identification punches
Standard-39D 647
Model 12/13 Page TH.109
Model 21-26 Page TH.109
Model 30-39 Page TH.110

Prägewerke
Norm-39D 991 A Seite TH.111



Numbering heads
Standard-39D 991 A Page TH.111

Prägewerke
Norm-39D 991 B Seite TH.112



Numbering heads
Standard-39D 991 B Page TH.112

Besondere Merkmale:

- Empfohlener Lieferant für Norm-Prägewerke nach VW-Lieferantenvorschrift 39D 999.
- Vollständiges Sortiment an Aufnahmen nach Norm 39D 647.
- Attraktive Preise.
- Garantiertes Versanddatum für Stempel nach 39V 1079 innerhalb von 7 Arbeitstagen (max. 1.000 Stück).

Special features:

- Recommended supplier for standard numbering heads according to VW specification 39D 999.
- Complete range of retainers as per VW - standard 39D 647.
- Competitive pricing.
- Guaranteed shipping-time of max 7 days for Identification Punches according to 39V 1079 (up to 1.000 pieces).

Kennzeichnungsstempel Norm-39V 1079

Identification punches Standard-39V 1079

TH 39V 1079

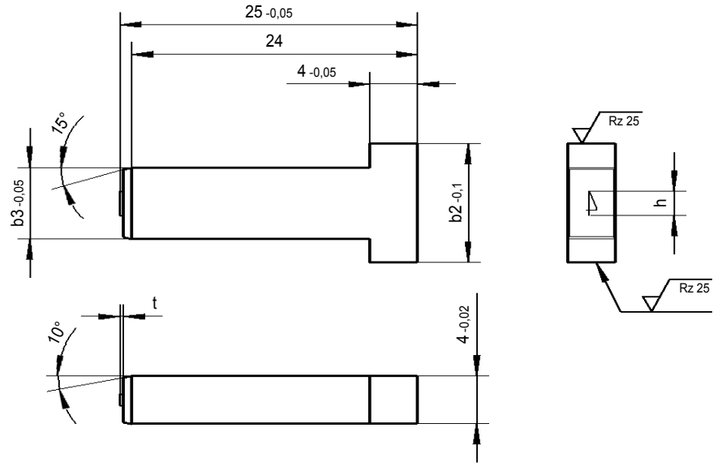
Mat.: 1.2379
Härte: 60+2 HRC

Schrift spiegelbildlich und erhaben,
DIN mittel.
Laserbeschriftung VW-Teil-Nr.

Mat.: 1.2379
Hardness: 60+2 HRC

Mirror-invented and raised lettering,
DIN medium.
Laser marking VW part-ident-No.

TH 39V 1079 / 20



MAIL

Ausführung Model	Gravur Engraving	h	b2	b3	t	VW-Teile-Nr. VW part-ident-No.
20	0	2	10	6	0,3	39V 1079/20
21	1	2	10	6	0,3	39V 1079/21
22	2	2	10	6	0,3	39V 1079/22
23	3	2	10	6	0,3	39V 1079/23
24	4	2	10	6	0,3	39V 1079/24
25	5	2	10	6	0,3	39V 1079/25
26	6 / 9	2	10	6	0,3	39V 1079/26
27	7	2	10	6	0,3	39V 1079/27
28	8	2	10	6	0,3	39V 1079/28
29	Leerstelle / blank	2	10	6	0,3	39V 1079/29
29 .	A - Z	2	10	6	0,3	39V 1079/29A
29 .	Sonderzeichen / special character	2	10	6	0,3	39V 1079/29+
50	0	3,5	13	8	0,4	39V 1079/50
51	1	3,5	13	8	0,4	39V 1079/51
52	2	3,5	13	8	0,4	39V 1079/52
53	3	3,5	13	8	0,4	39V 1079/53
54	4	3,5	13	8	0,4	39V 1079/54
55	5	3,5	13	8	0,4	39V 1079/55
56	6 / 9	3,5	13	8	0,4	39V 1079/56
57	7	3,5	13	8	0,4	39V 1079/57
58	8	3,5	13	8	0,4	39V 1079/58
59	Leerstelle / blank	3,5	13	8	0,4	39V 1079/59
59 .	A - Z	3,5	13	8	0,4	39V 1079/59A
59 .	Sonderzeichen / special character	3,5	13	8	0,4	39V 1079/59+

[11.03.2020]

[11.03.2020]

Aufnahmen für Kennzeichnungsstempel Norm-39D 647

Retainers for identification punches Standard-39D 647

TH 39D 647

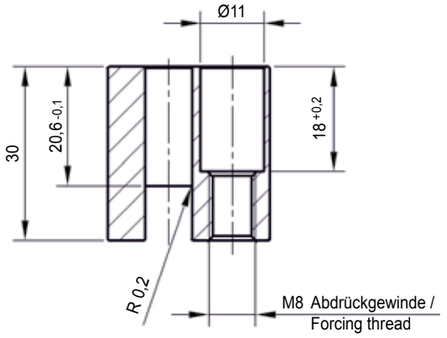
Mat.: 1.2842 / Polster: PA6G
Abstimmplatte gehärtet auf 58+2 HRC

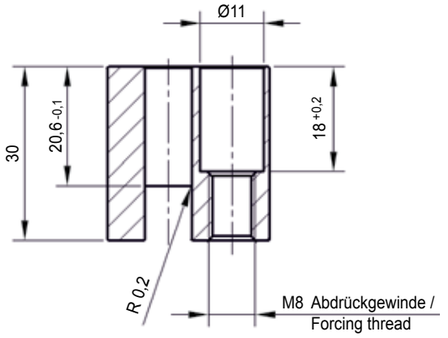
inkl. Abstimmplatte und Polster
Laserbeschriftung VW-Teil-Nr.

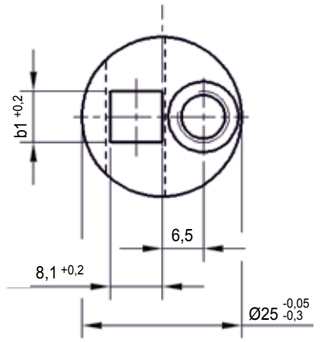
Mat.: 1.2842 / Pad: PA6G
Shim hardened 58+2 HRC

incl. shim and pad
Laser marking VW part-ident-No.

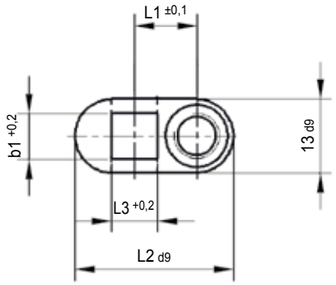
TH 39D 647 / 12







**Ausführungen 12,13 /
Models 12,13**



**Ausführungen 21 - 26 /
Models 21 - 26**

MAIL

Ausführung Model	für Schrifthöhe for font height [mm]	b1	VW-Teile-Nr. VW part-ident-No.
12	3,5	8,1	39D 647/12
13	2	6,1	39D 647/13

Ausführung Model	für Schrifthöhe for font height [mm]	L1	L2	L3	b1	VW-Teile-Nr. VW part-ident-No.
21	3,5	9	24	8,1	8,1	39D 647/21
22	3,5	11	28	8,1	8,1	39D 647/22
23	3,5	13	32	8,1	8,1	39D 647/23
24	2	9	24	6,1	6,1	39D 647/24
25	2	11	28	6,1	6,1	39D 647/25
26	2	13	32	6,1	6,1	39D 647/26

[TH]

TH 39D 647

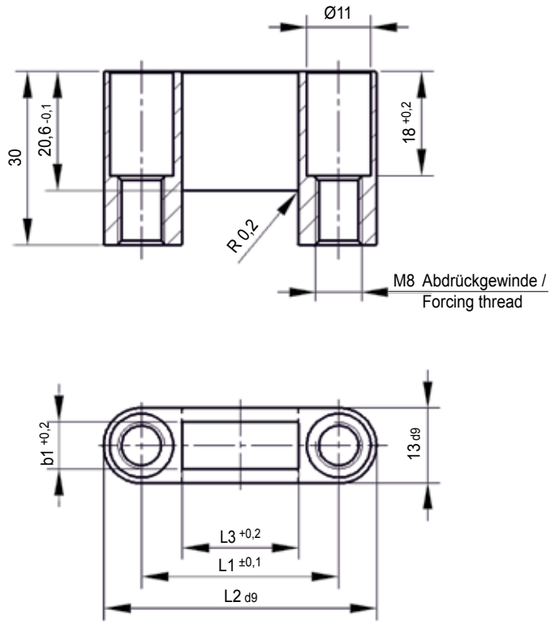
Mat.: 1.2842 / Polster: PA6G
Abstimmplatte gehärtet auf 58+2 HRC

inkl. Abstimmplatte und Polster
Laserbeschriftung VW-Teil-Nr.

Mat.: 1.2842 / Pad: PA6G
Shim hardened 58+2 HRC

incl. shim and pad
Laser marking VW part-ident-No.

TH 39D 647 / 30



MAIL

Ausführung Model	für Schrifthöhe for font height [mm]	Anzahl Stempel Number of punches	L1	L2	L3	b1	VW-Teile-Nr. VW part-ident-No.
30	3,5	4	30	43	16,1	8,1	39D 647/30
31	3,5	5	34	47	20,1	8,1	39D 647/31
32	3,5	6	38	51	24,1	8,1	39D 647/32
33	3,5	10	54	67	40,1	8,1	39D 647/33
34	3,5	11	58	71	44,1	8,1	39D 647/34
35	2	4	30	43	16,1	6,1	39D 647/35
36	2	5	34	47	20,1	6,1	39D 647/36
37	2	6	38	51	24,1	6,1	39D 647/37
38	2	10	54	67	40,1	6,1	39D 647/38
39	2	11	58	71	44,1	6,1	39D 647/39

TH 39D 991 A

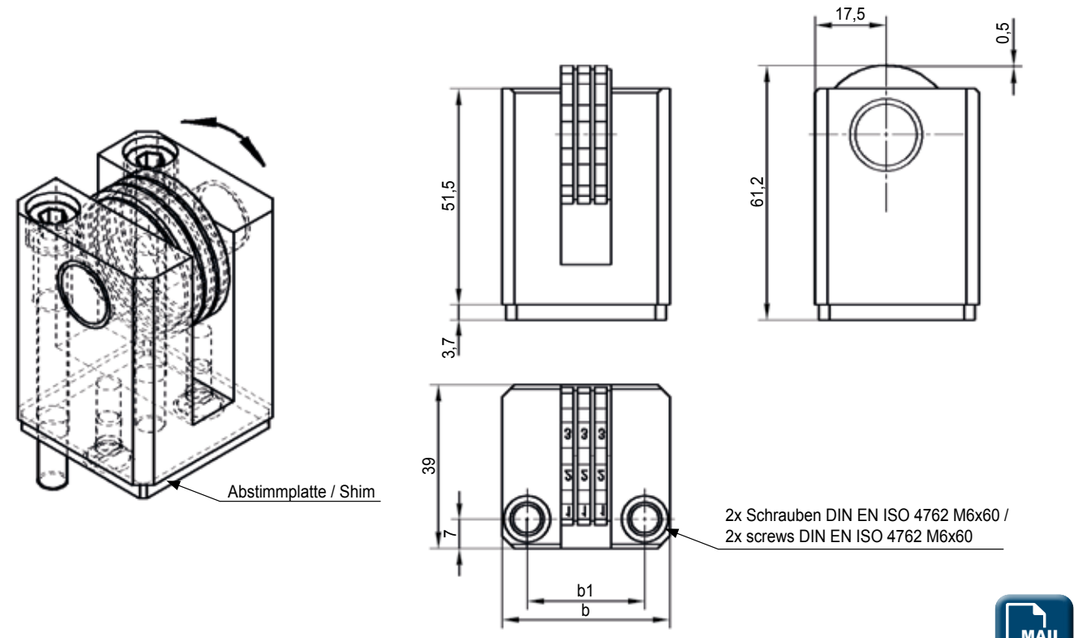
Mat.: 1.2842
Härte: 58+2 HRC

inkl. Abstimmplatte
Laserbeschriftung VW-Teil-Nr.

Mat.: 1.2842
Hardness: 58+2 HRC

incl. shim
Laser marking VW part-ident-No.

TH 39D 991 A / 01



MAIL

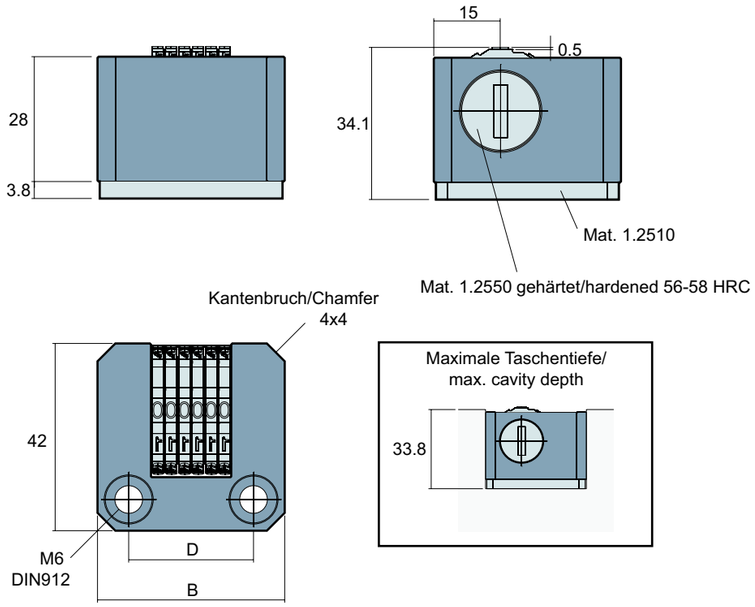
Ausführung Model	Anzahl Prägeräder Nummber of wheels	Schrifthöhe Character size [mm]	b	b1	VW-Teile-Nr. VW part-ident-No.
01	3	4	40	28	39D 991/01
02	4	4	40	28	39D 991/02
03	5	4	44	32	39D 991/03
04	3	2,5	40	28	39D 991/04
05	4	2,5	40	28	39D 991/05
06	5	2,5	44	32	39D 991/06

TH 39D 991 B

Mat.: 42CrMo4

Mat.: 42CrMo4

TH 39D 991 B / 10



Ausführung Model	Anzahl Prägeräder Nummber of wheels	B	D	VW-Teile-Nr. VW part-ident-No.
10	4	36	22	39D 991/10
11	6	42	28	39D 991/11

Prägewerk-Ringe für TH 39D 991 B

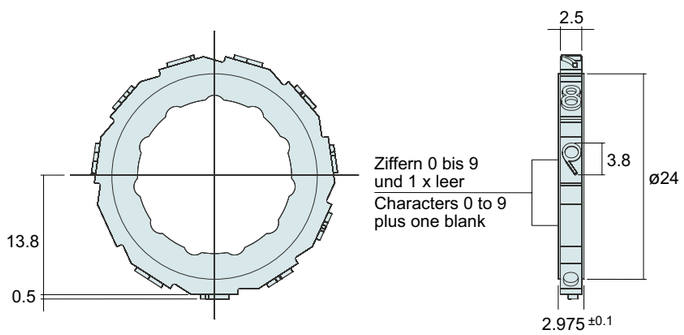
Numbering head rings for TH 39D 991 B

TH 927

Mat.: 1.2379
Härte: 56 - 59 HRC

Mat.: 1.2379
Hardness: 56 - 59 HRC

TH 927



[11.03.2020]

[11.03.2020]

Kompakte, tragbare Handstempelgeräte für die Kennzeichnung von Körnerpunkten, Kontrollstempelungen, Numerierungen, Werkerkennzahlen etc.

Die Geräte können sowohl als Handstempelwerkzeuge als auch als Einbaueinheiten in Kontrollstationen, Fertigungslinien etc. verwendet werden.

Die Handhabung der Geräte ist äußerst einfach und kann ohne Kraftaufwendung erfolgen. Die Prägeleistung ist über einen Druckregler feineinstellbar.

Schnellwechselbare Stempeleinsätze in unterschiedlichsten Schriftgrößen, wie Zahlen- und/oder Buchstabenstempel, Kontrollstempel, Körnerspitzen etc. in Standard- und Sonderausführungen ermöglichen ein weites Einsatzgebiet für die dauerhafte Werkstückkennzeichnung.



The hand-held stamping tools are suitable for a variety of uses such as centre marking, identification stamping, numbering and process control marking.

They are usable as hand held tools or integrated units. These units are easy to use for flexible applications

Following major advantages:
- no manual force required
- constant high impact force, adjusted by adjusting of air pressure

Stamps may be changed within seconds. Typical applications for these devices are stamping inspection and control characters, CE marks and other smaller marks.

Ausführungsbeispiele / Application area:

TH 930 mit kleinem Typenhalter/ Einzeltypen /
TH 930 with a small type holder



TH 931 mit Zapfenstempel /
TH 931 with pin stamp



TH 932 mit handeinstellbarem Prägewerk /
TH 932 with manual indexing numbering head



TH 930
TH 931
TH 932

Druckluftbedarf: 2 - 6 bar
Schlauchanschluss: G1/8“

Air pressure: 2 - 6 bar
Air tube connector: G1/8“

TH 930



MAIL

Technische Daten / Technical Data:

Typ Type	Gesamtlänge Length [mm]	Gewicht Weight [g]	Werkzeugaufnahme Tooling fixture [mm]	Stempelleistung Impact force [kN]
TH 930	~ 260	800	8	~ 10
TH 931	~ 300	1200	10	~ 20
TH 932	~ 350	1900	10*	~ 35
* = Spannzange				

Maximal mögliche Stempelleistung bei Einsatz von Typenhaltern mit Einzeltypen oder Standard-Stempeleinsatz:
Maximum marking force (These information are rough standard values. Exact information can only be made after a sample marking with an original workpiece):

Schrifthöhe Character Height [mm]	max. Anzahl Prägestellen / max. numbers of characters					
	Mat.: Alu / Aluminium			Mat.: St (ST 37) / Steel (St37)		
	TH 930	**TH 931**	**TH 932**	**TH 930**	**TH 931**	**TH 932**
1	5	6	8	3	4	7
2	5	6	8	3	4	7
3	4	5	7	2	3	5
4	3	4	6	1	2	4
5	2	3	6	–	1	3

Maximal mögliche Zeichenzahl auf den Standard-Stempeleinsätzen für / Max. numbers of characters on marking pin for:

TH 930 mit / with diamater 6 mm

Schrifthöhe / Character Size
2 mm: 3 Zeichen / signs
3 mm: 2 Zeichen / signs
4 mm: 1 Zeichen / signs

TH 931 mit / with diamater 8 mm

Schrifthöhe / Character Size
2 mm: 4 - 5 Zeichen / signs
4 mm: 2 - 3 Zeichen / signs
6 mm: 1 - 2 Zeichen / signs

TH 932 mit / with diamater 10 mm

Schrifthöhe / Character Size
3 mm: 8 - 10 Zeichen / signs
4 mm: 6 - 7 Zeichen / signs
5 mm: 3 - 5 Zeichen / signs

Weitere technische Informationen auf Anfrage. / If you need more information, so please do not hesitate to contact us.

[11.03.2020]

[11.03.2020]

TH 933

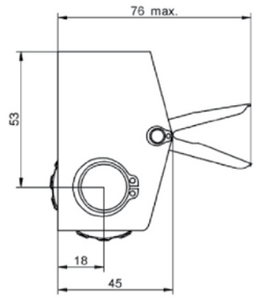
Mat.: 1.2379
Härte: 56 - 59 HRC

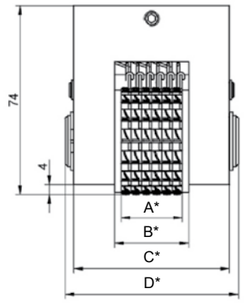
Mat.: 1.2379
Hardness: 56 - 59 HRC

TH 933

Manuell einstellbar –
Verstellhebel arretiert das Prägerad in gewünschter Position.

Manual adjustable numbering head. The lever lock the wheels in the choosen position





* = Maßangabe erst möglich nach Festlegung von der Anzahl der Prägeräder, Schrifthöhe und Schriftform (Mittel/Halbeng/Eng)

* = Specification is only possible after determining number of marking wheels, font height and lettering standard (Medium-spaced, Semi closed-spaced, Close-spaced).

MAIL

Schrifthöhe / Chatacter size [mm]	Radteilung / Partition of the wheel*
1 - 4	15
5	13
6	11
8	11
* = verfügbare Flächen am Umfang / available surfaces on the circumference	

TH 934

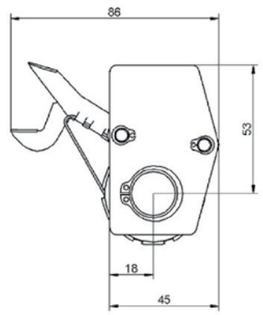
Mat.: 1.2379
Härte: 56 - 59 HRC

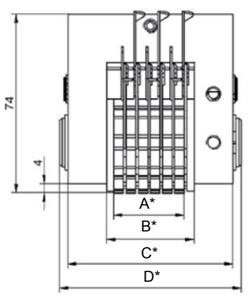
Mat.: 1.2379
Hardness: 56 - 59 HRC

TH 934

Manuell einstellbar –
Tasthebel ermöglicht schnelles Verstellen von Stelle zu Stelle.

Manual adjustable key numbering head. The adjustment of the wheels from posiotin to position effects manually though pressing the key levers





* = Maßangabe erst möglich nach Festlegung von der Anzahl der Prägeräder, Schrifthöhe und Schriftform (Mittel/Halbeng/Eng).

* = Specification is only possible after determining number of marking wheels, font height and lettering standard (Medium-spaced, Semi closed-spaced, Close-spaced).

MAIL

Schrifthöhe / Chatacter size [mm]	Radteilung / Partition of the wheel*
1 - 4	14
5	14
6	11
* = verfügbare Flächen am Umfang / available surfaces on the circumference	

TH 935

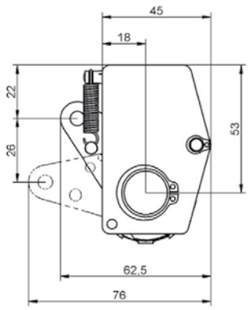
Mat.: 1.2379
Härte: 56 - 59 HRC

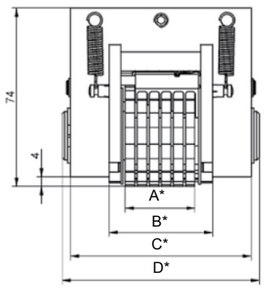
Mat.: 1.2379
Hardness: 56 - 59 HRC

TH 935

Automatisch weiterschaltend mit mechanischer Schalteinrichtung oder Pneumatikzylinder (Hub min. 25 mm) – pro Hub wird um eine Zahl weiter gezählt.

Automatic indexing numbering head. The numbering switch effects after every marking stroke





* = Maßangabe erst möglich nach Festlegung von der Anzahl der Prägeräder, Schrifthöhe und Schriftform (Mittel/Halbeng/Eng).

* = Specification is only possible after determining number of marking wheels, font height and lettering standard (Medium-spaced, Semi closed-spaced, Close-spaced).

MAIL

Schrifthöhe / Chatacter size [mm]	Radteilung / Partition of the wheel*
1 - 4	10
5	10
6	10
8	10

* = verfügbare Flächen am Umfang / available surfaces on the circumference

TH 010

TH 010

Kaltentfetter **TH 010** entfernt Fette, Schmutz, Schmierstoffe und Umformöle. **TH 010** greift keine Metalle, Kunststoffe, Lacke, Glas oder Gummiartikel an.
Kaltentfetter **TH 010** verdunstet sehr schnell und entwickelt keine gesundheitsschädlichen Dämpfe.
Eingesetzt wird **TH 010** im Werkzeug-, Maschinen- und Anlagenbau zur Entfernung von Öl und Schmutz.

Sprühdose, 500 ml

The cold degreaser **TH 010** removes grease, dirt, lubrication and oils. It does not corrode metal, plastics, lacquers, glas or rubbers.
The cold degreaser **TH 010** evaporates quickly and has no noxious effects.
TH 010 is used in the die- and machine building - industries to remove oil and dirt.

Aerosol can, 500 ml



MAIL

[11.03.2020]
[11.03.2020]

TH 011

Rostlöse-Spray **TH 011** löst alle angerosteten oder festsitzende Metallteile, wie Schrauben, Bolzen oder Pressverbindungen. **TH 011** entfernt außerdem Flugrost von Metallflächen. Verschiedene Zusätze bewirken eine hohe Schmierwirkung und einen nachhaltigen Rostschutz.

Sprühdose, 400 ml

Rust remover **TH 011** removes rusty and tight metal parts, like screws, nuts or press fittings, as well as surface rust. Different additives cause a high lubricating effect and a lasting rust protection.

Aerosol can, 400 ml

TH 011



MAIL

TH 012

Korrosionsschutz **TH 012** bildet einen wirksamen Schutzfilm auf allen Metallen, die gegen Korrosion und Rost geschützt werden müssen. Nach dem Aufsprühen von **TH 012** und dem Verdunsten des Lösungsmittels verbleibt ein dünner wachsartiger Schutzfilm auf den Metallflächen. So sind die Teile vor Oxidation geschützt.
TH 012 ist nicht aggressiv und kann mit jedem Lösungsmittel entfernt werden (Kaltentfetter **TH 010**, Benzin oder Benzol).

Sprühdose, 400 ml

Corrosion prevention **TH 012** forms an effective coat on all metals, which need to be protected against corrosion and rust. After the spray-coating and the evaporating of the solvent a thin, waxy protective film remains on the metal surface.
Therefore the parts are protected against oxidation. TH 012 is not aggressive and can be removed with every solvent (cold degreaser TH 10, petrol and benzone).

Aerosol can, 400 ml

TH 012



MAIL

TH 013

Universal-Sprühfett **TH 013** ohne Festschmierstoff ist ein Hochleistungs-Schmierstoff mit Hochdruck- und Langzeiteigenschaften. Hochreine oxidationsbeständige Rohstoffe sowie besondere Haftvermittler stellen sicher, dass auch bei extremen Belastungen der Schmierstofffilm geschlossen bleibt und nicht aufreißt. **TH 013** wird überall da im Werkzeug-, Maschinen- sowie im Anlagenbau eingesetzt, wo hohe Anforderungen gestellt werden.
Temperaturspitze + 180 °C

Sprühdose, 400 ml

Universal spray grease is a high performance lubricant with high pressure- and long term-characteristics. Ultrapure oxidation-resistant primary products in combination with special adhesive agents ensure a closed grease film, even under extrem operational demands.
Temperature max. 180 °C

Aerosol can, 400 ml

TH 013



MAIL

TH 014

Universal-Schmierstoffpaste **TH 014** hat die gleichen Eigenschaften und Parameter wie **TH 013**. Da **TH 014** in Pastenform geliefert wird, kann das Auftragen auf die Metallteile mit einem Pinsel oder von Hand erfolgen.

Tube, 50 ml

Universal lubrication paste **TH 014** has the same characteristics and parameters as **TH 013**. Since it comes as a paste, applying by means of a brush or by hand is possible

Collapsible tube, 50 ml

TH 014



MAIL

TH 015

Hochtemperatur Trenn- und Gleitmittel **TH 015** ist ein hochreiner, alterungsstabiler Schmierstoff auf Kupferbasis. **TH 015** erleichtert die Montage / Demontage von Führungselementen, Ventilen, Schraubverbindungen, Flanschen usw.
TH 015 verbackt und verhärtet nicht. Kunststoffe und Dichtwerkstoffe werden nicht angegriffen.
Temperaturbereich: - 30 °C bis + 800 °C

Tube, 150 g

High-temperature release- and antiseize-agent **TH 015** is an ultra-pure, aging-proof lubricant based on copper. It alleviates the assembly / disassembly of guiding elements, screws, valves, flanges etc.
TH 015 does not harden. Plastics will not be affected or corroded.
Temperature range:: - 30 °C to + 800 °C

Collapsible tube, 150 g

TH 015



MAIL

[11.03.2020]

[11.03.2020]

TH 016

Schraubensicherung **TH 016** zum Sichern von Schrauben und Muttern bei Vibrationen und Stoß. Für Gewinde bis M24. Teile sind normal demontierbar.
Handfest in ca. 15 – 30 Min. bei Raumtemperatur.
Endfest nach ca. 12 Stunden.

Tube, 50 ml

Screw locking **TH 016** for safely fixing screws and nuts and prohibiting their turning / loosing caused by shocks and vibrations. For threads up to M24. Treated parts are demountable as usual.
Hand-tight in appr. 15-30 min. at room temperature.
Final hardness after 12 hours.

Collapsible tube, 50 ml

TH 016



MAIL

TH 017

Füge-Verbindungskleber **TH 017** zum Auf- und Einkleben von Schneid- und Führungsbuchsen, Wellen und Lagern.
TH 017 ist sehr dünnflüssig. Geeignet für Spalte zwischen den Teilen von 0,01 bis 0,10 mm. Teile sind schwer demontierbar.
Handfest in ca. 5 – 10 Min. bei Raumtemperatur.
Endfest nach ca. 12 Stunden.

Tube, 50 ml

Adhesive TH 017, used for bonding piercing- and die bushings, bonding of shafts and bearings
TH 017 has a very low visciosity, suitable for gaps between parts of 0,01 to 0,1 mm. Parts are hard to demount afterwards.
Hand-tight in appr. 5-10 min. at room temperature.
Final hardness after 12 hours.

Collapsible tube, 50 ml

TH 017



MAIL

TH 018

Sekundenkleber **TH 018** ist geeignet für Kunststoffe, Metalle und Gummiartikel. **TH 018** hat ein hohes Spaltfüllvermögen und fließt nicht ab. Ein Ausrichten der zu verklebenden Teile ist möglich.
Handfest in ca. 10 – 70 Sekunden bei Raumtemperatur.

Fläschchen, 20 g

Instant adhesive **TH 018** can be used with plastics, metals and rubbers.
It has high gap-filling - abilities and does not drain-off. The parts to be glued together can be aligned up front.
Hand-tight in appr. 10-70 sec. at room temperature

Small bottle, 20 g

TH 018



MAIL

TH 019

(NCR.99.003)

Leckspray **TH 019** ein flüssiges, ungiftiges und nicht brennbares Dichtigkeitsprüfmittel mit Korrosionsschutz. Zum Beispiel bei Leckagen an Druckluft-, Öl- oder Stickstoffanlagen. Durch Aufsprühen von **TH 019** auf die zu prüfenden Teile wird durch Blasenbildung sichtbar, dass eine Undichtigkeit gegeben ist. Bilden sich keine Blasen, ist das System in Ordnung. Achtung: Nur außerhalb von Gas- oder Sauerstoffrohren „sprühen“.

Sprühdose, 400 ml

Leakage spray **TH 019** is a fluid, non-toxic and fireproofed leakage detecting agent with corrosion protection, detecting leaking areas in air-pressure-, oil- and nitrogene - systems. After spray coating the areas in question, bubbling indicates leaks.
Attention: Do not spray in or close to gas- respect. oxigen - pipes

Aerosol can, 400 ml

TH 019



MAIL

[TH]

zertifiziert ISO 9001 for you Cert

MSPN GMBH

Märkische Stanz-Partner



[federelemente]

[springs]

Stand / Revision Status 30.10.2020

Inhalt Katalog 1: Stanznormalien (D)
Content Catalogue 1: Standard die components (D)

Artikel Article	Best.-Nr. Order no.	Seite Page
A		
Aufwerferstifte, gehärtet, DIN 1530 A – ISO 6750	TH 750	TH.9
Auswerferstifte, DIN 1530 Form D	TH 75[illegible]	TH.[illegible]

Ein „Klick“ auf Artikelbezeichnung, Bestell-Nummer oder Seite im vorangestellten Inhaltsverzeichnis bringt Sie zum gewünschten Artikel.

„Clicking“ on the Article name, the Order- or Page-no. in the main table of contents opens the corresponding article-page.

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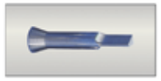
	Schneidstempel	Punches	Best.-Nr. Order no.	Seite Page
	Schneidstempel DIN 9861, Form D, HSS	Punches DIN 9861, Form D, HSS	SE 775	SE.1 SE.[illegible]

Ein „Klick“ auf Foto, Artikelbezeichnung, Bestell-Nummer oder Seite im Inhaltsverzeichnis des Registers bringt Sie unmittelbar zum gewünschten Artikel im Katalog.

„Clicking“ on the Photo, the Article name, the Order- or Page-no. in any register‘s table of contents opens the corresponding article-page.

Ein „Klick“ auf das CAD-Logo bringt Sie zu den CAD-Daten des gewünschten Artikels im CADENAS-Downloadportal.

„Clicking“ on the CAD-logo leads you to the CAD-file(s) of the corresponding article within the Cadenas down-load-portal.

Ein „Klick“ auf das MAIL-Logo generiert eine an die Märkischen Stanz-Partner adressierte e-mail, mit der Normbezeichnung des gewünschten Artikels in der Betreffzeile.

„Clicking“ on the MAIL-logo generates an e-mail addres-sed to the Stanz-Partners, showing the requested article in the subject heading.

Ein „Klick“ auf das RETURN-Logo unten auf jeder Katalogseite bringt Sie zurück auf das Inhaltsverzeichnis des entsprechenden Registers.

„Clicking“ on the RETURN-logo at the bottom of each catalog-page opens that specific register‘s table of contents.

[11.03.2020]

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	Tellerfedern, Distanzeinheiten	Disc washers, spacers	Best.-Nr. Order no.	Seite Page
	Distanzeinheiten, geschliffen	Spacers, ground	FE 830	FE.2
	Distanzrohre, geschliffen	Spacer tubes, ground	FE 829	FE.3
	Scheiben für Zylinderschraube, nicht geschliffen	Discs for hexagon socket head cap screw, not ground	FE 828	FE.3
	Tellerfedern DIN 2093	Disc springs DIN 2093	FE 850	FE.1

	Systemfedern	Compression springs	Best.-Nr. Order no.	Seite Page
				
	Systemfedern ISO 10243, Kennfarbe Grün: Leichte Belastung	Compression springs, ISO 10243 Color code green: light load springs	FE 831 LB	FE.4 FE.5
	Systemfedern ISO 10243, Kennfarbe Blau: Mittlere Belastung	Compression springs, ISO 10243 Color code blue: medium load springs	FE 832 MB	FE.6 FE.7
	Systemfedern ISO 10243, Kennfarbe Rot: Schwere Belastung	Compression springs, ISO 10243 Color code red: heavy load springs	FE 833 SB	FE.8 FE.9
	Systemfedern ISO 10243, Kennfarbe Gelb: Bes. schw. Belastung	Compression springs, ISO 10243 Color code yellow: extra h. load springs	FE 834 BB	FE.10 FE.11
	Systemfedern nach US-Farbcodierung, Kennfarbe Blau: Leichte Belastung	Compression springs, US color coded Color code blue: light load springs	FE 835 LB	FE.12 FE.13
	Systemfedern nach US-Farbcodierung, Kennfarbe Rot: Mittlere Belastung	Compression springs, US color coded Color code red: medium load springs	FE 836 MB	FE.14 FE.15
	Systemfedern nach US-Farbcodierung, Kennfarbe Gold: Schwere Belastung	Compression springs, US color coded Color code gold: heavy load springs	FE 837 SB	FE.16 FE.17
	Systemfedern nach US-Farbcodierung, Kennfarbe Grün: Bes. schw. Belastung	Compression springs, US color coded Color code green: extra h. load springs	FE 838 BB	FE.18 FE.19
	Schraubendruckfedern, Kennfarbe Hellgrün: Extra-leichte Spannung	Die springs, Color code Light green: Extra-light load springs	FE 840	FE.20 FE.21
	Schraubendruckfedern, Kennfarbe Silber: Ultra-hohe Spannung	Die springs, Color code Silver: Ultra-strong load springs	FE 841	FE.22 FE.23
	Schraubendruckfedern, Kennfarbe Titanium: Super-hohe Spannung	Die springs, Color code Titanium: Super-strong load springs	FE 842	FE.24
	Schraubendruckfedern, Kennfarbe Weiß: Hyper-hohe Spannung	Die springs, Color code White: Hyper-strong load springs	FE 843	FE.25
	Schraubendruckfedern, Kennfarbe Grün: Normale Spannung	Die springs, Color code Green: Light load springs	FE 844	FE.26
	Schraubendruckfedern, Kennfarbe Blau: Mittlere Spannung	Die springs, Color code Blue: Medium load springs	FE 845	FE.27

	Systemfedern	Compression springs	Best.-Nr. Order no.	Seite Page
	Schraubendruckfedern, Kennfarbe Rot: Hohe Spannung	Die springs, Color code Red: Strong load springs	FE 846	FE.28
	Schraubendruckfedern, unlackiert mit Rostschutz	Die springs, not painted with anti-rust lubricant	FE 847	FE.29 FE.30

	Urelastfedern	Elastomer springs	Best.-Nr. Order no.	Seite Page
	Hohlstangen	Hollow bars	FE 804, FE 805, FE 806	FE.32
	Urelastfedern DIN 9835, Kennfarbe Rot	Elastomer springs DIN 9835, color code red	FE 802	FE.31
	Vollstangen	Solid bars	FE 807, FE 808, FE 809	FE.34

	Zubehör Bereich Federelemente	Accessories product line „springs“	Best.-Nr. Order no.	Seite Page
	Federteller DIN ISO 10069-2 für Urelastfedern	Spring washerss, DIN ISO 10069-2 for elastomer-springs	FE 815	FE.33
	Führungsbolzen für Urelastfedern	Guide pins for elastomer springs	FE 816	FE.33

[11.03.2020]

[11.03.2020]

Tellerfedern DIN 2093
Disc springs DIN 2093

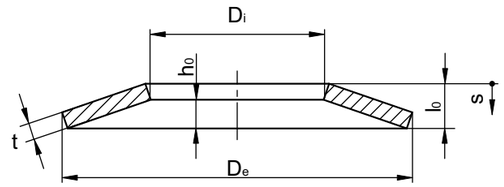
FEDERELEMENTE / SPRINGS

FE 850

Mat. bis t = 1,1: CK 67
Mat. ab t = 1,25: 50CrV4

Mat. up to t = 1,1: CK 67
Mat. from t = 1,25: 50CrV4

FE 850 / 8,0 x 4,2 x 0,40



CAD MAIL

De	Di	t	lo	ho	s = 0,25 x ho			s = 0,5 x ho			s = 0,75 x ho		
					s	F N	σ N/mm²	s	F N	σ N/mm²	s	F N	σ N/mm²
8,0	**3,2**	**0,40**	0,60	0,20	0,050	69,2	797	0,100	130,1	1533	0,150	185,5	2207
8,0	**4,2**	**0,40**	0,60	0,20	0,050	78,2	784	0,100	147,1	1504	0,150	209,5	2162
10,0	**5,2**	**0,40**	0,70	0,30	0,075	87,8	857	0,150	155,3	1623	0,225	209,3	2299
10,0	**5,2**	**0,50**	0,75	0,25	0,062	121,5	782	0,125	228,3	1502	0,187	325,3	2159
12,0	**6,2**	**0,50**	0,85	0,35	0,087	133,5	845	0,175	239,2	1605	0,262	326,4	2280
12,5	**6,2**	**0,70**	1,00	0,30	0,075	239,4	804	0,150	456,8	1550	0,225	659,5	2240
14,0	**7,2**	**0,80**	1,10	0,30	0,075	283,8	712	0,150	547,2	1377	0,225	796,8	1997
15,0	**5,2**	**0,70**	1,25	0,55	0,137	340,2	1317	0,275	596,4	2497	0,412	796,5	3541
16,0	**8,2**	**0,60**	1,05	0,45	0,112	172,0	751	0,225	304,3	1423	0,337	410,0	2016
16,0	**8,2**	**0,90**	1,25	0,35	0,087	362,5	721	0,175	697,0	1394	0,262	1013,0	2019
18,0	**9,2**	**1,00**	1,40	0,40	0,100	450,6	728	0,200	865,0	1406	0,300	1254,0	2035
20,0	**10,2**	**0,80**	1,35	0,55	0,137	304,3	759	0,275	546,8	1442	0,412	748,2	2050
20,0	**10,2**	**0,90**	1,45	0,55	0,137	411,7	821	0,275	754,0	1566	0,412	1050,0	2235
20,0	**10,2**	**1,00**	1,55	0,55	0,137	543,6	882	0,275	1010,0	1689	0,412	1425,0	2421
20,0	**10,2**	**1,10**	1,55	0,45	0,112	548,2	733	0,225	1050,0	1416	0,337	1521,0	2048
23,0	**12,2**	**1,25**	1,85	0,60	0,150	863,4	881	0,300	1630,0	1692	0,450	2331,0	2436
25,0	**12,2**	**0,90**	1,60	0,70	0,175	366,8	724	0,350	644,3	1371	0,525	862,3	1940
25,0	**12,2**	**1,50**	2,05	0,55	0,137	1040,0	761	0,275	2007,0	1473	0,412	2926,0	2138
28,0	**14,2**	**1,00**	1,80	0,80	0,200	476,4	744	0,400	832,0	1406	0,600	1107,0	1986
28,0	**14,2**	**1,50**	2,15	0,65	0,162	1033,0	747	0,325	1970,0	1440	0,487	2841,0	2080
31,5	**16,3**	**1,25**	2,15	0,90	0,225	790,5	797	0,450	1409,0	1512	0,675	1913,0	2145
31,5	**16,3**	**1,75**	2,45	0,70	0,175	1391,0	729	0,350	2669,0	1408	0,525	3871,0	2038
34,0	**12,3**	**1,25**	2,45	1,20	0,300	946,4	1063	0,600	1587,0	2001	0,900	2024,0	2814
35,5	**18,3**	**2,00**	2,80	0,80	0,200	1864,0	749	0,400	3576,0	1448	0,600	5187,0	2095
40,0	**14,3**	**1,50**	2,80	1,30	0,325	1188,0	962	0,650	2040,0	1818	0,975	2668,0	2568
40,0	**20,4**	**2,25**	3,15	0,90	0,225	2336,0	746	0,450	4481,0	1441	0,675	6500,0	2086
45,0	**22,4**	**2,50**	3,50	1,00	0,250	2773,0	726	0,500	5320,0	1403	0,750	7716,0	2031
50,0	**18,4**	**1,50**	3,15	1,65	0,412	1166,0	855	0,825	1890,0	1602	1,237	2319,0	2239
50,0	**25,4**	**2,50**	3,90	1,40	0,350	3473,0	903	0,700	6437,0	1728	1,050	9063,0	2474
50,0	**25,4**	**3,00**	4,10	1,10	0,275	4255,0	762	0,550	8214,0	1476	0,825	11976,0	2142
56,0	**28,5**	**2,00**	3,60	1,60	0,400	1910,0	744	0,800	3335,0	1406	1,200	4438,0	1987
60,0	**20,5**	**2,00**	4,20	2,20	0,550	2528,0	1082	1,100	4097,0	2028	1,650	5026,0	2837
70,0	**30,5**	**2,50**	4,90	2,40	0,600	3755,0	961	1,200	6297,0	1807	1,800	8031,0	2538
80,0	**36,0**	**3,00**	5,70	2,70	0,675	5401,0	964	1,350	9196,0	1817	2,025	11919,0	2557

s = Federweg/ Spring deflection, F = Federkraft/ Spring force, σ = Federspannung/ Spring tension

[FE]

Distanzeinheiten, geschliffen

Spacers, ground

FE 830

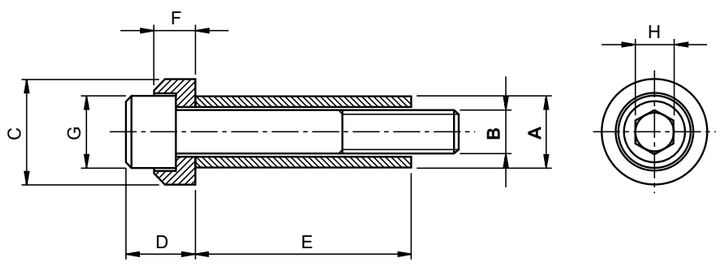
Mat.: Einsatzstahl
Festigkeitsklasse 12.9

Lieferumfang:
1. Distanzrohr
   Mat.: Vergütungsstahl, geschliffen
   Festigkeit: 120 - 140 kg/mm²
2. Scheibe für Zylinderkopfschraube
   Mat.: Vergütungsstahl, nicht geschliffen
   Festigkeit: 100 kg/mm²
3. Zylinderschraube mit Innensechskant

Mat.: case-hardened steel
Property class 12.9

Included:
1. Spacer tube
   Mat.: quenched and tempered steel, ground
   Tensile strength: 120 - 140 kg/mm²
2. Disc for cylinder head screw
   Mat.: quenched and tempered steel, not ground
   Tensile strength: 100 kg/mm²
3. Hexagon socket head cap screw

FE 830 / 15,0 x 50



MAIL

A h7	B	C -0,1	D ±0,2	F ±0,2	G max.	H	E +0,1 20	25	30	35	40	45	50	55	60	70	80	90	100	110	120	140	150	160
10,0	M6	15	10	5,5	10	5	●	●	●	●	●	●	●	●	●	●	●	●	●					
12,5	M8	19	13	6,5	13	6			●	●	●	●	●	●	●	●	●	●	●					
15,0	M10	23	15	7,5	16	8			●	●	●	●	●	●	●	●	●	●	●		●			
17,5	M12	27	18	9,0	18	10					●	●	●	●	●	●	●	●	●	●	●	●		
23,0	M16	34	24	11,0	24	14							●		●	●	●	●	●	●	●	●	●	●

Scheiben für Zylinderschraube, nicht geschliffen

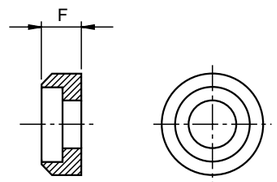
Discs for hex. socket head cap screws, not ground

FE 828

Mat.: Vergütungsstahl,
nicht geschliffen
Festigkeit: 100 kg/mm²

Mat.: Quenched and tempere steel,
not ground
Tensile strength: 100 kg/mm²

FE 828 / 5,5



CAD MAIL

für Zylinderschrauben mit Innensechskant **TH 110** for socket head cap srews TH 110 siehe Seite/ please see page TH.4	**F ±0,2**
M6	**5,5**
M8	**6,5**
M10	**7,5**
M12	**9,0**
M16	**11,0**

[FE]

Distanzrohr, geschliffen

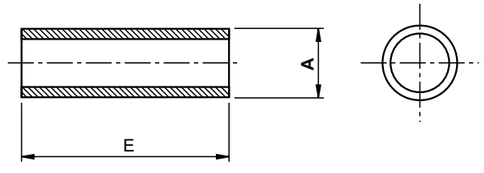
Spacer tubes, ground

FE 829

Mat.: Vergütungsstahl,
geschliffen
Festigkeit: 120 - 140 kg/mm²

Mat.: Quenched and tempere steel,
ground
Tensile strength: 120 - 140 kg/mm²

FE 829 / 12,5 x 50



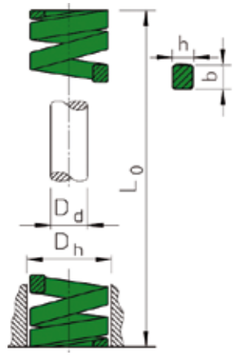
CAD MAIL

A h7	E +0,1 20	25	30	35	40	45	50	55	60	70	80	90	100	110	120	140	150	160
10,0	●	●	●	●	●	●	●	●	●	●	●	●	●					
12,5			●	●	●	●	●	●	●	●	●	●	●					
15,0			●	●	●	●	●	●	●	●	●	●	●		●			
17,5					●	●	●	●	●	●	●	●	●	●	●	●		
23,0							●		●	●	●	●	●	●	●	●	●	●

[FE]

[11.03.2020] [11.03.2020]

FE 831 LB



FE 831 LB / 10 x 025

CAD MAIL

Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N	40% Arbeitsweg Working stroke mm	40% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
10	**025**	1,7	1,1	5,0	10,0	6,3	63	7,5	75	10,0	100	13,5
	032				8,5	8,0	68	9,6	82	12,8	109	17,5
	038				6,8	9,5	65	11,4	78	15,2	103	20,8
	044				6,0	11,0	66	13,2	79	17,6	106	23,9
	051				5,0	12,8	64	15,3	77	20,4	102	28,9
	064				4,3	16,0	69	19,2	83	25,6	110	36,1
	076				3,2	19,0	61	22,8	73	30,4	97	43,2
	305				1,1	76,3	84	91,5	101	122,0	134	178,0
13	**025**	2,4	1,4	6,3	17,9	6,3	113	7,5	134	10,0	179	13,2
	032				16,4	8,0	131	9,6	157	12,8	210	18,0
	038				13,6	9,5	129	11,4	155	15,2	207	21,0
	044				12,1	11,0	133	13,2	160	17,6	213	24,0
	051				11,4	12,8	146	15,3	174	20,4	233	28,7
	064				9,3	16,0	149	19,2	179	25,6	238	35,8
	076				7,1	19,0	135	22,8	162	30,4	216	42,7
	089				5,4	22,3	120	26,7	144	35,6	192	50,4
	102				4,1	25,5	105	30,6	125	40,8	167	58,4
	305				1,4	76,3	107	91,5	128	122,0	171	172,0
16	**025**	3,2	1,5	8,0	23,4	6,3	147	7,5	176	10,0	234	12,6
	032				22,9	8,0	183	9,6	220	12,8	293	16,4
	038				19,3	9,5	183	11,4	220	15,2	293	19,7
	044				17,1	11,0	188	13,2	226	17,6	301	22,5
	051				15,7	12,8	201	15,3	240	20,4	320	26,3
	064				10,7	16,0	171	19,2	205	25,6	274	33,3
	076				10,0	19,0	190	22,8	228	30,4	304	40,2
	089				8,6	22,3	192	26,7	230	35,6	306	47,6
	102				7,8	25,5	199	30,6	239	40,8	318	55,4
	115				6,6	28,8	190	34,5	228	46,0	304	60,8
	305				2,5	76,3	191	91,5	229	122,0	305	165,0
20	**025**	4,0	2,1	10,0	55,8	6,3	352	7,5	419	10,0	558	12,1
	032				45,0	8,0	360	9,6	432	12,8	576	15,3
	038				33,3	9,5	316	11,4	380	15,2	506	18,9
	044				30,0	11,0	330	13,2	396	17,6	528	21,5
	051				24,5	12,8	314	15,3	375	20,4	500	25,0
	064				20,0	16,0	320	19,2	384	25,6	512	31,1
	076				16,0	19,0	304	22,8	365	30,4	486	37,3
	089				14,0	22,3	312	26,7	374	35,6	498	44,5
	102				12,0	25,5	306	30,6	367	40,8	490	51,1
	115				10,9	28,8	314	34,5	376	46,0	501	58,2
	127				9,5	31,8	302	38,1	362	50,8	483	64,9
	139				8,5	34,8	294	41,7	353	55,6	470	71,5
	152				7,5	38,0	285	45,6	342	60,8	456	78,8
	305				4,0	76,3	305	91,5	366	122,0	488	157,0
25	**025**	5,4	2,7	12,5	100,0	6,3	630	7,5	750	10,0	1000	11,9
	032				80,3	8,0	642	9,6	771	12,8	1028	16,0
	038				62,0	9,5	589	11,4	707	15,2	942	18,3
	044				52,9	11,0	582	13,2	698	17,6	931	21,4
	051				44,0	12,8	563	15,3	673	20,4	898	24,9
	064				35,2	16,0	563	19,2	676	25,6	901	31,4

[11.03.2020]

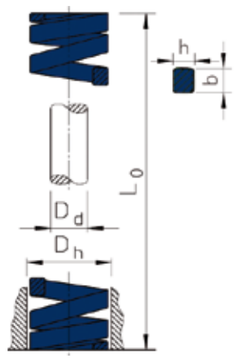
Systemfedern ISO 10243, Grün: Leichte Belastung
Compression springs, ISO 10243, Green: light load springs
FEDERELEMENTE / SPRINGS

Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N	40% Arbeitsweg Working stroke mm	40% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
25	**076**	5,4	2,7	12,5	28,0	19,0	532	22,8	638	30,4	851	37,5
	089				24,0	22,3	535	26,7	641	35,6	854	43,5
	102				21,1	25,5	538	30,6	646	40,8	861	51,1
	115				18,7	28,8	539	34,5	645	46,0	860	58,1
	127				16,7	31,8	531	38,1	636	50,8	848	64,1
	139				15,4	34,8	536	41,7	643	55,6	857	70,4
	152				14,0	38,0	532	45,6	638	60,8	851	77,1
	178				12,5	44,5	556	53,4	668	71,2	890	93,1
	203				10,4	50,8	528	60,9	633	81,2	844	103,0
	305				7,0	76,3	534	91,5	641	122,0	854	156,0
32	**038**	6,8	3,3	16,0	94,0	9,5	893	11,4	1072	15,2	1429	18,3
	044				79,5	11,0	875	13,2	1049	17,6	1399	21,5
	051				67,0	12,8	858	15,3	1025	20,4	1367	25,5
	064				53,0	16,0	848	19,2	1018	25,6	1357	31,9
	076				44,0	19,0	836	22,8	1003	30,4	1338	38,6
	089				37,2	22,3	830	26,7	993	35,6	1324	46,5
	102				32,0	25,5	816	30,6	979	40,8	1306	53,2
	115				29,0	28,8	835	34,5	1001	46,0	1334	60,0
	127				25,0	31,8	795	38,1	953	50,8	1270	66,7
	139				23,2	34,8	805	41,7	966	55,6	1288	71,8
	152				21,5	38,0	817	45,6	980	60,8	1307	78,5
	178				18,2	44,5	810	53,4	972	71,2	1296	94,4
	203				15,8	50,8	803	60,9	962	81,2	1283	107,0
	254				12,5	63,5	794	76,2	953	101,6	1270	136,0
	305				10,3	76,3	786	91,5	942	122,0	1257	163,0
40	**051**	8,1	4,0	20,0	92,0	12,8	1178	15,3	1408	20,4	1877	25,5
	064				73,0	16,0	1168	19,2	1402	25,6	1869	31,4
	076				63,0	19,0	1197	22,8	1436	30,4	1915	37,8
	089				51,0	22,3	1137	26,7	1362	35,6	1816	44,3
	102				43,0	25,5	1097	30,6	1316	40,8	1754	50,7
	115				39,6	28,8	1140	34,5	1366	46,0	1822	58,1
	127				37,0	31,8	1177	38,1	1410	50,8	1880	64,6
	139				32,2	34,8	1120	41,7	1344	55,6	1792	70,1
	152				28,0	38,0	1064	45,6	1277	60,8	1702	76,6
	178				25,2	44,5	1121	53,4	1346	71,2	1794	90,4
	203				22,7	50,8	1153	60,9	1382	81,2	1843	102,0
	254				17,0	63,5	1080	76,2	1295	101,6	1727	129,0
	305				14,8	76,3	1129	91,5	1354	122,0	1806	156,0
50	**064**	10,9	5,3	25,0	156,0	16,0	2496	19,2	2995	25,6	3994	31,0
	076				125,0	19,0	2375	22,8	2850	30,4	3800	37,2
	089				109,0	22,3	2431	26,7	2910	35,6	3880	43,6
	102				94,0	25,5	2397	30,6	2876	40,8	3835	50,3
	115				81,0	28,8	2333	34,5	2795	46,0	3726	58,1
	127				71,0	31,8	2358	38,1	2705	50,8	3607	63,7
	139				67,0	34,8	2328	41,7	2793	55,6	3724	69,5
	152				60,0	38,0	2280	45,6	2736	60,8	3648	76,5
	178				52,0	44,5	2314	53,4	2777	71,2	3702	91,9
	203				44,0	50,8	2235	60,9	2680	81,2	3573	105,0
	254				35,0	63,5	2223	76,2	2667	101,6	3556	131,0
	305				28,5	76,3	2175	91,5	2608	122,0	3477	155,0
63	**076**	11,0	7,8	38,0	189,0	19,0	3591	22,8	4309	30,4	5746	36,5
	089				158,0	22,3	3523	26,7	4219	35,6	5625	43,4
	102				131,0	25,5	3341	30,6	4009	40,8	5345	49,7
	115				116,0	28,8	3341	34,5	4002	46,0	5336	55,6
	127				103,0	31,8	3275	38,1	3924	50,8	5232	62,7
	152				84,3	38,0	3203	45,6	3844	60,8	5125	77,1
	178				71,5	44,5	3182	53,4	3818	71,2	5091	92,2
	203				61,7	50,8	3134	60,9	3758	81,2	5010	103,0
	254				47,0	63,5	2985	76,2	3581	101,6	4775	130,0
	305				38,2	76,3	2915	91,5	3495	122,0	4660	157,0

[11.03.2020]

FE 832 MB

FE 832 MB / 10 x 025



CAD MAIL

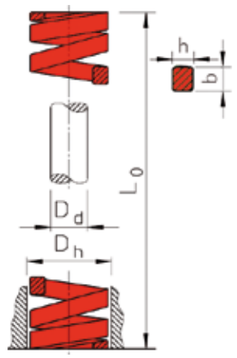
Dh	L0	b	h	Dd	C	25% Arbeitsweg Working stroke		30% Arbeitsweg Working stroke		37,5% Arbeitsweg Working stroke		max. Federweg max. deflection
mm	mm	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm
10	**025**	1,9	1,3	5,0	16,0	6,3	101	7,5	120	9,4	150	10,2
	032				13,0	8,0	104	9,6	125	12,0	156	14,2
	038				11,9	9,5	113	11,4	136	14,3	170	16,8
	044				10,3	11,0	113	13,2	136	16,5	170	19,4
	051				8,9	12,8	114	15,3	136	19,1	170	23,4
	064				7,5	16,0	120	19,2	144	24,0	180	28,2
	076				5,3	19,0	101	22,8	121	28,5	151	34,2
	305				1,6	76,3	122	91,5	146	114,4	183	134,0
13	**025**	2,5	1,5	6,3	30,0	6,3	189	7,5	225	9,4	282	11,9
	032				24,8	8,0	198	9,6	238	12,0	298	16,2
	038				21,4	9,5	203	11,4	244	14,3	306	18,7
	044				18,5	11,0	204	13,2	244	16,5	305	21,3
	051				15,5	12,8	198	15,3	237	19,1	296	25,6
	064				12,1	16,0	194	19,2	232	24,0	290	32,4
	076				10,2	19,0	194	22,8	233	28,5	291	39,0
	089				8,4	22,3	187	26,7	224	33,4	281	45,9
	102				6,3	25,5	161	30,6	193	38,3	241	52,3
	305				2,1	76,3	160	91,5	192	114,4	240	153,0
16	**025**	3,2	2,0	8,0	49,4	6,3	311	7,5	371	9,4	464	10,5
	032				37,1	8,0	297	9,6	356	12,0	445	13,2
	038				33,9	9,5	322	11,4	386	14,3	485	17,2
	044				30,0	11,0	330	13,2	396	16,5	495	19,4
	051				26,4	12,8	338	15,3	404	19,1	504	24,2
	064				20,5	16,0	328	19,2	394	24,0	492	29,2
	076				17,8	19,0	338	22,8	406	28,5	507	36,3
	089				15,2	22,3	339	26,7	406	33,4	508	41,7
	102				13,5	25,5	344	30,6	413	38,3	517	48,9
	115				11,8	28,8	340	34,5	407	43,1	509	53,1
	305				4,8	76,3	366	91,5	439	114,4	549	142,0
20	**025**	4,1	2,4	10,0	98,0	6,3	617	7,5	735	9,4	921	10,5
	032				72,6	8,0	581	9,6	697	12,0	871	13,9
	038				56,0	9,5	532	11,4	638	14,3	801	16,6
	044				47,5	11,0	523	13,2	627	16,5	784	18,8
	051				41,7	12,8	534	15,3	638	19,1	796	23,1
	064				32,3	16,0	517	19,2	620	24,0	775	27,5
	076				25,1	19,0	477	22,8	572	28,5	715	33,8
	089				22,0	22,3	491	26,7	587	33,4	735	39,7
	102				19,8	25,5	505	30,6	606	38,3	758	47,3
	115				18,1	28,8	521	34,5	624	43,1	780	52,5
	127				16,6	31,8	528	38,1	632	47,6	790	56,9
	139				15,2	34,8	529	41,7	634	52,1	793	62,1
	152				13,2	38,0	500	45,6	600	57,0	750	67,6
	305				6,1	76,3	465	91,5	558	114,4	698	143,0
25	**025**	5,4	3,3	12,5	147,0	6,3	926	7,5	1103	9,4	1382	10,2
	032				118,0	8,0	944	9,6	1133	12,0	1416	13,7
	038				93,0	9,5	884	11,4	1060	14,3	1330	15,7
	044				80,8	11,0	889	13,2	1067	16,5	1333	18,2
	051				68,6	12,8	878	15,3	1050	19,1	1310	21,7
	064				53,0	16,0	848	19,2	1018	24,0	1272	26,0

[11.03.2020]

Dh	L0	b	h	Dd	C	25% Arbeitsweg Working stroke		30% Arbeitsweg Working stroke		37,5% Arbeitsweg Working stroke		max. Federweg max. deflection
mm	mm	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm
25	**076**	5,4	3,3	12,5	43,2	19,0	821	22,8	985	28,5	1231	32,3
	089				38,2	22,3	852	26,7	1020	33,4	1276	38,0
	102				33,0	25,5	842	30,6	1010	38,3	1264	43,0
	115				28,0	28,8	806	34,5	966	43,1	1207	48,6
	127				25,9	31,8	824	38,1	987	47,6	1233	53,7
	139				23,4	34,8	812	41,7	974	52,1	1218	59,4
	152				20,8	38,0	790	45,6	948	57,0	1186	63,8
	178				17,8	44,5	792	53,4	951	66,8	1189	76,6
	203				15,8	50,8	803	60,9	962	76,1	1202	88,4
	305				10,2	76,3	778	91,5	933	114,4	1167	135,0
32	**038**	6,8	4,0	16,0	185,0	9,5	1758	11,4	2109	14,3	2646	16,3
	044				158,0	11,0	1738	13,2	2086	16,5	2607	18,9
	051				134,0	12,8	1715	15,3	2050	19,1	2559	23,1
	064				99,0	16,0	1584	19,2	1901	24,0	2376	28,5
	076				80,5	19,0	1530	22,8	1835	28,5	2294	34,2
	089				69,1	22,3	1541	26,7	1845	33,4	2308	40,4
	102				58,8	25,5	1499	30,6	1799	38,3	2252	48,0
	115				51,5	28,8	1483	34,5	1777	43,1	2220	54,3
	127				44,8	31,8	1425	38,1	1707	47,6	2132	59,2
	139				42,6	34,8	1481	41,7	1777	52,1	2221	65,3
	152				37,8	38,0	1436	45,6	1724	57,0	2155	73,0
	178				32,5	44,5	1446	53,4	1736	66,8	2171	84,5
	203				28,9	50,8	1468	60,9	1760	76,1	2199	96,9
	254				21,4	63,5	1359	76,2	1631	95,3	2039	121,0
	305				18,3	76,3	1396	91,5	1674	114,4	2094	147,0
40	**051**	8,2	4,7	20,0	181,6	12,8	2324	15,3	2778	19,1	3469	21,4
	064				140,0	16,0	2240	19,2	2688	24,0	3360	26,8
	076				108,0	19,0	2052	22,8	2462	28,5	3078	32,7
	089				90,7	22,3	2023	26,7	2422	33,4	3029	39,0
	102				81,0	25,5	2066	30,6	2479	38,3	3102	44,1
	115				71,8	28,8	2068	34,5	2477	43,1	3095	50,6
	127				62,7	31,8	1994	38,1	2389	47,6	2985	55,9
	139				57,9	34,8	2013	41,7	2415	52,1	3019	61,8
	152				51,6	38,0	1961	45,6	2353	57,0	2941	67,5
	178				44,1	44,5	1962	53,4	2355	66,8	2946	77,2
	203				36,7	50,8	1864	60,9	2235	76,1	2793	91,8
	254				30,1	63,5	1911	76,2	2294	95,3	2869	113,0
	305				24,6	76,3	1877	91,5	2251	114,4	2814	138,0
50	**064**	11,1	5,8	25,0	209,0	16,0	3344	19,2	4013	24,0	5016	28,2
	076				168,0	19,0	3192	22,8	3830	28,5	4788	34,9
	089				140,0	22,3	3122	26,7	3738	33,4	4676	39,2
	102				119,0	25,5	3035	30,6	3641	38,3	4558	47,3
	115				106,0	28,8	3053	34,5	3657	43,1	4569	52,6
	127				97,0	31,8	3085	38,1	3696	47,6	4617	59,8
	139				87,6	34,8	3045	41,7	3654	52,1	4568	65,1
	152				80,0	38,0	3040	45,6	3648	57,0	4560	70,8
	178				69,5	44,5	3093	53,4	3711	66,8	4643	84,2
	203				59,8	50,8	3038	60,9	3642	76,1	4551	96,5
	229				50,9	57,3	2917	68,7	3497	85,9	4372	108,0
	254				43,9	63,5	2788	76,2	3345	95,3	4184	122,0
	305				38,6	76,3	2945	91,5	3532	114,4	4416	147,0
63	**076**	11,5	9,1	38,0	312,0	19,0	5928	22,8	7114	28,5	8892	30,7
	089				260,0	22,3	5789	26,7	6942	33,4	8684	36,5
	102				221,0	25,5	5636	30,6	6763	38,3	8464	43,6
	115				187,0	28,8	5386	34,5	6452	43,1	8060	48,9
	127				168,0	31,8	5342	38,1	6401	47,6	7997	54,2
	152				136,0	38,0	5168	45,6	6202	57,0	7752	65,7
	178				114,0	44,5	5073	53,4	6088	66,8	7615	76,5
	203				100,0	50,8	5080	60,9	6090	76,1	7610	88,0
	229				89,2	57,3	5111	68,7	6128	85,9	7662	104,0
	254				78,4	63,5	4978	76,2	5974	95,3	7472	112,0
	305				64,7	76,3	4937	91,5	5920	114,4	7402	134,0

FE 833 SB

FE 833 SB / 10 x 025



CAD MAIL

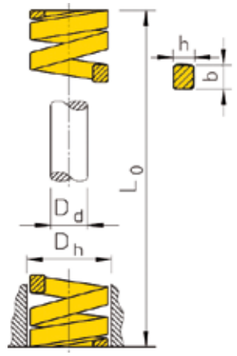
Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
10	025	1,9	1,5	5,0	22,1	5,0	111	6,3	139	7,5	166	9,2
	032				17,5	6,4	112	8,0	140	9,6	168	12,1
	038				17,1	7,6	130	9,5	162	11,4	195	13,2
	044				15,0	8,8	132	11,0	165	13,2	198	15,1
	051				12,8	10,2	131	12,8	164	15,3	196	19,5
	064				10,7	12,8	137	16,0	171	19,2	205	21,8
	076				7,5	15,2	114	19,0	143	22,8	171	27,9
	305				2,1	61,0	128	76,3	160	91,5	192	127,0
13	025	2,4	1,9	6,3	42,1	5,0	211	6,3	265	7,5	316	9,8
	032				33,2	6,4	212	8,0	266	9,6	319	13,6
	038				29,3	7,6	223	9,5	278	11,4	334	14,6
	044				24,6	8,8	216	11,0	271	13,2	325	18,1
	051				19,6	10,2	200	12,8	251	15,3	300	22,3
	064				15,0	12,8	192	16,0	240	19,2	288	27,3
	076				13,2	15,2	201	19,0	251	22,8	301	33,1
	089				11,4	17,8	203	22,3	254	26,7	304	38,9
	102				8,4	20,4	171	25,5	214	30,6	257	43,8
	305				2,8	61,0	171	76,3	214	91,5	256	140,0
16	025	3,1	2,5	8,0	75,7	5,0	379	6,3	477	7,5	568	8,4
	032				52,8	6,4	338	8,0	422	9,6	507	10,5
	038				48,5	7,6	369	9,5	461	11,4	553	13,6
	044				42,8	8,8	377	11,0	471	13,2	565	15,9
	051				37,1	10,2	378	12,8	475	15,3	568	18,9
	064				30,3	12,8	388	16,0	485	19,2	582	24,9
	076				25,7	15,2	391	19,0	488	22,8	586	29,2
	089				21,7	17,8	386	22,3	484	26,7	579	34,5
	102				19,3	20,4	394	25,5	492	30,6	591	39,1
	115				15,7	23,0	361	28,8	452	34,5	542	44,0
	305				7,1	61,0	433	76,3	542	91,5	650	104,0
20	025	4,0	3,3	10,0	216,0	5,0	1080	6,3	1361	7,5	1620	8,3
	032				168,0	6,4	1075	8,0	1344	9,6	1613	10,9
	038				129,0	7,6	980	9,5	1226	11,4	1471	12,5
	044				112,0	8,8	986	11,0	1232	13,2	1478	15,0
	051				94,0	10,2	959	12,8	1203	15,3	1438	17,6
	064				72,1	12,8	923	16,0	1154	19,2	1384	22,6
	076				59,7	15,2	907	19,0	1134	22,8	1361	27,5
	089				50,5	17,8	899	22,3	1126	26,7	1348	31,7
	102				44,2	20,4	902	25,5	1127	30,6	1353	37,5
	115				38,4	23,0	883	28,8	1106	34,5	1325	42,6
	127				34,1	25,4	866	31,8	1084	38,1	1299	45,5
	139				31,2	27,8	868	34,8	1085	41,7	1302	50,1
	152				28,2	30,4	857	38,0	1072	45,6	1286	55,8
	305				15,0	61,0	915	76,3	1145	91,5	1373	114,0
25	025	5,5	4,2	12,5	375,1	5,0	1875	6,3	2363	7,5	2813	8,5
	032				297,0	6,4	1901	8,0	2376	9,6	2851	11,0
	038				219,0	7,6	1664	9,5	2081	11,4	2497	12,6
	044				187,0	8,8	1646	11,0	2057	13,2	2468	14,8
	051				156,0	10,2	1591	12,8	1997	15,3	2387	17,9
	064				123,0	12,8	1574	16,0	1968	19,2	2362	23,1

Systemfedern ISO 10243, Rot: Schwere Belastung
Compression springs, ISO 10243, Red: heavy load springs
FEDERELEMENTE / SPRINGS

Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
25	076	5,5	4,2	12,5	99,0	15,2	1505	19,0	1881	22,8	2257	26,3
	089				84,0	17,8	1495	22,3	1873	26,7	2243	30,5
	102				73,0	20,4	1489	25,5	1862	30,6	2234	37,3
	115				65,0	23,0	1495	28,8	1872	34,5	2243	41,9
	127				57,7	25,4	1466	31,8	1835	38,1	2198	46,2
	139				53,1	27,8	1476	34,8	1844	41,7	2213	49,3
	152				47,8	30,4	1453	38,0	1816	45,6	2180	55,7
	178				41,0	35,6	1460	44,5	1825	53,4	2189	65,1
	203				35,8	40,6	1453	50,8	1819	60,9	2180	74,5
	305				22,9	61,0	1397	76,3	1747	91,5	2095	110,0
32	038	7,1	5,4	16,0	388,0	7,6	2949	9,5	3686	11,4	4423	12,5
	044				324,0	8,8	2851	11,0	3564	13,2	4277	14,9
	051				272,0	10,2	2774	12,8	3482	15,3	4162	17,8
	064				212,0	12,8	2714	16,0	3392	19,2	4070	22,4
	076				172,0	15,2	2614	19,0	3268	22,8	3922	26,1
	089				141,0	17,8	2510	22,3	3144	26,7	3765	30,8
	102				122,0	20,4	2489	25,5	3111	30,6	3733	36,8
	115				107,0	23,0	2461	28,8	3082	34,5	3692	41,4
	127				93,0	25,4	2362	31,8	2957	38,1	3543	44,4
	139				86,6	27,8	2408	34,8	3010	41,7	3612	48,5
	152				78,0	30,4	2371	38,0	2964	45,6	3557	54,8
	178				67,2	35,6	2392	44,5	2990	53,4	3588	63,6
	203				59,1	40,6	2399	50,8	3002	60,9	3599	72,5
	254				46,4	50,8	2357	63,5	2946	76,2	3536	92,8
	305				38,0	61,0	2318	76,3	2899	91,5	3477	112,0
40	051	8,4	6,2	20,0	350,0	10,2	3570	12,8	4480	15,3	5355	17,0
	064				269,0	12,8	3443	16,0	4304	19,2	5165	21,9
	076				219,0	15,2	3329	19,0	4161	22,8	4993	26,7
	089				190,0	17,8	3382	22,3	4237	26,7	5073	31,3
	102				163,0	20,4	3325	25,5	4157	30,6	4988	37,1
	115				142,0	23,0	3266	28,8	4090	34,5	4899	41,0
	127				128,0	25,4	3251	31,8	4070	38,1	4877	46,5
	139				115,8	27,8	3220	34,8	4025	41,7	4830	53,1
	152				105,0	30,4	3192	38,0	3990	45,6	4788	56,1
	178				89,0	35,6	3168	44,5	3961	53,4	4753	67,4
	203				77,0	40,6	3126	50,8	3912	60,9	4689	76,2
	254				61,0	50,8	3099	63,5	3874	76,2	4648	96,2
	305				51,0	61,0	3111	76,3	3891	91,5	4667	115,0
50	064	11,1	7,6	25,0	413,0	12,8	5286	16,0	6608	19,2	7930	22,4
	076				339,0	15,2	5153	19,0	6441	22,8	7729	26,5
	089				288,0	17,8	5126	22,3	6408	26,7	7690	31,5
	102				245,0	20,4	4998	25,5	6248	30,6	7497	37,6
	115				215,0	23,0	4945	28,8	6182	34,5	7418	42,7
	127				192,0	25,4	4877	31,8	6096	38,1	7315	47,5
	139				169,2	27,8	4704	34,8	5880	41,7	7056	51,8
	152				154,0	30,4	4682	38,0	5852	45,6	7022	57,8
	178				134,0	35,6	4770	44,5	5963	53,4	7156	68,5
	203				117,0	40,6	4750	50,8	5938	60,9	7125	77,6
	254				89,0	50,8	4521	63,5	5652	76,2	6782	97,9
	305				73,0	61,0	4453	76,3	5567	91,5	6680	121,0
63	076	11,6	12,3	38,0	618,0	15,2	9394	19,0	11742	22,8	14090	24,7
	089				515,0	17,8	9167	22,3	11485	26,7	13751	30,0
	102				438,0	20,4	8935	25,5	11169	30,6	13403	35,1
	115				370,0	23,0	8510	28,8	10656	34,5	12765	37,5
	127				333,0	25,4	8458	31,8	10589	38,1	12687	45,9
	152				269,0	30,4	8178	38,0	10222	45,6	12266	56,5
	178				226,0	35,6	8046	44,5	10057	53,4	12068	66,8
	203				198,0	40,6	8039	50,8	10058	60,9	12058	78,8
	254				155,0	50,8	7874	63,5	9843	76,2	11811	102,0
	305				128,0	61,0	7808	76,3	9766	91,5	11712	122,0

FE 834 BB

FE 834 BB / 10 x 025



CAD MAIL

Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	17% Arbeitsweg Working stroke mm	17% Arbeitsweg Working stroke N	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
10	025	1,9	1,6	5,0	36,8	4,3	158	5,0	184	6,3	232	7,7
	032				27,9	5,4	151	6,4	179	8,0	223	10,6
	038				23,7	6,5	154	7,6	180	9,5	225	12,6
	044				19,2	7,5	144	8,8	169	11,0	211	13,8
	051				16,5	8,7	144	10,2	168	12,8	211	16,2
	064				13,2	10,9	144	12,8	169	16,0	211	20,4
	076				10,9	12,9	141	15,2	166	19,0	207	25,2
	305				2,6	51,9	135	61,0	159	76,3	198	111,0
13	025	2,6	2,0	6,3	58,5	4,3	252	5,0	293	6,3	369	8,1
	032				43,9	5,4	237	6,4	281	8,0	351	9,9
	038				36,0	6,5	234	7,6	274	9,5	342	12,9
	044				30,3	7,5	227	8,8	267	11,0	333	14,1
	051				26,2	8,7	228	10,2	267	12,8	335	17,4
	064				21,2	10,9	231	12,8	271	16,0	339	21,0
	076				17,1	12,9	221	15,2	260	19,0	325	26,4
	089				14,5	15,1	219	17,8	258	22,3	323	31,5
	102				12,7	17,3	220	20,4	259	25,5	324	36,0
	305				4,3	51,9	223	61,0	262	76,3	328	111,0
16	025	3,2	2,9	8,0	118,0	4,3	507	5,0	590	6,3	743	8,5
	032				89,0	5,4	481	6,4	570	8,0	712	11,0
	038				72,1	6,5	469	7,6	548	9,5	685	13,2
	044				60,9	7,5	457	8,8	536	11,0	670	14,7
	051				52,3	8,7	455	10,2	533	12,8	669	17,7
	064				41,2	10,9	449	12,8	527	16,0	659	21,9
	076				34,1	12,9	440	15,2	518	19,0	648	27,8
	089				29,5	15,1	445	17,8	525	22,3	658	31,2
	102				25,6	17,3	443	20,4	522	25,5	653	37,9
	115				22,4	19,6	439	23,0	515	28,8	645	44,5
	305				8,4	51,9	436	61,0	512	76,3	641	113,0
20	025	4,1	3,8	10,0	293,0	4,3	1260	5,0	1465	6,3	1846	6,9
	032				224,0	5,4	1210	6,4	1434	8,0	1792	9,4
	038				177,0	6,5	1151	7,6	1345	9,5	1682	12,0
	044				149,0	7,5	1118	8,8	1311	11,0	1639	13,5
	051				128,0	8,4	1114	10,2	1306	12,8	1638	16,2
	064				99,0	10,9	1079	12,8	1267	16,0	1584	21,2
	076				81,7	12,9	1054	15,2	1242	19,0	1552	24,7
	089				69,5	15,1	1049	17,8	1237	22,3	1550	28,8
	102				60,6	17,3	1048	20,4	1236	25,5	1545	34,8
	115				53,0	19,6	1039	23,0	1219	28,8	1526	39,0
	127				47,5	21,6	1026	25,4	1207	31,8	1511	43,0
	139				43,3	23,6	1023	27,8	1204	34,8	1505	45,3
	152				39,0	25,8	1006	30,4	1186	38,0	1482	50,4
	305				21,2	51,9	1100	61,0	1293	76,3	1618	103,0
25	025	5,4	4,6	12,5	459,0	4,3	1974	5,0	2295	6,3	2892	7,3
	032				374,4	5,4	2022	6,4	2396	8,0	2995	10,7
	038				346,0	6,5	2249	7,6	2630	9,5	3287	12,0
	044				244,0	7,5	1830	8,8	2147	11,0	2684	14,4
	051				207,5	8,7	1805	10,2	2117	12,8	2656	17,4
	064				161,0	10,9	1755	12,8	2061	16,0	2576	21,4

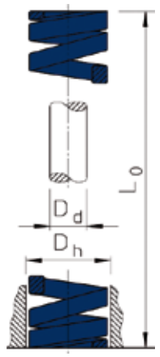
Systemfedern ISO 10243, Gelb: Besondere Belastung
Compression springs, ISO 10243, Yellow: extra heavy load springs
FEDERELEMENTE / SPRINGS

Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	17% Arbeitsweg Working stroke mm	17% Arbeitsweg Working stroke N	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
25	076	5,4	4,6	12,5	130,8	12,9	1687	15,2	1988	19,0	2485	26,9
	089				110,7	15,1	1663	17,8	1967	22,3	2464	30,9
	102				96,3	17,3	1666	20,4	1965	25,5	2456	36,7
	115				85,7	19,6	1680	23,0	1971	28,8	2468	40,3
	127				76,3	21,6	1648	25,4	1938	31,8	2426	45,1
	139				69,4	23,6	1640	27,8	1929	34,8	2412	47,6
	152				63,5	25,8	1638	30,4	1930	38,0	2413	53,5
	178				53,9	30,3	1633	35,6	1919	44,5	2399	63,9
	203				47,0	34,5	1622	40,6	1908	50,8	2388	70,2
	305				30,9	51,9	1604	61,0	1885	76,3	2358	110,0
32	038	7,3	5,9	16,0	528,2	6,5	3433	7,6	4014	9,5	5018	11,4
	044				424,4	7,5	3183	8,8	3735	11,0	4668	13,7
	051				353,0	8,7	3071	10,2	3601	12,8	4518	15,6
	064				269,2	10,9	2934	12,8	3446	16,0	4307	20,0
	076				218,5	12,9	2819	15,2	3321	19,0	4152	24,4
	089				180,3	15,1	2723	17,8	3209	22,3	4021	29,7
	102				155,0	17,3	2682	20,4	3162	25,5	3953	35,1
	115				140,0	19,6	2744	23,0	3220	28,8	4032	39,0
	127				124,0	21,6	2678	25,4	3150	31,8	3943	42,8
	139				113,1	23,6	2673	27,8	3144	34,8	3931	48,6
	152				102,0	25,8	2632	30,4	3101	38,0	3876	52,4
	178				88,2	30,3	2672	35,6	3140	44,5	3925	60,9
	203				76,0	34,5	2622	40,6	3086	50,8	3861	69,2
	254				60,8	43,2	2627	50,8	3089	63,5	3861	88,1
	305				49,0	51,9	2543	61,0	2989	76,3	3739	104,0
40	051	8,4	7,5	20,0	628,0	8,7	5464	10,2	6406	12,8	8038	15,0
	064				487,0	10,9	5308	12,8	6234	16,0	7792	19,5
	076				379,0	12,9	4889	15,2	5761	19,0	7201	23,3
	089				321,0	15,1	4847	17,8	5714	22,3	7158	26,7
	102				281,0	17,3	4861	20,4	5732	25,5	7166	33,8
	115				245,0	19,6	4802	23,0	5635	28,8	7056	36,2
	127				221,0	21,6	4774	25,4	5613	31,8	7028	40,7
	139				191,4	23,6	4522	27,8	5320	34,8	6650	44,5
	152				168,0	25,8	4334	30,4	5107	38,0	6384	49,6
	178				146,0	30,3	4424	35,6	5198	44,5	6497	59,9
	203				132,0	34,5	4554	40,6	5359	50,8	6706	67,1
	254				107,0	43,2	4622	50,8	5436	63,5	6795	86,3
	305				87,8	51,9	4557	61,0	5356	76,3	6699	104,0
50	064	11,5	9,0	25,0	709,0	10,9	7728	12,8	9075	16,0	11344	19,3
	076				572,0	12,9	7379	15,2	8694	19,0	10868	24,2
	089				475,0	15,1	7173	17,8	8455	22,3	10593	28,0
	102				405,0	17,3	7007	20,4	8262	25,5	10328	33,5
	115				352,0	19,6	6899	23,0	8096	28,8	10138	38,6
	127				316,0	21,6	6826	25,4	8026	31,8	10049	41,4
	139				276,0	23,6	6521	27,8	7672	34,8	9590	47,3
	152				239,0	25,8	6166	30,4	7266	38,0	9082	50,2
	178				215,0	30,3	6515	35,6	7654	44,5	9568	61,1
	203				187,0	34,5	6452	40,6	7592	50,8	9500	67,7
	254				153,0	43,5	6610	50,8	7772	63,5	9716	87,0
	305				127,0	51,9	6591	61,0	7747	76,3	9690	104,0
63	076*	11,6	14,9	38,0	952,0	12,9	12280	15,2	14470	-	-	15,5
	089*				819,0	15,1	12360	17,8	14580	-	-	20,0
	102				700,0	17,3	12110	20,4	14280	25,5	17850	30,7
	115				620,0	19,6	12152	23,0	14260	28,8	17860	34,9
	127				565,0	21,6	12204	25,4	14351	31,8	17967	38,0
	152				458,0	25,8	11816	30,4	13923	38,0	17404	47,2
	178				384,0	30,3	11635	35,6	13670	44,5	17088	55,8
	203				337,0	34,5	11627	40,6	13682	50,8	17120	64,8
	254				263,0	43,2	11362	50,8	13360	63,5	16701	86,7
	305				218,0	51,9	11314	61,0	13298	76,3	16633	106,0

* = max. Federweg 20% / * = max. spring deflection 20%

FE 835 LB

FE 835 LB / 10 x 025



CAD MAIL

Dh mm	L0 mm	Dd mm	C N/mm	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	40% Arbeitsweg Working stroke mm	40% Arbeitsweg Working stroke N	50% Arbeitsweg Working stroke mm	50% Arbeitsweg Working stroke N
10	**025**	5,0	14,4	6,3	90	10,0	144	12,5	180
	032		12,3	8,0	99	12,8	158	16,0	197
	038		9,8	9,5	93	15,2	149	19,0	186
	044		8,8	11,0	97	17,6	155	22,0	194
	051		7,5	12,8	96	20,4	153	25,5	191
	064		4,9	16,0	79	25,6	126	32,0	157
	076		3,8	19,0	72	30,4	115	38,0	144
	305		1,2	76,3	92	122,0	146	152,5	183
13	**025**	6,3	18,9	6,3	118	10,0	189	12,5	236
	032		15,4	8,0	123	12,8	197	16,0	246
	038		13,5	9,5	129	15,2	206	19,0	257
	044		11,8	11,0	130	17,6	208	22,0	260
	051		10,0	12,8	128	20,4	204	25,5	255
	064		7,6	16,0	122	25,6	194	32,0	243
	076		5,9	19,0	112	30,4	179	38,0	224
	089		4,8	22,3	107	35,6	171	44,5	214
	102		3,4	25,5	87	40,8	138	51,0	173
	305		1,6	76,3	122	122,0	195	152,5	244
16	**025**	8,0	22,9	6,3	143	10,0	229	12,5	286
	032		22,5	8,0	180	12,8	288	16,0	360
	038		18,9	9,5	180	15,2	287	19,0	359
	044		16,8	11,0	185	17,6	296	22,0	370
	051		15,4	12,8	197	20,4	314	25,5	393
	064		10,5	16,0	168	25,6	269	32,0	336
	076		9,8	19,0	186	30,4	298	38,0	372
	089		8,4	22,3	187	35,6	299	44,5	374
	102		7,7	25,5	197	40,8	314	51,0	393
	115		5,9	28,8	170	46,0	271	57,5	339
	305		2,5	76,3	191	122,0	305	152,5	381
20	**025**	10,0	53,0	6,3	332	10,0	530	12,5	663
	032		43,1	8,0	345	12,8	552	16,0	690
	038		34,3	9,5	326	15,2	522	19,0	652
	044		30,4	11,0	335	17,6	535	22,0	669
	051		25,5	12,8	325	20,4	520	25,5	650
	064		20,6	16,0	330	25,6	527	32,0	659
	076		16,2	19,0	308	30,4	493	38,0	616
	089		14,2	22,3	316	35,6	506	44,5	632
	102		12,2	25,5	311	40,8	498	51,0	622
	115		11,0	28,8	317	46,0	506	57,5	633
	127		9,8	31,8	311	50,8	498	63,5	622
	140		8,3	35,0	291	56,0	465	70,0	581
	152		7,2	38,0	274	60,8	438	76,0	547
	305		4,1	76,3	313	122,0	500	152,5	625
25	**025**	12,5	107,9	6,3	675	10,0	1079	12,5	1349
	032		80,4	8,0	643	12,8	1029	16,0	1286
	038		62,8	9,5	597	15,2	954	19,0	1193
	044		52,0	11,0	572	17,6	915	22,0	1144
	051		43,1	12,8	550	20,4	879	25,5	1099
	064		35,3	16,0	565	25,6	904	32,0	1130

[11.03.2020]

[11.03.2020]

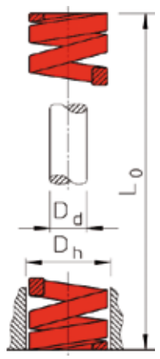
Systemfedern nach US-Farbcod., Blau: Leichte Belastung
Compression springs, US color coded, Blue: light load springs
FEDERELEMENTE / SPRINGS

Dh mm	L0 mm	Dd mm	C N/mm	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	40% Arbeitsweg Working stroke mm	40% Arbeitsweg Working stroke N	50% Arbeitsweg Working stroke mm	50% Arbeitsweg Working stroke N
25	**076**	12,5	29,4	19,0	559	30,4	894	38,0	1117
	089		24,5	22,3	545	35,6	872	44,5	1090
	102		21,6	25,5	551	40,8	882	51,0	1102
	115		18,6	28,8	535	46,0	856	57,5	1070
	127		17,2	31,8	546	50,8	874	63,5	1092
	140		15,7	35,0	550	56,0	879	70,0	1099
	152		14,7	38,0	559	60,8	894	76,0	1117
	178		12,7	44,5	565	71,2	904	89,0	1130
	203		10,8	50,8	548	81,2	877	101,5	1096
	305		7,4	76,3	565	122,0	903	152,5	1129
32	**038**	16,0	88,3	9,5	839	15,2	1342	19,0	1678
	044		76,5	11,0	842	17,6	1346	22,0	1683
	051		60,8	12,8	775	20,4	1240	25,5	1550
	064		49,0	16,0	784	25,6	1254	32,0	1568
	076		41,2	19,0	783	30,4	1253	38,0	1566
	089		35,3	22,3	786	35,6	1257	44,5	1571
	102		30,4	25,5	775	40,8	1240	51,0	1550
	115		27,5	28,8	791	46,0	1265	57,5	1581
	127		23,5	31,8	746	50,8	1194	63,5	1492
	140		21,6	35,0	756	56,0	1210	70,0	1512
	152		19,6	38,0	745	60,8	1192	76,0	1490
	178		17,7	44,5	788	71,2	1260	89,0	1575
	203		14,7	50,8	746	81,2	1194	101,5	1492
	254		12,7	63,5	807	101,6	1290	127,0	1613
	305		9,8	76,3	748	122,0	1196	152,5	1495
40	**051**	20,0	81,4	12,8	1038	20,4	1661	25,5	2076
	064		62,8	16,0	1005	25,6	1608	32,0	2010
	076		51,0	19,0	969	30,4	1550	38,0	1938
	089		43,1	22,3	959	35,6	1534	44,5	1918
	102		36,3	25,5	926	40,8	1481	51,0	1851
	115		32,4	28,8	932	46,0	1490	57,5	1863
	127		29,4	31,8	934	50,8	1494	63,5	1867
	140		27,0	35,0	945	56,0	1512	70,0	1890
	152		24,5	38,0	931	60,8	1490	76,0	1862
	178		21,6	44,5	961	71,2	1538	89,0	1922
	203		18,6	50,8	944	81,2	1510	101,5	1888
	254		14,7	63,5	934	101,6	1494	127,0	1867
	305		10,8	76,3	824	122,0	1318	152,5	1647
50	**064**	25,0	156,9	16,0	2511	25,6	4017	32,0	5021
	076		132,4	19,0	2516	30,4	4025	38,0	5031
	089		114,7	22,3	2552	35,6	4083	44,5	5104
	102		98,1	25,5	2502	40,8	4002	51,0	5003
	115		87,3	28,8	2510	46,0	4016	57,5	5020
	127		77,5	31,8	2461	50,8	3937	63,5	4921
	140		69,6	35,0	2436	56,0	3898	70,0	4872
	152		64,7	38,0	2459	60,8	3934	76,0	4917
	178		53,0	44,5	2359	71,2	3774	89,0	4717
	203		47,1	50,8	2391	81,2	3825	101,5	4781
	254		37,5	63,5	2382	101,6	3810	127,0	4763
	305		31,4	76,3	2395	122,0	3831	152,5	4789

[FE]

FE 836 MB

FE 836 MB / 10 x 025



CAD MAIL

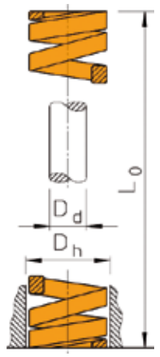
Dh mm	L0 mm	Dd mm	C N/mm	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	37% Arbeitsweg Working stroke mm	37% Arbeitsweg Working stroke N
10	**025**	5,0	17,8	5,0	89	6,3	111	9,3	165
	032		15,1	6,4	97	8,0	121	11,8	179
	038		13,2	7,6	101	9,5	126	14,1	186
	044		11,3	8,8	99	11,0	124	16,3	184
	051		8,4	10,2	86	12,8	107	18,9	159
	064		7,2	12,8	92	16,0	116	23,7	171
	076		5,8	15,2	88	19,0	110	28,1	163
	305		1,5	61,0	91	76,3	114	112,9	169
13	**025**	6,3	30,6	5,0	153	6,3	191	9,3	283
	032		22,0	6,4	141	8,0	176	11,8	261
	038		19,1	7,6	145	9,5	182	14,1	269
	044		16,1	8,8	142	11,0	177	16,3	262
	051		15,1	10,2	154	12,8	192	18,9	284
	064		11,8	12,8	151	16,0	189	23,7	280
	076		9,8	15,2	149	19,0	186	28,1	275
	089		8,1	17,8	144	22,3	180	32,9	266
	102		6,3	20,4	129	25,5	161	37,7	238
	305		2,1	61,0	128	76,3	160	112,9	237
16	**025**	8,0	57,1	5,0	285	6,3	357	9,3	528
	032		38,1	6,4	244	8,0	305	11,8	451
	038		33,4	7,6	254	9,5	318	14,1	470
	044		29,2	8,8	257	11,0	322	16,3	476
	051		25,5	10,2	261	12,8	326	18,9	482
	064		19,6	12,8	251	16,0	314	23,7	464
	076		16,2	15,2	246	19,0	307	28,1	455
	089		13,7	17,8	244	22,3	305	32,9	451
	102		12,7	20,4	259	25,5	324	37,7	479
	115		10,3	23,0	237	28,8	297	42,6	439
	305		3,9	61,0	238	76,3	297	112,9	440
20	**025**	10,0	99,6	5,0	498	6,3	622	9,3	921
	032		77,3	6,4	495	8,0	618	11,8	915
	038		56,0	7,6	426	9,5	532	14,1	788
	044		50,1	8,8	441	11,0	551	16,3	815
	051		42,3	10,2	431	12,8	539	18,9	798
	064		33,3	12,8	426	16,0	533	23,7	789
	076		25,0	15,2	380	19,0	475	28,1	703
	089		23,1	17,8	411	22,3	514	32,9	760
	102		20,6	20,4	420	25,5	525	37,7	777
	115		18,6	23,0	428	28,8	535	42,6	792
	127		17,7	25,4	450	31,8	562	47,0	832
	140		16,2	28,0	454	35,0	567	51,8	839
	152		13,9	30,4	422	38,0	528	56,2	781
	305		6,5	61,0	394	76,3	493	112,9	729
25	**025**	12,5	138,1	5,0	690	6,3	863	9,3	1277
	032		105,6	6,4	676	8,0	845	11,8	1250
	038		88,5	7,6	673	9,5	841	14,1	1245
	044		76,6	8,8	674	11,0	843	16,3	1247
	051		63,8	10,2	651	12,8	814	18,9	1204
	064		49,0	12,8	628	16,0	784	23,7	1161

Systemfedern nach US-Farbcod., Rot: Mittlere Belastung
Compression springs, US color coded, Red: medium load springs
FEDERELEMENTE / SPRINGS

Dh mm	L0 mm	Dd mm	C N/mm	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	37% Arbeitsweg Working stroke mm	37% Arbeitsweg Working stroke N
25	**076**	12,5	41,7	15,2	634	19,0	792	28,1	1172
	089		35,8	17,8	637	22,3	796	32,9	1178
	102		31,9	20,4	650	25,5	813	37,7	1203
	115		27,0	23,0	622	28,8	777	42,6	1150
	127		24,5	25,4	623	31,8	778	47,0	1152
	140		22,6	28,0	633	35,0	791	51,8	1171
	152		19,6	30,4	596	38,0	745	56,2	1102
	178		17,7	35,6	630	44,5	788	65,9	1166
	203		15,7	40,6	637	50,8	797	75,1	1179
	305		10,8	61,0	659	76,3	824	112,9	1219
32	**038**	16,0	196,7	7,6	1495	9,5	1868	14,1	2765
	044		176,7	8,8	1555	11,0	1944	16,3	2877
	051		147,3	10,2	1503	12,8	1878	18,9	2780
	064		108,0	12,8	1382	16,0	1728	23,7	2557
	076		90,1	15,2	1370	19,0	1713	28,1	2535
	089		74,4	17,8	1325	22,3	1656	32,9	2451
	102		64,6	20,4	1318	25,5	1648	37,7	2439
	115		56,0	23,0	1287	28,8	1609	42,6	2381
	127		47,1	25,4	1197	31,8	1496	47,0	2214
	140		44,1	28,0	1235	35,0	1543	51,8	2284
	152		40,7	30,4	1236	38,0	1545	56,2	2287
	178		34,3	35,6	1222	44,5	1527	65,9	2260
	203		31,4	40,6	1275	50,8	1593	75,1	2358
	254		22,1	50,8	1123	63,5	1403	94,0	2077
	305		20,6	61,0	1257	76,3	1572	112,9	2326
40	**051**	20,0	178,8	10,2	1824	12,8	2280	18,9	3374
	064		132,5	12,8	1696	16,0	2120	23,7	3138
	076		107,8	15,2	1639	19,0	2049	28,1	3032
	089		94,0	17,8	1674	22,3	2092	32,9	3096
	102		82,3	20,4	1679	25,5	2099	37,7	3106
	115		73,8	23,0	1697	28,8	2122	42,6	3140
	127		62,8	25,4	1596	31,8	1995	47,0	2952
	140		58,8	28,0	1646	35,0	2058	51,8	3046
	152		52,0	30,4	1579	38,0	1974	56,2	2922
	178		44,1	35,6	1571	44,5	1964	65,9	2906
	203		37,3	40,6	1514	50,8	1893	75,1	2801
	254		31,4	50,8	1596	63,5	1995	94,0	2952
	305		24,5	61,0	1495	76,3	1869	112,9	2766
50	**064**	25,0	211,0	12,8	2701	16,0	3376	23,7	4996
	076		171,5	15,2	2606	19,0	3258	28,1	4822
	089		142,1	17,8	2529	22,3	3161	32,9	4678
	102		119,5	20,4	2437	25,5	3047	37,7	4509
	115		108,0	23,0	2485	28,8	3106	42,6	4597
	127		100,0	25,4	2541	31,8	3176	47,0	4700
	140		90,2	28,0	2525	35,0	3157	51,8	4672
	152		84,2	30,4	2561	38,0	3201	56,2	4738
	178		71,1	35,6	2532	44,5	3166	65,9	4685
	203		61,8	40,6	2509	50,8	3136	75,1	4641
	254		49,5	50,8	2515	63,5	3144	94,0	4653
	305		43,1	61,0	2630	76,3	3288	112,9	4866

FE 837 SB

FE 837 SB / 10 x 025



CAD MAIL

Dh mm	L0 mm	Dd mm	C N/mm	15% Arbeitsweg Working stroke mm	15% Arbeitsweg Working stroke N	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N
10	**025**	5,0	22,5	3,8	85	5,0	113	7,5	169
	032		18,6	4,8	90	6,4	119	9,6	179
	038		15,9	5,7	91	7,6	121	11,4	181
	044		13,7	6,6	91	8,8	121	13,2	181
	051		11,8	7,7	90	10,2	120	15,3	180
	064		8,8	9,6	85	12,8	113	19,2	169
	076		6,4	11,4	73	15,2	97	22,8	146
	305		1,7	45,8	78	61,0	104	91,5	156
13	**025**	6,3	37,3	3,8	140	5,0	187	7,5	280
	032		32,5	4,8	156	6,4	208	9,6	312
	038		28,4	5,7	162	7,6	216	11,4	324
	044		24,5	6,6	162	8,8	215	13,2	323
	051		18,6	7,7	143	10,2	190	15,3	285
	064		15,7	9,6	151	12,8	201	19,2	301
	076		13,7	11,4	156	15,2	208	22,8	312
	089		10,8	13,4	144	17,8	192	26,7	288
	102		7,4	15,3	113	20,4	151	30,6	226
	305		3,1	45,8	142	61,0	189	91,5	284
16	**025**	8,0	78,3	3,8	294	5,0	391	7,5	587
	032		59,8	4,8	287	6,4	383	9,6	574
	038		51,0	5,7	291	7,6	387	11,4	581
	044		43,1	6,6	285	8,8	379	13,2	569
	051		38,2	7,7	292	10,2	389	15,3	584
	064		31,4	9,6	302	12,8	402	19,2	603
	076		24,5	11,4	280	15,2	373	22,8	559
	089		20,6	13,4	275	17,8	367	26,7	550
	102		18,6	15,3	285	20,4	379	30,6	569
	115		15,7	17,3	271	23,0	361	34,5	542
	305		5,7	45,8	261	61,0	348	91,5	522
20	**025**	10,0	181,5	3,8	681	5,0	907	7,5	1361
	032		137,3	4,8	659	6,4	879	9,6	1318
	038		107,9	5,7	615	7,6	820	11,4	1230
	044		94,1	6,6	621	8,8	828	13,2	1242
	051		78,5	7,7	601	10,2	801	15,3	1201
	064		65,0	9,6	624	12,8	832	19,2	1248
	076		56,9	11,4	649	15,2	865	22,8	1297
	089		47,1	13,4	629	17,8	839	26,7	1258
	102		41,2	15,3	631	20,4	841	30,6	1261
	115		36,3	17,3	626	23,0	835	34,5	1252
	127		32,4	19,1	617	25,4	823	38,1	1234
	140		29,4	21,0	618	28,0	823	42,0	1235
	152		25,5	22,8	582	30,4	775	45,6	1163
	305		14,7	45,8	673	61,0	897	91,5	1345
25	**025**	12,5	333,5	3,8	1251	5,0	1667	7,5	2501
	032		257,4	4,8	1236	6,4	1647	9,6	2471
	038		210,8	5,7	1202	7,6	1602	11,4	2403
	044		176,5	6,6	1165	8,8	1553	13,2	2330
	051		148,1	7,7	1133	10,2	1511	15,3	2266
	064		119,6	9,6	1148	12,8	1531	19,2	2296

[11.03.2020]

Systemfedern nach US-Farbcod., Gold: Schwere Belastung
Compression springs, US color coded, Gold: heavy load springs
FEDERELEMENTE / SPRINGS

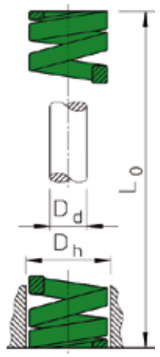
Dh mm	L0 mm	Dd mm	C N/mm	15% Arbeitsweg Working stroke mm	15% Arbeitsweg Working stroke N	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N
25	**076**	12,5	100,0	11,4	1140	15,2	1520	22,8	2280
	089		83,4	13,4	1114	17,8	1485	26,7	2227
	102		73,6	15,3	1126	20,4	1501	30,6	2252
	115		63,7	17,3	1099	23,0	1465	34,5	2198
	127		56,9	19,1	1084	25,4	1445	38,1	2168
	140		51,0	21,0	1071	28,0	1428	42,0	2142
	152		47,1	22,8	1074	30,4	1432	45,6	2148
	178		41,2	26,7	1100	35,6	1467	53,4	2200
	203		36,3	30,5	1106	40,6	1474	60,9	2211
	305		22,6	45,8	1034	61,0	1379	91,5	2068
32	**038**	**16,0**	362,9	5,7	2069	7,6	2758	11,4	4137
	044		307,9	6,6	2032	8,8	2709	13,2	4064
	051		262,8	7,7	2011	10,2	2681	15,3	4021
	064		205,9	9,6	1977	12,8	2635	19,2	3953
	076		171,6	11,4	1956	15,2	2608	22,8	3912
	089		147,1	13,4	1964	17,8	2619	26,7	3928
	102		127,5	15,3	1951	20,4	2601	30,6	3902
	115		112,8	17,3	1946	23,0	2595	34,5	3892
	127		101,0	19,1	1924	25,4	2565	38,1	3848
	140		88,3	21,0	1855	28,0	2473	42,0	3709
	152		80,9	22,8	1845	30,4	2459	45,6	3689
	178		68,6	26,7	1832	35,6	2442	53,4	3663
	203		59,8	30,5	1821	40,6	2428	60,9	3642
	254		46,9	38,1	1787	50,8	2383	76,2	3574
	305		39,2	45,8	1794	61,0	2391	91,5	3587
40	**051**	**20,0**	313,8	7,7	2401	10,2	3201	15,3	4801
	064		230,5	9,6	2213	12,8	2951	19,2	4426
	076		196,1	11,4	2236	15,2	2981	22,8	4471
	089		171,6	13,4	2291	17,8	3055	26,7	4582
	102		142,2	15,3	2176	20,4	2901	30,6	4351
	115		124,5	17,3	2148	23,0	2863	34,5	4295
	127		112,8	19,1	2149	25,4	2865	38,1	4298
	140		103,0	21,0	2163	28,0	2884	42,0	4326
	152		93,2	22,8	2125	30,4	2833	45,6	4250
	178		80,4	26,7	2147	35,6	2862	53,4	4293
	203		70,6	30,5	2150	40,6	2867	60,9	4300
	254		56,9	38,1	2168	50,8	2891	76,2	4336
	305		47,1	45,8	2155	61,0	2873	91,5	4310
50	**064**	**25,0**	392,3	9,6	3766	12,8	5021	19,2	7532
	076		328,5	11,4	3745	15,2	4993	22,8	7490
	089		274,6	13,4	3666	17,8	4888	26,7	7332
	102		235,4	15,3	3602	20,4	4802	30,6	7203
	115		205,9	17,3	3552	23,0	4736	34,5	7104
	127		186,3	19,1	3549	25,4	4732	38,1	7098
	140		166,7	21,0	3501	28,0	4667	42,0	7001
	152		147,1	22,8	3354	30,4	4472	45,6	6708
	178		127,5	26,7	3405	35,6	4539	53,4	6809
	203		112,8	30,5	3435	40,6	4580	60,9	6870
	254		88,3	38,1	3364	50,8	4485	76,2	6728
	305		70,6	45,8	3230	61,0	4307	91,5	6460

[11.03.2020]

[FE]

FE 838 BB

FE 838 BB / 10 x 025



CAD MAIL

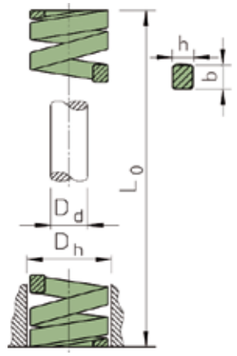
Dh mm	L0 mm	Dd mm	C N/mm	15% Arbeitsweg Working stroke mm	15% Arbeitsweg Working stroke N	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N
10	**025**	5,0	38,9	3,8	146	5,0	194	6,3	243
	032		29,8	4,8	143	6,4	190	8,0	238
	038		25,4	5,7	145	7,6	193	9,5	241
	044		20,2	6,6	133	8,8	178	11,0	222
	051		17,6	7,7	135	10,2	180	12,8	225
	064		14,0	9,6	134	12,8	179	16,0	224
	076		11,4	11,4	130	15,2	174	19,0	217
	305		2,6	45,8	119	61,0	158	76,3	198
13	**025**	6,3	56,5	3,8	212	5,0	282	6,3	353
	032		42,1	4,8	202	6,4	270	8,0	337
	038		35,1	5,7	200	7,6	266	9,5	333
	044		29,8	6,6	197	8,8	262	11,0	328
	051		24,6	7,7	188	10,2	251	12,8	314
	064		20,2	9,6	194	12,8	258	16,0	323
	076		15,8	11,4	180	15,2	240	19,0	300
	089		14,0	13,4	187	17,8	250	22,3	312
	102		10,8	15,3	165	20,4	220	25,5	275
	305		4,4	45,8	202	61,0	269	76,3	336
16	**025**	8,0	111,2	3,8	417	5,0	556	6,3	695
	032		82,3	4,8	395	6,4	526	8,0	658
	038		66,7	5,7	380	7,6	507	9,5	634
	044		56,1	6,6	370	8,8	494	11,0	617
	051		51,0	7,7	390	10,2	520	12,8	650
	064		38,5	9,6	370	12,8	493	16,0	616
	076		31,5	11,4	359	15,2	479	19,0	599
	089		28,0	13,4	374	17,8	499	22,3	624
	102		23,6	15,3	361	20,4	482	25,5	602
	115		20,6	17,3	356	23,0	474	28,8	593
	305		7,8	45,8	357	61,0	476	76,3	595
20	**025**	10,0	207,5	3,8	778	5,0	1038	6,3	1297
	032		166,8	4,8	800	6,4	1067	8,0	1334
	038		132,4	5,7	755	7,6	1006	9,5	1258
	044		117,7	6,6	777	8,8	1036	11,0	1295
	051		98,5	7,7	754	10,2	1005	12,8	1256
	064		83,4	9,6	800	12,8	1067	16,0	1334
	076		68,6	11,4	782	15,2	1042	19,0	1303
	089		55,0	13,4	734	17,8	979	22,3	1224
	102		48,1	15,3	736	20,4	982	25,5	1227
	115		41,3	17,3	712	23,0	950	28,8	1187
	127		38,3	19,1	729	25,4	972	31,8	1215
	140		33,3	21,0	700	28,0	933	35,0	1166
	152		31,4	22,8	716	30,4	954	38,0	1193
	305		16,5	45,8	755	61,0	1007	76,3	1259
25	**025**	12,5	444,8	3,8	1668	5,0	2224	6,3	2780
	032		343,3	4,8	1648	6,4	2197	8,0	2746
	038		323,6	5,7	1844	7,6	2459	9,5	3074
	044		264,8	6,6	1748	8,8	2330	11,0	2913
	051		201,8	7,7	1544	10,2	2058	12,8	2573
	064		156,9	9,6	1506	12,8	2008	16,0	2510

Systemfedern nach US-Farbcod., Grün: Bes. schw. Belastung
Compr. springs, US color coded, Green: extra heavy load springs
FEDERELEMENTE / SPRINGS

Dh mm	L0 mm	Dd mm	C N/mm	15% Arbeitsweg Working stroke mm	15% Arbeitsweg Working stroke N	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N
25	**076**	12,5	127,5	11,4	1454	15,2	1938	19,0	2423
	089		108,1	13,4	1444	17,8	1925	22,3	2406
	102		96,1	15,3	1471	20,4	1961	25,5	2451
	115		84,5	17,3	1457	23,0	1942	28,8	2428
	127		75,6	19,1	1441	25,4	1921	31,8	2401
	140		63,7	21,0	1338	28,0	1784	35,0	2230
	152		62,8	22,8	1432	30,4	1909	38,0	2386
	178		53,9	26,7	1439	35,6	1919	44,5	2399
	203		46,1	30,5	1405	40,6	1874	50,8	2342
	305		33,3	45,8	1525	61,0	2033	76,3	2541
32	**038**	16,0	470,7	5,7	2683	7,6	3578	9,5	4472
	044		392,3	6,6	2589	8,8	3452	11,0	4315
	051		334,7	7,7	2561	10,2	3414	12,8	4268
	064		264,8	9,6	2542	12,8	3390	16,0	4237
	076		215,6	11,4	2458	15,2	3277	19,0	4096
	089		167,1	13,4	2230	17,8	2974	22,3	3717
	102		147,1	15,3	2251	20,4	3001	25,5	3751
	115		137,5	17,3	2372	23,0	3163	28,8	3954
	127		127,7	19,1	2433	25,4	3244	31,8	4055
	140		112,8	21,0	2369	28,0	3158	35,0	3948
	152		103,0	22,8	2348	30,4	3131	38,0	3914
	178		92,2	26,7	2462	35,6	3282	44,5	4103
	203		75,6	30,5	2301	40,6	3068	50,8	3835
	254		60,8	38,1	2317	50,8	3089	63,5	3861
	305		49,0	45,8	2243	61,0	2991	76,3	3739
40	**051**	20,0	541,5	7,7	4142	10,2	5523	12,8	6904
	064		460,9	9,6	4424	12,8	5899	16,0	7374
	076		353,0	11,4	4024	15,2	5366	19,0	6707
	089		294,9	13,4	3937	17,8	5249	22,3	6561
	102		255,0	15,3	3902	20,4	5202	25,5	6503
	115		226,0	17,3	3898	23,0	5198	28,8	6497
	127		201,3	19,1	3835	25,4	5114	31,8	6392
	140		186,3	21,0	3913	28,0	5217	35,0	6521
	152		166,7	22,8	3801	30,4	5068	38,0	6335
	178		147,1	26,7	3928	35,6	5237	44,5	6546
	203		127,6	30,5	3886	40,6	5182	50,8	6477
	254		98,1	38,1	3737	50,8	4983	63,5	6229
	305		83,4	45,8	3818	61,0	5090	76,3	6363
50	**064**	25,0	645,3	9,6	6195	12,8	8260	16,0	10325
	076		554,1	11,4	6317	15,2	8422	19,0	10528
	089		452,1	13,4	6036	17,8	8048	22,3	10060
	102		402,1	15,3	6152	20,4	8203	25,5	10254
	115		343,8	17,3	5930	23,0	7907	28,8	9884
	127		314,3	19,1	5987	25,4	7983	31,8	9979
	140		284,4	21,0	5972	28,0	7963	35,0	9954
	152		264,8	22,8	6037	30,4	8050	38,0	10062
	178		225,6	26,7	6023	35,6	8031	44,5	10039
	203		193,9	30,5	5904	40,6	7872	50,8	9840
	254		153,0	38,1	5830	50,8	7773	63,5	9716
	305		146,2	45,8	6688	61,0	8918	76,3	11147

FE 840

FE 840 / 10 x 025



MAIL

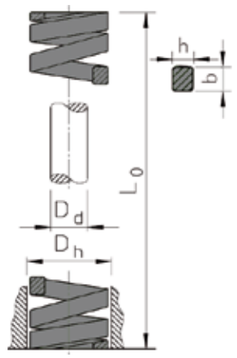
Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N	40% Arbeitsweg Working stroke mm	40% Arbeitsweg Working stroke N	50% Arbeitsweg Working stroke mm	50% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
10	**025**	1,65	1,0	5,0	8,5	7,5	64	10,0	85	12,5	106	14,1
	032				6,5	9,6	62	12,8	83	16,0	104	18,5
	038				5,5	11,4	63	15,2	84	19,0	105	22,5
	044				4,8	13,2	63	17,6	84	22,0	106	23,2
	051				4,2	15,3	64	20,4	86	25,5	107	27,5
	064				3,3	19,2	63	25,6	84	32,0	106	34,0
	076				2,7	22,8	62	30,4	82	38,0	103	40,4
	305				0,65	91,5	59	122,0	79	152,5	99	172,7
13	**025**	2,3	1,3	6,3	16,0	7,5	120	10,0	160	12,5	200	13,6
	032				12,2	9,6	117	12,8	156	16,0	195	17,9
	038				10,3	11,4	117	15,2	157	19,0	196	21,9
	044				8,7	13,2	115	17,6	153	22,0	191	26,4
	051				7,5	15,3	115	20,4	153	25,5	191	29,6
	064				5,8	19,2	111	25,6	148	32,0	186	37,1
	076				4,7	22,8	107	30,4	143	38,0	179	44,9
	089				4,1	26,7	109	35,6	146	44,5	182	53,2
	102				3,6	30,6	110	40,8	147	51,0	184	59,4
	305				1,25	91,5	114	122,0	153	152,5	191	186,6
16	**025**	3,05	1,5	8,0	20,2	7,5	152	10,0	202	12,5	253	14,0
	032				16,0	9,6	154	12,8	205	16,0	256	18,7
	038				12,3	11,4	140	15,2	187	19,0	234	22,0
	044				10,6	13,2	140	17,6	187	22,0	233	26,1
	051				8,9	15,3	136	20,4	182	25,5	227	30,4
	064				7,0	19,2	134	25,6	179	32,0	224	38,8
	076				5,8	22,8	132	30,4	176	38,0	220	46,4
	089				4,8	26,7	128	35,6	171	44,5	214	54,2
	102				4,1	30,6	125	40,8	167	51,0	209	62,4
	115				3,9	34,5	135	46,0	179	57,5	224	70,6
	305				1,5	91,5	137	122,0	183	152,5	229	190,2
20	**025**	3,9	1,7	10,0	29,4	7,5	221	10,0	294	12,5	368	13,9
	032				22,6	9,6	217	12,8	289	16,0	362	18,2
	038				18,6	11,4	212	15,2	283	19,0	353	22,0
	044				15,7	13,2	207	17,6	276	22,0	345	25,8
	051				13,7	15,3	210	20,4	279	25,5	349	30,3
	064				11,3	19,2	217	25,6	289	32,0	362	38,9
	076				9,8	22,8	223	30,4	298	38,0	372	47,0
	089				8,3	26,7	222	35,6	295	44,5	369	55,7
	102				7,4	30,6	226	40,8	302	51,0	377	64,2
	115				6,4	34,5	221	46,0	294	57,5	368	72,9
	127				5,9	38,1	225	50,8	300	63,5	375	80,7
	139				5,4	41,7	225	55,6	300	69,5	375	88,4
	152				4,9	45,6	223	60,8	298	76,0	372	96,7
	305				2,5	91,5	229	122,0	305	153,0	381	196,0
25	**025**	5,4	2,2	12,5	53,9	7,5	404	10,0	539	12,5	674	12,9
	032				42,2	9,6	405	12,8	540	16,0	675	17,2
	038				35,8	11,4	408	15,2	544	19,0	680	20,7
	044				31,4	13,2	414	17,6	553	22,0	691	24,4
	051				27,0	15,3	413	20,4	551	25,5	689	28,5
	064				21,6	19,2	415	25,6	553	32,0	691	36,5

Schraubendruckfedern, Hellgrün: Extra-leichte Spannung
Die springs, Light green: Extra-light load springs
FEDERELEMENTE / SPRINGS

Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N	40% Arbeitsweg Working stroke mm	40% Arbeitsweg Working stroke N	50% Arbeitsweg Working stroke mm	50% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
25	**076**	5,4	2,2	12,5	18,1	22,8	413	30,4	550	38,0	688	43,9
	089				15,2	26,7	406	35,6	541	44,5	676	51,4
	102				13,2	30,6	404	40,8	539	51,0	673	59,3
	115				11,8	34,5	407	46,0	543	57,5	679	67,2
	127				10,6	38,1	404	50,8	538	63,5	673	74,4
	139				9,6	41,7	400	55,6	534	69,5	667	81,6
	152				8,8	45,6	401	60,8	535	76,0	669	89,5
	178				7,6	53,4	406	71,2	541	89,0	676	105,0
	203				6,7	60,9	408	81,2	544	102,0	680	121,0
	305				4,4	91,5	403	122,0	537	153,0	671	182,0
32	**038**	6,5	2,6	16,0	43,1	11,4	491	15,2	655	19,0	819	19,9
	044				37,3	13,2	492	17,6	656	22,0	821	23,5
	051				32,4	15,3	496	20,4	661	25,5	826	27,6
	064				25,5	19,2	490	25,6	653	32,0	816	35,2
	076				21,6	22,8	492	30,4	657	38,0	821	42,4
	089				18,1	26,7	483	35,6	644	44,5	805	50,0
	102				15,7	30,6	480	40,8	641	51,0	801	57,6
	115				14,2	34,5	490	46,0	653	57,5	817	65,5
	127				12,7	38,1	484	50,8	645	63,5	806	72,5
	139				11,6	41,7	484	55,6	645	69,5	806	79,4
	152				10,6	45,6	483	60,8	644	76,0	806	87,3
	178				9,0	53,4	481	71,2	641	89,0	801	103,0
	203				7,8	60,9	475	81,2	633	102,0	792	118,0
	254				6,4	76,2	488	102,0	650	127,0	813	148,0
	305				5,3	91,5	485	122,0	647	153,0	808	178,0
40	**051**	8,0	3,4	20,0	48,1	15,3	736	20,4	981	25,5	1227	28,0
	064				39,2	19,2	753	25,6	1004	32,0	1254	36,2
	076				33,3	22,8	759	30,4	1012	38,0	1265	43,7
	089				28,4	26,7	758	35,6	1011	44,5	1264	51,7
	102				24,5	30,6	750	40,8	1000	51,0	1250	59,8
	115				22,1	34,5	762	46,0	1017	57,5	1271	67,9
	127				19,6	38,1	747	50,8	996	63,5	1245	75,2
	139				17,7	41,7	738	55,6	984	69,5	1230	82,4
	152				16,2	45,6	739	60,8	985	76,0	1231	90,6
	178				13,7	53,4	732	71,2	975	89,0	1219	106
	203				12,3	60,9	749	81,2	999	101	1248	122
	254				9,8	76,2	747	102	996	127	1245	154
	305				8,3	91,5	759	122	1013	152	1266	185
50	**064**	10,5	4,1	25,0	86,3	19,2	1657	25,6	2209	32,0	2762	35,1
	076				70,6	22,8	1610	30,4	2146	38,0	2683	42,2
	089				59,8	26,7	1597	35,6	2129	44,5	2661	50,3
	102				52,0	30,6	1591	40,8	2122	51,0	2652	58,4
	115				46,1	34,5	1590	46,0	2121	57,5	2651	66,1
	127				42,2	38,1	1608	50,8	2144	63,5	2680	73,8
	139				38,2	41,7	1593	55,6	2124	69,5	2655	80,9
	152				34,3	45,6	1564	60,8	2085	76,0	2607	89,0
	178				29,4	53,4	1570	71,2	2093	89,0	2617	105,0
	203				25,5	60,9	1553	81,2	2071	101,0	2588	121,0
	254				20,6	76,2	1570	102,0	2093	127,0	2616	152,0
	305				17,2	91,5	1574	122,0	2098	152,0	2623	184,0
63	**076**	11,0	4,9	38,0	57,8	22,8	1318	30,4	1757	38,0	2196	47,3
	089				51,4	26,7	1372	35,6	1830	44,5	2287	54,9
	102				44,4	30,6	1359	40,8	1812	51,0	2264	64,1
	115				38,0	34,5	1311	46,0	1748	57,5	2185	75,6
	127				33,2	38,1	1265	50,8	1687	63,5	2108	82,6
	152				27,4	45,6	1249	60,8	1666	76,0	2082	99,8
	178				24,0	53,4	1282	71,2	1709	89,0	2136	118,4
	203				21,0	60,9	1279	81,2	1705	101,5	2132	135,9
	254				16,4	76,2	1250	101,6	1666	127,0	2083	172,8
	305				13,6	91,5	1244	122,0	1659	152,5	2074	208,6

FE 841

FE 841 / 10 x 025



MAIL

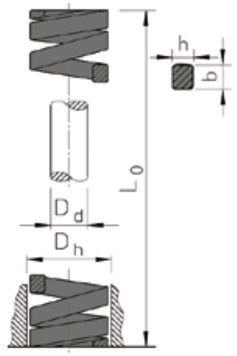
Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	10% Arbeitsweg Working stroke mm	10% Arbeitsweg Working stroke N	12% Arbeitsweg Working stroke mm	12% Arbeitsweg Working stroke N	15% Arbeitsweg Working stroke mm	15% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
10	**025**	2,0	2,8	5,0	167	2,5	418	3,0	501	3,8	626	5,9
	032				130	3,2	416	3,8	499	4,8	624	7,5
	038				105	3,8	399	4,6	479	5,7	599	8,2
	044				86	4,4	378	5,3	454	6,6	568	11,0
	051				79	5,1	403	6,1	483	7,7	604	12,5
	064				62	6,4	397	7,7	476	9,6	595	15,8
	076				51	7,6	388	9,1	465	11,4	581	19,0
	305				11,5	30,5	351	36,6	421	45,8	526	89,0
13	**025**	2,75	3,4	6,3	288	2,5	720	3,0	864	3,8	1080	5,6
	032				216	3,2	691	3,8	829	4,8	1037	7,3
	038				176	3,8	669	4,6	803	5,7	1003	9,2
	044				149	4,4	656	5,3	787	6,6	983	11,1
	051				128	5,1	653	6,1	783	7,7	979	12,6
	064				100	6,4	640	7,7	768	9,6	960	16,1
	076				84	7,6	638	9,1	766	11,4	958	19,3
	089				71	8,9	632	10,7	758	13,4	948	23,3
	102				61	10,2	622	12,2	747	15,3	933	26,9
	305				22	30,5	671	36,6	805	45,8	1007	94,0
16	**032**	3,5	4,75	8,0	449	3,2	1437	3,8	1724	4,8	2155	6,6
	038				363	3,8	1379	4,6	1655	5,7	2069	8,1
	044				309	4,4	1360	5,3	1632	6,6	2039	10,1
	051				256	5,1	1306	6,1	1567	7,7	1958	11,3
	064				203	6,4	1299	7,7	1559	9,6	1949	14,3
	076				166	7,6	1262	9,1	1514	11,4	1892	18,0
	089				139	8,9	1237	10,7	1485	13,4	1856	20,5
	102				114	10,2	1163	12,2	1395	15,3	1744	24,3
	115				105	11,5	1208	13,8	1449	17,3	1811	27,0
	127				94	12,7	1194	15,2	1433	19,1	1791	31,5
	152				78	15,2	1186	18,2	1423	22,8	1778	38,0
	305				38,8	30,5	1183	36,6	1420	45,8	1775	77,2
20	**044**	4,0	6,0	10,0	452	4,4	1989	5,3	2387	6,6	2983	8,9
	051				378	5,1	1928	6,1	2313	7,7	2892	10,6
	064				301	6,4	1926	7,7	2312	9,6	2890	13,8
	076				247	7,6	1877	9,1	2253	11,4	2816	16,2
	089				208	8,9	1851	10,7	2221	13,4	2777	20,1
	102				188	10,2	1918	12,2	2301	15,3	2876	22,3
	115				159	11,5	1829	13,8	2194	17,3	2743	25,5
	127				146	12,7	1854	15,2	2225	19,1	2781	27,9
	152				120	15,2	1824	18,2	2189	22,8	2736	34,1
	305				60	30,5	1830	36,6	2196	45,8	2745	68,8
25	**044**	5,6	7,5	12,5	1158	4,4	5095	5,3	6114	6,6	7643	9,8
	051				933	5,1	4758	6,1	5710	7,7	7137	11,0
	064				644	6,4	4122	7,7	4959	9,6	6182	13,0
	076				556	7,6	4226	9,1	5060	11,4	6338	16,0
	089				462	8,9	4112	10,7	4943	13,4	6168	20,0
	102				390	10,2	3978	12,2	4758	15,3	5967	23,0
	115				360	11,5	4140	13,8	4968	17,3	6210	26,0
	127				326	12,7	4140	15,2	4955	19,1	6210	28,0
	152				255	15,2	3876	18,2	4641	22,8	5814	34,0

[11.03.2020]

Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	10% Arbeitsweg Working stroke mm	10% Arbeitsweg Working stroke N	12% Arbeitsweg Working stroke mm	12% Arbeitsweg Working stroke N	15% Arbeitsweg Working stroke mm	15% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
25	**178**	5,6	7,5	12,5	230	17,8	4094	21,4	4922	26,7	6141	39,0
	203				202	20,3	4101	24,4	4929	30,5	6151	45,0
	305				136	30,5	4148	36,6	4978	45,8	6222	63,0
32	**044**	7,5	9,2	16	1300	4,4	5720	5,3	6890	6,6	8643	9,3
	051				1150	5,1	5865	6,1	7015	7,7	8855	10,4
	064				1077	6,4	6892	7,7	8270	9,6	10337	13,0
	076				874	7,6	6642	9,1	7971	11,4	9964	16,0
	089				721	8,9	6419	10,7	7702	13,4	9628	20,0
	102				620	10,2	6324	12,2	7589	15,3	9486	23,0
	115				560	11,5	6440	13,8	7728	17,3	9660	26,0
	127				496	12,7	6299	15,2	7559	19,1	9449	28,0
	152				408	15,2	6202	18,2	7442	22,8	9302	34,0
	178				353	17,8	6280	21,4	7536	26,7	9420	39,0
	203				304	20,3	6171	24,4	7405	30,5	9257	45,0
	254				243	25,4	6177	30,5	7413	38,1	9266	62,0
	305				196	30,5	5978	36,6	7174	45,8	8967	75,0
40	**064**	8,5	11,0	20	1128	6,4	7219	7,7	8663	9,6	10829	12,0
	076				1017	7,6	7729	9,1	9275	11,4	11594	14,5
	089				880	8,9	7832	10,7	9416	13,4	11748	20,0
	102				762	10,2	7772	12,2	9296	15,3	11659	23,0
	115				679	11,5	7809	13,8	9370	17,3	11713	26,0
	127				622	12,7	7899	15,2	9454	19,1	11849	28,0
	152				509	15,2	7737	18,2	9264	22,8	11605	36,0
	178				429	17,8	7636	21,4	9181	26,7	11454	43,0
	203				374	20,3	7592	24,4	9126	30,5	11388	49,0
	254				296	25,4	7518	30,5	9028	38,1	11278	62,0
	305				246	30,5	7530	36,6	9004	45,8	11255	75,0
50	**064**	11,8	13,5	25	1980	6,4	12672	7,7	15206	9,6	19008	13,4
	076				1811	7,6	13764	9,1	16516	11,4	20645	16,3
	089				1410	8,9	12549	10,7	15087	13,4	18824	19,0
	102				1215	10,2	12393	12,2	14823	15,3	18590	22,0
	115				1076	11,5	12374	13,8	14849	17,3	18561	25,0
	127				968	12,7	12294	15,2	14714	19,1	18440	28,0
	152				806	15,2	12251	18,2	14669	22,8	18377	34,0
	178				698	17,8	12424	21,4	14937	26,7	18637	40,0
	203				612	20,3	12424	24,4	14933	30,5	18635	45,0
	254				472	25,4	11989	30,5	14396	38,1	17983	58,0
	305				388	30,5	11834	36,6	14201	45,8	17751	70,0
63	**076**	11,8	17,8	38	1900	7,6	14440	9,1	17328	11,4	21660	13,0
	089				1517	8,9	13501	10,7	16202	13,4	20252	20,0
	102				1295	10,2	13209	12,2	15851	15,3	19814	23,0
	115				1070	11,5	12305	13,8	14766	17,3	18458	27,0
	127				979	12,7	12433	15,2	14920	19,1	18650	30,0
	152				775	15,2	11780	18,2	14136	22,8	17670	35,0
	178				630	17,8	11214	21,4	13457	26,7	16821	44,0
	203				546	20,3	11084	24,4	13301	30,5	16626	48,0
	254				423	25,4	10744	30,5	12893	38,1	16116	62,0
	305				349	30,5	10645	36,6	12773	45,8	15967	77,0

[FE]

FE 842



FE 842 / 10 x 020

MAIL

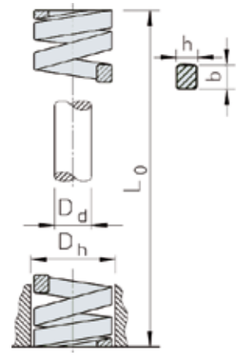
Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	Arbeitsweg, max. Working stroke, max. mm	N
10	**020**	2,1	4,0	5,0	580	2,2	1250
	030				360	3,5	1250
	040				260	4,8	1250
	050				200	6,0	1250
13	**020**	2,65	5,35	6,3	970	2,4	2000
	030				590	3,3	2000
	040				400	5,0	2000
	050				320	6,0	2000
16	**020**	3,4	6,9	8,0	1650	2,1	3500
	035				920	3,8	3500
	050				580	6,0	3500
	075				410	8,5	3500
	100				280	12,5	3500
19	**025**	4,1	8,3	10,0	2270	2,2	5000
	040				1160	4,3	5000
	050				830	6,0	5000
	075				500	10,0	5000
	100				380	14,0	5000
25	**030**	6,0	11,0	12,5	4550	2,2	10000
	050				2000	5,0	10000
	060				1500	6,5	10000
	075				1250	8,0	10000
	100				900	11,1	10000
	125				710	14,0	10000
32	**035**	7,4	13,0	16,0	5360	2,8	15000
	050				3000	5,0	15000
	075				1670	9,0	15000
	100				1200	12,5	15000
	125				940	16,0	15000
	150				810	18,5	15000
38	**040**	8,25	16,0	20,0	5710	3,5	20000
	050				4000	5,0	20000
	075				2220	9,0	20000
	100				1540	13,0	20000
	150				1050	19,0	20000
	200				740	27,0	20000
50	**060**	11,8	17,8	25,0	4605	7,6	35000
	075				3932	8,9	35000
	100				2650	13,2	35000
	125				2000	17,5	35000
	150				1605	21,8	35000
	200				1167	30,0	35000

[FE]

[11.03.2020]

[11.03.2020]

FE 843



FE 843 / 16 x 020

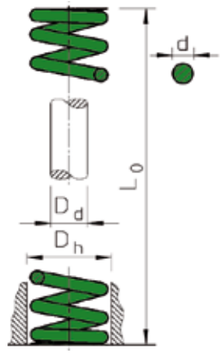
MAIL

Dh mm	L0 mm	b mm	h mm	Dd mm	C N/mm	Arbeitsweg, max. Working stroke, max. mm	N
16	**020**	4,6	5,0	6,3	1818	2,2	4000
	035				1000	4,0	4000
	050				615	6,5	4000
	075				400	10,0	4000
	100				286	14,0	4000
19	**025**	5,1	6,5	8,0	2400	2,5	6000
	040				1333	4,5	6000
	050				1000	6,0	6000
	075				600	10,0	6000
	100				429	14,0	6000
25	**030**	6,9	9,1	10,0	4800	2,5	12000
	050				2400	5,0	12000
	075				1500	8,0	12000
	100				1000	12,0	12000
	125				857	14,0	12000
32	**035**	9,25	10,8	12,5	6667	3,0	20000
	050				3636	5,5	20000
	075				2222	9,0	20000
	100				1538	13,0	20000
	125				1250	16,0	20000
	150				1053	19,0	20000
38	**040**	10,5	12,6	16,0	7143	3,5	25000
	050				5000	5,0	25000
	075				2778	9,0	25000
	100				1923	13,0	25000
	150				1316	19,0	25000
	200				926	27,0	25000

[FE]

FE 844

FE 844 / 10 x 025



MAIL

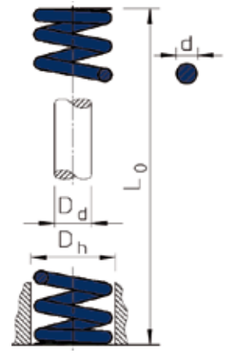
Dh mm	L0 mm	d mm	Dd mm	C N/mm	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N	40% Arbeitsweg Working stroke mm	40% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
10	**025**	1,1	5,0	4,4	6,3	28	7,5	33	10,0	44	13,2
	032			3,4	8,0	27	9,6	33	12,8	44	16,5
	038			2,8	9,5	26	11,4	32	15,2	42	19,8
	044			2,4	11,0	26	13,2	31	17,6	42	23,1
	051			2,1	12,8	27	15,3	32	20,4	43	26,9
	064			1,6	16,0	26	19,2	31	25,6	42	33,3
	076			1,3	19,0	25	22,8	30	30,4	40	39,6
	305			0,3	76,3	24	91,5	29	122,0	38	157,0
13	**025**	1,5	6,3	8,5	6,3	53	7,5	64	10,0	85	13,5
	032			6,5	8,0	52	9,6	62	12,8	83	16,8
	038			5,3	9,5	51	11,4	61	15,2	81	20,3
	044			4,4	11,0	49	13,2	59	17,6	78	23,9
	051			3,8	12,8	48	15,3	58	20,4	78	26,9
	064			2,9	16,0	47	19,2	56	25,6	75	33,3
	076			2,5	19,0	48	22,8	57	30,4	76	41,1
	089			2,1	22,3	48	26,7	57	35,6	76	48,3
	305			0,6	76,3	45	91,5	54	122,0	73	163,0
16	**025**	3,05	8,0	17,9	6,3	112	7,5	134	10,0	179	14,7
	032			13,5	8,0	108	9,6	129	12,8	173	18,5
	038			10,5	9,5	100	11,4	120	15,2	160	22,4
	044			8,8	11,0	96	13,2	116	17,6	154	25,9
	051			7,6	12,8	97	15,3	116	20,4	155	30,0
	064			5,9	16,0	95	19,2	114	25,6	152	37,8
	076			4,8	19,0	91	22,8	109	30,4	145	45,2
	089			4,0	22,3	90	26,7	108	35,6	144	52,8
	102			3,5	25,5	90	30,6	108	40,8	144	60,7
	305			1,1	76,3	85	91,5	103	122,0	137	184,0

[11.03.2020]

[11.03.2020]

FE 845

FE 845 / 10 x 025



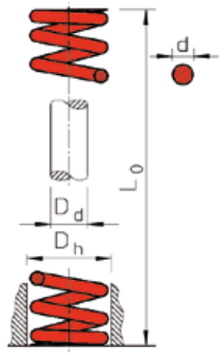
MAIL

Dh mm	L0 mm	d mm	Dd mm	C N/mm	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N	37,5% Arbeitsweg Working stroke mm	37,5% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
10	**025**	1,5	5,0	12,3	6,3	77	7,5	92	9,4	115	10,4
	032			9,5	8,0	76	9,6	91	12,0	113	13,2
	038			7,8	9,5	74	11,4	88	14,3	111	16,0
	044			6,5	11,0	72	13,2	86	16,5	108	18,5
	051			5,6	12,8	72	15,3	86	19,1	108	21,1
	064			4,5	16,0	71	19,2	86	24,0	107	26,4
	076			3,7	19,0	70	22,8	84	28,5	105	31,8
	305			0,9	76,3	68	91,5	82	114,0	102	129,0
12,5	**025**	1,8	6,3	21,7	6,3	136	7,5	163	9,4	204	11,2
	032			16,8	8,0	134	9,6	161	12,0	202	14,0
	038			13,8	9,5	131	11,4	158	14,3	197	17,3
	044			11,6	11,0	127	13,2	153	16,5	191	19,8
	051			10,0	12,8	127	15,3	153	19,1	191	22,9
	064			7,8	16,0	125	19,2	150	24,0	187	28,4
	076			6,4	19,0	122	22,8	146	28,5	183	34,3
	089			5,6	22,3	125	26,7	150	33,4	188	41,4
	305			1,5	76,3	118	91,5	141	114,0	176	139,0
16	**025**	2,2	8,0	31,9	6,3	199	7,5	239	9,4	299	10,9
	032			24,0	8,0	192	9,6	230	12,0	288	13,7
	038			19,4	9,5	185	11,4	222	14,3	277	16,5
	044			16,1	11,0	177	13,2	213	16,5	266	19,3
	051			13,8	12,8	176	15,3	212	19,1	265	22,1
	064			10,7	16,0	171	19,2	205	24,0	256	27,4
	076			8,8	19,0	166	22,8	200	28,5	250	33,0
	089			7,5	22,3	167	26,7	200	33,4	250	38,6
	102			6,5	25,5	167	30,6	200	38,3	250	44,5
	305			2,1	76,3	159	91,5	191	114,0	238	134,0

[FE]

FE 846

FE 846 / 10 x 025



MAIL

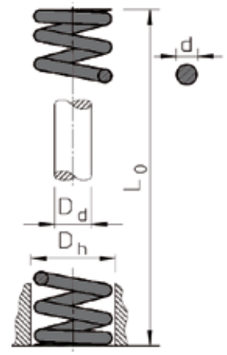
Dh mm	L0 mm	d mm	Dd mm	C N/mm	20% Arbeitsweg Working stroke mm	20% Arbeitsweg Working stroke N	25% Arbeitsweg Working stroke mm	25% Arbeitsweg Working stroke N	30% Arbeitsweg Working stroke mm	30% Arbeitsweg Working stroke N	max. Federweg max. deflection mm
10	**025**	1,5	5,0	20,7	5,0	103	6,3	129	7,5	155	8,6
	032			16,1	6,4	103	8,0	129	9,6	155	10,9
	038			13,0	7,6	98	9,5	123	11,4	148	13,2
	044			10,9	8,8	96	11,0	119	13,2	143	14,7
	051			9,6	10,2	98	12,8	123	15,3	147	17,8
	064			7,7	12,8	98	16,0	123	19,2	147	22,9
	076			6,3	15,2	96	19,0	119	22,8	143	26,9
	305			1,5	61,0	93	76,3	116	91,5	139	110,0
12,5	**025**	1,8	6,3	37,5	5,0	187	6,3	234	7,5	281	8,9
	032			28,9	6,4	185	8,0	231	9,6	277	11,2
	038			23,5	7,6	178	9,5	223	11,4	268	13,7
	044			19,6	8,8	173	11,0	216	13,2	259	15,7
	051			17,3	10,2	177	12,8	221	15,3	265	18,8
	064			13,5	12,8	173	16,0	216	19,2	259	23,6
	076			11,2	15,2	170	19,0	213	22,8	256	28,4
	089			9,5	17,8	168	22,3	210	26,7	252	33,0
	305			2,7	61,0	162	76,3	203	91,5	244	114,0
16	**025**	2,2	8,0	81,6	5,0	408	6,3	510	7,5	612	9,1
	032			61,3	6,4	392	8,0	490	9,6	588	11,4
	038			49,9	7,6	379	9,5	474	11,4	569	14,2
	044			40,8	8,8	359	11,0	449	13,2	539	16,3
	051			35,6	10,2	363	12,8	453	15,3	544	18,8
	064			27,8	12,8	356	16,0	446	19,2	535	23,9
	076			22,8	15,2	346	19,0	433	22,8	519	29,0
	089			19,6	17,8	349	22,3	436	26,7	524	34,3
	102			17,0	20,4	347	25,5	433	30,6	520	39,4
	305			5,4	61,0	330	76,3	413	91,5	495	119,0

[11.03.2020]

[11.03.2020]

FE 847

FE 847 / 3 x 010



MAIL

Dh mm	L0 mm	d mm	Dd mm	C N/mm	16% Arbeitsweg Working stroke mm	16% Arbeitsweg Working stroke N	24% Arbeitsweg Working stroke mm	24% Arbeitsweg Working stroke N	32% Arbeitsweg, max. Working stroke, max. mm	32% Arbeitsweg, max. Working stroke, max. N
3	**010**	0.4	2,0	2,94	1,6	4,4	2,4	6,62	3,2	8,8
	015			1,96	2,4	4,4	3,6	6,62	4,8	8,8
	020			0.98	3,2	4,4	4,8	6,62	6,4	8,8
	025			0,98	4,0	4,4	6,0	6,62	8,0	8,8
4	**010**	0,6	2,6	4,9	1,6	7,8	2,4	11,6	3,2	15,7
	015			2,94	2,4	7,8	3,6	11,6	4,8	15,7
	020			2,94	3,2	7,8	4,8	11,6	6,4	15,7
	025			1,96	4,0	7,8	6,0	11,6	8,0	15,7
	030			1,96	4,8	7,8	7,2	11,6	9,6	15,7
6	**015**	0,9	4,0	7,85	2,4	17,7	7,5	239	9,4	299
	020			5,88	3,2	17,7	9,6	230	12,0	288
	025			4,9	4,0	17,7	11,4	222	14,3	277
	030			3,92	4,8	17,7	13,2	213	16,5	266
	035			2,94	5,6	17,7	15,3	212	19,1	265
8	**015**	1,2	5,4	12,75	2,4	31,4	3,6	47,1	4,8	62,8
	020			9,81	3,2	31,4	4,8	47,1	6,4	62,8
	025			7,85	4,0	31,4	6,0	47,1	8,0	62,8
	030			6,86	4,8	31,4	7,2	47,1	9,6	62,8
	035			5,88	5,6	31,4	8,4	47,1	11,2	62,8
	040			4,9	6,4	31,4	9,6	47,1	12,8	62,8
10	**025**	1,5	6,5	12,75	4,0	49	6,0	73,6	8,0	98
	030			9,81	4,8	49	7,2	73,6	9,6	98
	035			8,83	5,6	49	8,4	73,6	11,2	98
	040			7,85	6,4	49	9,6	73,6	12,8	98
	045			6,86	7,2	49	10,8	73,6	14,4	98
	050			5,88	8,0	49	12,0	73,6	16,0	98
12	**025**	1,8	8,0	17,65	4,0	70,6	6,0	106,9	8,0	141,2
	030			14,71	4,8	70,6	7,2	106,9	9,6	141,2
	035			12,75	5,6	70,6	8,4	106,9	11,2	141,2
	040			10,79	6,4	70,6	9,6	106,9	12,8	141,2
	045			9,81	7,2	70,6	10,8	106,9	14,4	141,2
	050			8,83	8,0	70,6	12,0	106,9	16,0	141,2
	055			7,85	8,8	70,6	13,2	106,9	17,6	141,2
	060			7,85	9,6	70,6	14,4	106,9	19,2	141,2
14	**025**	2,2	9,3	24,52	4,0	96,1	6,0	144,2	8,0	192,2
	030			19,61	4,8	96,1	7,2	144,2	9,4	192,2
	035			17,65	5,6	96,1	8,4	144,2	11,2	192,2
	040			14,71	6,4	96,1	9,6	144,2	12,8	192,2
	045			13,73	7,2	96,1	10,8	144,2	14,4	192,2
	050			11,77	8,0	96,1	12,0	144,2	16,0	192,2
	055			10,79	8,8	96,1	13,2	144,2	17,6	192,2
	060			9,81	9,6	96,1	14,4	144,2	19,2	192,2
	065			8,83	10,4	96,1	15,6	144,2	20,8	192,2
	070			8,83	11,2	96,1	16,8	144,2	22,4	192,2
16	**025**	2,4	10,7	31,38	4,0	125,5	6,0	188,3	8,0	251,1
	030			26,48	4,8	125,5	7,2	188,3	9,4	251,1
	035			22,56	5,6	125,5	8,4	188,3	11,2	251,1
	040			19,61	6,4	125,5	9,6	188,3	12,8	251,1
	045			17,65	7,2	125,5	10,8	188,3	14,4	251,1

[FE]

Dh mm	L0 mm	d mm	Dd mm	C N/mm	16% Arbeitsweg Working stroke mm	16% Arbeitsweg Working stroke N	24% Arbeitsweg Working stroke mm	24% Arbeitsweg Working stroke N	32% Arbeitsweg, max. Working stroke, max. mm	32% Arbeitsweg, max. Working stroke, max. N
16	**050**	2,4	10,7	15,69	8,0	125,5	12,0	188,3	16,0	251,1
	055			14,71	8,8	125,5	13,2	188,3	17,6	251,1
	060			12,75	9,6	125,5	14,4	188,3	19,2	251,1
	065			11,77	10,4	125,5	15,6	188,3	20,8	251,1
	070			10,79	11,2	125,5	16,8	188,3	22,4	251,1
	075			10,79	12,0	125,5	18,0	188,3	24,0	251,1
	080			9,81	12,8	125,5	19,2	188,3	25,6	251,1
18	**025**	2,8	12,0	40,21	4,0	158,9	6,0	238,3	8,0	317,7
	030			33,34	4,8	158,9	7,2	238,3	9,4	317,7
	035			28,44	5,6	158,9	8,4	238,3	11,2	317,7
	040			24,52	6,4	158,9	9,6	238,3	12,8	317,7
	045			22,56	7,2	158,9	10,8	238,3	14,4	317,7
	050			19,61	8,0	158,9	12,0	238,3	16,0	317,7
	055			17,65	8,8	158,9	13,2	238,3	17,6	317,7
	060			16,67	9,6	158,9	14,4	238,3	19,2	317,7
	065			15,69	10,4	158,9	15,6	238,3	20,8	317,7
	070			14,71	11,2	158,9	16,8	238,3	22,4	317,7
	075			13,73	12,0	158,9	18,0	238,3	24,0	317,7
	080			12,75	12,8	158,9	19,2	238,3	25,6	317,7
	090			10,79	14,4	158,9	21,6	238,3	28,8	317,7
20	**025**	3	13,5	49,03	4,0	196,1	6,0	294,2	8,0	392,3
	030			41,19	4,8	196,1	7,2	294,2	9,4	392,3
	035			35,3	5,6	196,1	8,4	294,2	11,2	392,3
	040			30,4	6,4	196,1	9,6	294,2	12,8	392,3
	045			27,46	7,2	196,1	10,8	294,2	14,4	392,3
	050			24,52	8,0	196,1	12,0	294,2	16,0	392,3
	055			22,56	8,8	196,1	13,2	294,2	17,6	392,3
	060			20,59	9,6	196,1	14,4	294,2	19,2	392,3
	065			18,63	10,4	196,1	15,6	294,2	20,8	392,3
	070			17,65	11,2	196,1	16,8	294,2	22,4	392,3
	075			16,67	12,0	196,1	18,0	294,2	24,0	392,3
	080			15,69	12,8	196,1	19,2	294,2	25,6	392,3
	090			13,73	14,4	196,1	21,6	294,2	28,8	392,3
	100			12,75	16,0	196,1	24,0	294,2	32,0	392,3
22	**025**	3,3	14,7	59,82	4,0	237,3	6,0	356	8,0	474,6
	030			49,03	4,8	237,3	7,2	356	9,4	474,6
	035			42,17	5,6	237,3	8,4	356	11,2	474,6
	040			37,27	6,4	237,3	9,6	356	12,8	474,6
	045			33,34	7,2	237,3	10,8	356	14,4	474,6
	050			29,42	8,0	237,3	12,0	356	16,0	474,6
	055			27,46	8,8	237,3	13,2	356	17,6	474,6
	060			24,52	9,6	237,3	14,4	356	19,2	474,6
	065			22,56	10,4	237,3	15,6	356	20,8	474,6
	070			21,57	11,2	237,3	16,8	356	22,4	474,6
	075			19,61	12,0	237,3	18,0	356	24,0	474,6
	080			18,63	12,8	237,3	19,2	356	25,6	474,6
	090			16,67	14,4	237,3	21,6	356	28,8	474,6
	100			14,71	16,0	237,3	24,0	356	32,0	474,6
25	**025**	3,8	17,0	76,49	4,0	307	6,0	459,9	8,0	613,9
	030			63,74	4,8	307	7,2	459,9	9,4	613,9
	035			54,92	5,6	307	8,4	459,9	11,2	613,9
	040			48,05	6,4	307	9,6	459,9	12,8	613,9
	045			42,17	7,2	307	10,8	459,9	14,4	613,9
	050			38,25	8,0	307	12,0	459,9	16,0	613,9
	055			35,3	8,8	307	13,2	459,9	17,6	613,9
	060			32,36	9,6	307	14,4	459,9	19,2	613,9
	065			29,42	10,4	307	15,6	459,9	20,8	613,9
	070			27,46	11,2	307	16,8	459,9	22,4	613,9
	075			25,5	12,0	307	18,0	459,9	24,0	613,9
	080			23,54	12,8	307	19,2	459,9	25,6	613,9
	090			21,57	14,4	307	21,6	459,9	28,8	613,9
	100			19,61	16,0	307	24,0	459,9	32,0	613,9
30	**050**	4,5	20,0	51,94	8,0	414	12,0	621	16,0	828,0
	060			44,1	9,6	414	14,4	621	19,2	828,0
	070			37,24	11,2	414	16,8	621	22,4	828,0
	080			32,34	12,8	414	19,2	621	25,6	828,0
	090			28,42	14,4	414	21,6	621	28,8	828,0
	100			25,48	16,0	414	24,0	621	32,0	828,0
	125			20,58	20,0	414	30,0	621	40,0	828,0

[11.03.2020]

FE 802

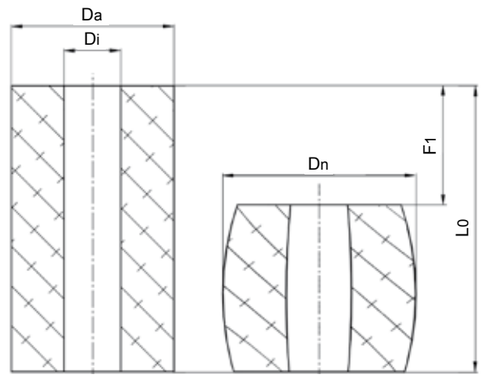
FE 802 / 040 x 32

Mat.: Elastomere / Ultraflex 92
Härte: 92 ±5 Shore

Elastomer-Federn haben eine Setzneigung, die abhängig vom Wärme, Federweg und Hubgeschwindigkeit ist. Sie beträgt ca. 5-8% der Federlänge L0.

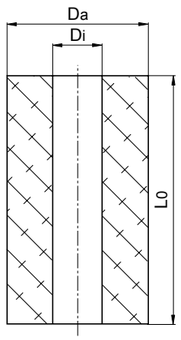
Mat.: Elastomer / Ultraflex 92
Hardness: 92 ±5 Shore

Elastomer springs do have a settling characteristic of around 5-8 % of the intial total length L0, depending on temperature, stroke length and speed.



Da	L0	Di	Dn	Fmax. mm
016	**16**	6,5	21	4,8
	20	6,5	21	6,0
	25	6,5	21	7,5
	32	6,5	21	9,6
020	**16**	8,5	26	4,8
	20	8,5	26	6,0
	25	8,5	26	7,5
	32	8,5	26	9,6
	40	8,5	26	12,0
025	**16**	10,5	33	4,8
	20	10,5	33	6,0
	25	10,5	33	7,5
	32	10,5	33	9,6
	40	10,5	33	12,0
	50	10,5	33	15,0
032	**16**	13,5	42	4,8
	20	13,5	42	6,0
	25	13,5	42	7,5
	32	13,5	42	9,6
	40	13,5	42	12,0
	50	13,5	42	15,0
	63	13,5	42	18,9
	80	13,5	42	24,0
040	**16**	13,5	52	4,8
	20	13,5	52	6,0
	25	13,5	52	7,5
	32	13,5	52	9,6
	40	13,5	52	12,0
	50	13,5	52	15,0
	63	13,5	52	18,9
	80	13,5	52	24,0

Da	L0	Di	Dn	Fmax. mm
050	**25**	17,0	65	7,5
	32	17,0	65	9,6
	40	17,0	65	12,0
	50	17,0	65	15,0
	63	17,0	65	18,9
	80	17,0	65	24,0
	100	17,0	65	30,0
063	**32**	17,0	82	9,6
	40	17,0	82	12,0
	50	17,0	82	15,0
	63	17,0	82	18,9
	80	17,0	82	24,0
	100	17,0	82	30,0
080	**32**	21,0	104	9,6
	40	21,0	104	12,0
	50	21,0	104	15,0
	63	21,0	104	18,9
	80	21,0	104	24,0
	100	21,0	104	30,0
100	**50**	21,0	130	15,0
	63	21,0	130	18,9
	80	21,0	130	24,0
	100	21,0	130	30,0
125	**50**	27,0	160	15,0
	63	27,0	160	18,9
	80	27,0	160	24,0
	100	27,0	160	30,0



FE 804

Mat.: Elastomere / Ultraflex
Härte: 82 Shore

Mat.: Elastomer / Ultraflex
Hardness: 82 Shore

FE 804 / 016

INFO FE.35

Kennfarbe gelb

Color code yellow

Da	Di	L0
016	7	250
020	9	250
025	11	250
032	14	500
040	14	500
050	17	500
063	17	500
080	21	500
100	21	500
125	27	500

MAIL

FE 805

Mat.: Elastomere / Ultraflex
Härte: 92 Shore

Mat.: Elastomer / Ultraflex
Hardness: 92 Shore

FE 805 / 025

INFO FE.36

Kennfarbe rot

Color code red

Da	Di	L0
016	7	250
020	9	250
025	11	250
032	14	500
040	14	500
050	17	500
063	17	500
080	21	500
100	21	500
125	27	500

MAIL

FE 806

Mat.: Elastomere / Ultraflex
Härte: 94 Shore

Mat.: Elastomer / Ultraflex
Hardness: 94 Shore

FE 806 / 040

INFO FE.37

Kennfarbe grün

Color code green

Da	Di	L0
016	7	250
020	9	250
025	11	250
032	14	500
040	14	500
050	17	500
063	17	500
080	21	500
100	21	500
125	27	500

MAIL

[11.03.2020]

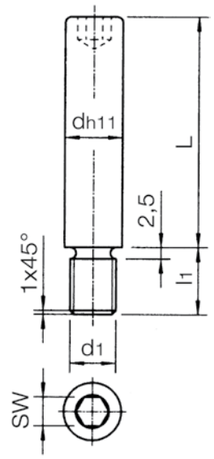
[11.03.2020]

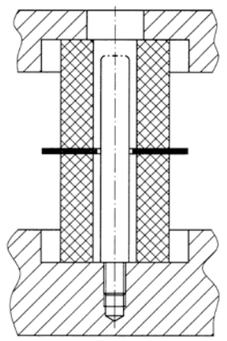
FE 816

Mat.: C15

Mat.: C15

FE 816 / 06 x 020





MAIL

d h11	d1	l1 -0,1	SW ±0,2	L +0,1 020	025	032	040	050	063	080	095	118	140	180
06	M4	6	3	●	●	●								
08	M6	9	4	●	●	●	●	●						
10	M8	15	5	●	●	●	●	●	●					
13	M10	15	6			●	●	●	●	●	●			
16	M12	18	8			●	●	●	●	●	●	●	●	
20	M16	25	10			●	●	●	●	●	●	●	●	
25	M20	30	14			●	●	●	●	●	●	●	●	●

Federteller nach DIN ISO 10069-2 für Elastomerfedern

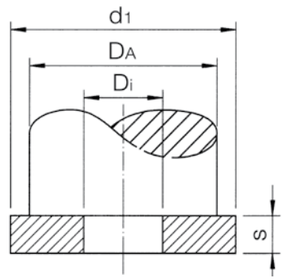
Spring washers, DIN ISO 10069-2 for elastomer - springs

FE 815

Mat.: MS 58

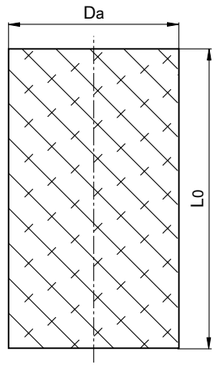
Mat.: MS 58

FE 815 / 016



MAIL

DA	d1	Di	s
016	20	6,5	4
020	25	8,5	4
025	30	10,5	5
032	40	13,5	5
040	50	13,5	5
050	60	16,5	6
063	80	16,5	6
080	100	20,5	8
100	120	20,5	8
125	150	26,0	8



FE 807

Mat.: Elastomere / Ultraflex
Härte: 82 Shore

Mat.: Elastomer / Ultraflex
Hardness: 82 Shore

FE 807 / 016

Kennfarbe gelb

Color code yellow

Da	L0
016	250
020	250
025	250
032	500
040	500
050	500
063	500
080	500
100	500
125	500

FE 808

Mat.: Elastomere / Ultraflex
Härte: 92 Shore

Mat.: Elastomer / Ultraflex
Hardness: 92 Shore

FE 808 / 025

Color code red

Da	L0
016	250
020	250
025	250
032	500
040	500
050	500
063	500
080	500
100	500
125	500

FE 809

Mat.: Elastomere / Ultraflex
Härte: 94 Shore

Mat.: Elastomer / Ultraflex
Hardness: 94 Shore

FE 809 / 040

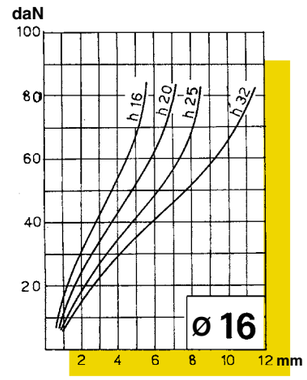
Kennfarbe grün

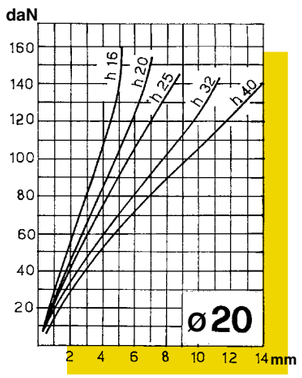
Color code green

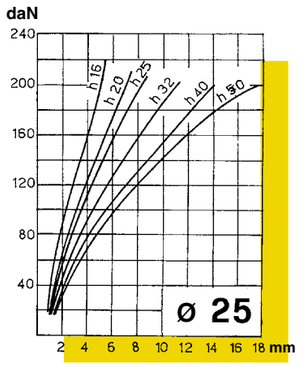
Da	L0
016	250
020	250
025	250
032	500
040	500
050	500
063	500
080	500
100	500
125	500

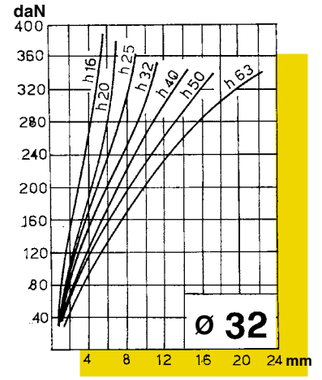
[11.03.2020]

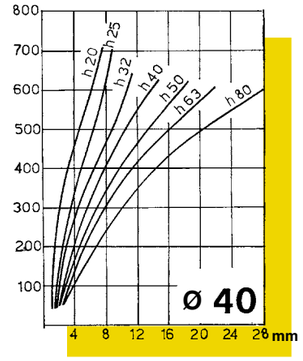
[11.03.2020]

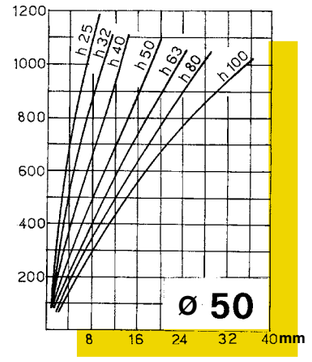


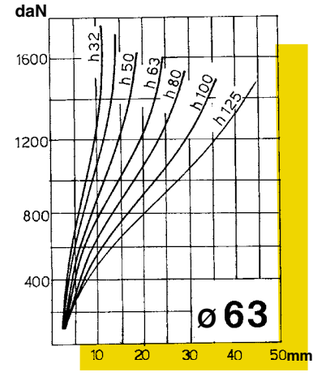


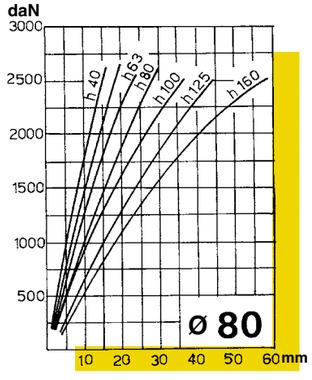


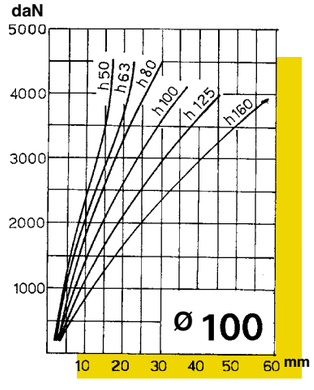


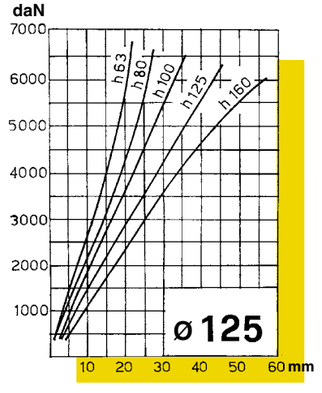








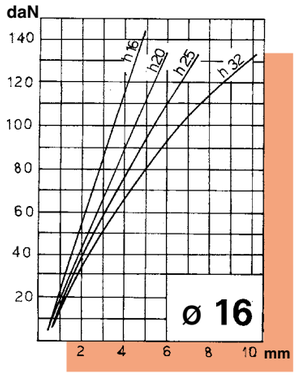


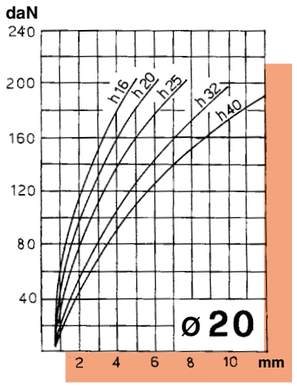


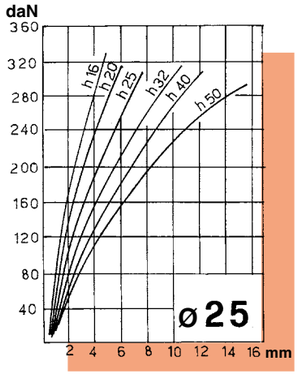
Federn aus Ultraflex 92, Belastungskurve Kennfarbe Rot

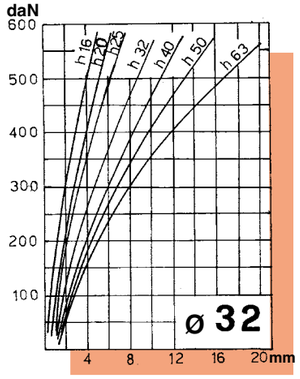
Ultraflex 92 - springs, Load curve red

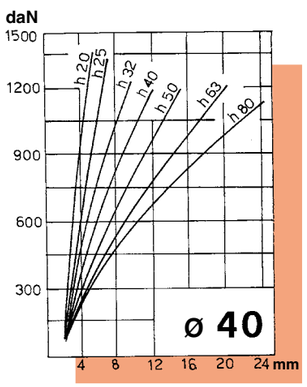


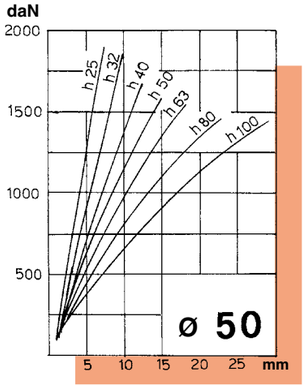


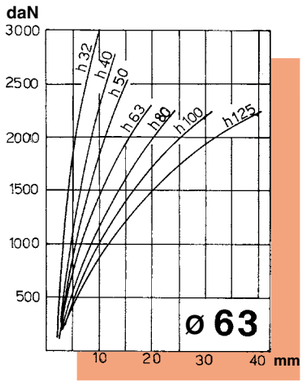


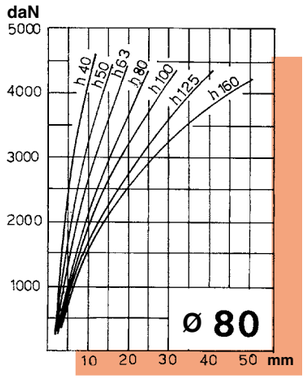


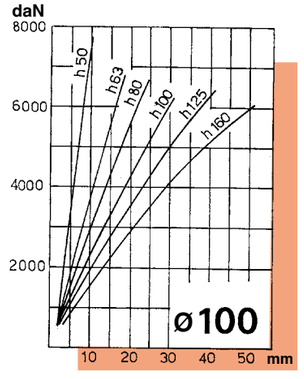


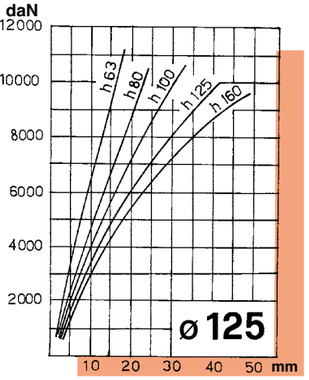








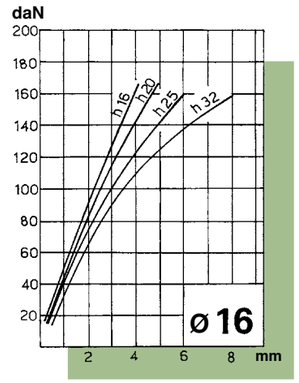


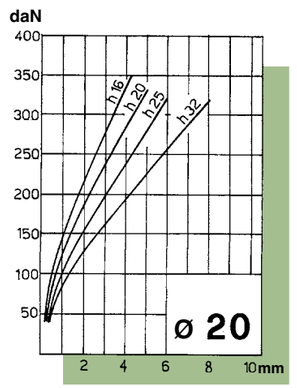


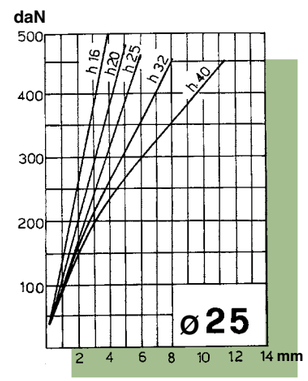
Federn aus Ultraflex 94, Belastungskurve Kennfarbe Grün

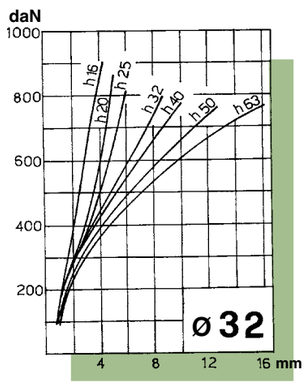
Ultraflex 94 - springs, Load curve green

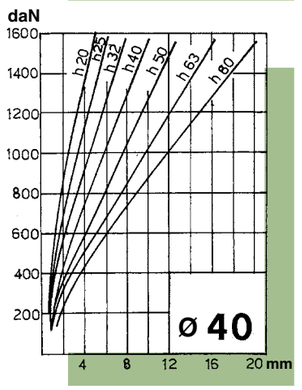


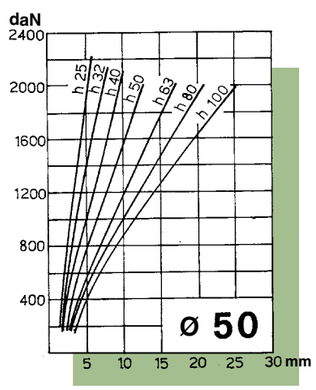


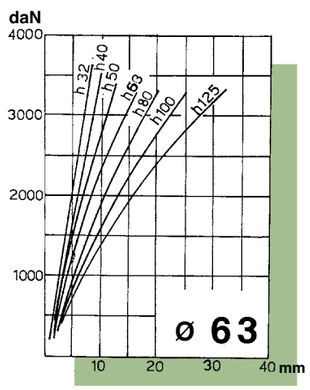


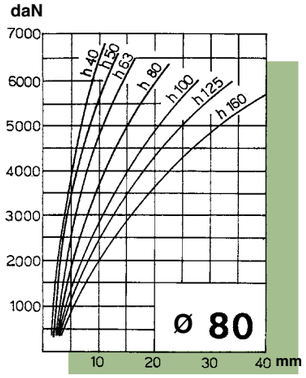


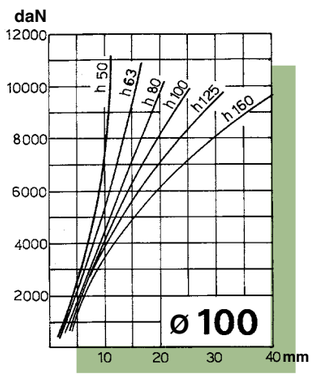


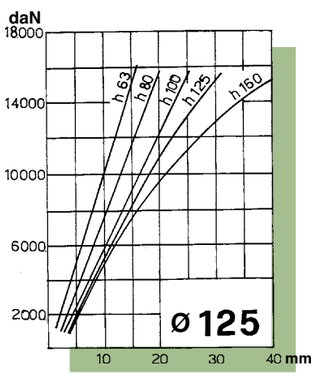












[11.03.2020]

[11.03.2020]

[FE]

zertifiziert ISO 9001 for you Cert

MSPN GMBH

Märkische Stanz-Partner



[**nitrocyl**Gasdruckfedern]

[**nitrocyl**GasSprings]

Stand / Revision Status: 30.10.2020

Inhalt Katalog 1: Stanznormalien (D)
Content Catalogue 1: Standard die components (D)

Artikel Article	Best.-Nr. Order no.	Seite Page
A		
Aufwerferstifte, gehärtet, DIN 1530 A – ISO 6750	TH 750	TH 9
Auswerferstifte, DIN 1530 Form D	TH 75[illegible]	TH [illegible]

Ein „Klick“ auf Artikelbezeichnung, Bestell-Nummer oder Seite im vorangestellten Inhaltsverzeichnis bringt Sie zum gewünschten Artikel.

„Clicking“ on the Article name, the Order- or Page-no. in the main table of contents opens the corresponding article-page.

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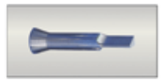	Schneidstempel	Punches	Best.-Nr. Order no.	Seite Page
	Schneidstempel DIN 9861, Form D, HSS	Punches DIN 9861, Form D, HSS	SE 775	SE 1 SE [illegible]

Ein „Klick“ auf Foto, Artikelbezeichnung, Bestell-Nummer oder Seite im Inhaltsverzeichnis des Registers bringt Sie unmittelbar zum gewünschten Artikel im Katalog.

„Clicking“ on the Photo, the Article name, the Order- or Page-no. in any register‘s table of contents opens the corresponding article-page.

Ein „Klick“ auf das CAD-Logo bringt Sie zu den CAD-Daten des gewünschten Artikels im CADENAS-Downloadportal.

„Clicking“ on the CAD-logo leads you to the CAD-file(s) of the corresponding article within the Cadenas down-load-portal.

Ein „Klick“ auf das MAIL-Logo generiert eine an die Märkischen Stanz-Partner adressierte e-mail, mit der Normbezeichnung des gewünschten Artikels in der Betreffzeile.

„Clicking“ on the MAIL-logo generates an e-mail addres-sed to the Stanz-Partners, showing the requested article in the subject heading.

Ein „Klick“ auf das RETURN-Logo unten auf jeder Katalogseite bringt Sie zurück auf das Inhaltsverzeichnis des entsprechenden Registers.

„Clicking“ on the RETURN-logo at the bottom of each catalog-page opens that specific register‘s table of contents.

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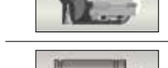
	NitroCyl- Gasdruckfedern	NitroCyl- Gas springs	Best.-Nr. Order no.	Seite Page
	Technische Informationen	Technical information		NC.9 - 23
	niedrigbauend, Serie NC.010.00 200 - 5000 daN, Hub 7 - 125 mm, Ø 25 - 105 mm	smaller height, NC.010.00 series 200 - 5000 daN, Stroke 7 - 125 mm, Ø 25 - 105 mm	NC.010.00	NC.010. 1 - 17
	niedrigbauend, System FP, Serie NC.015.00, 170 - 20000 daN, Hub 7 - 125 mm, Ø 19 - 195 mm	smaller height, FP system, NC.015.00 series, 170 - 20000 daN, Stroke 7 - 125 mm, Ø 19 - 195 mm	NC.015	NC.015. 1 - 27
	niedrigbauend, System NK, Serie NC.016.00, 190 - 3960 daN, Hub 7 - 125 mm, Ø 25 - 95 mm	smaller height, NK system, NC.016.00 series, 190 - 3960 daN, Hub 7 - 125 mm, Ø 25 - 95 mm	NC.016	NC.016. 1 - 17
	niedrigbauend, G1/8“, Serie NC.028.00 740 - 2385 daN, Hub 10 - 125 mm, Ø 45 - 75 mm	smaller height, G1/8“, NC.028.00 series 740 - 2385 daN, Hub 10 - 125 mm, Ø 45 - 75 mm	NC.028	NC.028. 1 - 9
	kompakt, Serie NC.030.00 420 - 18410 daN, Hub 6 - 65 mm, Ø 25 - 150 mm	compact, NC.030.00 series 420 - 18410 daN, Stroke 6 - 65 mm, Ø 25 - 150 mm	NC.030.00	NC.030. 1 - 19
	kompakt, G1/8“, Serie NC.030.20 1000 - 18410 daN, Hub 6 - 65 mm, Ø 38 - 150 mm	compact, side connection, G1/8“, NC.030.20 series, 1000 - 18410 daN, Stroke 6 - 65 mm, Ø 38 - 150 mm	NC.030.20	NC.030. 21 - 35
	mittlere Größen, Serie NC.040.00 200 - 10000 daN, Hub 10 - 200 mm, Ø 25 - 150 mm	medium sizes, NC.040.00 series 200 - 10000 daN, Stroke 10 - 200 mm, Ø 25 - 150 mm	NC.040	NC.040. 1 - 23
	mit erhöhter Kraft, Serie NC.041.00 150 - 7950 daN, Hub 10 - 80 mm, Ø 19 - 95 mm	with higher force, NC.041.00 series 150 - 7950 daN, Stroke 10 - 80 mm, Ø 19 - 95 mm	NC.041	NC.041. 1 - 17
	mit erhöhter Kraft, Serie NC.042.00 810 - 4190 daN, Hub 12 - 80 mm, Ø 38 - 75 mm	with higher force, NC.042.00 series 810 - 4190 daN, Stroke 12 - 80 mm, Ø 38 - 75 mm	NC.042	NC.042. 1 - 11
	Mini-Gasdruckfedern, Serie NC.05X.00 20 - 200 daN, Hub 7 - 125 mm, Ø 12 - 25 mm	Micro springs, NC.05X.00 series 20 - 200 daN, Stroke 7 - 125 mm, Ø 12 - 25 mm	NC.05X	NC.05X. 1 - 21
	Standard, Serie NC.060.09 300 - 5000 daN, Hub 10 - 125 mm, Ø 38 - 120 mm	Standard, NC.060.09 series 300 - 5000 daN, Stroke 10 - 125 mm, Ø 38 - 120 mm	NC.060.09	NC.060. 1 - 13
	Standard nach VDI 3003, Serie NC.060.10, 150 - 10000 daN, Hub 10 - 300 mm, Ø 32 - 195 mm	Standard acc. to VDI 3003, NC.060.10 series, 150 - 10000 daN, Stroke 10 - 300 mm, Ø 32 - 195 mm	NC.060.10	NC.060. 15 - 33
	mit Körpergewinde, Serie NC.060.20 50 - 300 daN, Hub 10 - 125 mm, Ø M28x1,5 - M38x1,5	threaded springs, NC.060.20 series 50 - 300 daN, Stroke 10 - 125 mm, Ø M28x1,5 - M38x1,5	NC.060.20	NC.060. 35 - 39
	Standard, mittlere Größe, Serie NC.060.29 750 - 7500 daN, Hub 12,5 - 250 mm, Ø 50 - 150 mm	Standard, medium size NC.060.29 series, 750 - 7500 daN, Stroke 12,5 - 250 mm, Ø 50 - 150 mm	NC.060.29	NC.060. 41 - 51
	Verzögerungszylinder, Serie NC.061.10 300 - 7500 daN, Hub 25 - 125 mm, Ø 45 - 195 mm	Delayed gas spring, NC.061.10 series, 300 - 7500 daN, Stroke 25 - 125 mm, Ø 45 - 195 mm	NC.061.10	NC.061. 1 - 13
	kompakt, erhöhte Kraft, Serie NC.064.10 300 - 18410 daN, Hub 10 - 300 mm, Ø 32 - 195 mm	compact, higher force, NC.064.10 series, 300 - 18410 daN, Stroke 10 - 300 mm, Ø 32 - 195 mm	NC.064.10	NC.064. 1 - 23
	Standard mit Kopfgewinde, Serie NC.070 250 - 500 daN, Hub 12,7 - 100 mm, Ø M36x1 - M46x1	Threaded springs, NC.070 series, 250 - 500 daN, Stroke 12,7 - 100 mm, Ø M36x1 - M46x1	NC.070.00	NC.070. 1 - 9
	Standard, mit Durchgangsbohrung Serie NC.080, 500 - 2200 daN, Hub 10 - 100 mm, Ø 50 - 95 mm	Hollowsprings, NC.080 series, 500 - 2200 daN, Stroke 10 - 100 mm, Ø 50 - 95 mm	NC.080.00	NC.080. 1 - 7
	Abdrückstifte nach DIN 3004 50 - 200 daN, Hub 10 - 125 mm, Ø M16x1,5 - M24x1,5	Plungers acc. to DIN 3004 50 - 200 daN, Stroke 10 - 125 mm, Ø M16x1,5 - M24x1,5	NC.091 - NC.094	NC.091. 1 - 11

	NitroCyl-Gasdruckfedern	NitroCyl-Gas springs	Best.-Nr. Order no.	Seite Page
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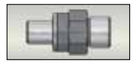
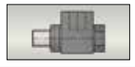
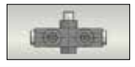
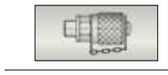
	Zubehör Gasdruckfedern	Gas spring accessories	Best.-Nr. Order no.	Seite Page
	Abfüllarmaturen	Charging assemblies	HS NCA 3000	NC.130.15
	Ablassventile	Bleeding valves	NCR.99.061	NC.130.20
	Anschlussstücke	Adapters	NCI.BK.KRM6	NC.130.22
	Anschlussstücke	Adapters	NCI.BK.KRM8	NC.130.22
	Anschlussstücke	Adapters	NCI.BK.KRMK	NC.130.23
	Anschlussstücke	Adapters	NCI.BK.KCMK	NC.130.23
	Anschlussstücke	Adapters	NCI.BK.KTMK	NC.130.23
	Anschlussstücke, 1-fach	One way adapters	NCZ.01	NC.130.24
	Anschlussstücke, 2-fach	Two way adapters	NCZ.02	NC.130.24
	Anschlussstücke, 3-fach	Three way adapters	NCZ.03	NC.130.25
	Anschlussstücke, 4-fach	Four way adapters	NCZ.04	NC.130.25
	Anschlussstücke, 5-fach	Five way adapters	NCZ.05	NC.130.26
	Anschlussstücke, gerade	Straight fittings	HS NF 1001-4-G1/8“	NC.130.17
	Anschlussstücke Kreuz	Adapters cross	HS NF 5501-4	NC.130.17
	Anschlussstücke mit Adapter	Straight fittings with adapter	HS NF 1003-4-G1/8“	NC.130.20
	Anschlussstücke mit Ventil und Schutzkappe	Adapters with valve and cover	NCI.00.012	NC.130.21
	Bithalter	Bit holder	NCTU.00.041	NC.130.28

[23.01.2020]

[23.01.2020]

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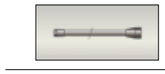
	Druckeinheiten	Accumulators	NCTU.00.016	NC.130.31
	Druckplatten	Thrust plates	NCP SPVD NCP SPFI NCP SPPS	NC.130.1 NC.130.2
	Druckwächter	Pressure monitors	HS Z 20	NC.130.7
	Entlüftungs-Werkzeuge, G1/8“ Entlüftungs-Werkzeuge, M6	Bleeding tools, G1/8“ Bleeding tools, M6	NCTU.00.550	NC.130.28
	Hinweisschilder	Signs	NC Hinweis-schild	NC.130.14
	Hochdruckschläuche	High pressure hoses, flexible	HS NH 220 NCX.20.00.010	NC.130.18 NC.130.22
	Hochdruckschläuche komplett mit Pressarmaturen, 24° Konus	High pressure hoses, complete with pressed-on adapters, 24° Taper	HS NH 220…	NC.130.18
	Kontroll-/Ladearmaturen	Pressure controller units	NCCA.1.1	NC.130.16
	Kontrollarmaturen	Control panels	NCCP.600.CPLC.0X.1 NCCP.600.CPLM.0X.1	NC.130.5
	Kontrollarmaturen 600 bar Kontrollarmaturen 400 bar	Control panels 600 bar Control panels 400 bar	NCTU.00.038 NCTU.00.042 NCTU.00.043	NC.130.20
	Kraftmessgeräte mit digitaler Anzeige für Gasdruckfedern, Standgerät	Dynamometers with digital display, Floor	NCTU.300	NC.130.30
	Kraftmessgeräte mit digitaler Anzeige für Gasdruckfedern, Tischgerät	Dynamometers with digital display, Table	NCTU.200	NC.130.29
	Ladeadapter	Charging adapters	NCQ	NC.130.11 NC.130.20 NC.130.23
	Ladeschläuche	Charging hoses	HS NCCS	NC.130.15
	L-Anschlussstücke	L-Connectors	HS NF 3301-4	NC.130.17
	Montage-Werkzeuge (Kolbenstange), M6 Montage-Werkzeuge (Kolbenstange), M8	Assembly tools (Piston rod), M6 Assembly tools (Piston rod), M8	NCTU.00.006 NCTU.00.008	NC.130.27
	Multi-Kontrollarmaturen	Multi-Control-Units	NCCP.400.CPFG...01	NC.130.6
	Pressarmaturen, 45°	Crimping fittings, 45°	HS NHP 5-45	NC.130.18
	Pressarmaturen, 90°	Crimping fittings, 90°	HS NHP 5-90	NC.130.18

[NC]

	Zubehör Gasdruckfedern	Gas spring accessories	Best.-Nr. Order no.	Seite Page
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	Schläuche	Hoses	NCX.12	NC.130.21
	Schläuche	Hoses	NCX.13	NC.130.21
	Schläuche	Hoses	NCX.15	NC.130.21
	Schläuche	Hoses	NCX.BK NCX.BK...G	NC.130.22
	Schlauchpressen	Crimping presses	HS KarryKrimp 1	NC.130.34
	Schlauschellen	Hose clamps	NCR.99.176 NCR.99.102	NC:130.20 NC.130.22
	Sechskantschlüssel	Hexagon socket head wrenches	NCTU.00.030	NC.130.27
	Steckkupplungen	Female quick release couplings	HS 11-770-2700	NC.130.12
	Stecknippel	Male quick release couplings	NCT.QCM.14	NC.130.11
	Stecknippel	Male quick release couplings	HS 11-700-8555	NC.130.12
	Stopfen	Plugs	NCR.99.008	NC.130.28
	T-Anschlussstücke	T-Couplings	HS NF 3001-4 HS NF 3501-4	NC.130.17
	Ventile	Valves	NCTU.01.002 NCR.99.082 NCR.99.147	NC.130.27
	Ventil-Werkzeuge	Valve-tools	NCTU.00.003	NC.130.27
	Ventil-Zangen	Valve-pliers	NCTU.00.001	NC.130.27
	Verschlussstopfen	Plugs	NCR.99.039	NC.130.21
	Verteilerblöcke	Distribution blocks	NCCC.1.2 NCCC.1.4 NCCC.6.6	NC.130.8 NC.130.9
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	Zubehör Gasdruckfedern	Gas spring accessories	Best.-Nr. Order no.	Seite Page
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	Winkelstücke 45°	Threaded joints, 45°	HS NF 4501-4	NC.130.17
	Winkelstücke 90°	Threaded joints, 90°	HS NF 2501-4	NC.130.17
	Winkelstücke 90°	Threaded joints, 90°	HS NF 2001-4	NC.130.17

Märkische Stanz-Partner

[technischeHinweise]

NitroCyl Gasdruckfedern

Gasdruckfedern sind eine sinnvolle Ergänzung zu den in der Praxis benutzten Schrauben, Teller- oder Urelastfedern. Allerdings sind die Vorteile der Gasdruckfedern beachtlich. So können auch in Werkzeuge und Pressen mit begrenztem Einbauraum hohe Kräfte und Hubwege eingebracht werden. Ein weiterer Vorteil ist der geringe Druckanstieg, wie auch die einfache Kraftveränderung gegenüber den Schrauben-, Teller- oder Urlastfedern. So können sich diese Vorteile positiv bei der Teilefertigung und bei den Werkzeugen und Pressen auswirken.
Die Gasdruckfedern werden mit dem umweltfreundlichen Medium “Stickstoff” gefüllt. Durch das variable Befüllen der Gasdruckfedern zwischen 20 bar min. und 150/180 bar max. ist es möglich, die exakte Kraft, die benötigt wird, zu erreichen. Es ist darauf zu achten, dass der max. Druck für die einzelnen Gasdruckfeder-Typen von max. 150/180 bar nicht überschritten wird. NitroCyl Gasdruckfedern können je nach Anforderung als Einzelelement oder auch im Verbund (Schlauchverbindungen) eingesetzt werden. Die Gasdruckfedern werden nach neuesten Technologien gefertigt und haben einen hohen Qualitäts-Standard.
Sind Werkzeuge, Vorrichtungen oder Pressen mit Gasdruckfedern bestückt, so sollte mit einem Hinweis-Schild (welches gut sichtbar sein sollte) darauf hingewiesen werden.

Märkische Stanz-Partner Normalien GmbH
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Tel. +49 (0) 23 51 / 6 61 07-0 • Fax +49 (0) 23 51 / 6 61 07-77

ACHTUNG

Werkzeug/Presse ist mit Gasdruckfedern bestückt.

Fülldruck max. 150 bar - 180 bar

Achtung:
Arbeiten am System nur im drucklosen Zustand.
Bitte Wartungsanleitung lesen.

Druck max. ..... bar Arbeitsdruck ..... bar

Achtung:
Wartungsarbeiten nur, wenn das Stickstoff-System drucklos ist. Lesen Sie die Wartungsanleitung. Wartungsarbeiten werden auch durch unser Fachpersonal ausgeführt. Bitte sprechen Sie uns an.

Gasdruckfedern und Stickstoffsysteme unterliegen hinsichtlich Wartungsintervallen u.ä. gesetzlichen Vorschriften, die länderspezifisch voneinander abweichen. In Deutschland sind diese z.B. u.a. in der Betriabssicherheitsverordnung geregelt.

NitroCyl Gasdruckfedern werden entsprechend der Druckgeräte-Richtlinie PED 2014/68/EU.

Vom Europäischen Parlament und dem Europarat wurde im Mai 1997 die neue Druckgeräte-Richtlinie angenommen und seit dem 29. Mai 2002 in der gesamten EG zwingend vorgeschrieben. Gasdruckfedern sind per Definition “Druckbehälter”.

Märkische Stanz-Partner

[technicalinformation]

NitroCyl Gas Springs

Gas Springs are a perfect addition to the commonly used mechanical-, urelast- or disc-springs, offering quite some advantages. For example, even in dies and presses providing limited space, high forces and long strokes can be accomplished.

Another advantage is the slow pressure increase as well as the easy readjustment of forces when needed. Gas springs are filled with the environment-friendly „nitrogen“ - gas.

By charging the spring in between 20 and 150 (in some cases 180 max. !!) bar, the user has the possibility to obtain exactly the force needed for the specific application.

NitroCyl Gas Springs may be used as stand-alones, but can be hosed together as well.
They are manufactured using the latest production technologies and with high technical and safety standards.
In case dies or presses utilize gas springs, a big-enough sign should inform the user about them being built in.

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Attention

This die / this press utilizes nitrogen gas springs with high pressure
(150 bar - 180 bar) and the resulting very high forces.

Repair and maintenance must only take place after the unit(s)
have been unloaded and unpressured !

Pressure max. ..... bar Working pressure ..... bar

Attention:
Repair and Maintenance must onlytake place of after the unit(s) have been unloaded and unpressured !
Please read maintenance manual. If you require assistance, please contact us.

Gas springs and corresponding systems are subject to (f.e.) preventive maintenance as outlined in country specific legislation. In Germany this is governed for example by the Industrial Safety Regulation, amongst others.

NitroCyl gas springs are manufactured in accordance with the PED-directive PED 2014/68/EU.

In May 1997 the European Parliament and the Council of Europe agreed on the new „Pressure Equipment Directive“, which in 2002 became law throughout the EC.

[NC]

[23.01.2020]

[23.01.2020]

Information
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AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Märkische Stanz-Partner

[bedienungsanleitung]

NitroCyl-Gasdruckfedern

Einbau, Sicherheits- und Bedienungshinweise

Die richtige Auswahl von Gasdruckfedern und Zubehör während der Konstruktionsphase hilft Kosten und Probleme zu vermeiden und sichert so einen zuverlässigen Betrieb der Werkzeuge und Maschinen zu.

Sicherheit
Stickstoff-System-Federn sind befüllte Druckbehälter mit einem Maximal-Druck von 150/180 bar. Wartungsarbeiten oder Änderungen an Stickstoff-System-Federn dürfen nur im drucklosen Zustand vorgenommen werden.
Achtung: System durch Öffnen der Ventile drucklos machen!!!
Diese Arbeiten sollten nur vom geschulten Personal der Firmen NitroCyl oder MSPN durchgeführt werden.
Bei unsachgemäßem Einsatz von Gasdruckfedern oder Systemen drohen Gefahren für:
• Gesundheit
• Werkzeuge oder Pressen
was mit hohen Kosten verbunden sein kann.

Anwendung/ Einbau
Gasdruckfedern dürfen nur mit handelsüblichem Stickstoff befüllt werden. Der Befüll-Druck liegt bei min. 20 bar und max. 150/180 bar bei einer Raumtemperatur von 20 °C. Der max. Druck darf nicht überschritten werden, da sonst keine Gewährleistung für die Sicherheit und Standzeit der Gasdruckfedern gegeben ist. Auch sollte die max. Arbeitstemperatur von 80 °C nicht überschritten werden.
Hohe Temperaturen wirken sich negativ auf die Dichtungen aus und minimieren so die Standzeit.

NitroCyl-Gasdruckfedern sollten über das Bodengewinde oder Flansche sowie Haltestücke befestigt werden. Werden Gasdruckfedern in Aufnahmebohrungen / Kavitäten eingebracht, so sollte der Aufnahmedurchmesser nur ca. 1 mm größer als der Feder-Außendurchmesser sein, um so unerwünschtes Kippen auszuschließen. Wird eine Gasdruckfeder mit einem kleineren Körperdurchmesser in einen größeren Bohrungsdurchmesser eingebaut und nicht befestigt, so muss eine Ausgleichshülse über die Federn geschoben werden. Die Tiefe der Aufnahmebohrung / Kavität sollte ca. 85 % der Körperlänge nicht unterschreiten.

Die Kolbenstange der Gasdruckfeder sollte vor Schmutz und mechanischer Beschädigung geschützt werden. Es ist auch darauf zu achten, dass ein Überfluten der Gasdruckfeder mit Öl / Ziehemulsion vermieden wird. Das Überfluten kann durch Einbringen von Drainage-Bohrungen / -Kanälen vermieden werden.
Auch muss darauf geachtet werden, dass die Kolbenstange der Gasdruckfeder bei Entlastung nicht ungebremst zurückschnellt. In diesem Fall können innere Bauteile zerstört werden.

Der Einbau der Gasdruckfedern im Werkzeug oder in der Presse muss immer parallel zur Krafteinleitung erfolgen. Ebenso muss die Gasdruckfeder, die Auflagefläche für Zylinderflansche und die betätigte Kontaktfläche im rechten Winkel zur Krafteinleitung stehen. Die beaufschlagten Kontaktflächen sollten eine ausreichende Härte aufweisen.

Das Gewinde in der Feder-Kolbenstange darf nicht benutzt werden, um die Federn zu fixieren, z. B. um die Gasdruckfeder mit dem Werkzeug der Abstreiferplatte zu verschrauben. Es können hierdurch seitliche Kräfte auftreten, was zu Beschädigungen an Dichtungen und Kolbenstange führt. Dies hätte eine Verringerung der Standzeit zur Folge. Das Kolbenstangen-Gewinde dient ausschließlich Wartungs- und Reparaturarbeiten.

Nach Möglichkeit sollte eine 10 %ige Hub-Reserve berücksichtigt werden.

Maximale Kolbengeschwindigkeit: 0,5 / 1,6 / 2,0 m/sec (Gasdruckfeder-Typen abhängig).

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zertifiziert ISO 9001 for you Cert

MSP-N GMBH

Märkische Stanz-Partner

[operatinginstructions]

NitroCyl Gas Springs

Assembly, Maintenance, Safety

The careful selection of gas springs and corresponding components during the design phase reduces cost and eliminates possible problems, and thereby ensures a reliable performance of dies and presses during production.

Safety:
Gas springs are high-charged pressure devices with a max. pressure of 150 bar (in some cases 180 bar max. !!). Repair and maintenance must only take place after the unit(s) have been unloaded and unpressured!
This happens through opening of the filling- / bleeding - valve of any given system.
Any repair or maintenance work should only be handled by skilled technicians of MSP-N, or people at the customer's plant that have been specifically trained for these tasks by MSP-N - technicians.
If not handled 100% accurately, there are dangerous threats for the health (possibly life !!!) of the people involved, as well as potentially for dies and presses.

Assembly:
Gas springs may only be charged with Nitrogen. The pressure ranges between 20 and 150 bar (in some cases 180 bar max. !!) at room temperature (20 °C). The maximum nominal pressure must not be exceeded, since safety and operating lifetime will suffer and cannot longer be guaranteed. Additionally, the working temperature should not exceed 80 °C, since higher temperatures have a negative impact on the lifetime of the seals.

NitroCyl gas springs should be mounted using bottom threads, flanges or clamps. If put in cavities, the corresponding diameter should be only 1 mm larger than the spring OD to avoid tilting. If a gas spring with a smaller diameter needs to be put into a cavity with a larger OD and is not mounted, a compensating sleeve may be used. The depth of the cavity should - if possible - be at least 85% of the gas spring body-length.
The gas spring rod should be protected from dirt and mechanical damage. A „flooding" of the gas spring with oils or similar fluids must be avoided. If needed, drain-holes have to be provided.

It has to be kept in mind, that the rods must not return into 0-Position at full speed, which can destroy internal components.

Gas springs have to be mounted in dies and presses parallel to the direction of the force - application. At the same time the flange-flats and the attached surfaces - which should have a sufficient hardness - need to be at an angle of 90° to the force-application.

It is prohibited to use the thread in the rod to fix the gas spring, f. e. to connect the spring to a stripper plate. Since this mounting could result in side load forces, the rod itself and seals could be damaged, thereby reducing lifetime.
The rod-thread is meant for maintenance - purposes only.

A 10% stroke-buffer should be considered (min. 3 mm).

The maximum rod-speed, depending on the gas-spring family, of 0,5 / 1,6 or 2,0 m/sec. needs to be respected.

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AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

NitroCyl

Konformitätserklärung

NitroCyl - Gasdruckfedern

TÜV SÜD

ZUGELASSEN PED 2014/68/EU

EU KONFORMITÄTSERKLÄRUNG

ausgestellt gemäß: der Druckgeräte-Richtlinie PED 2014/68/EU

Wir erklären hiermit die Übereinstimmung der nachstehend beschriebenen Produkte mit der Druckgeräte-Richtlinie PED 2014/68/EU gemäß folgender Konformitäts-Bewertung:

- Modul A
  „Interne Fertigungskontrolle".

  Modul A2:
  „Interne Fertigungskontrolle mit Überwachung der Abnahme", zertifiziert vom TÜV SÜD ATISAE als befugte technische Prüforganisation (Zertifizierungsstelle Nr. 0053).

Produktbeschreibung:

Gasdruckfedern zum Einbau in Werkzeuge oder Maschinen.

NitroCyl S.A. C/Arriurdina 1 E-01015 VITORIA -SPANIEN

NitroCyl

Declaration of Conformity

NitroCyl - Gas Springs

APPROVED PED 2014/68/EU

EU DECLARATION OF CONFORMITY

Issued in accordance with the Pressure Equipment Directive 2014/68/EU

We hereby declare that in the compliance with the above Directive, the products detailed below have been designed and manufactured in accordance with the following conformity assessment:

- Module A
„Internal production control“.

- Module A2
„Internal manufacturing checks with monitoring of the final assessment“
as approved by ATISAE (Notified Body No. 0053).

Product description: Gas Springs, intended for installation in a tool or machine.

NitroCyl S.A. C/Arriurdina 1 E-01015 VITORIA -SPANIEN

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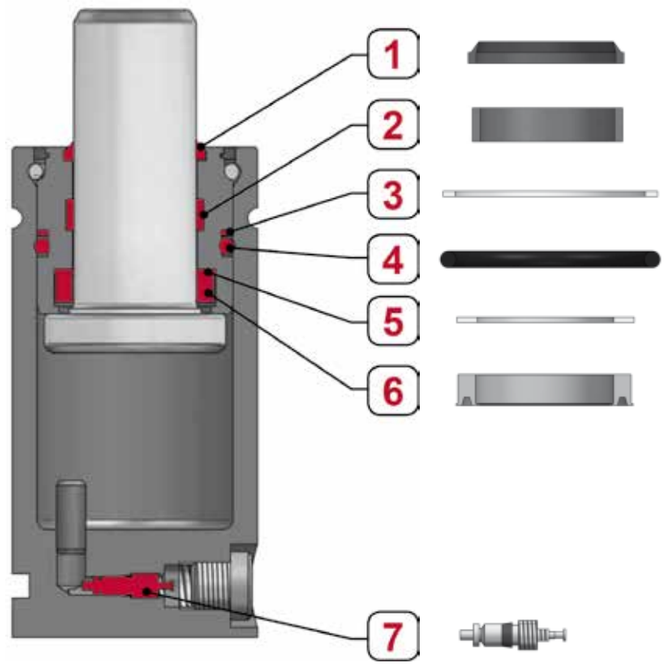
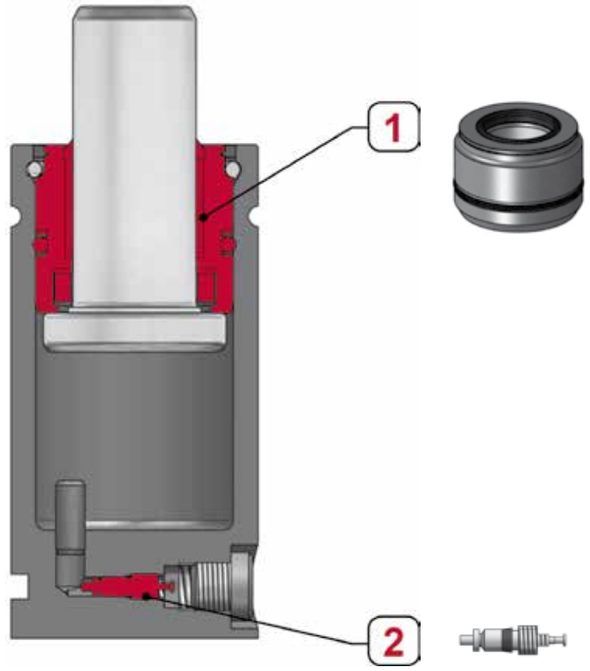
Dort, wo in Werkzeugen, Maschinen oder sonstigen Vorrichtungen Federelemente aus Stahl, Elastomere oder Gummi aufgrund ihrer Größe nicht unterzubringen sind, bieten sich die äußerst kompakten autonomen NitroCyl-Stickstoff-Federsysteme an. Die Federn werden nach strengen Qualitätskriterien und entsprechend den üblichen Sicherheitsvorschriften gefertigt.
Durch einen speziell konstruierten Kolbenkopf wird gewährleistet, dass bei defekten oder beschädigten Federn ein Herausschleudern der Kolbenstange aus dem Federkörper verhindert wird.
Die autonomen Gasdruckfedern sind mit einem eigenen Speicherraum für handelsüblichen Stickstoff ausgestattet und benötigen keinen zusätzlichen Speichertank. Sollte es nötig sein, können die Federn durch Schläuche miteinander verbunden und über eine Kontrollarmatur befüllt werden.
Alle Gasdruckfedern werden, soweit nicht anders angegeben, mit einem max. Fülldruck von **150/180/200 bar** ausgeliefert. Aus Gründen der Sicherheit sollte ein Fülldruck von 20 bar nicht unterschritten werden, da sich die Dichtsysteme verändern und Undichtigkeiten auftreten können.

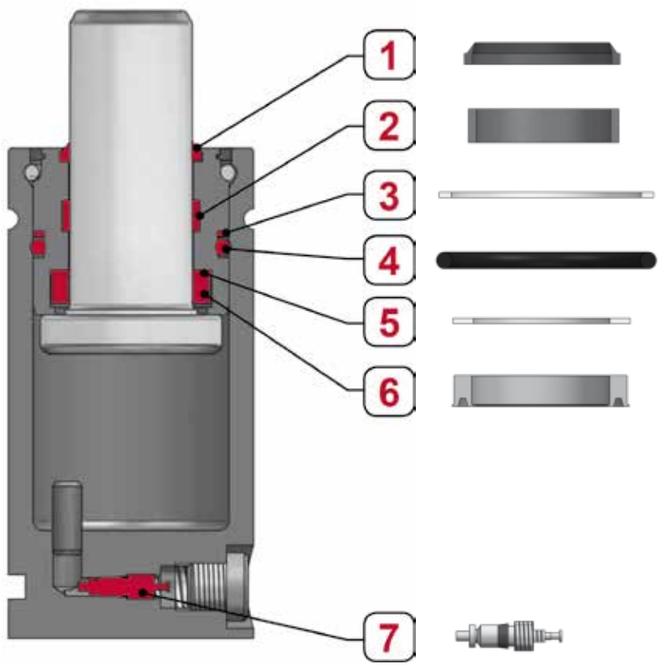


Zusatzinformation:
- Beim Einbau sollte die Rechtwinkligkeit zwischen Federkörper und Grundfläche auf jeden Fall angestrebt werden, wenngleich der Federkörper auftretende Seitendrücke aufgrund einer Winkelabweichung der Kolbenstange von 1-2° im Normalfall absorbieren kann.
- Bei exaktem Einbau und unter Berücksichtigung aller Kriterien kann von einer langen Lebensdauer ausgegangen werden.
- Die Federauslegung sollte so erfolgen, dass die Kolbenstange nicht permanent über den maximalen Hub fährt. In diesem Fall wäre die Wahl der nächstgrößeren Hublänge sinnvoll.

Hinweis:
Bei Verschlauchung empfehlen wir ausschließlich Gasdruckfedertypen mit Anschlussgewinde G1/8“ zu verwenden.

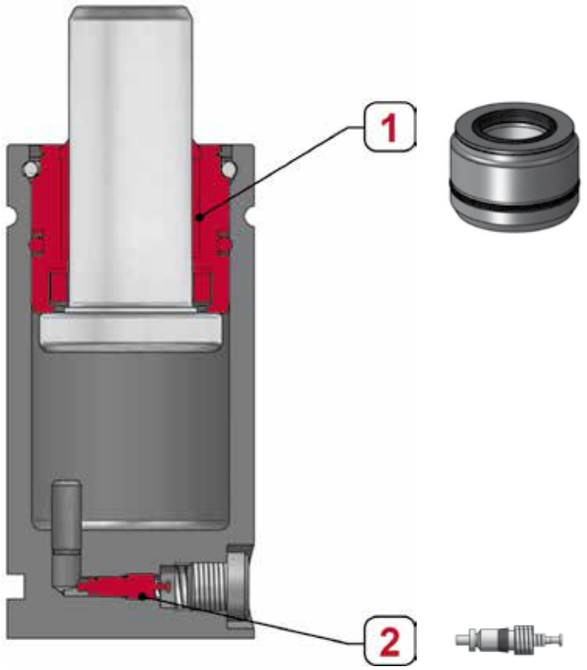


Wherever in dies, machines and fixtures mechanical springs made out of steel, urelast or rubber cannot (because of their size) be accommodated, NitroCyl gas springs present themselves as a perfect alternative.
They are manufactured using the latest production technologies and with high technical and safety standards.
The design of the lower rod avoids the ejection of the rod itself in case of a defect or damage.
The stand-alone gas springs have their own nitrogen-storage built in and do not need any additional external tanks.
If needed / wanted, they can be hosed together and charged via a control panel.
The charging pressure at 20 ºC is 150 bar, exceptions to run at 180 and 200 bar.
For safety reasons, a minimum pressure of 20 bar should be kept at all times, since otherwise the sealing system may change up to a point of unreliability.



Additional information:

- It has to be ensured, that the gas spring does not overstroke. If there seems to be a possibility for that scenario, the next longer stroke-length must be used.
- Although usually the gas spring can absorb a non-perpendicularity of 1-2 degrees. During assembly it is important to align the gas spring body under an as-exact-as-possible 90º angle to the mounting, parallel surface.
- If the instructions are followed, a long service life can be assumed. For exact, gas-spring-specific information please contact our technical support.
- In case gas springs need to be hosed together, we recommend using G1/8 - threads only.



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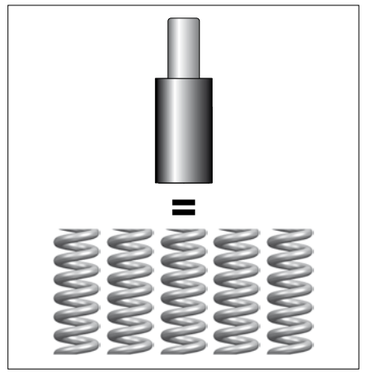
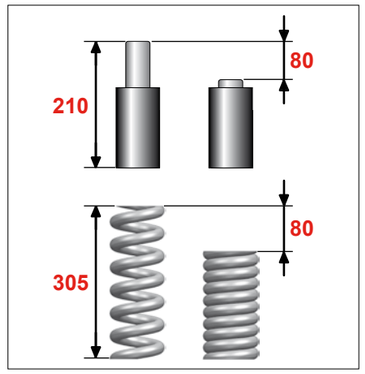
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Beansprucht weniger Platz, Höhe und Volumen



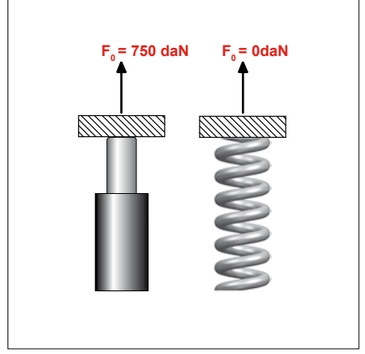
Reduction of surface area used, height, and volume occupied.

Im Allgemeinen beträchtliche Verminderung der Höhe bei gleichem Hub und gleicher Kraft. Kompaktere Werkzeugkonstruktion möglich.



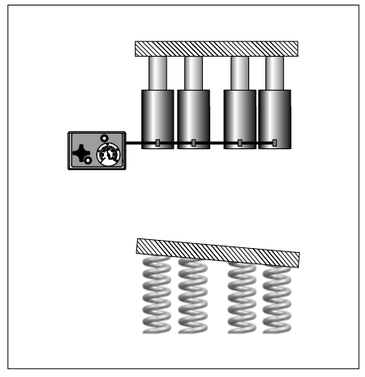
Considerable height reduction for the same work stroke and force. Compact tool construction possible.

Kein Bedarf an Vorrichtungen für Vorspannen, Führung und Aufnahme. Beseitigung der Vorspannung.



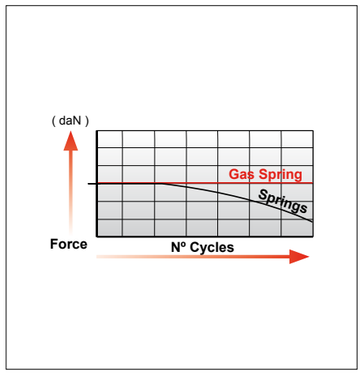
Considerable reduction of retaining devices to preload. No preload required.

Stets ausgeglichene und gleichförmige Kraft an allen Kontaktpunkten. Ständige Sichtanzeige des Betriebsdrucks.



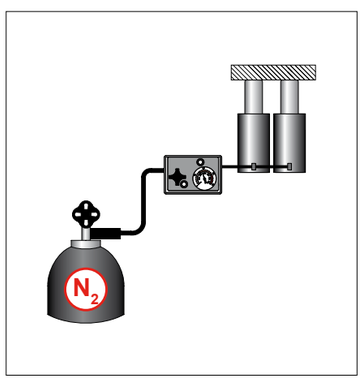
Always the same force on each contact point. System may be continually pressure monitored.

Bessere Kontrolle des Werkstücks während der Phasen des Formens und des Ziehens. Bessere Qualität der fertigen Werkstücke. Weniger Ausschuss.



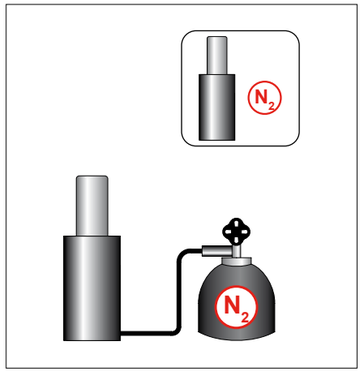
Controlled production conditions on sheet metal parts during forming and drawing operations. Less rejection of final products.

Anpassung der Zylinder an die effektiv erforderliche Kraft. Gewissheit der definierten Kräfte. Verwendung desselben Zylinders für unterschiedliche Arbeiten.



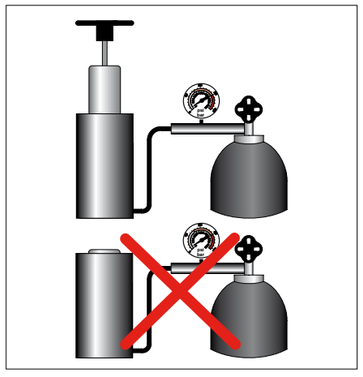
Gas springs adjustable to provide the real forces required. Assurance of defined forces. The same cylinder may be re-used for different applications.

Gasdruckfedern dürfen nur mit Stickstoff (N_2) gefüllt werden.



Charge only with NITROGEN (N_2).

Befüllung der Gasdruckfeder nur bei voll ausgefahrener Kolbenstange.



Never fill a gas spring when the piston rod is not fully extended.

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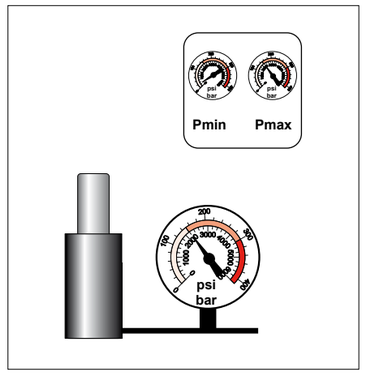
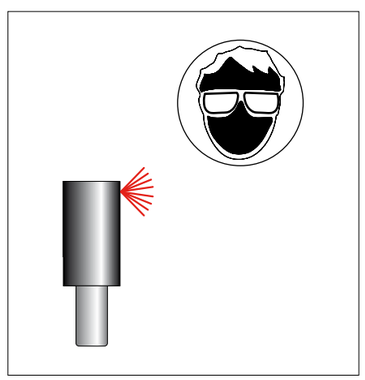
Befüllen Sie die Gasdruckfedern nur zwischen dem zulässigen Maximal- und Minimal-Druck.



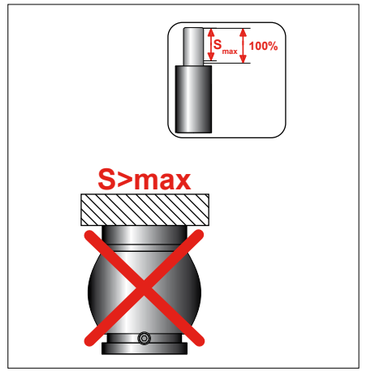
Only charge the gas springs within the allowed pressure-ranges.

Beim Entladen Ventil nicht auf Personen richten.



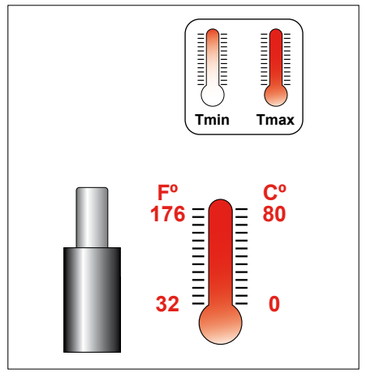
When discharging a gas spring point the gas flow away from operator or anybody else.

Es wird empfohlen, eine 10%ige Hubreserve einzuplanen. Ein Überhub führt zur Zerstörung der Gasdruckfeder mit großen Risiken für Gesundheit und Leben von Personen.



Maximum recommended stroke 90%. Overstroke would cause damages to the cylinder and jeopardize health and even life of people.

Arbeitstemperatur



Operating temperature

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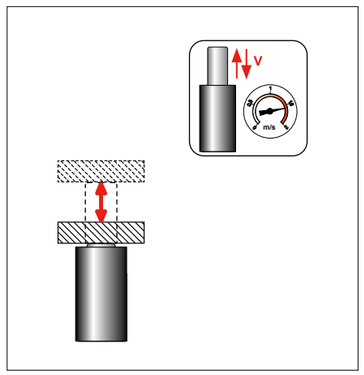
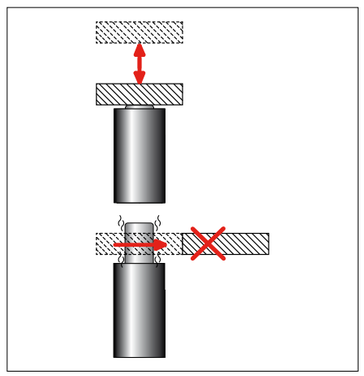
Überschreiten Sie nicht die maximal zulässige Kolbengeschwindigkeit.



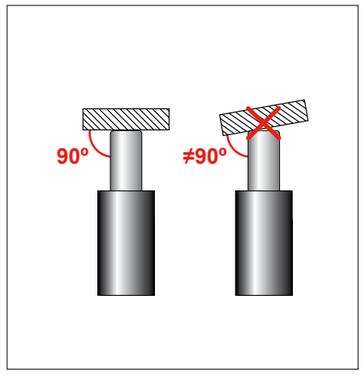
Do not exceed the maximum allowed rod speed.

Ein freier Rückhub muss vermieden werden, um Beschädigungen an der Gasdruckfeder zu vermeiden.



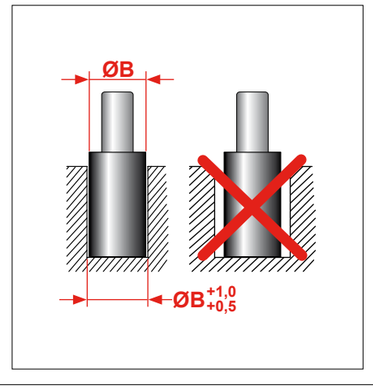
Avoid free release of the piston rod, this would cause damages to the gas spring.

Es dürfen keine seitlichen Kräfte auf die Gasdruckfedern wirken, da sich sonst die Lebensdauer wesentlich verringert.



Gas springs must always work completely perpendicular to the contact surface. Side loads increase wearing and reduce life expectancy.

Werden Gasdruckfedern in Kavitäten eingebaut, so sollte der Bohrungs-Ø nur 1 mm größer als der Federdurchmesser sein.



When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter.

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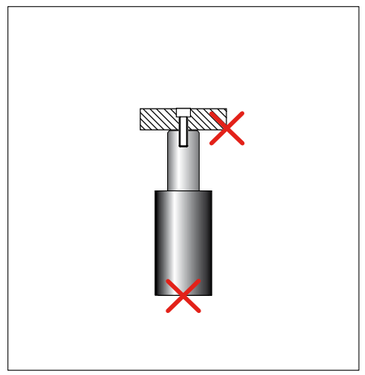
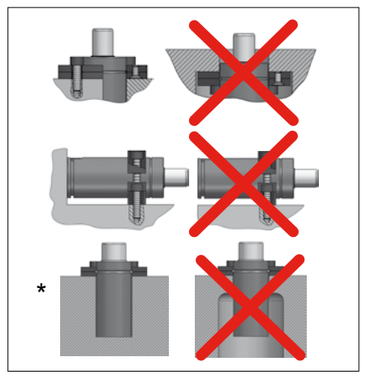
Das Gewinde in der Kolbenstange dient nur zu Wartungsarbeiten und darf nicht zur Befestigung der Gasdruckfeder benutzt werden.
Das Mittengewinde im Boden einiger Gasdruckfedern sollte unter Berücksichtigung möglicher Seitenkräfte - besonders bei langhubigen Federn - nur sehr selektiv für die Befestigung genutzt werden.
In jedem Fall müssen die Schraubenlängen so gewählt werden, dass das tiefer liegende Ventil nicht beschädigt wird.



Do not use the piston rod threaded hole for fixing the gas spring into the tool. This hole is only to be used for maintenance operations. The centre-thread in the bottom of these gas springs be used very carefully, especially taking possible side loads of long-stroke springs into account.
In any case: In order not to destroy the internal valve, the screw-lengths have to be given special consideration and selected carefully.

Die Fixierung der Gasdruckfeder sollte mit der vorgesehenen Befestigung erfolgen.

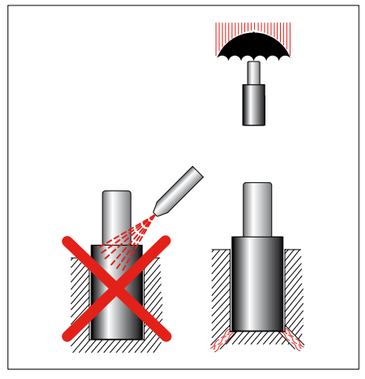
* Nur für den Fall eines zweiteiligen Zylinderkörpers



Fix the gas spring into the appropriate mount.

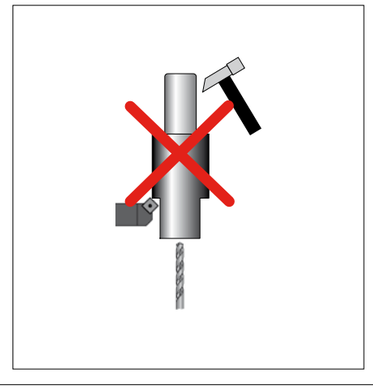
* Only applies in case of two-part body design.

Schützen Sie die Gasdruckfedern vor Kontakt mit festen oder flüssigen Verschmutzungen. Bei Einbau in Kavitäten müssen Drainage-Kanäle eingebracht werden.



Protect the gas springs from solid or liquid contaminants. Provide adequate drainage in gas springs pockets.

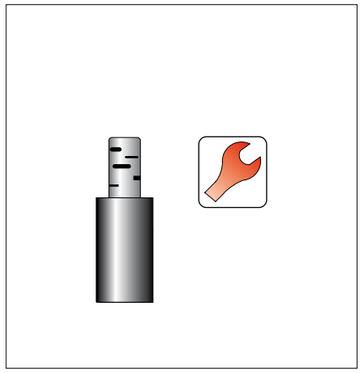
Schützen Sie die Gasdruckfeder insgesamt (besonders Körper und Kolbenstangen) gegen mechanische Beschädigung.



Avoid whatever impatct and do not perform any mechanical work on the gas spring body or piston rod.

[NC]

Gasdruckfedern mit Kratzern auf der Kolbenstangenoberfläche sollten ersetzt werden.



Gas springs with scratches on the piston rod surface should be replaced.

Arbeiten an den Gasdruckfedern dürfen ausschließlich von geschulten Mitarbeitern durchgeführt werden. Die technischen Hinweise, Vorgaben und Anweisungen von NitroCyl / MSPN müssen unbedingt und jederzeit befolgt werden.



Gas springs maintenance must be carried out only by skilled personnel, with the appropriate training, and always following the operating and service instructions from NitroCyl / MSPN.

Die meisten NitroCyl-Gasdruckfedern können durch Verschlauchung in einem Verbundsystem arbeiten. Das erleichtert das Steuern, Ablesen und das Anpassen des Druckes.



Most of NitroCyl gas springs can be used into linked systems. Linked systems allow users to easily monitor, control and adjust pressure.

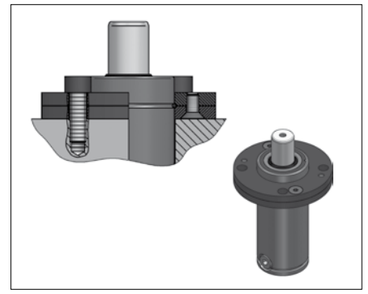
Die Bestimmungen der Druckgeräte-Richtlinie (2014/68/EU) sind besonders zu beachten. NitroCyl empfiehlt, die Gasdruckfedern nach 2 Millionen Hüben, spätestens nach 10 Jahren, zu ersetzen.



Follow the regulation related to the pressure equipment devices 2014/68/EU as for inspection and safety of gas springs. NitroCyl recommend to replace gas springs after 2 million strokes.

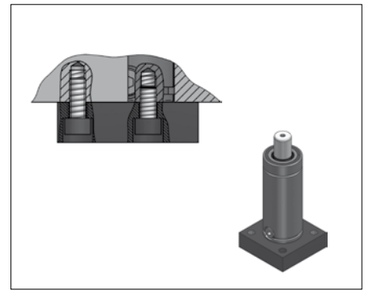
Information
Information
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Oberer runder Nut-Flansch



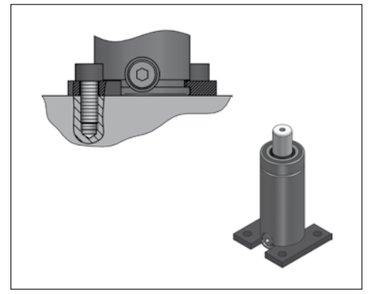
Upper round groove flange

Untere Befestigungsplatte



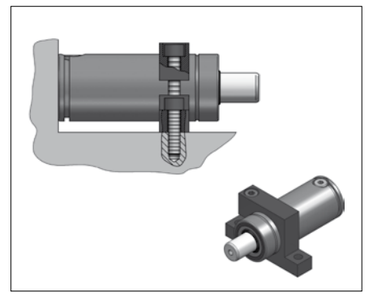
Bottom mount plate

Unterer quadratischer Nut-Flansch



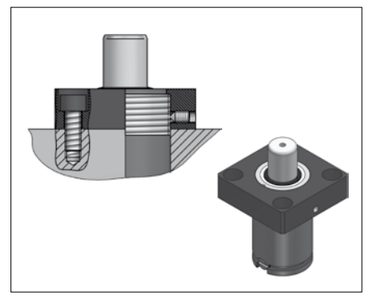
Lower square groove flange

Stütz-Flansch



Support mount

Körpergewinde-Flansch

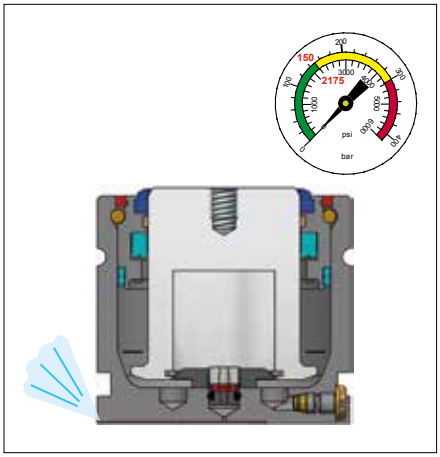


Threthreaded body flange

Überdruck



Wird durch Anwendungsfehler der maximale Fülldruck überschritten, aktiviert sich automatisch das SP-Sicherheitssystem. Die Feder wird drucklos und damit ein Bersten verhindert.

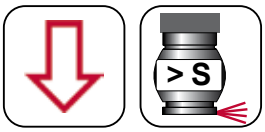


Over-Pressure

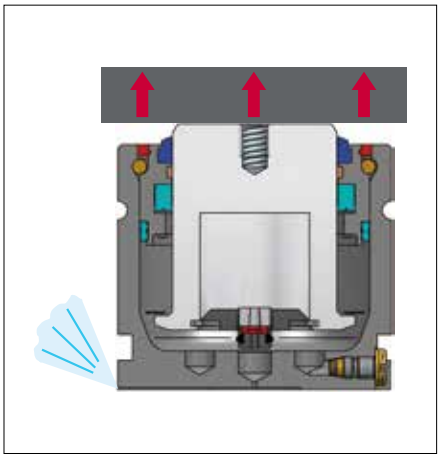


In case the maximum allowed charging pressure is exceeded, the safety system SP is activated, depressurizes the gas spring and prevents an uncontrolled bursting of the spring.

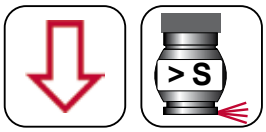
Überhub



Überschreitet der Anwender den maximal zulässigen Hub, entlädt das SS-Sicherheitssystem die Gasdruckfeder komplett und vermeidet so Schäden durch Bersten oder herausschießende Teile.

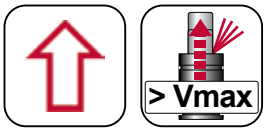


Over-Stroke

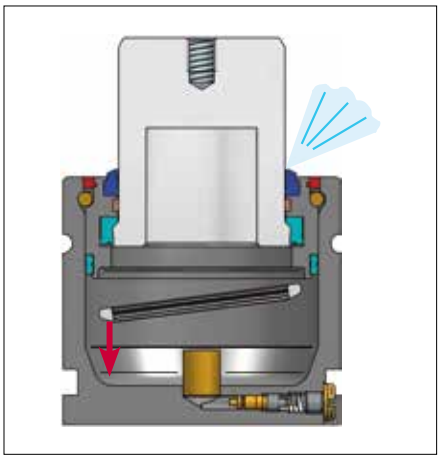


If the maximum allowed stroke is exceeded, the safety system SS unpressurizes the gas spring completely, thereby preventing damages through bursting and / or ejecting parts and components.

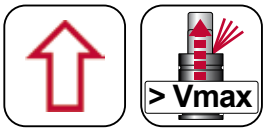
Freier Rückhub



Kommt es durch unsachgemäße Behandlung der Gasdruckfeder zu einem Festklemmen der Kolbenstange, verhindert das SV-Sicherheitssystem ein Herausschießen der Kolbenstange, die Gasdruckfeder wird kontrolliert druckentleert.

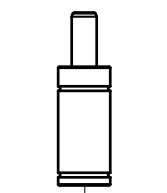


Over-Speed

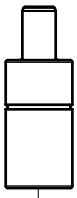


If due to an inappropriate handling the piston rod is first jammed and afterwards released to return at high speed, the SV Safety System makes sure, that the rod cannot blast out of the gas spring body. The spring is automatically and safely discharged.

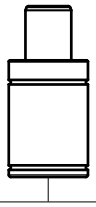
Größenübersicht Serie NC.010.00



NC.010.00.00200.2
200 daN
7 - 100 mm
Ø25

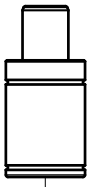


NC.010.00.00300.2
300 daN
7 - 125 mm
Ø32



NC.010.00.00500
470 daN
10 - 125 mm
Ø38

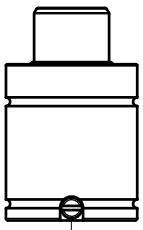
Gas spring index NC.010.00 series



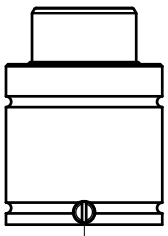
NC.010.00.00700
712 daN
10 - 125 mm
Ø45



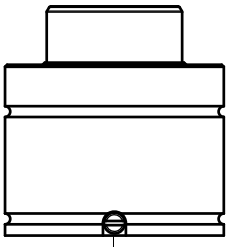
NC.010.00.01000.1
985 daN
10 - 125 mm
Ø50



NC.010.00.01500.1
1530 daN
12 - 125 mm
Ø63

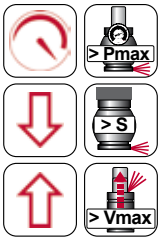


NC.010.00.03000
2945 daN
12 - 125 mm
Ø75



NC.010.00.05000
4980 daN
12 - 125 mm
Ø105

SICHERHEITSSYSTEME



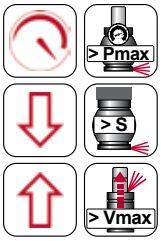
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

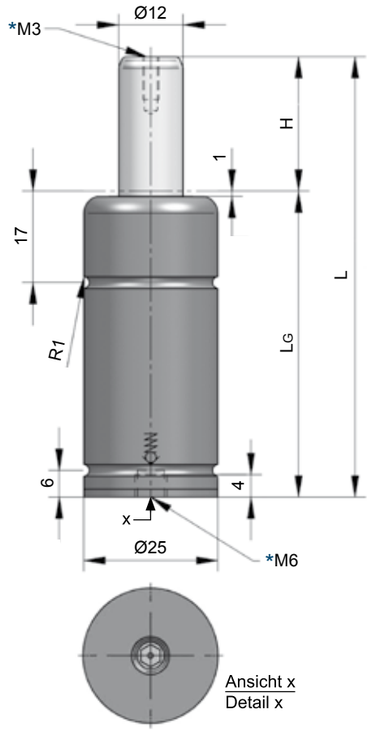
Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

[NC]

NC.010.00.00200...2



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

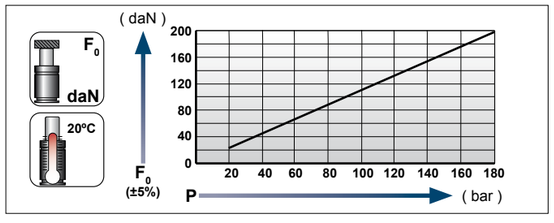
Specifications:

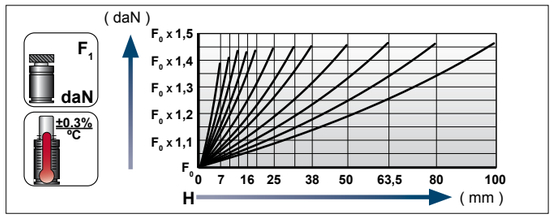
Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

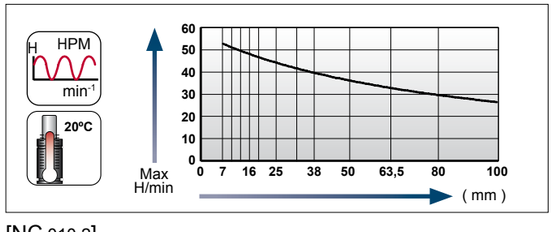
One-way spring is irreparable!

NC.010.00.00200.016.2

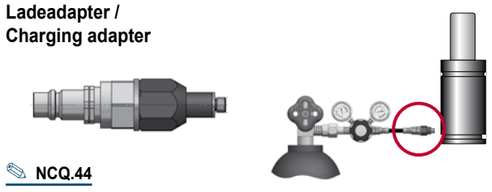
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (180 bar) Anfang / Initial [daN]	Ende / Final [daN]
007	46	39	200	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	52	42	200	
012,7	57,4	44,7	200	
016	64	48	200	
019	70	51	200	
025	82	57	200	
032	96	64	200	
038	108	70	200	
050	132	82	200	
063,5	159	95,5	200	
080	192	112	200	
100	232	132	200	







Ladeadapter / Charging adapter

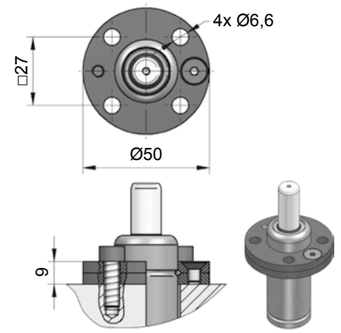


NCQ.44

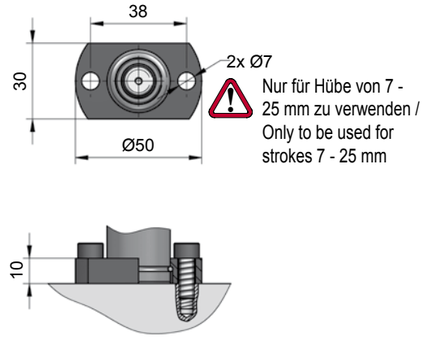
[20.01.2020]

GDF, niedrigbauend
GS, smaller height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

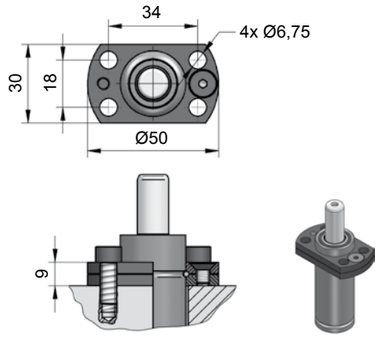
Flansche für / Flanges for **NC.010.00.00200…2**



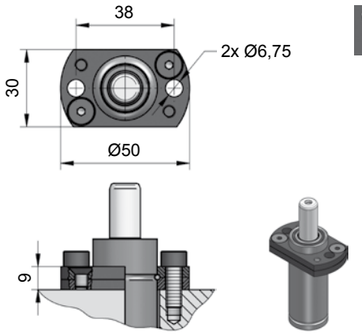
NC.88.00.025.0114



NC.88.00.025.0119



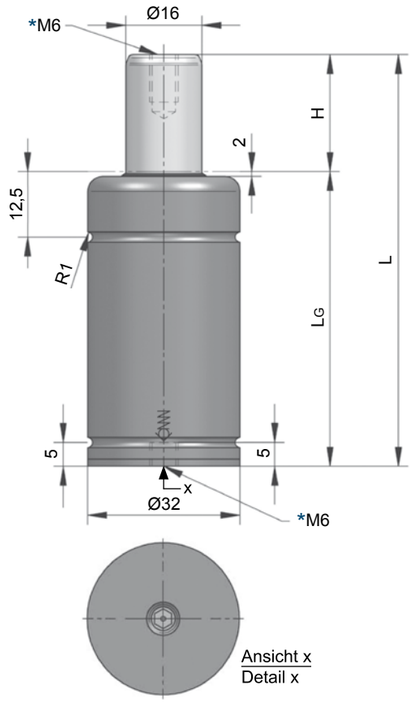
NC.88.00.025.0144



NC.88.00.025.0149

[20.01.2020]

NC.010.00.00300...2



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

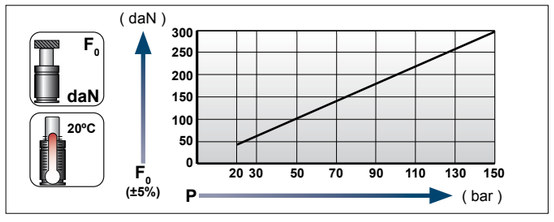
Specifications:

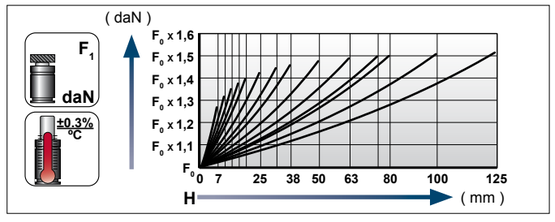
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

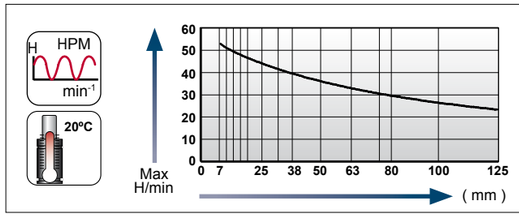
One-way spring is irreparable!

NC.010.00.00300.016.2

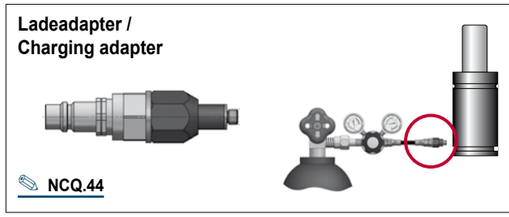
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
007	51	44	300	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	57	47	300	
013	63	50	300	
016	69	53	300	
019	75	56	300	
025	87	62	300	
032	101	69	300	
038	113	75	300	
050	137	87	300	
063	163	100	300	
075	187	112	300	
080	197	117	300	
100	237	137	300	
125	287	162	300	







Ladeadapter / Charging adapter

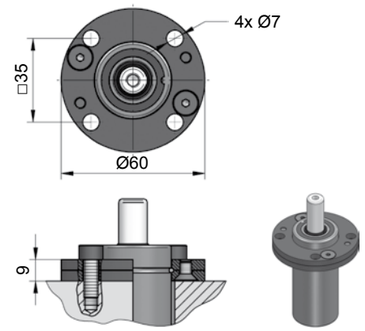


NCQ.44

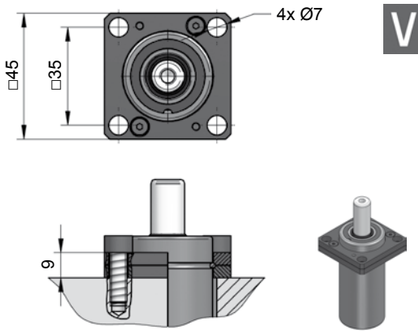
[20.01.2020]

GDF, niedrigbauend
GS, smaller height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

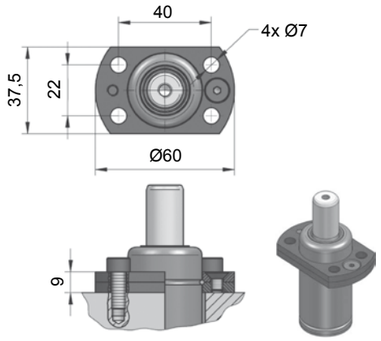
Flansche für / Flanges for **NC.010.00.00300…2**



NC.88.00.032.0114



NC.88.00.032.0134

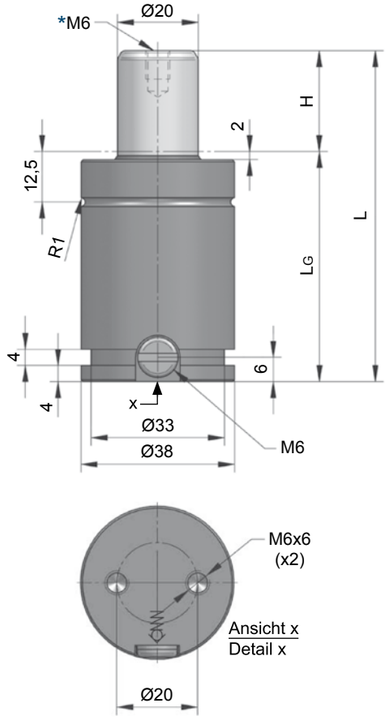


NC.88.00.032.0144

[20.01.2020]

[NC]

NC.010.00.00500



Technische Daten:

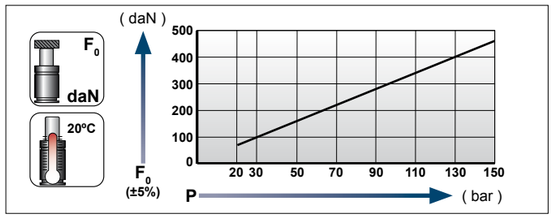
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

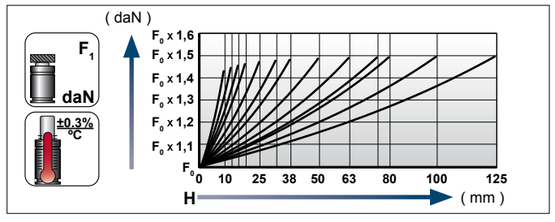
Specifications:

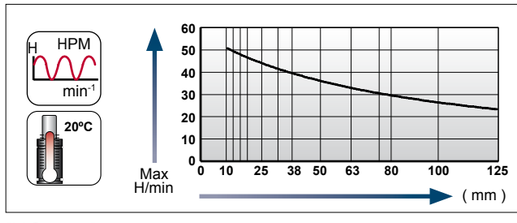
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.010.00.00500.025

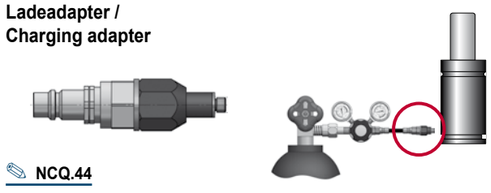
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (145 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	52	42	470	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	58	45	470	
016	64	48	470	
019	70	51	470	
025	82	57	470	
032	96	64	470	
038	108	70	470	
050	132	82	470	
063	158	95	470	
075	182	107	470	
080	192	112	470	
100	232	132	470	
125	282	157	470	







Ladeadapter / Charging adapter

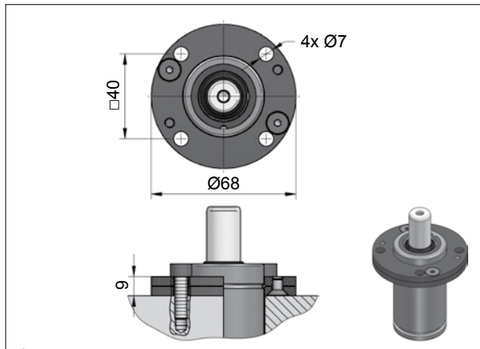


NCQ.44

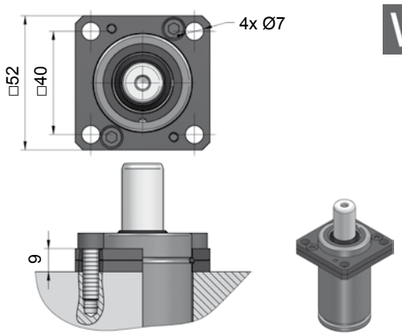
[20.01.2020]

GDF, niedrigbauend
GS, smaller height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.010.00.00500**



NC.88.00.038.0114



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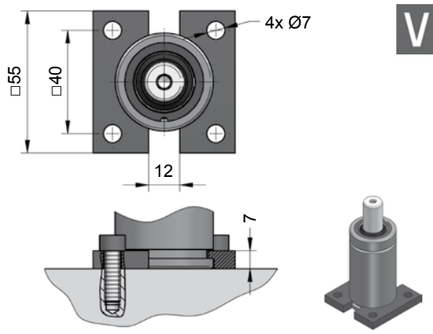
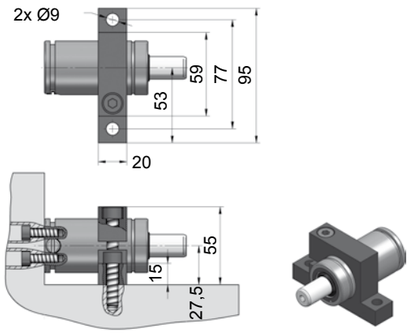


NC.88.00.038.0320

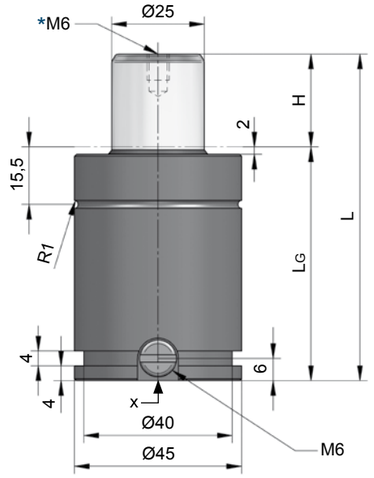


NC.88.00.038.0402

[20.01.2020]

[NC]

NC.010.00.00700



Technische Daten:

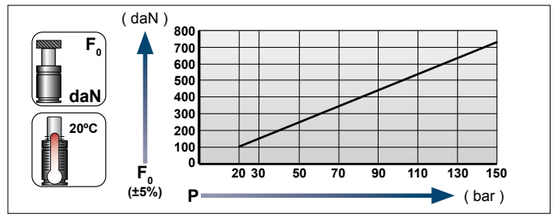
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

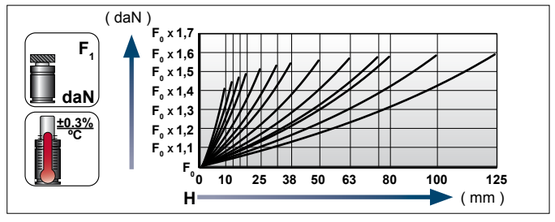
Specifications:

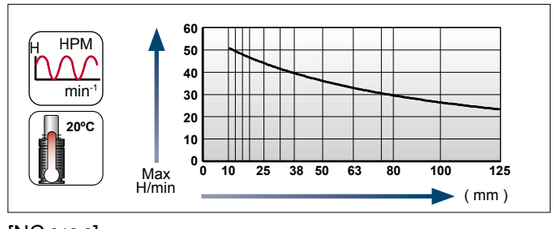
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.010.00.00700.025

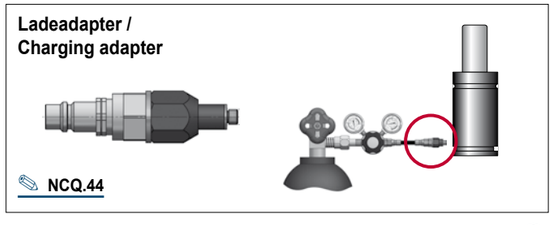
H Hub / Stroke	L ±0,25	LG	Kraft / Force (145 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	58	48	712	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	64	51	712	
016	70	54	712	
019	76	57	712	
025	88	63	712	
032	102	70	712	
038	114	76	712	
050	138	88	712	
063	164	101	712	
075	188	113	712	
080	198	118	712	
100	238	138	712	
125	288	163	712	







Ladeadapter / Charging adapter

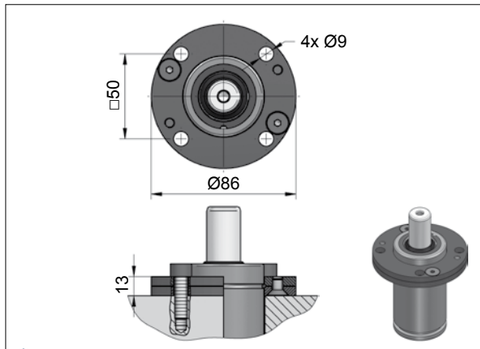


NCQ.44

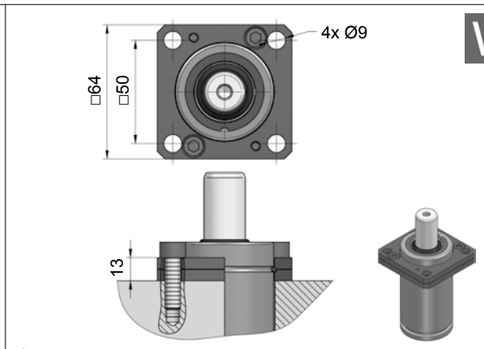
[20.01.2020]

GDF, niedrigbauend
GS, smaller height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.010.00.00700**



NC.88.00.045.0114



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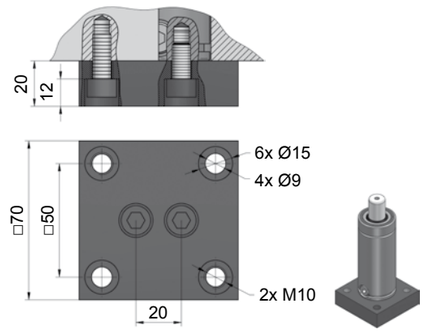
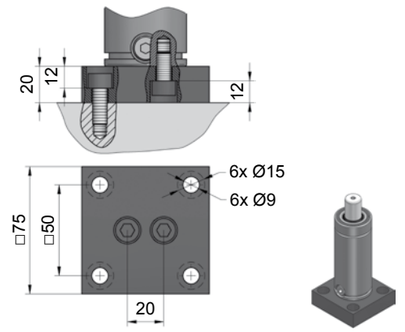


NC.88.00.045.0236



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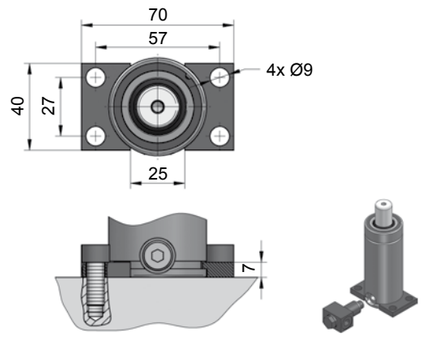
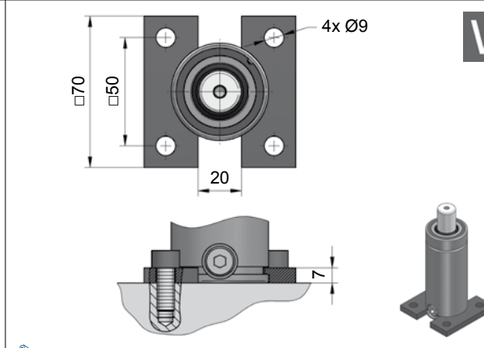


NC.88.00.045.0305



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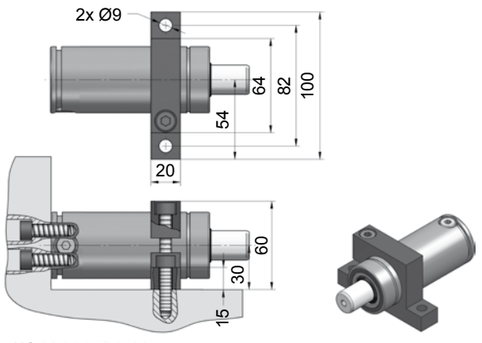
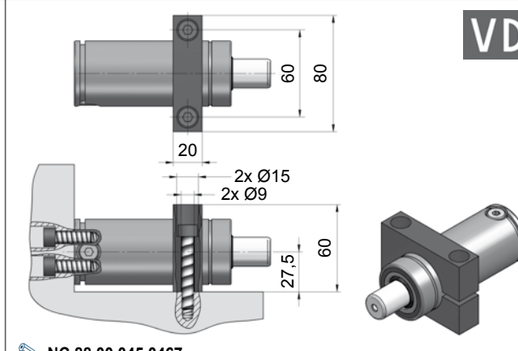


NC.88.00.045.0402

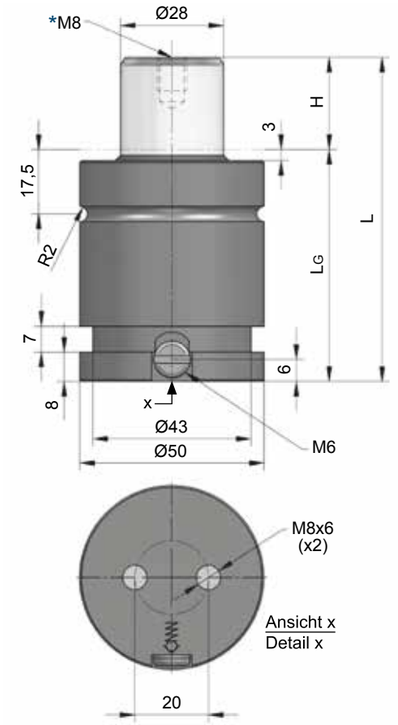


NC.88.00.045.0467

[20.01.2020]

[NC]

NC.010.00.01000...1



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.010.00.01000.038.1

H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (160 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	58	48	985	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	64	51	985	
016	70	54	985	
019	76	57	985	
025	88	63	985	
032	102	70	985	
038	114	76	985	
050	138	88	985	
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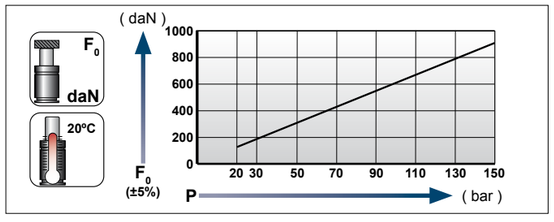
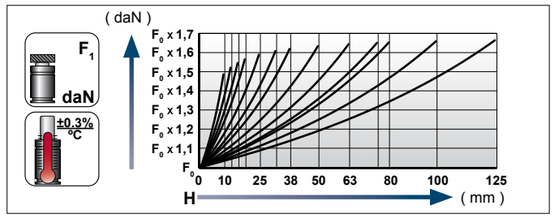
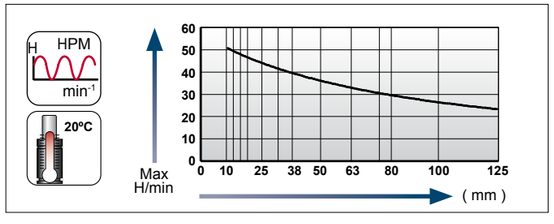
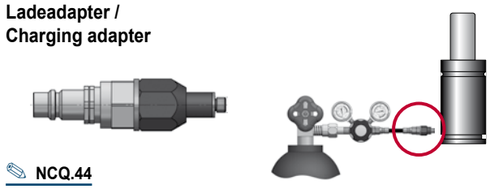
100	238	138	985	
125	288	163	985	







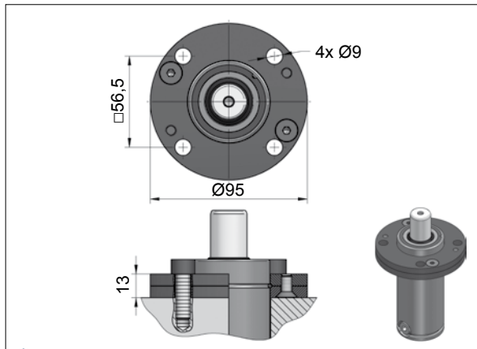
Ladeadapter / Charging adapter



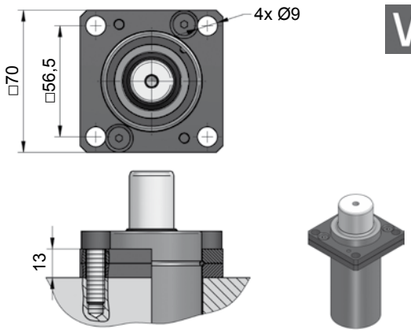
NCQ.44

[28.01.2020]
[20.01.2020]

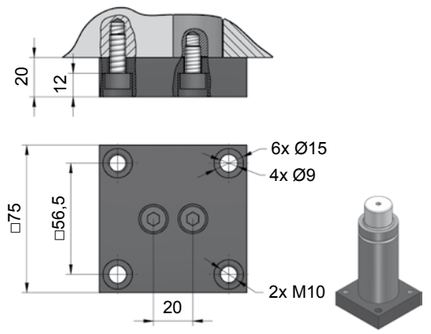
Flansche für / Flanges for **NC.010.00.01000...1**



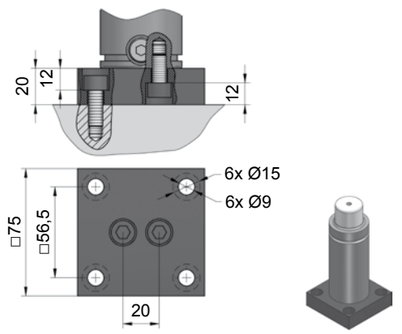
NC.88.00.050.0114



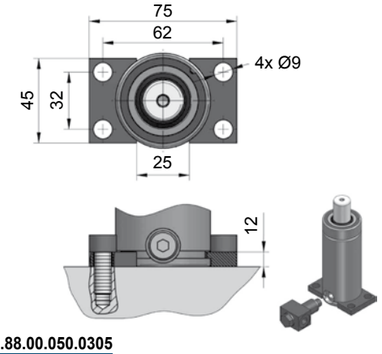
NC.88.00.050.0134



NC.88.00.050.0236



NC.88.00.050.0241



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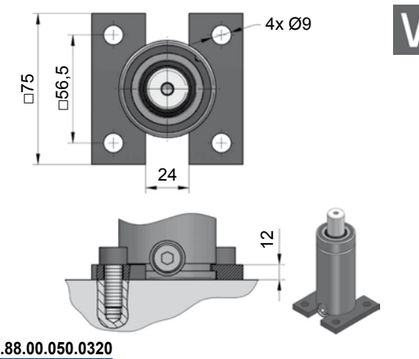

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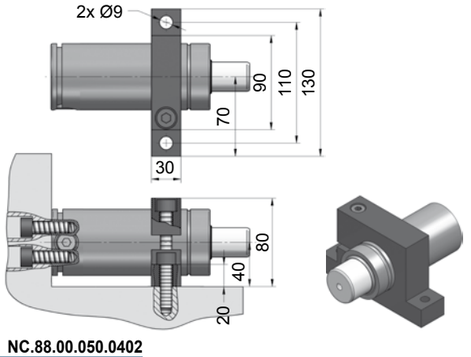
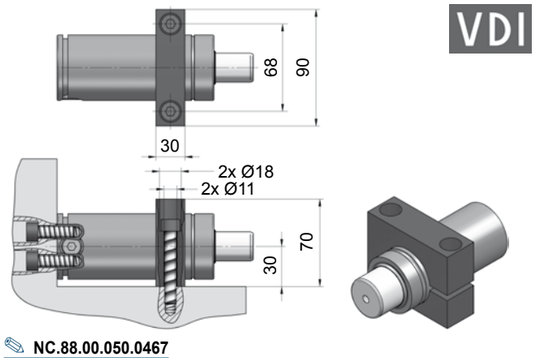
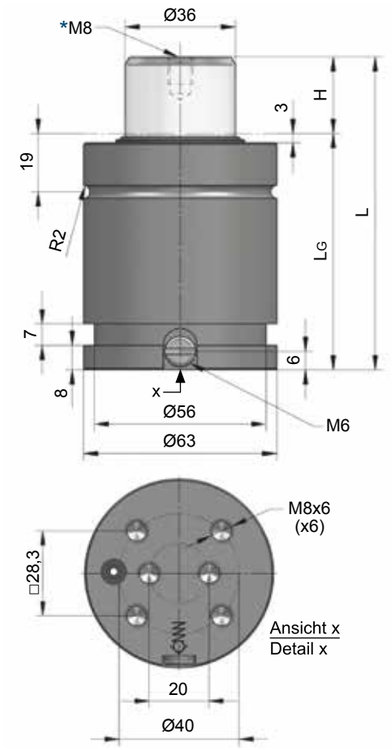


NC.88.00.050.0402



NC.88.00.050.0467

NC.010.00.01500...1



Technische Daten:

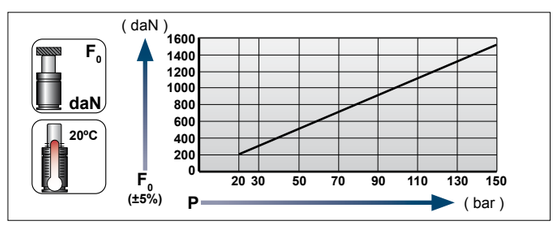
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

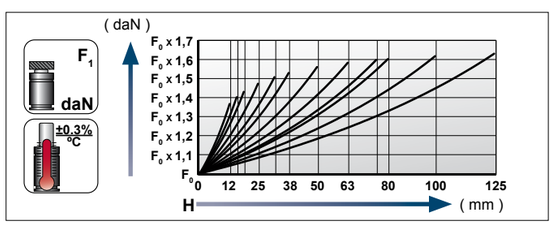
Specifications:

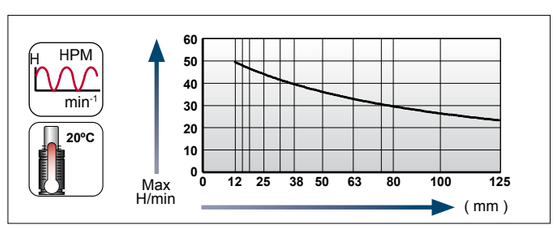
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.010.00.
01500.038.1

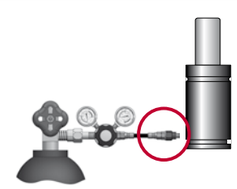
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
012	76	64	1530	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	84	68	1530	
019	90	71	1530	
025	102	77	1530	
032	116	84	1530	
038	128	90	1530	
050	152	102	1530	
063	178	115	1530	
075	202	127	1530	
080	212	132	1530	
100	252	152	1530	
125	302	177	1530	







Ladeadapter /
Charging adapter



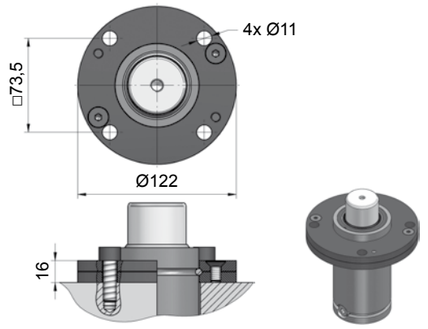
NCQ.44

[20.01.2020]

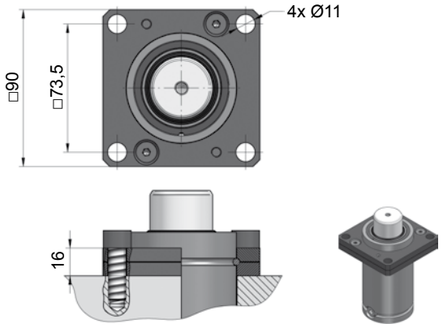
[20.01.2020]

GDF, niedrigbauend
GS, smaller height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.010.00.01500…1**

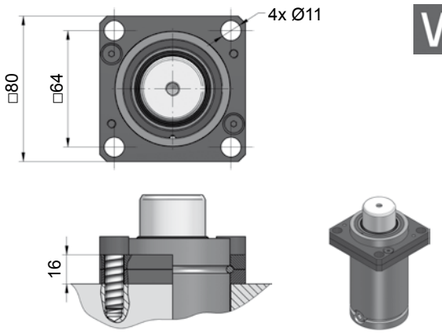


NC.88.00.063.0114



NC.88.00.063.0139

VDI



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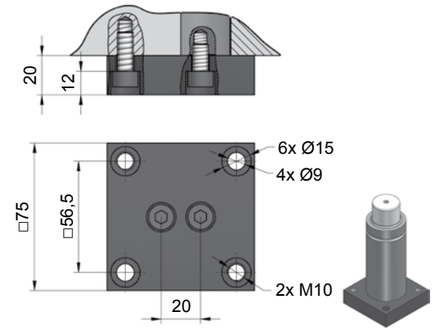
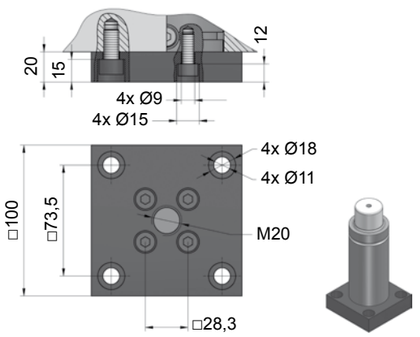
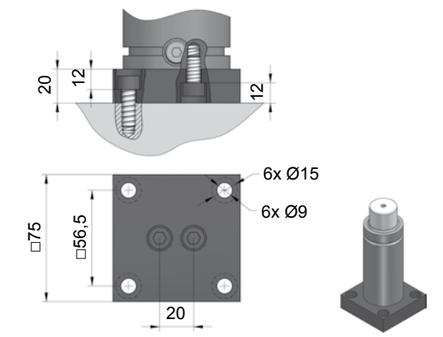


NC.88.00.063.0236



NC.88.00.075.0236



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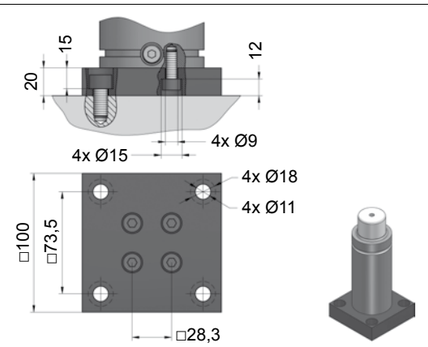

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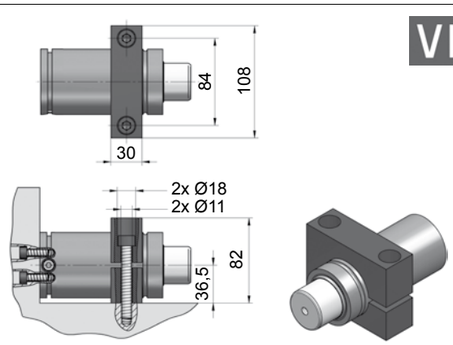
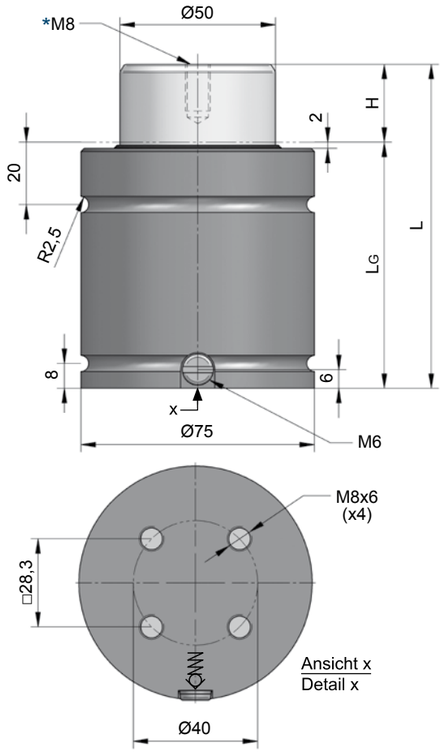
VDI



NC.88.00.063.0467

NC.010.00.03000



Technische Daten:

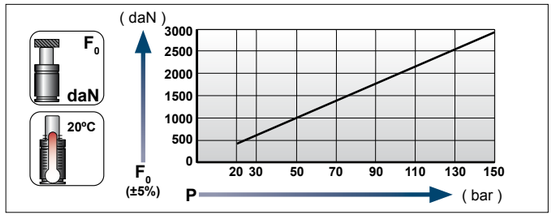
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

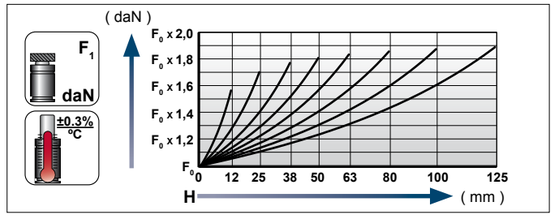
Specifications:

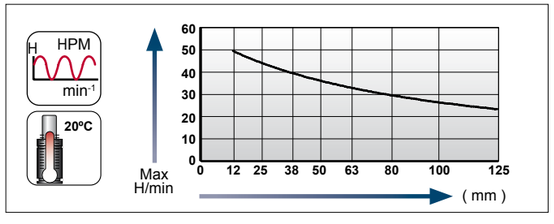
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.010.00.
03000.025

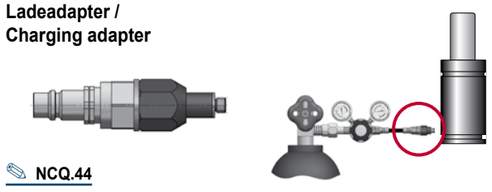
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
012	78	66	2945	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	104	79	2945	
038	130	92	2945	
050	154	104	2945	
063	180	117	2945	
080	214	134	2945	
100	254	154	2945	
125	304	179	2945	







Ladeadapter /
Charging adapter

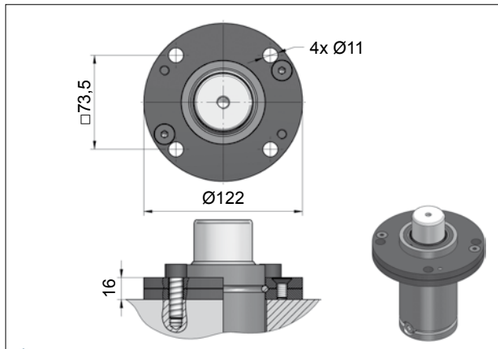


NCQ.44

[20.01.2020]

GDF, niedrigbauend
GS, smaller height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.010.00.03000**



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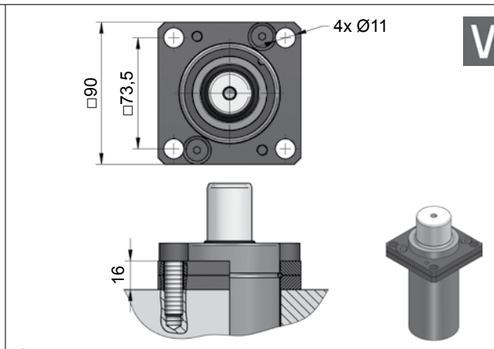

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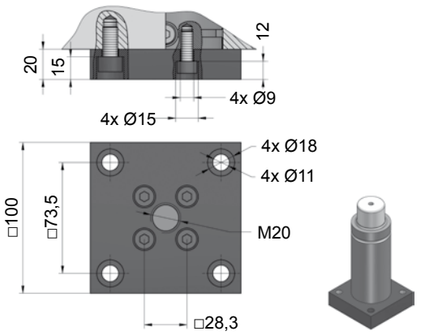

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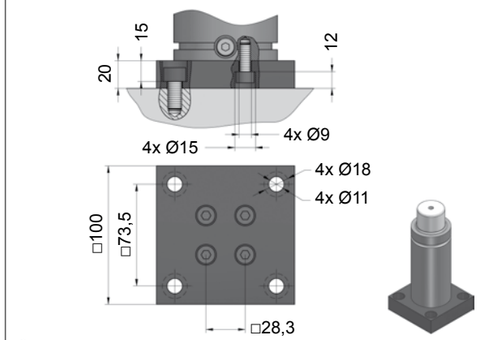

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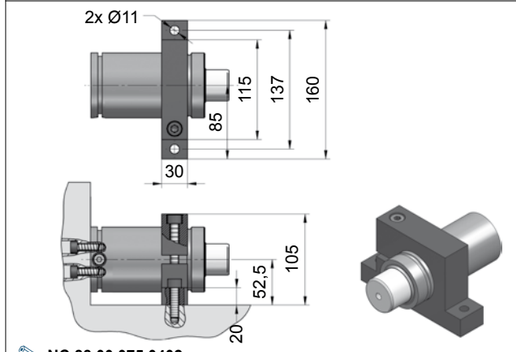

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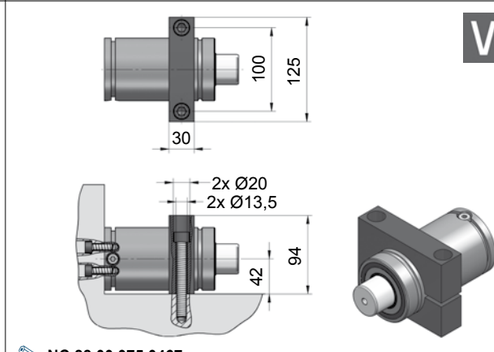
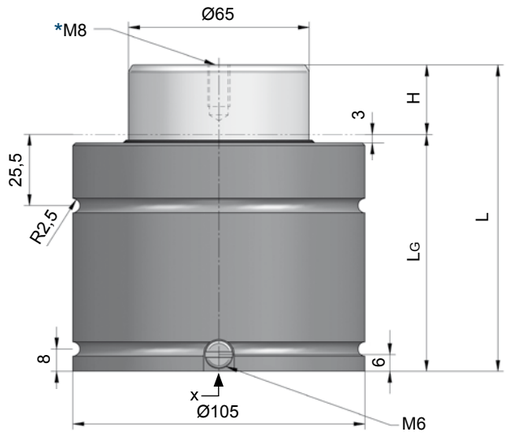


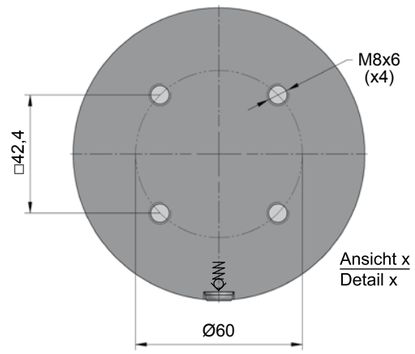
NC.88.00.075.0467

[20.01.2020]

[NC]

NC.010.00.05000





Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

> Vmax

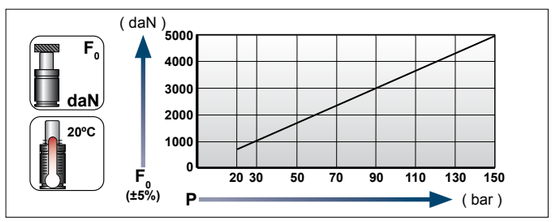
Flex Rod

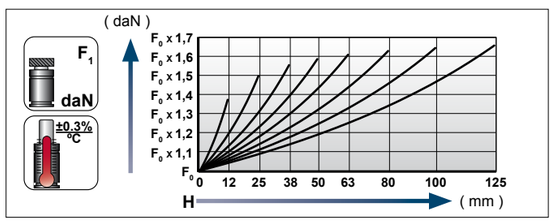
INFO [NC.21]

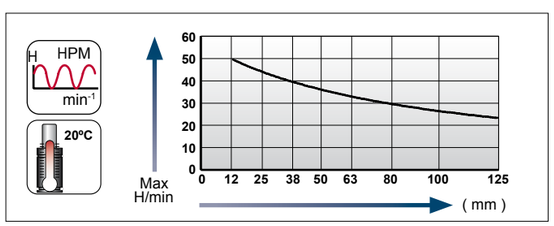
MAIL

NC.010.00.05000.012

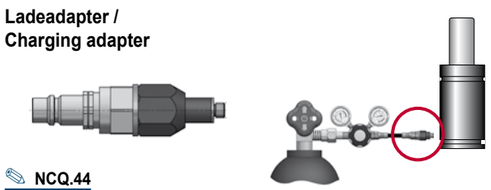
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
012	84	72	4980	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	110	85	4980	
038	136	98	4980	
050	160	110	4980	
063	186	123	4980	
080	220	140	4980	
100	260	160	4980	
125	310	185	4980	







Ladeadapter / Charging adapter

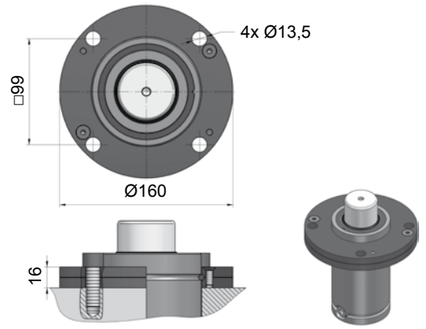


NCQ.44

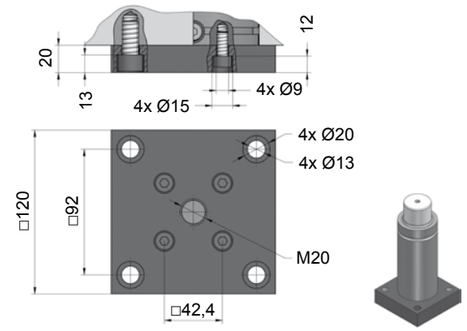
[20.01.2020]

[20.01.2020]

Flansche für / Flanges for **NC.010.00.05000**



NC.88.00.105.0114



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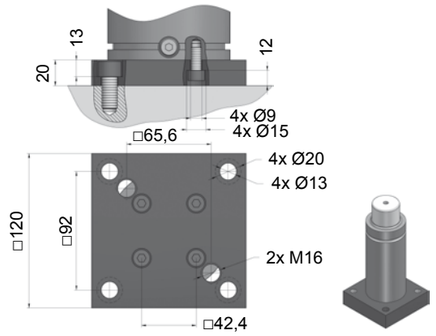


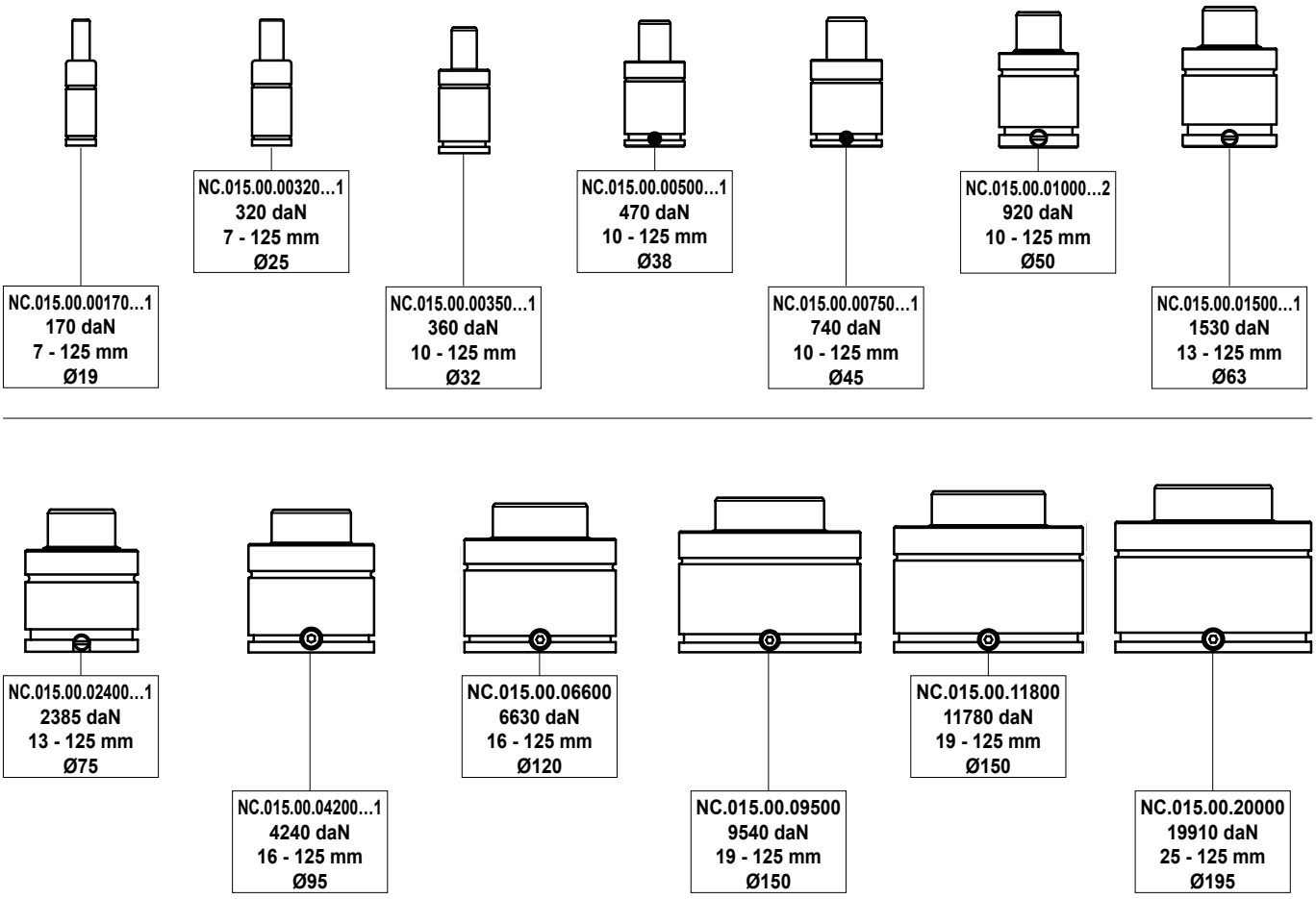
NC.88.00.105.0241

[NC]

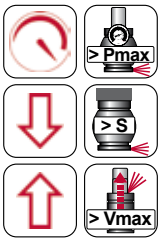
[NC]

Größenübersicht Serie NC.015.00

Gas spring index NC.015.00 series



SICHERHEITSSYSTEME



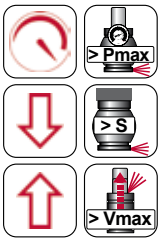
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

NC.015.00.00170...1

Technische Daten:

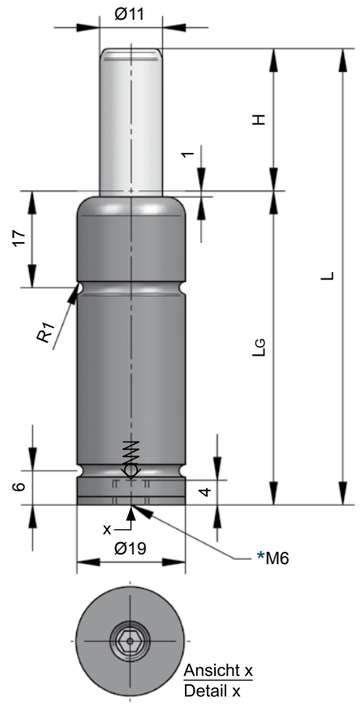
Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

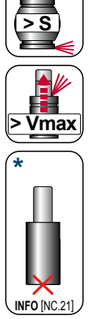
Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

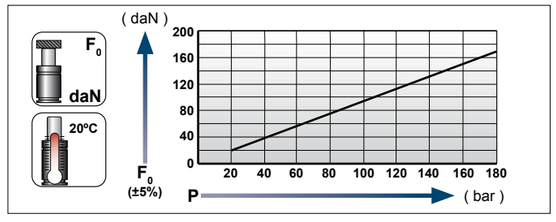


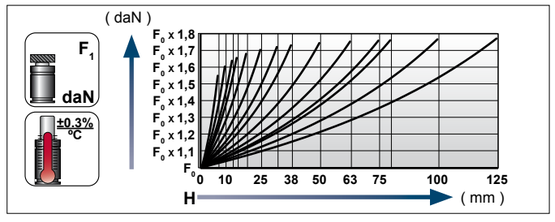


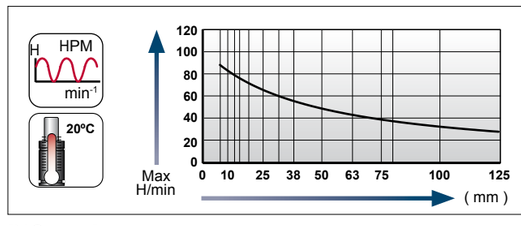


NC.015.00.00170.038.1

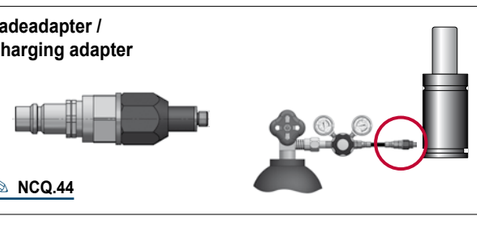
H Hub / Stroke	L ±0,25	LG	Kraft / Force (180 bar) Anfang / Initial [daN]	Ende / Final [daN]
007	44	37	170	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	50	40	170	
013	56	43	170	
015	60	45	170	
019	68	49	170	
025	80	55	170	
032	94	62	170	
038	106	68	170	
050	130	80	170	
063	156	93	170	
075	185	110	170	
080	195	115	170	
100	235	135	170	
125	285	160	170	







Ladeadapter / Charging adapter

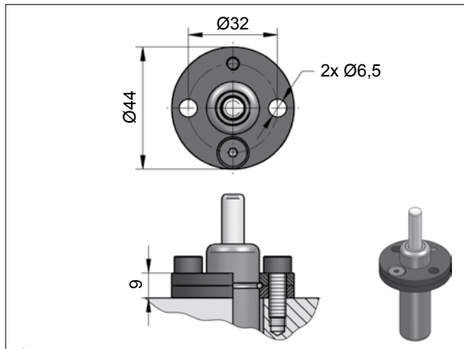


NCQ.44

[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.015.00.00170...1**



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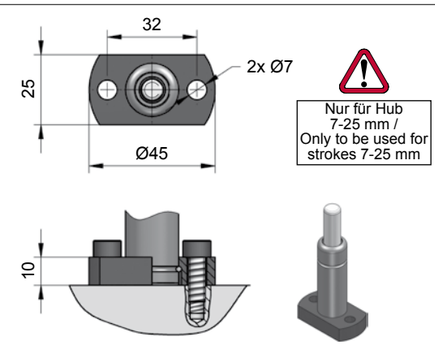

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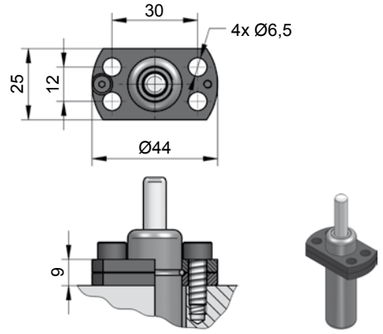
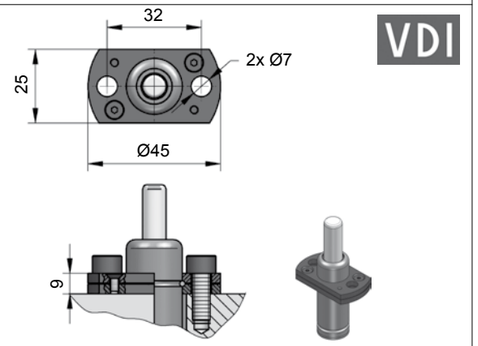


NC.88.00.019.0144



NC.88.00.019.0159

[22.01.2020]

[NC]

NC.015.00.00320...1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

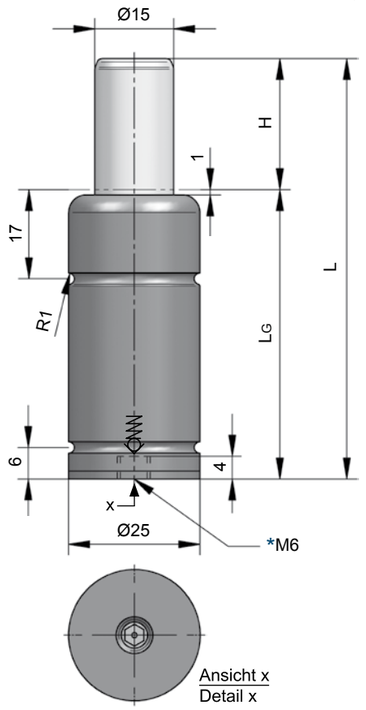
Einwegfeder ist nicht reparierbar!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

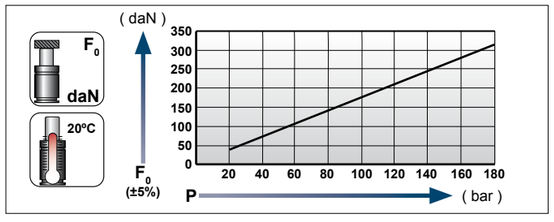
NC.015.00.00320.012.1

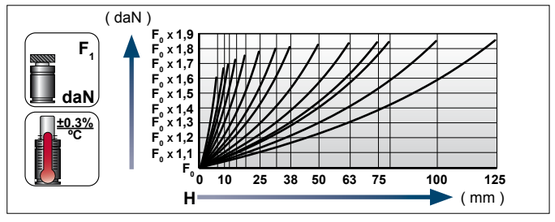


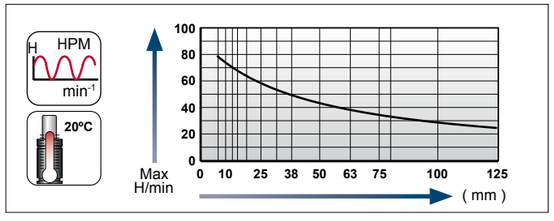




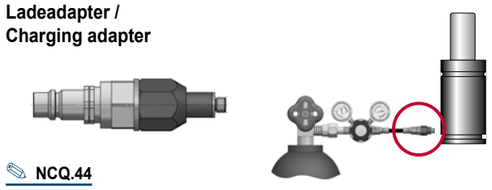
H Hub / Stroke	L ±0,25	LG	Kraft / Force (180 bar) Anfang / Initial [daN]	 Ende / Final [daN]
007	44	37	320	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	50	40	320	
012	54	42	320	
015	60	45	320	
019	68	49	320	
025	80	55	320	
032	94	62	320	
038	106	68	320	
050	130	80	320	
063	156	93	320	
075	185	110	320	
080	195	115	320	
100	235	135	320	
125	285	160	320	







Ladeadapter / Charging adapter

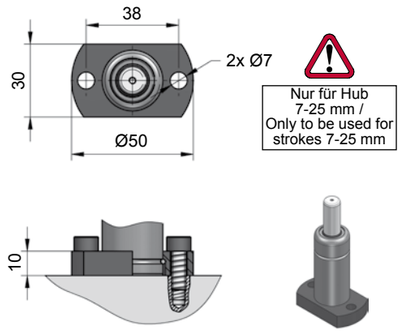


NCQ.44

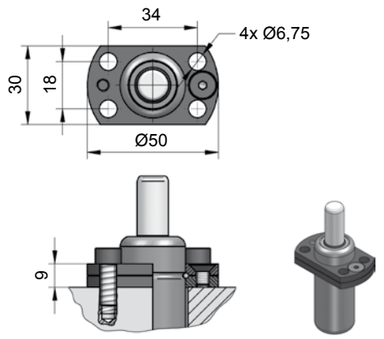
[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

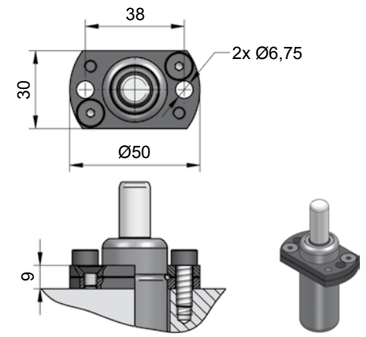
Flansche für / Flanges for **NC.015.00.00320…1**



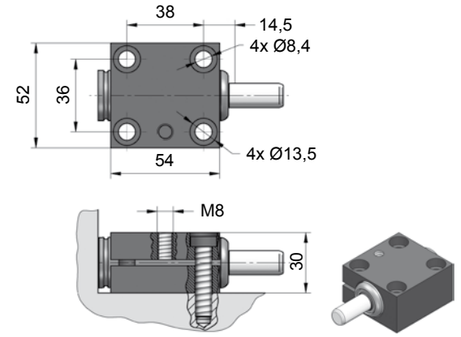
NC.88.00.025.0144



NC.88.00.025.0144



NC.88.00.025.0149



NC.88.00.025.0402

[22.01.2020]

[NC]

NC.015.00.00350...1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

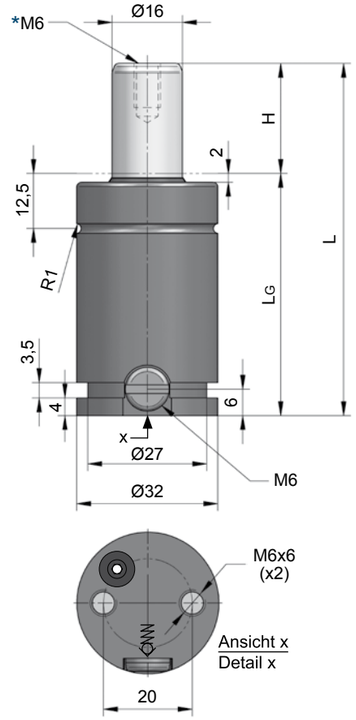
Einwegfeder ist nicht reparierbar!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

NC.015.00.00350.013.1



PED 2014/68/EU

VDI 3003

> Pmax

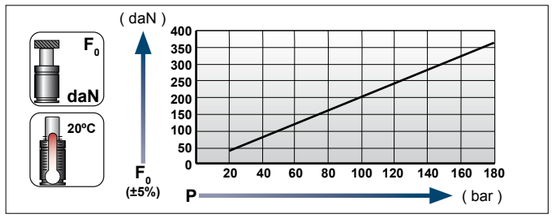
> S

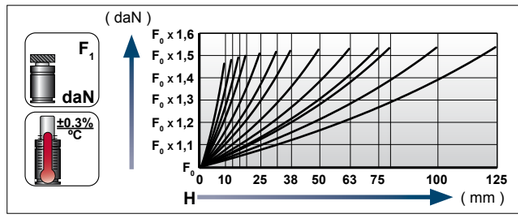
> Vmax

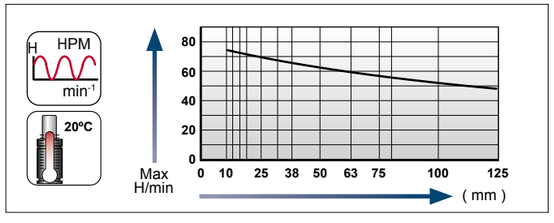
INFO [NC.21]

MAIL

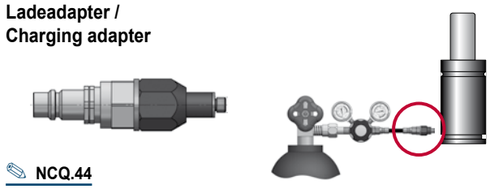
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (180 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	50	40	360	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	56	43	360	
016	62	46	360	
019	68	49	360	
025	80	55	360	
032	94	62	360	
038	106	68	360	
050	130	80	360	
063	156	93	360	
075	180	105	360	
080	190	110	360	
100	230	130	360	
125	280	155	360	







Ladeadapter / Charging adapter

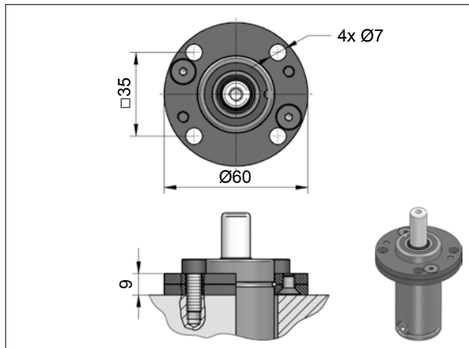


NCQ.44

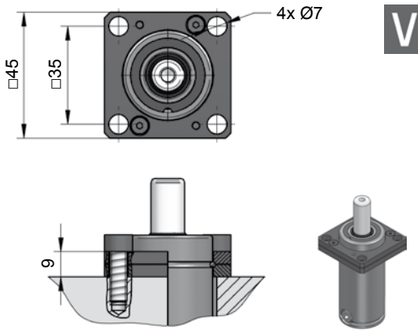
[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

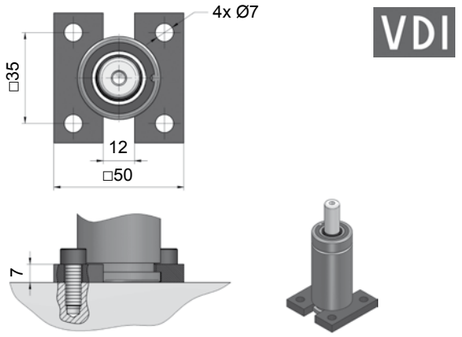
Flansche für / Flanges for **NC.015.00.00350.1**



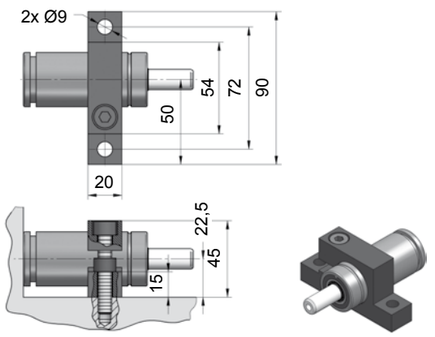
NC.88.00.032.0114



NC.88.00.032.0134



NC.88.00.032.0320



NC.88.00.032.0402

[22.01.2020]

[NC]

NC.015.00.00500...1

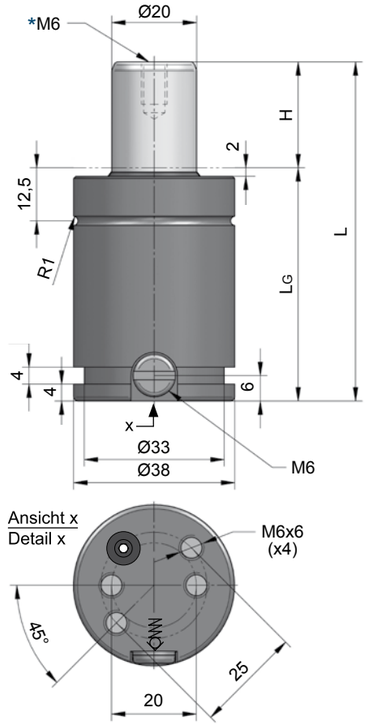
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

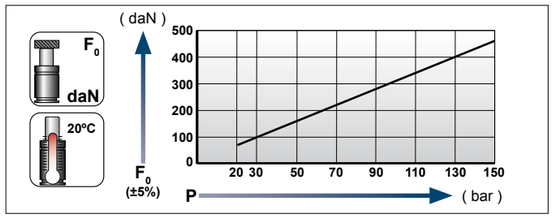
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

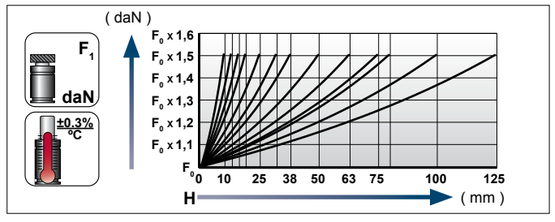
NC.015.00.00500.016.1

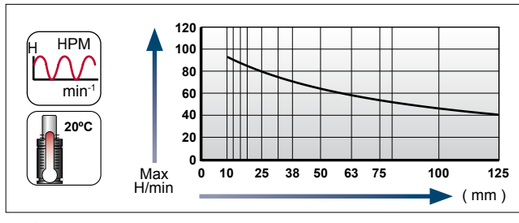


INFO [NC.21]

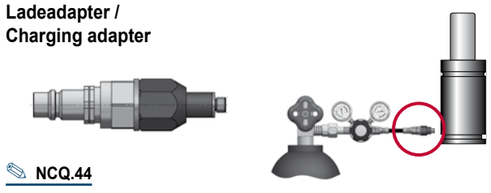
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	50	40	470	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	56	43	470	
016	62	46	470	
019	68	49	470	
025	80	55	470	
032	94	62	470	
038	106	68	470	
050	130	80	470	
063	156	93	470	
075	180	105	470	
080	190	110	470	
100	230	130	470	
125	280	155	470	







Ladeadapter / Charging adapter

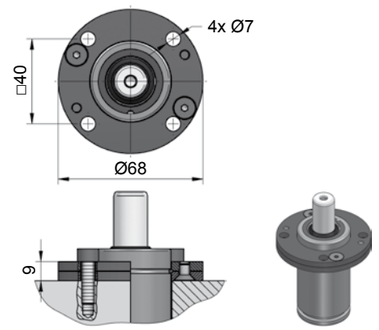


NCQ.44

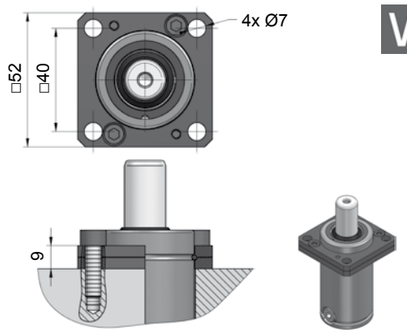
[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

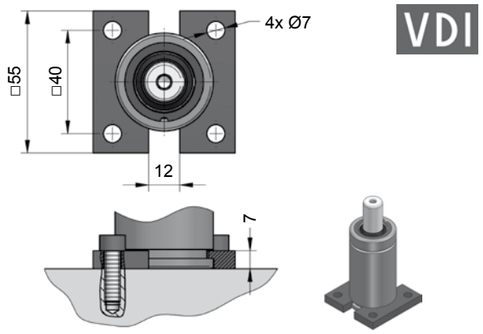
Flansche für / Flanges for **NC.015.00.00500...1**



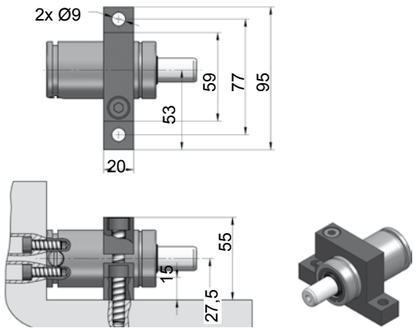
NC.88.00.038.0114



NC.88.00.038.0134



NC.88.00.038.0320

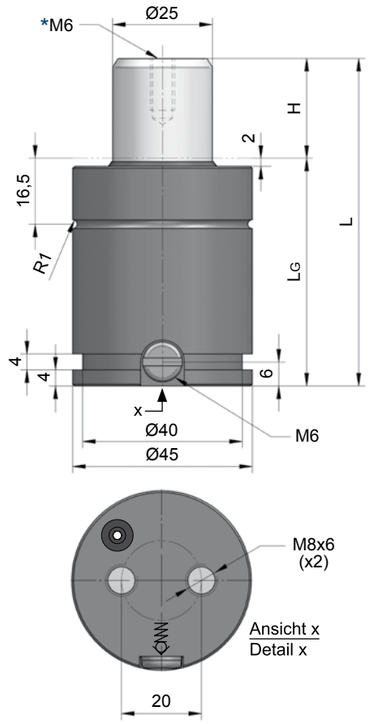


NC.88.00.038.0402

[22.01.2020]

[NC]

NC.015.00.00750...1



Technische Daten:

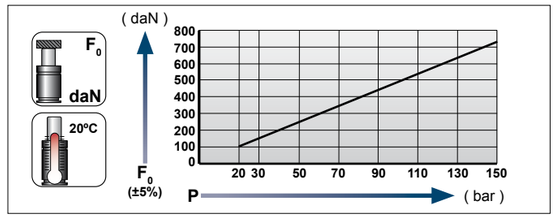
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

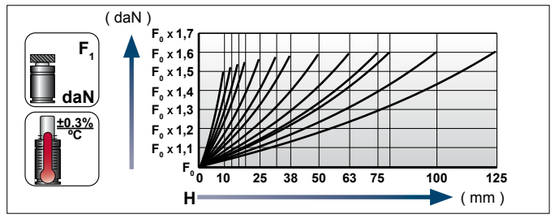
Specifications:

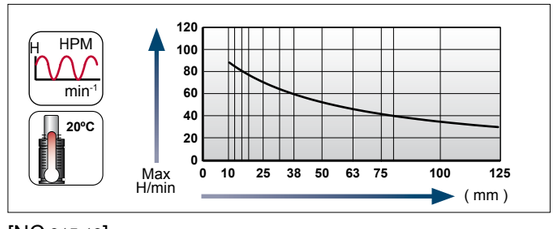
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.015.00.00750.025.1

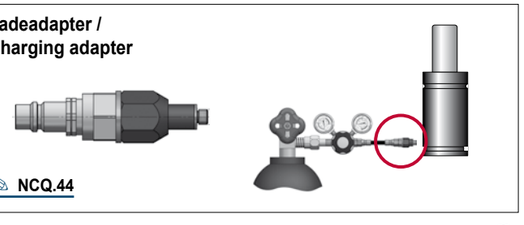
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	52	42	740	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	58	45	740	
016	64	48	740	
019	70	51	740	
025	82	57	740	
032	96	64	740	
038	108	70	740	
050	132	82	740	
063	158	95	740	
075	182	107	740	
080	192	112	740	
100	232	132	740	
125	282	157	740	







Ladeadapter / Charging adapter



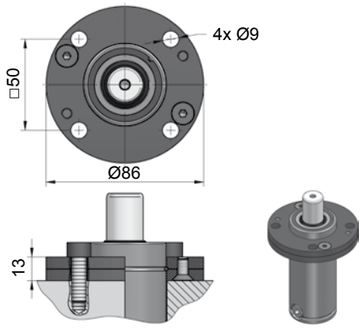
NCQ.44

[22.01.2020]

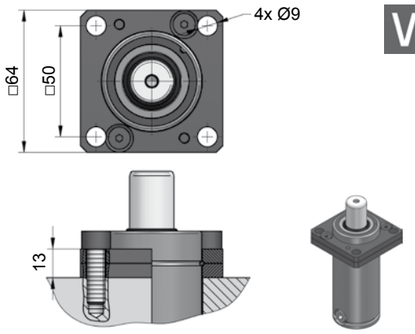
[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

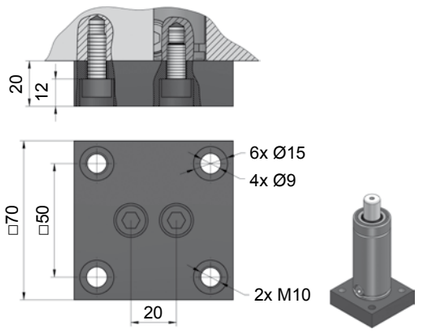
Flansche für / Flanges for **NC.015.00.00750...1**



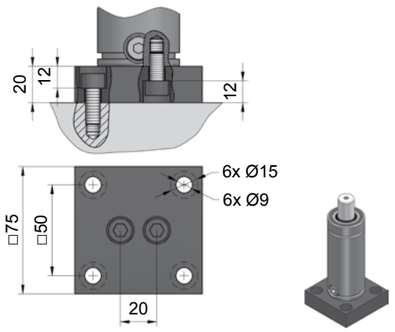
NC.88.00.045.0114



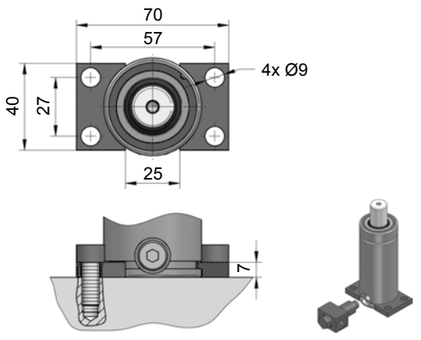
NC.88.00.045.0134



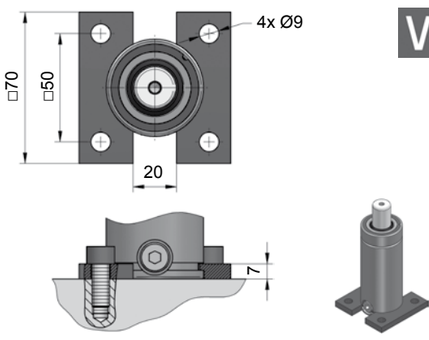
NC.88.00.045.0236



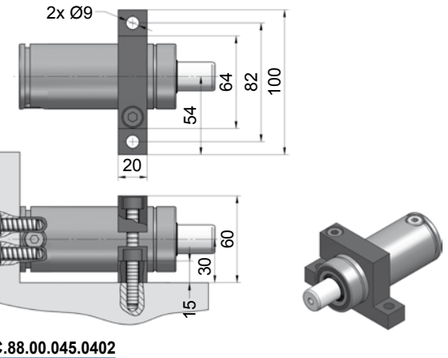
NC.88.00.045.0241



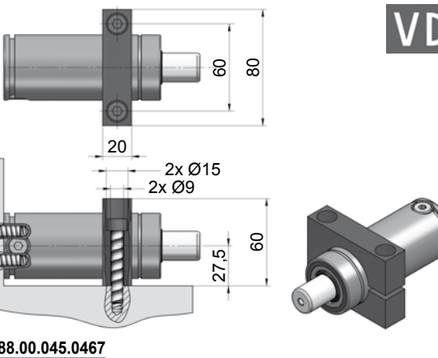
NC.88.00.045.0305



NC.88.00.045.0320

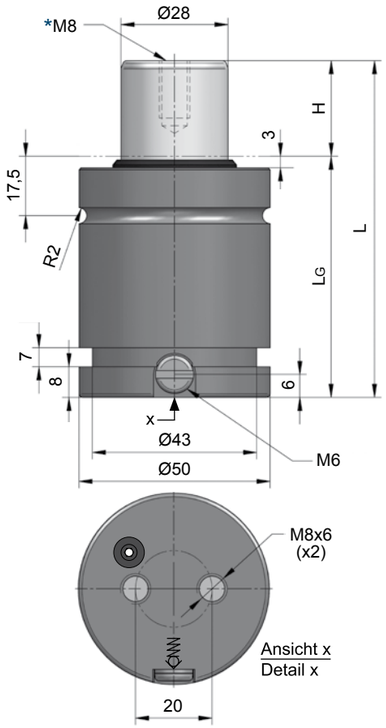


NC.88.00.045.0402



NC.88.00.045.0467

NC.015.00.01000...2



Technische Daten:

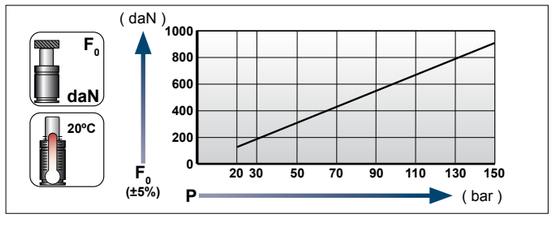
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

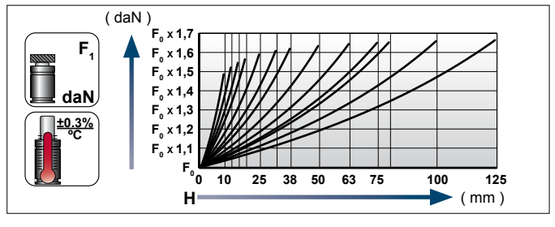
Specifications:

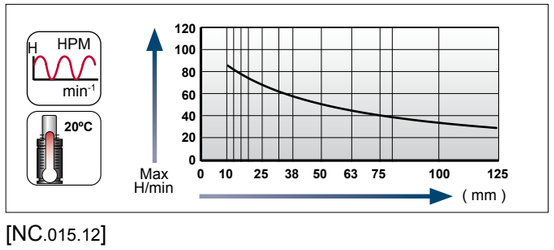
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.015.00.01000.032.2

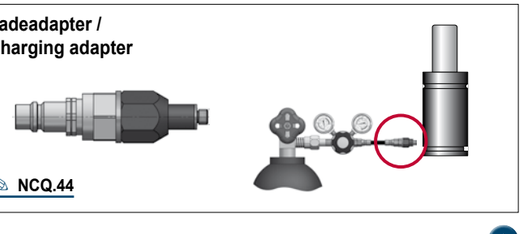
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	58	48	920	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	64	51	920	
016	70	54	920	
019	76	57	920	
025	88	63	920	
032	102	70	920	
038	114	76	920	
050	138	88	920	
063	164	101	920	
075	188	113	920	
080	198	118	920	
100	238	138	920	
125	288	163	920	







Ladeadapter / Charging adapter



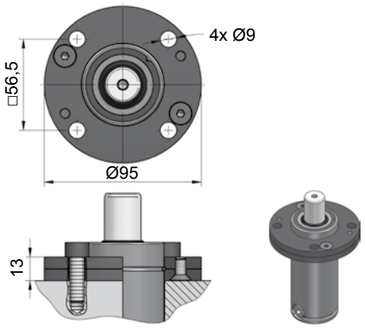
NCQ.44

[22.01.2020]

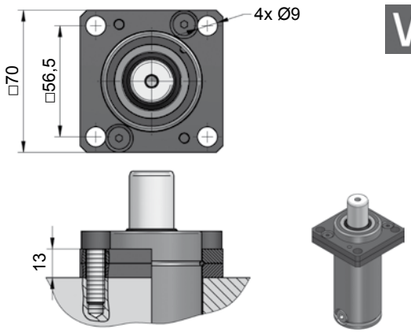
[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

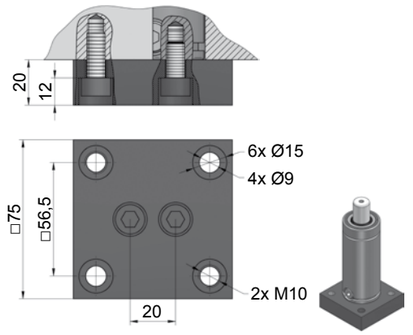
Flansche für / Flanges for **NC.015.00.01000…2**



NC.88.00.050.0114



NC.88.00.050.0134



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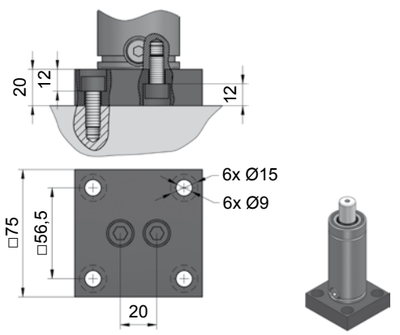
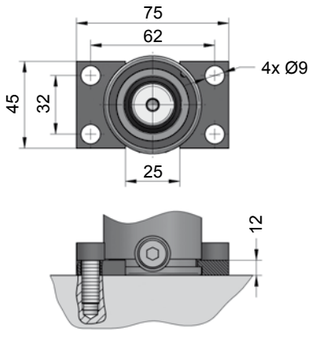
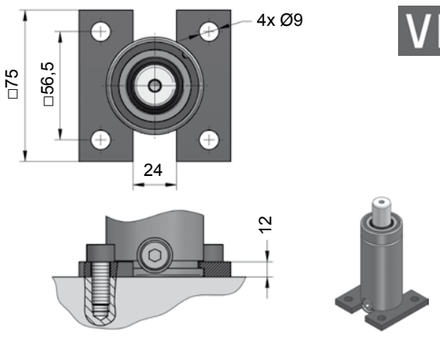


NC.88.00.050.0241



NC.88.00.050.0305



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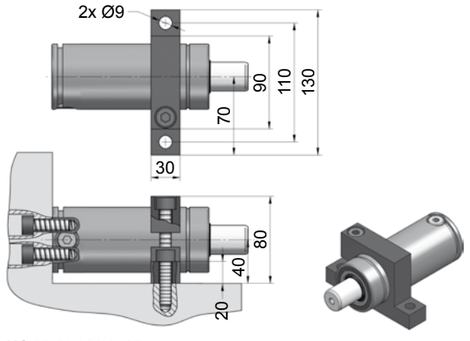
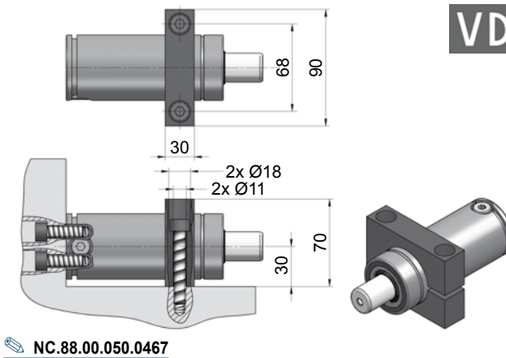
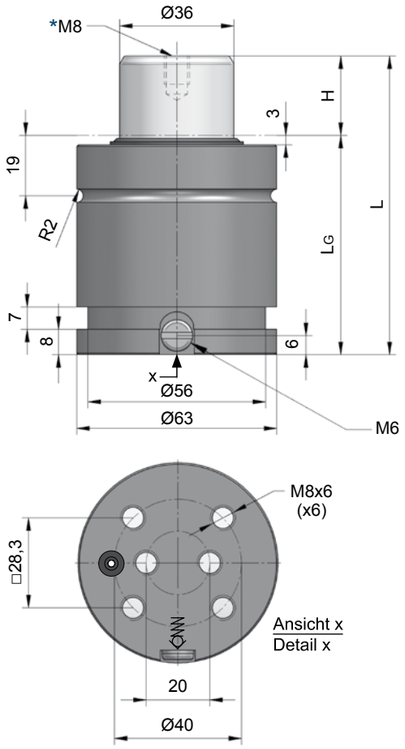


NC.88.00.050.0402



NC.88.00.050.0467

NC.015.00.01500…1



Technische Daten:

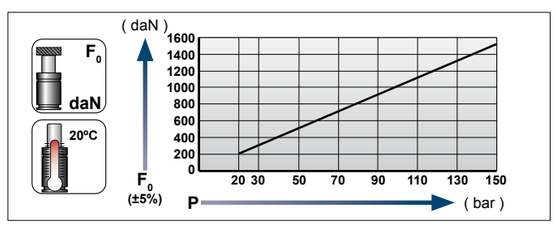
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

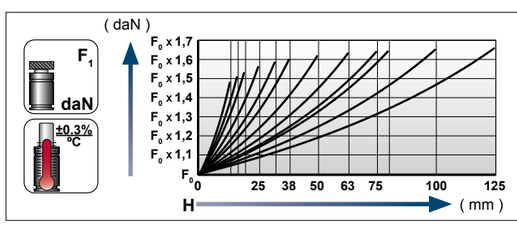
Specifications:

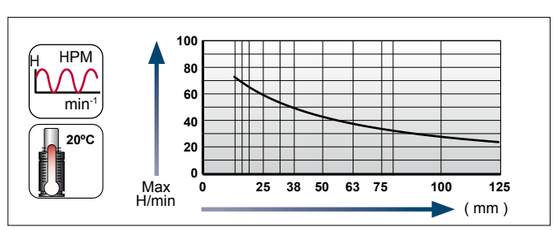
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.015.00.01500.050.1

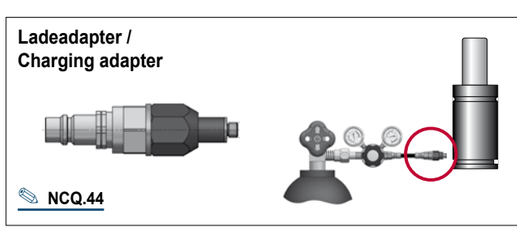
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
013	70	57	1530	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	76	60	1530	
019	82	63	1530	
025	94	69	1530	
032	108	76	1530	
038	120	82	1530	
050	144	94	1530	
063	170	107	1530	
075	194	119	1530	
080	204	124	1530	
100	244	144	1530	
125	294	169	1530	







Ladeadapter / Charging adapter



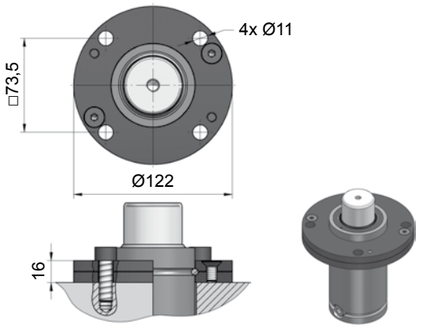
NCQ.44

[22.01.2020]

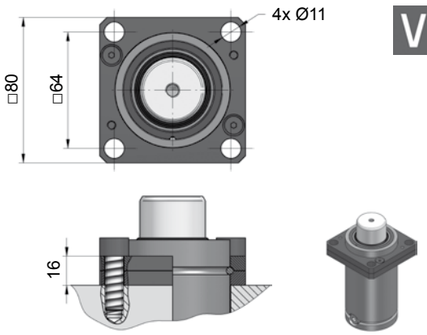
[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.015.00.01500…1**



NC.88.00.063.0114



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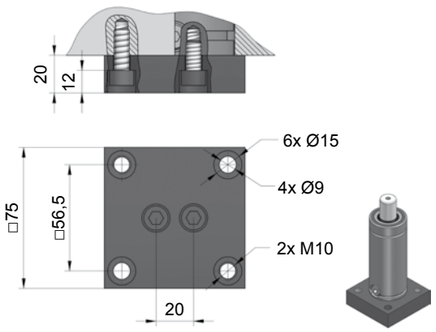

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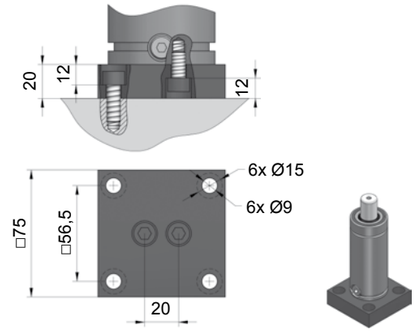

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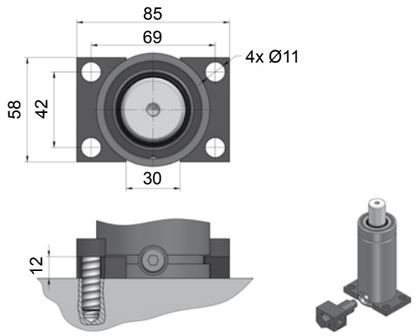
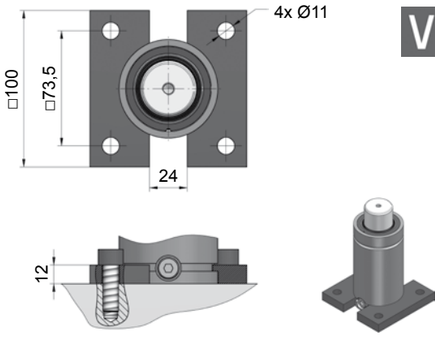


NC.88.00.063.0305



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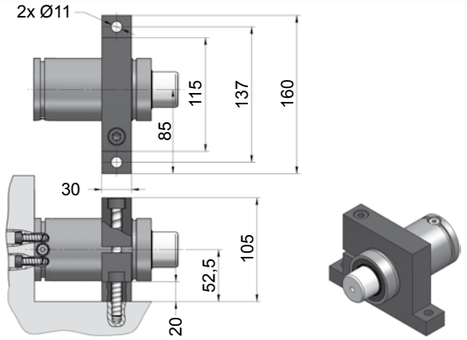
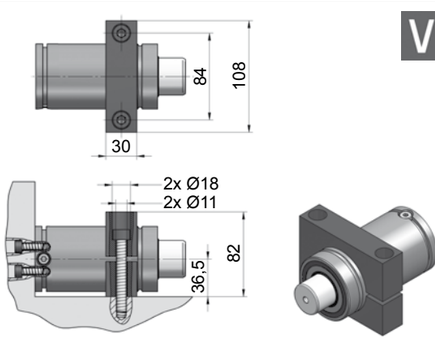


NC.88.00.063.0402



NC.88.00.063.0467

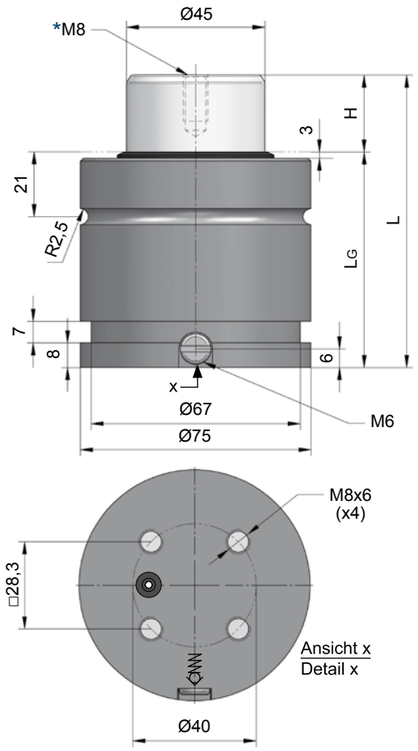
NC.015.00.02400...1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s



INFO [NC.21]

ZUGELASSEN PED 2014/68/EU

VDI 3003

> Pmax

> S

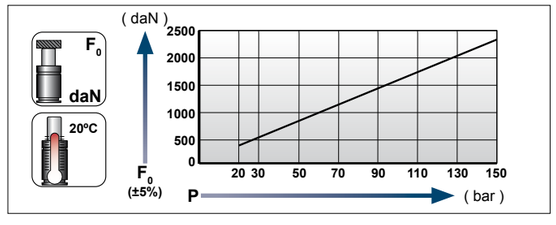
> Vmax

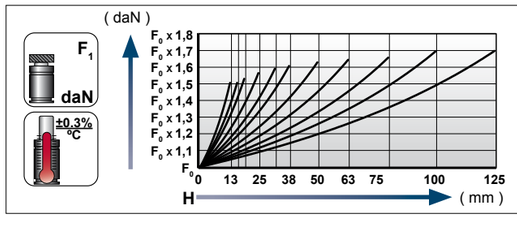
Flex Rod

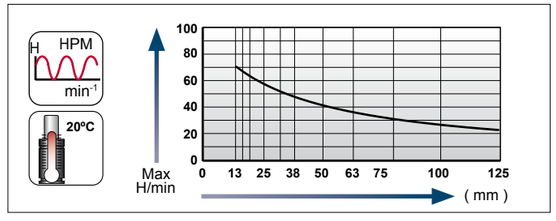
MAIL

NC.015.00.
02400.075.1

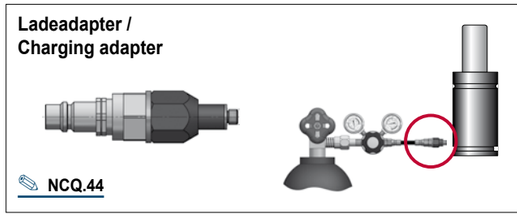
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
013	71	58		Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	77	61	2385	
019	83	64	2385	
025	95	70	2385	
032	109	77	2385	
038	121	83	2385	
050	145	95	2385	
063	171	108	2385	
075	195	120	2385	
080	205	125	2385	
100	245	145	2385	
125	295	170	2385	







Ladeadapter / Charging adapter



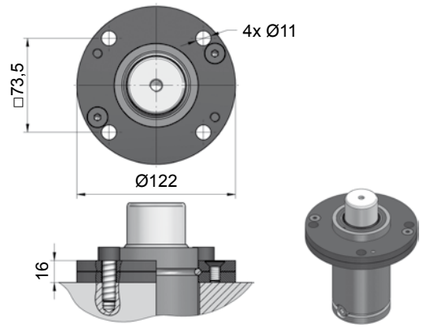
NCQ.44

[22.01.2020]

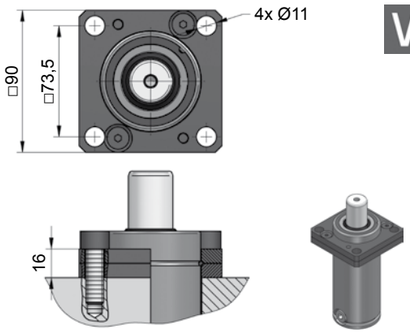
[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

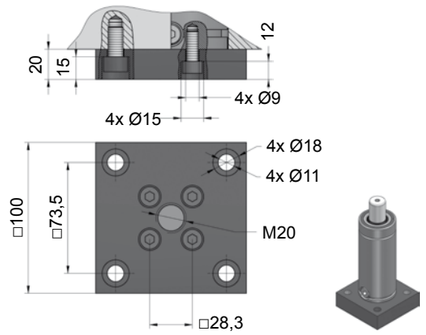
Flansche für / Flanges for **NC.015.00.02400...1**



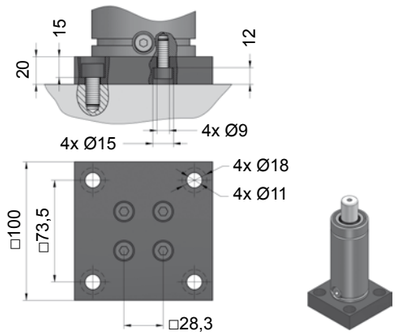
NC.88.00.075.0114



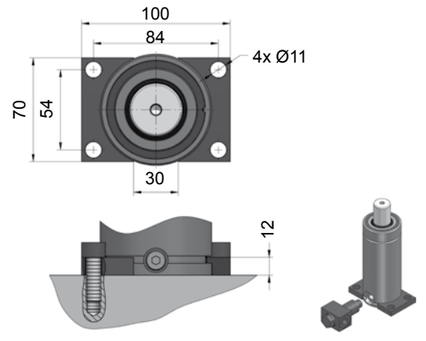
NC.88.00.075.0134



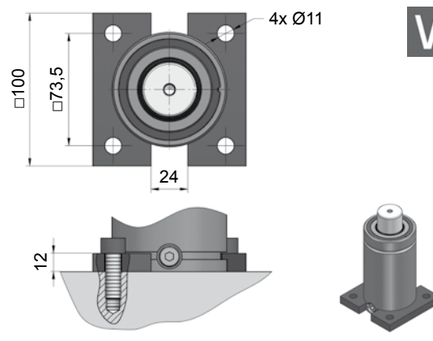
NC.88.00.075.0236



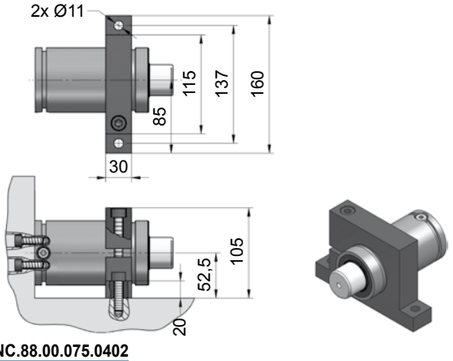
NC.88.00.075.0241



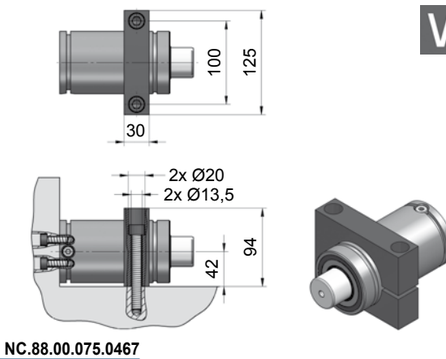
NC.88.00.075.0305



NC.88.00.075.0320



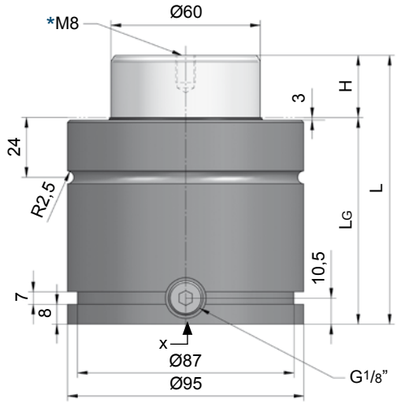
NC.88.00.075.0402

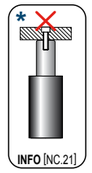


NC.88.00.075.0467

[NC]

NC.015.00.04200...1





ZUGELASSEN PED 2014/68/EU

VDI 3003

> Pmax

> S

> Vmax

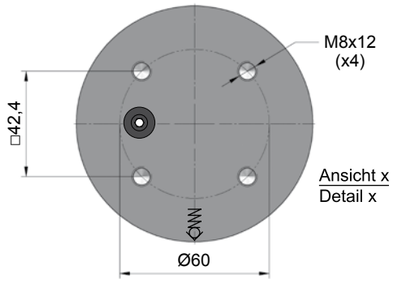
Flex Rod

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

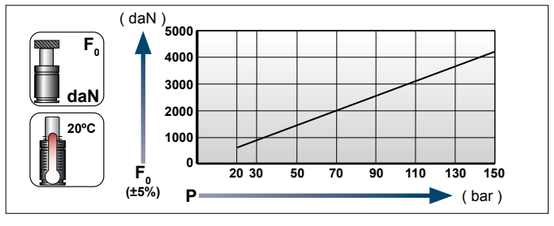
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

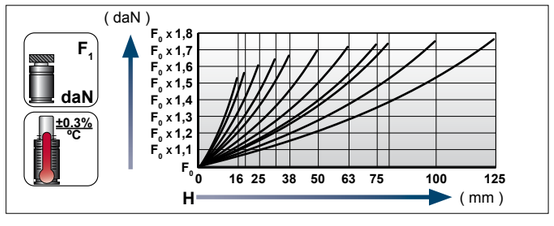


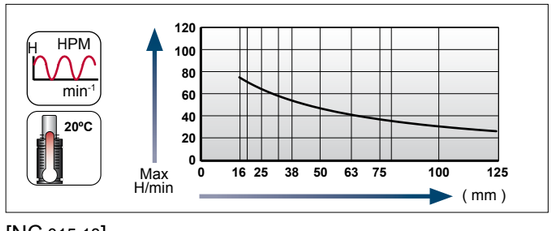
MAIL

NC.015.00.04200.100.1

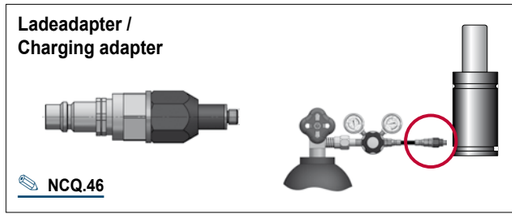
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
016	90	74	4240	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
019	96	77	4240	
025	108	83	4240	
032	122	90	4240	
038	134	96	4240	
050	158	108	4240	
063	184	121	4240	
075	208	133	4240	
080	218	138	4240	
100	258	158	4240	
125	308	183	4240	







Ladeadapter / Charging adapter

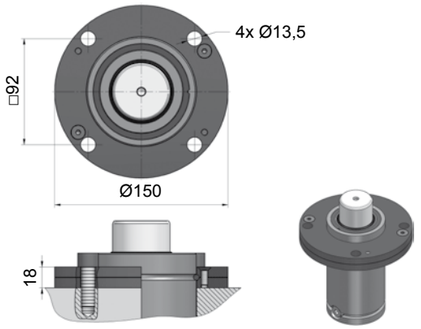


NCQ.46

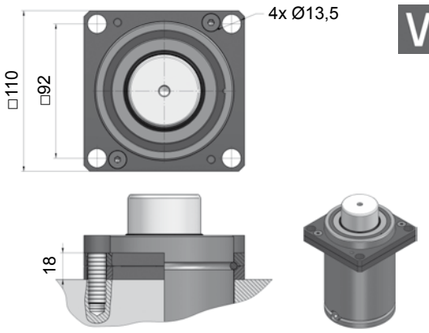
[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.015.00.04200...1**



NC.88.00.095.0114



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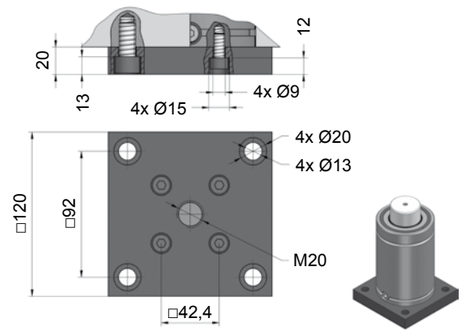

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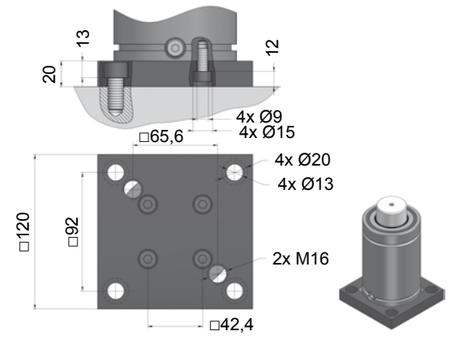
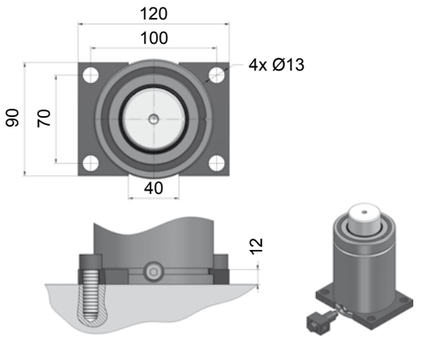
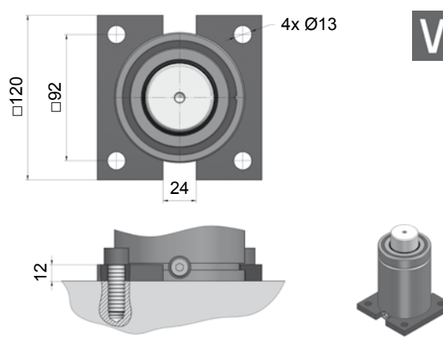


NC.88.00.095.0241



NC.88.00.095.0305



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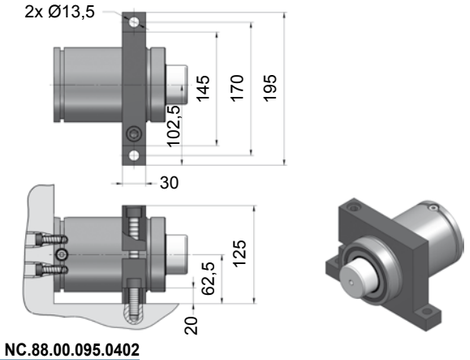

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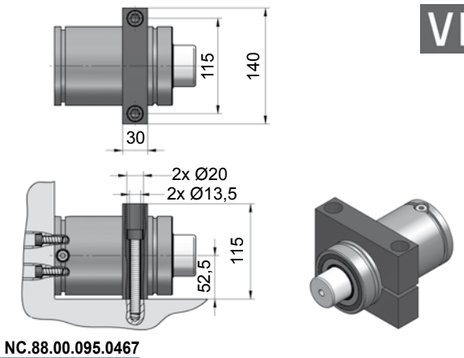
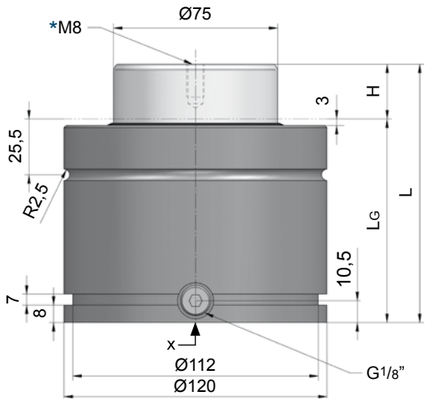


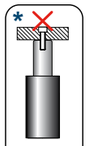
NC.88.00.095.0467

[22.01.2020]

[NC]

NC.015.00.06600





ZUGELASSEN PED 2014/68/EU

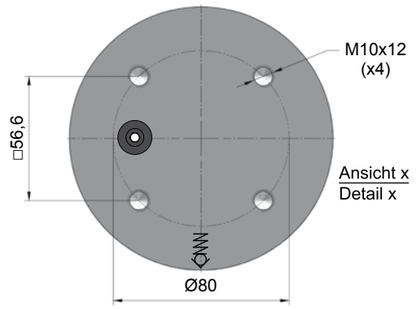
VDI 3003











Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

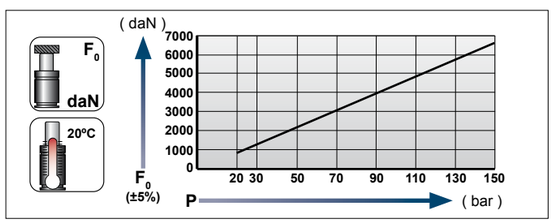
Specifications:

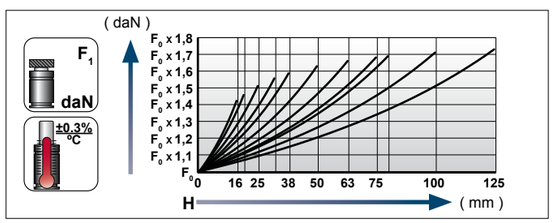
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

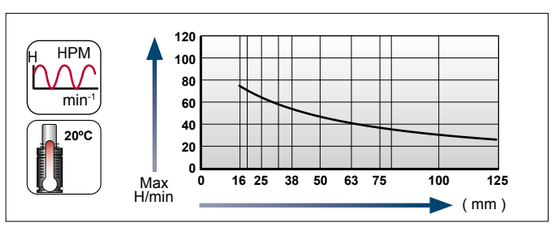
NC.015.00.06600.125

MAIL

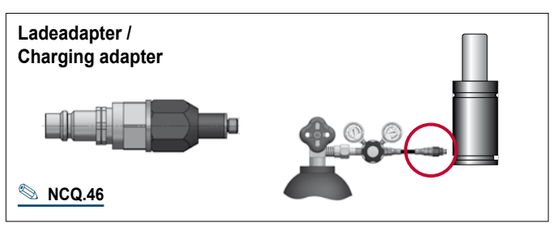
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
016	100	84	6630	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
019	106	87	6630	
025	118	93	6630	
032	132	100	6630	
038	144	106	6630	
050	168	118	6630	
063	194	131	6630	
075	218	143	6630	
080	228	148	6630	
100	268	168	6630	
125	318	193	6630	







Ladeadapter / Charging adapter



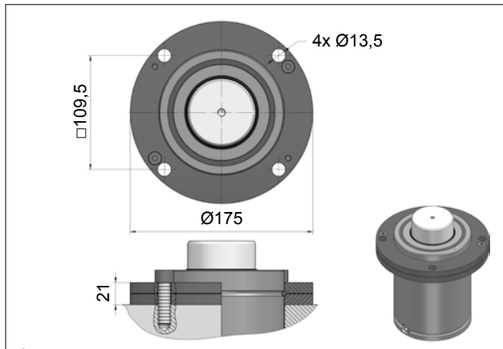
NCQ.46

[22.01.2020]

[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.015.00.06600**



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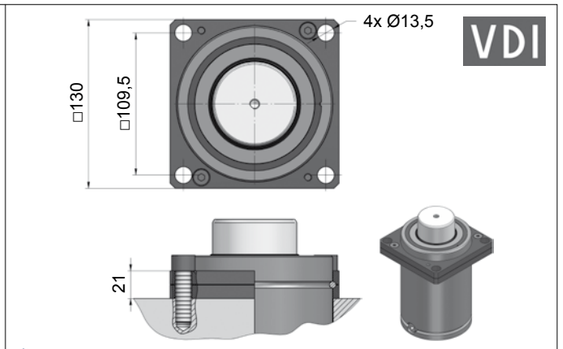

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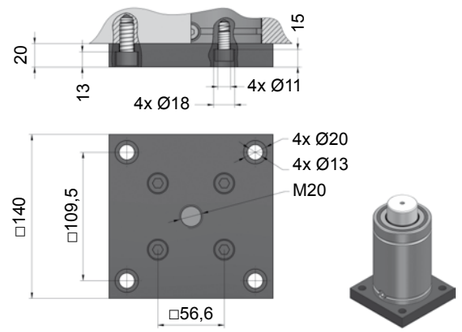

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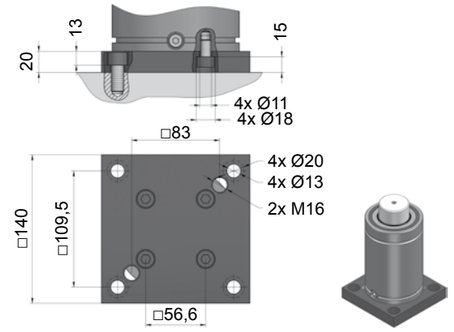

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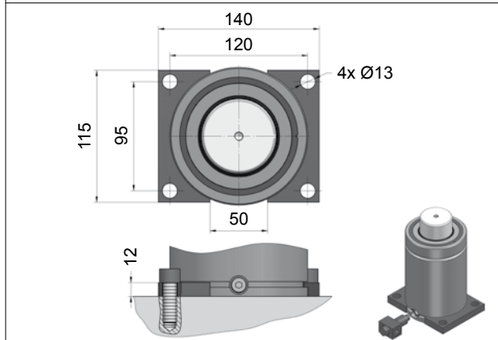

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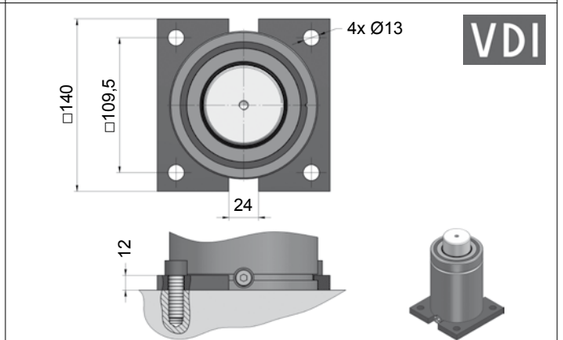
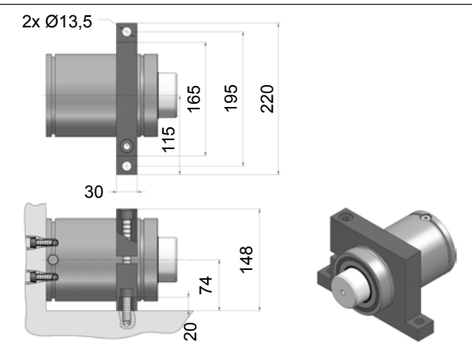


NC.88.00.120.0320



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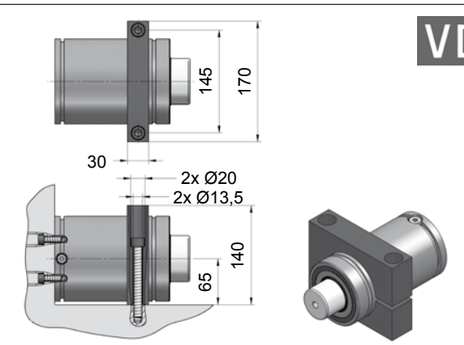
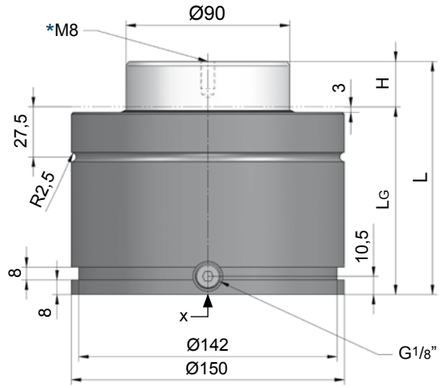


NC.88.00.120.0467

NC.015.00.09500

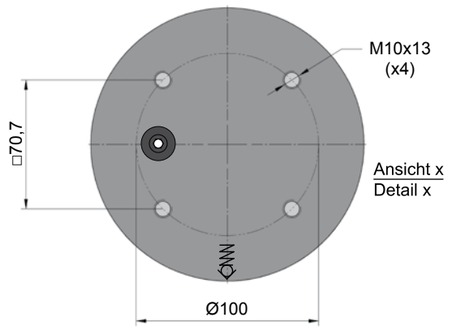


Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

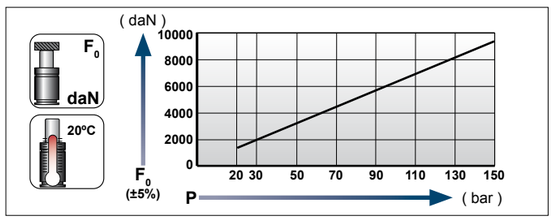
Specifications:

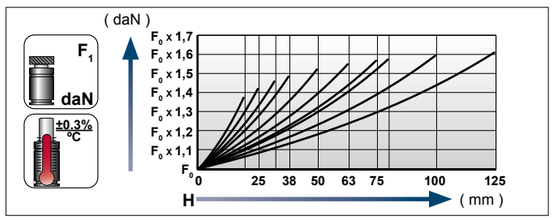
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

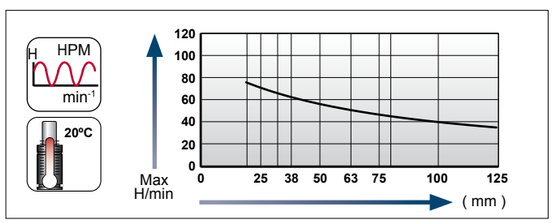


NC.015.00.
09500.125

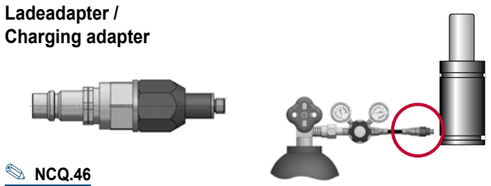
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
019	116	97	9540	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	128	103	9540	
032	142	110	9540	
038	154	116	9540	
050	178	128	9540	
063	204	141	9540	
075	228	153	9540	
080	238	158	9540	
100	278	178	9540	
125	328	203	9540	







Ladeadapter / Charging adapter



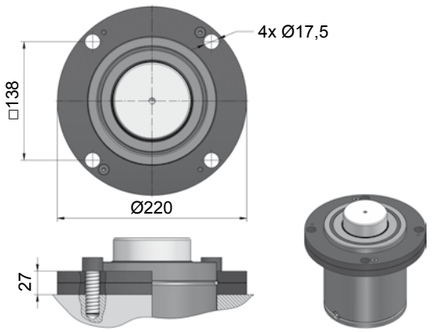
NCQ.46

[22.01.2020]

[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.015.00.09500**



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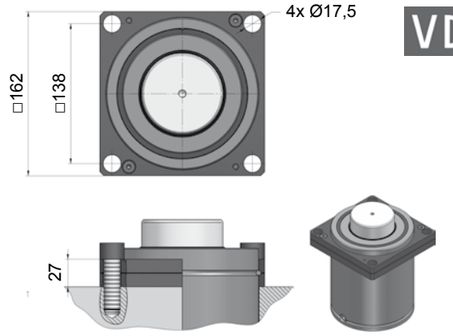

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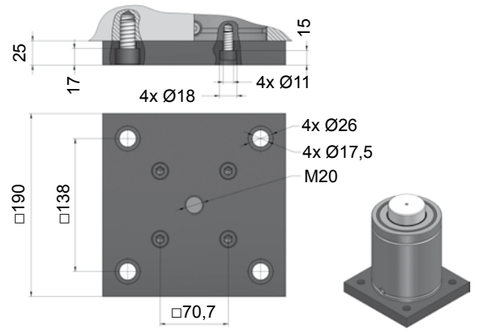

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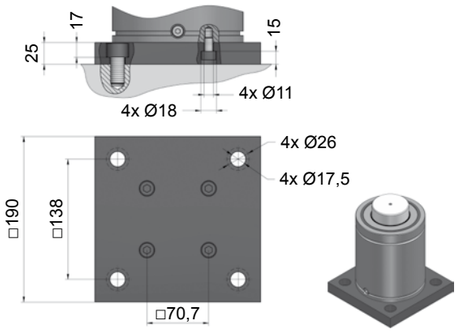

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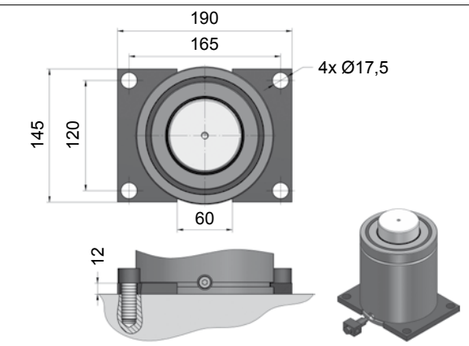

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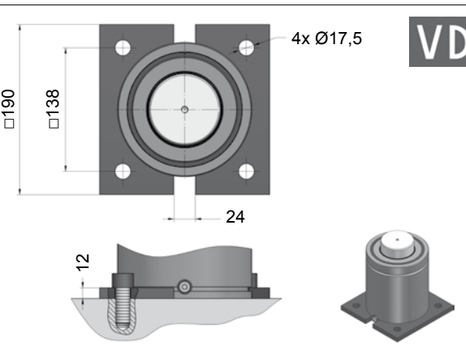

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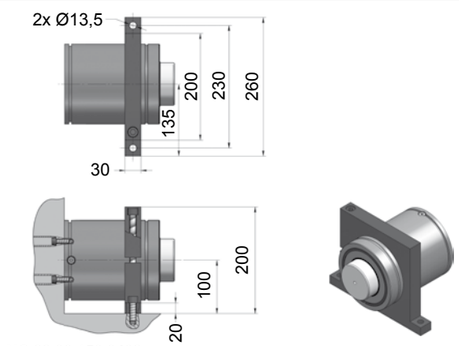

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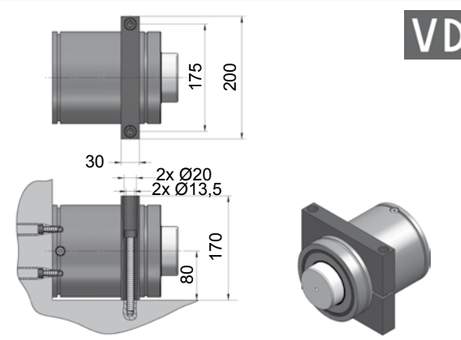
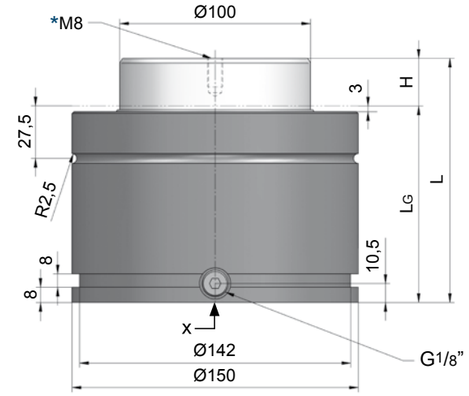
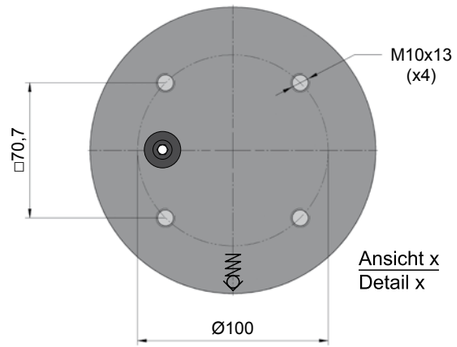


NC.88.00.150.0467

NC.015.00.11800





Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.015.00.
11800.080

H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
019	116	97	11780	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	128	103	11780	
032	142	110	11780	
038	154	116	11780	
050	178	128	11780	
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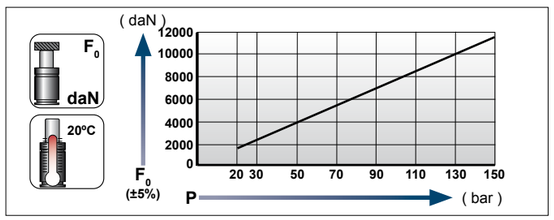
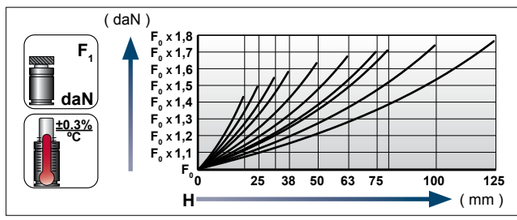
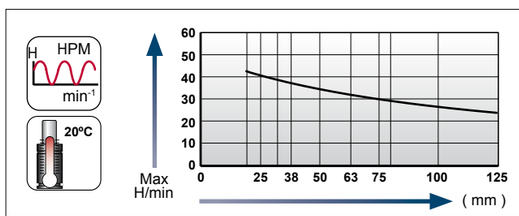
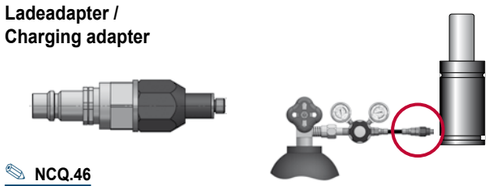
125	328	203	11780	







Ladeadapter / Charging adapter

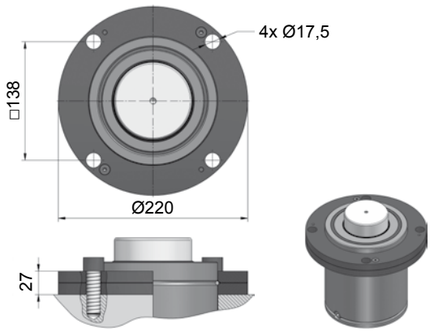


NCQ.46

[22.01.2020]

[22.01.2020]

Flansche für / Flanges for **NC.015.00.11800**



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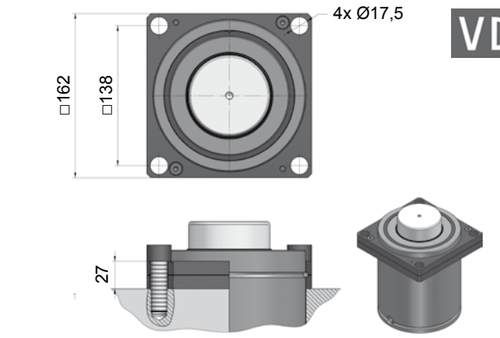

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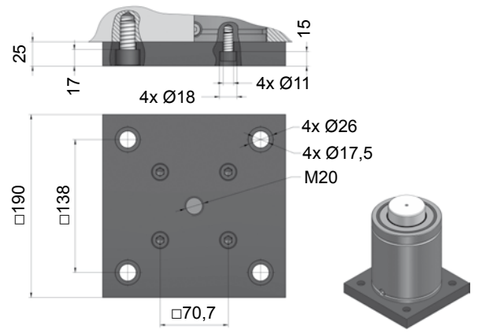

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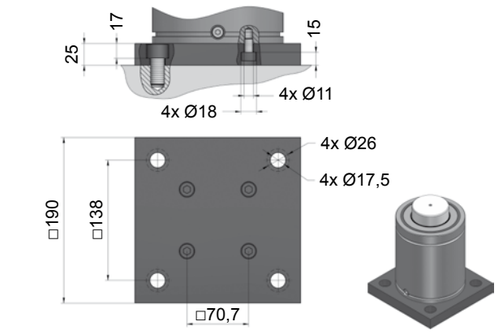

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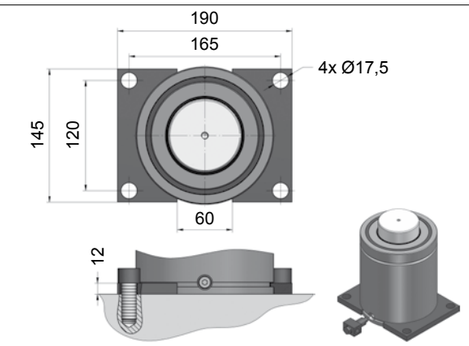

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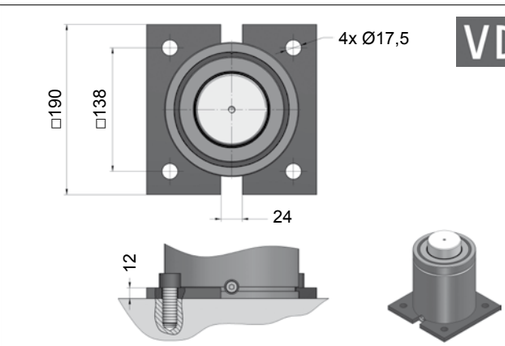

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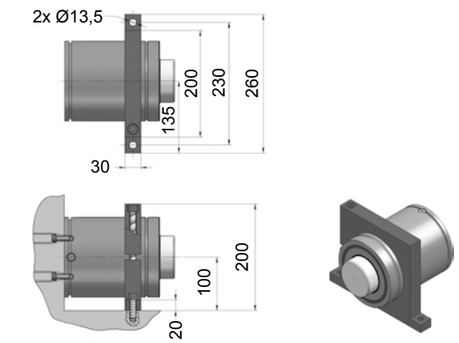

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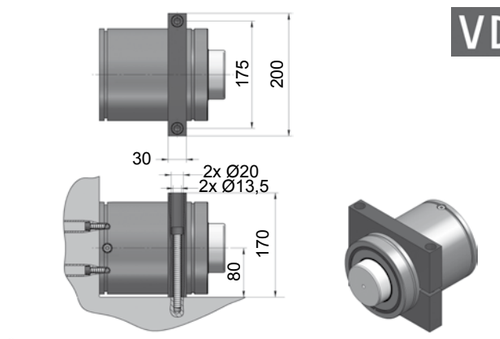
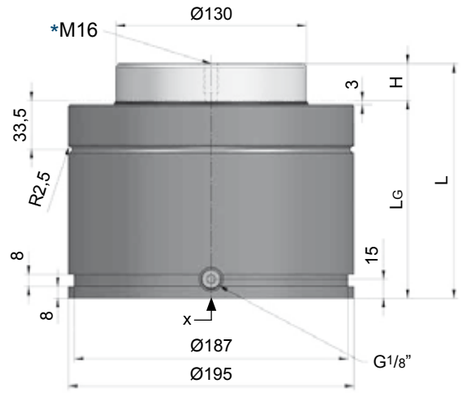
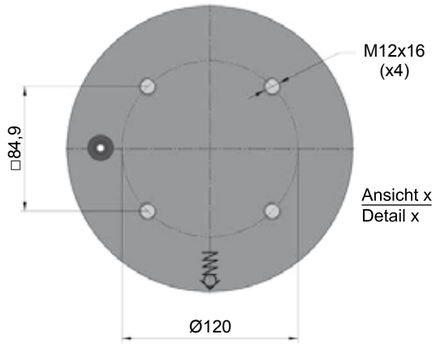


NC.88.00.150.0467

NC.015.00.20000





Technische Daten:

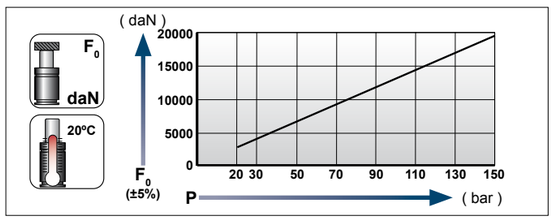
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

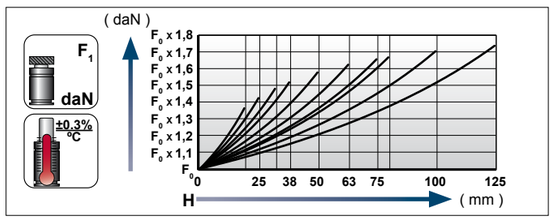
Specifications:

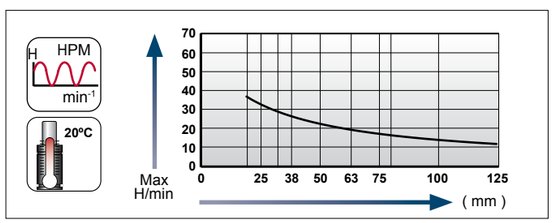
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.015.00.
20000.050

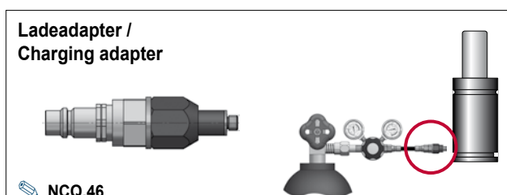
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
019	148	129	19910	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	160	135	19910	
032	174	142	19910	
038	186	148	19910	
050	210	160	19910	
063	236	173	19910	
075	260	185	19910	
080	270	190	19910	
100	310	210	19910	
125	360	235	19910	







**Ladeadapter /
Charging adapter**



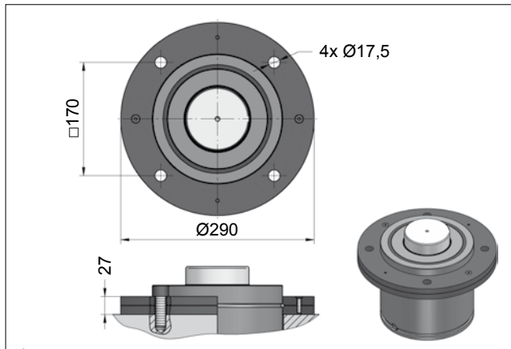
NCQ.46

[22.01.2020]

[22.01.2020]

GDF, niedrigbauend, System FP
GS, smaller height, FP series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.015.00.20000**



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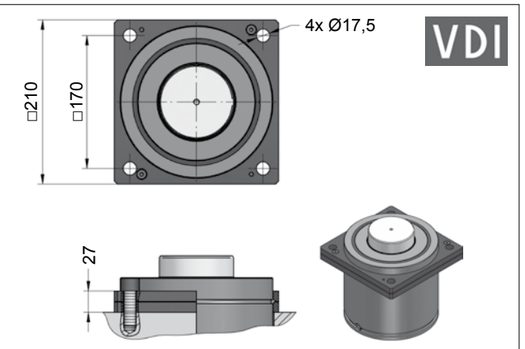

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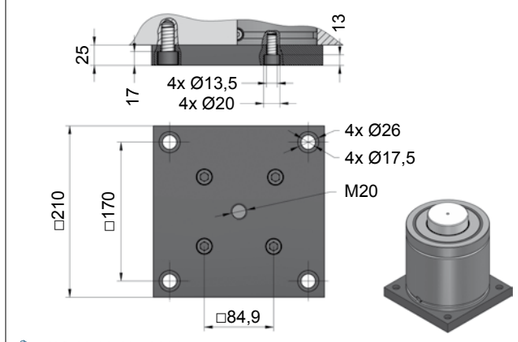
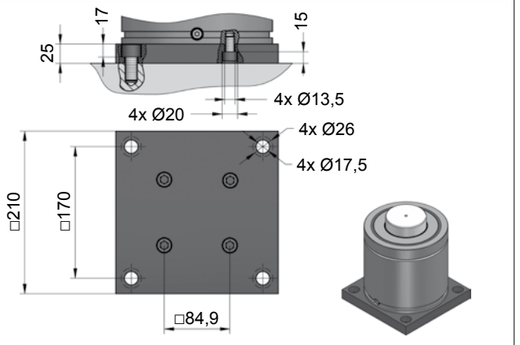
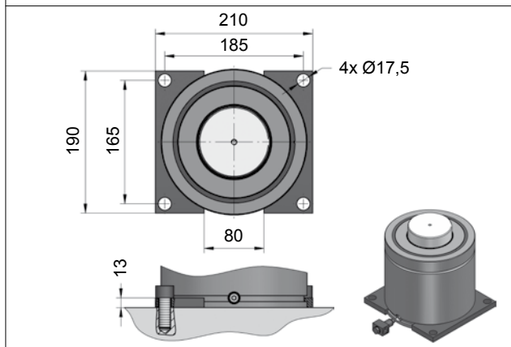


NC.88.00.195.0236



NC.88.00.195.0241



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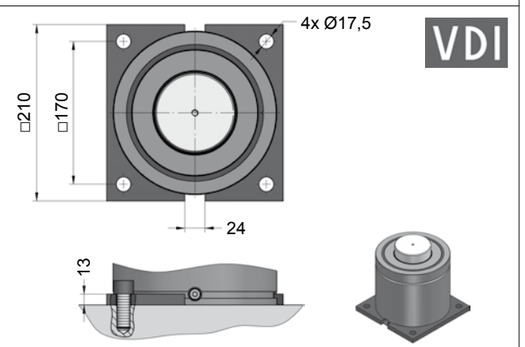
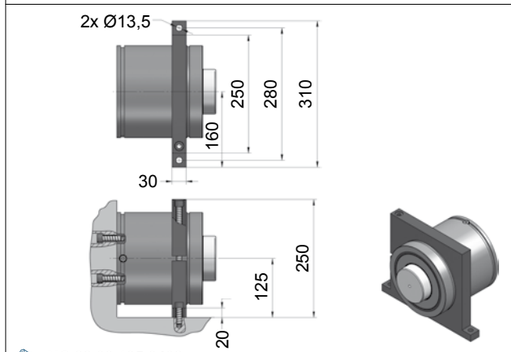
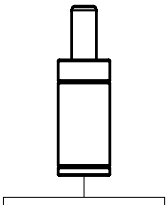


NC.88.00.195.0320

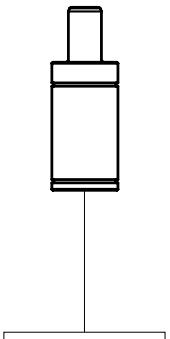


NC.88.00.195.0402

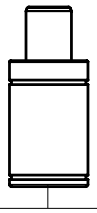
Größenübersicht Serie NC.016.00



NC.016.00.00200...1
190 daN
7 - 100 mm
Ø25



NC.016.00.00300...1
300 daN
7 - 125 mm
Ø32

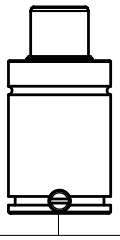


NC.016.00.00500
470 daN
10 - 125 mm
Ø38

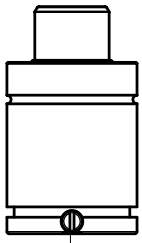
Gas spring index NC.016.00 series



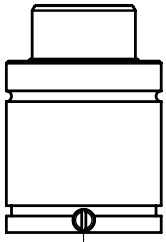
NC.016.00.00750...2
740 daN
10 - 125 mm
Ø45



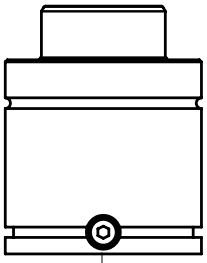
NC.016.00.01000...3
985 daN
10 - 125 mm
Ø50



NC.016.00.01500...2
1530 daN
12 - 125 mm
Ø63

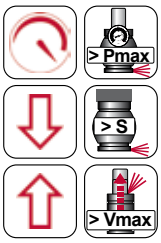


NC.016.00.02500...1
2545 daN
13 - 125 mm
Ø75



NC.016.00.04000...1
3960 daN
25 - 125 mm
Ø95

SICHERHEITSSYSTEME



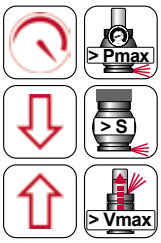
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

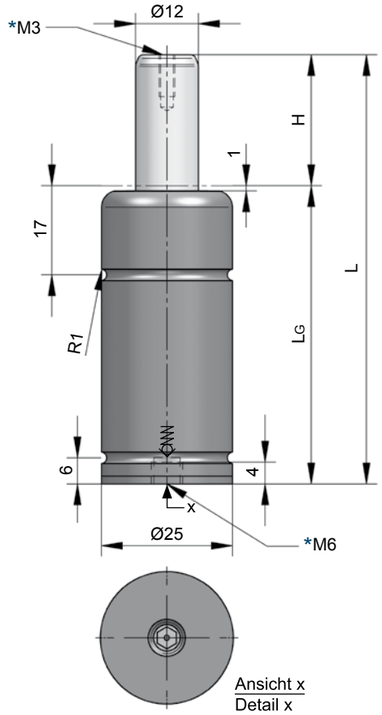
Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

[NC]

NC.016.00.00200...1



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

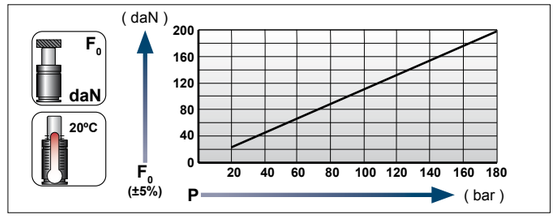
Specifications:

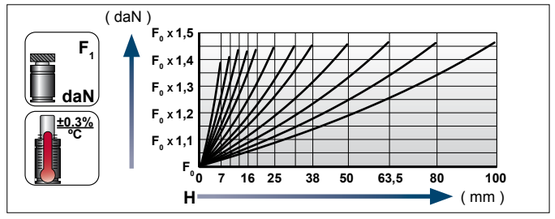
Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

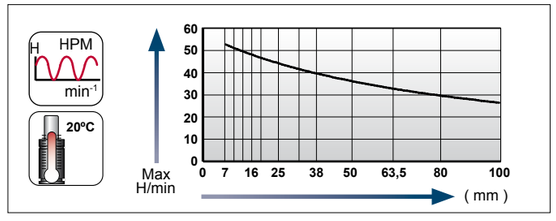
One-way spring is irreparable!

NC.016.00.00200.007.1

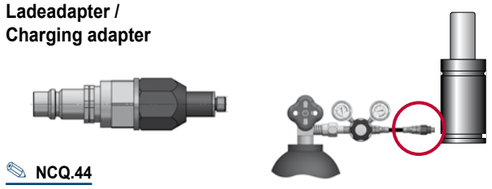
H Hub / Stroke	L ±0,25	LG	Kraft / Force (170 bar) Anfang / Initial [daN]	Ende / Final [daN]
007	46	39	190	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	52	42	190	
012,7	57,4	44,7	190	
016	64	48	190	
019	70	51	190	
025	82	57	190	
032	96	64	190	
038	108	70	190	
050	132	82	190	
063,5	159	95,5	190	
080	192	112	190	
100	232	132	190	







Ladeadapter / Charging adapter

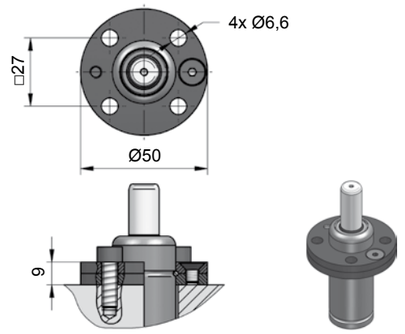


NCQ.44

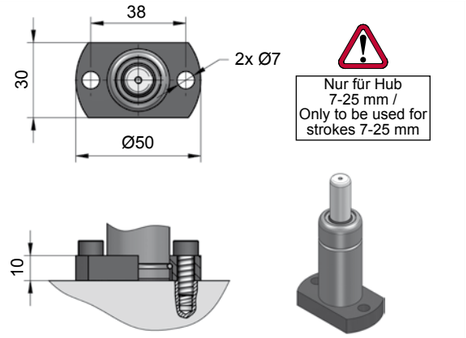
[16.04.2020]

GDF, niedrigbauend, System NK
GS, smaller height, NK series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

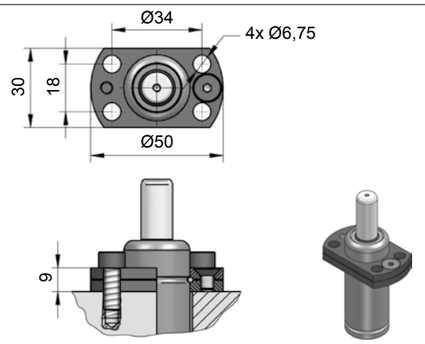
Flansche für / Flanges for **NC.016.00.00200…1**



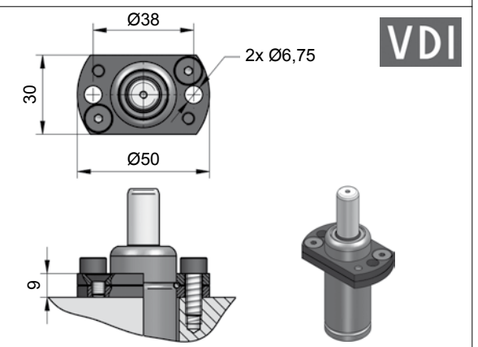
NC.88.00.025.0114



NC.88.00.025.0119



NC.88.00.025.0144

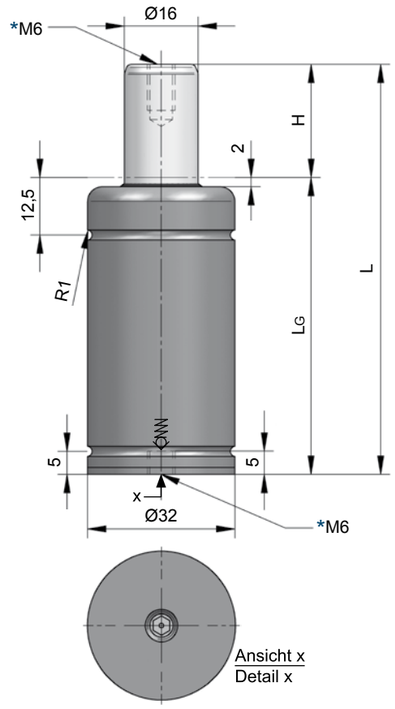


NC.88.00.025.0149

[16.04.2020]

[NC]

NC.016.00.00300...1



Technische Daten:

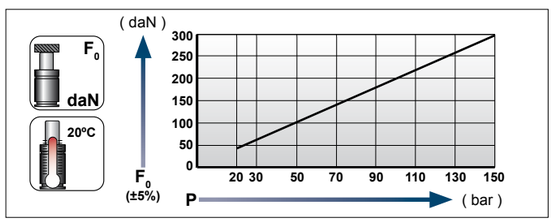
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

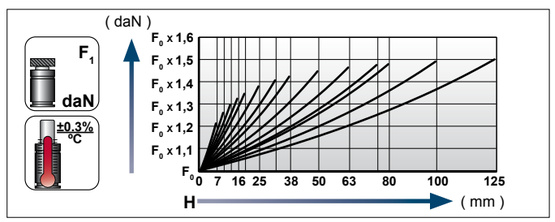
Specifications:

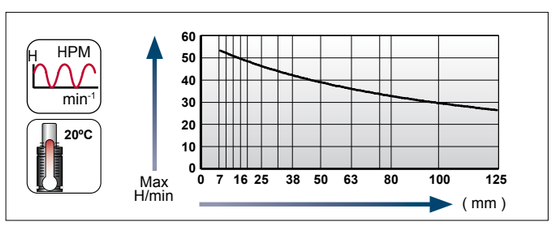
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.016.00.00300.025.1

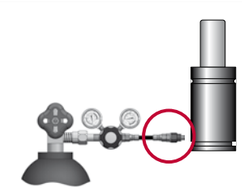
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
007	53	46	300	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	59	49	300	
013	65	52	300	
016	71	55	300	
019	77	58	300	
025	89	64	300	
032	103	71	300	
038	115	77	300	
050	139	89	300	
063	165	102	300	
075	189	114	300	
080	199	119	300	
100	239	139	300	
125	289	164	300	







Ladeadapter / Charging adapter

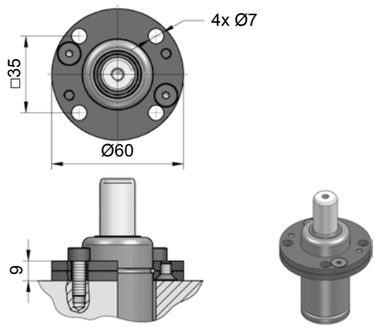


NCQ.44

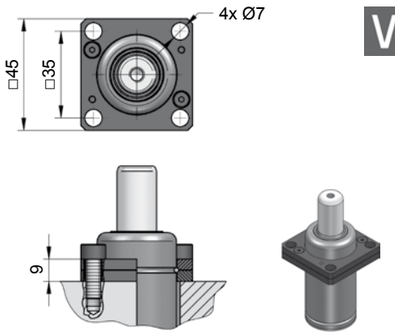
[16.04.2020]

GDF, niedrigbauend, System NK
GS, smaller height, NK series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

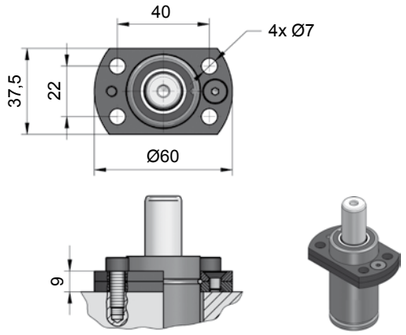
Flansche für / Flanges for **NC.016.00.00300...1**



NC.88.00.032.0114



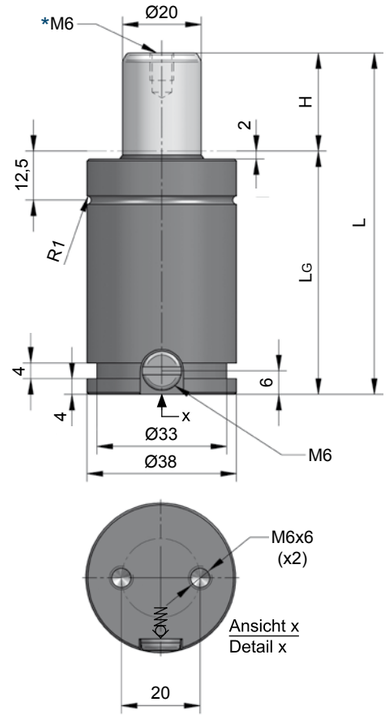
NC.88.00.032.0134



NC.88.00.032.0144

[16.04.2020]

NC.016.00.00500



Technische Daten:

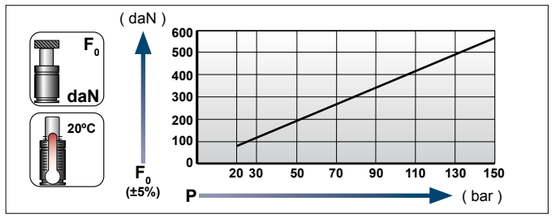
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

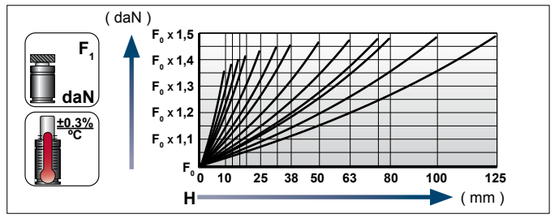
Specifications:

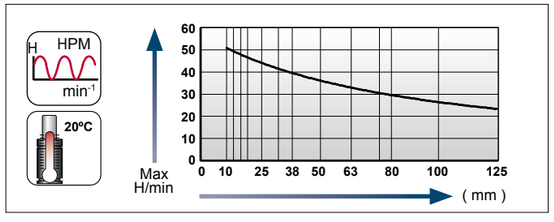
Pressure medium:	N_2
Max. charging pressure:	150 bar
Min. charging pressure:	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.016.00.00500.038

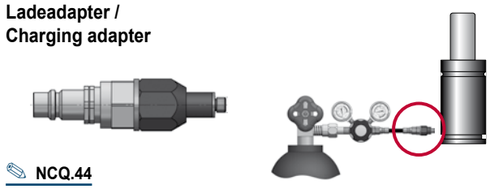
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	57	47	470	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	63	50	470	
016	69	53	470	
019	75	56	470	
025	87	62	470	
032	101	69	470	
038	113	75	470	
050	137	87	470	
063	163	100	470	
075	187	112	470	
080	197	117	470	
100	237	137	470	
125	287	162	470	







Ladeadapter / Charging adapter

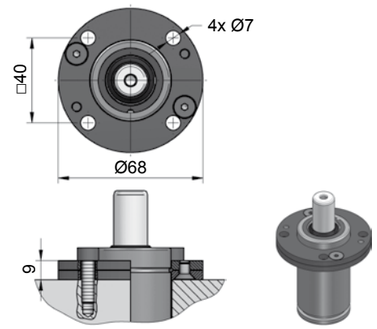


NCQ.44

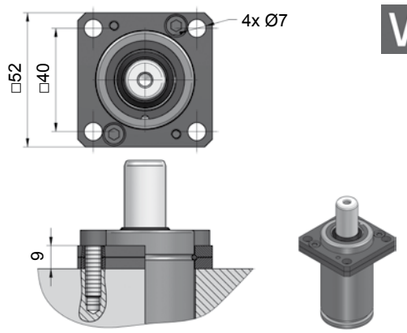
[16.04.2020]

GDF, niedrigbauend, System NK
GS, smaller height, NK series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

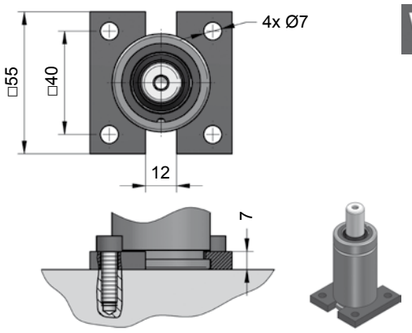
Flansche für / Flanges for **NC.016.00.00500**



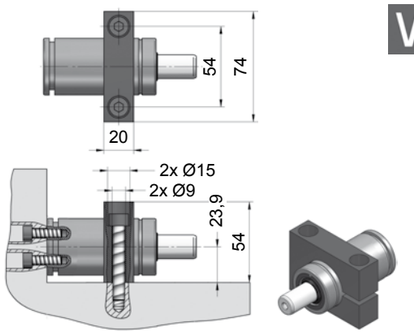
NC.88.00.038.0114



NC.88.00.038.0134



NC.88.00.038.0320

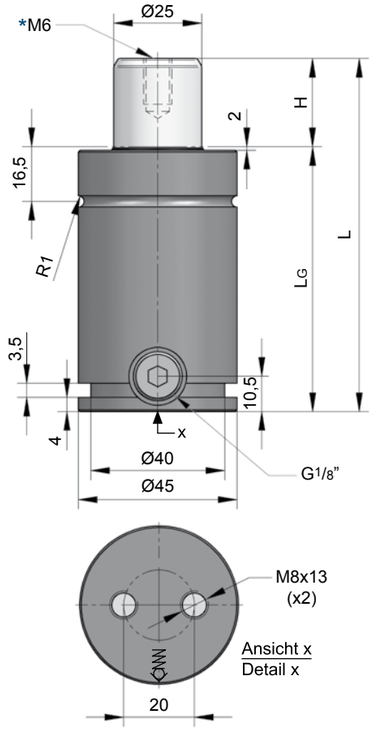


NC.88.00.038.0467

[16.04.2020]

[NC]

NC.016.00.00750...2



Technische Daten:

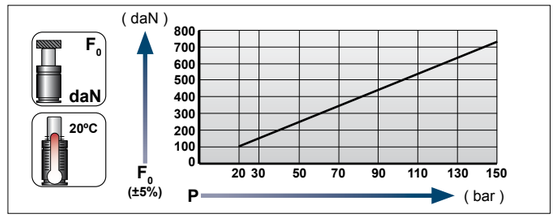
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

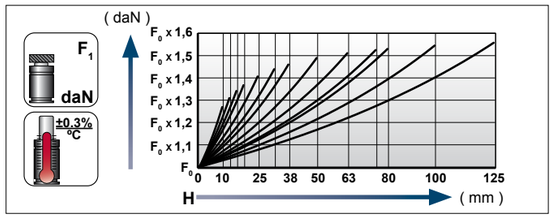
Specifications:

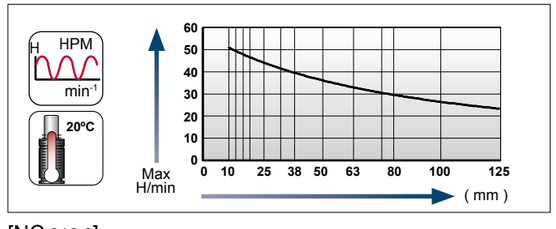
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.016.00.00750.025.2

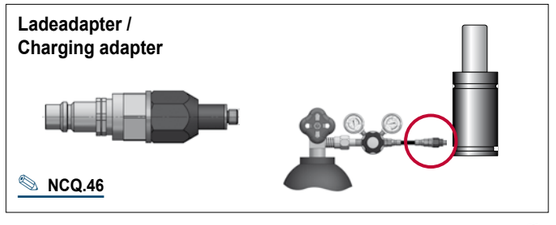
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	70	60	740	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	76	63	740	
016	82	66	740	
019	88	69	740	
025	100	75	740	
032	114	82	740	
038	126	88	740	
050	150	100	740	
063	176	113	740	
075	200	125	740	
080	210	130	740	
100	250	150	740	
125	300	175	740	







Ladeadapter / Charging adapter



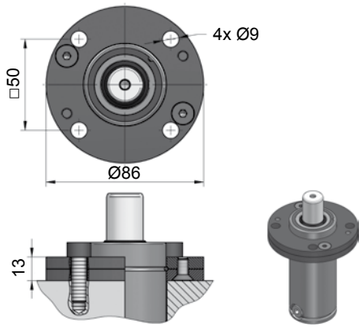
NCQ.46

[16.04.2020]

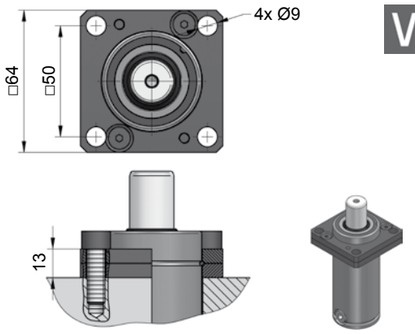
[16.04.2020]

GDF, niedrigbauend, System NK
GS, smaller height, NK series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

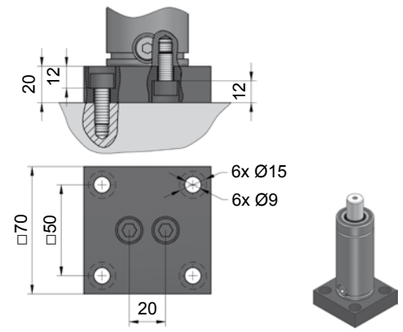
Flansche für / Flanges for **NC.016.00.00750…2**



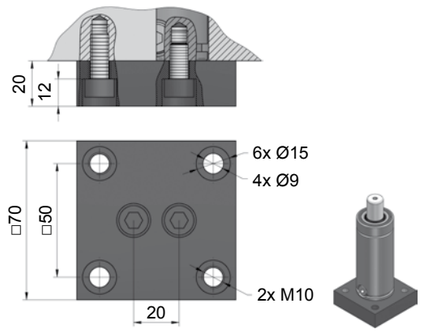
NC.88.00.045.0114



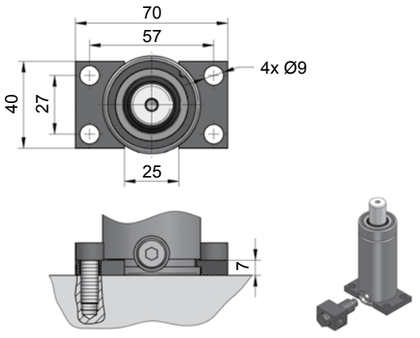
NC.88.00.045.0134



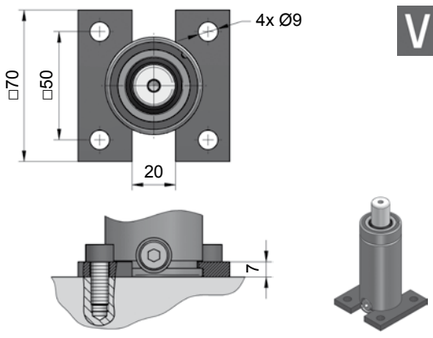
NC.88.00.045.0221



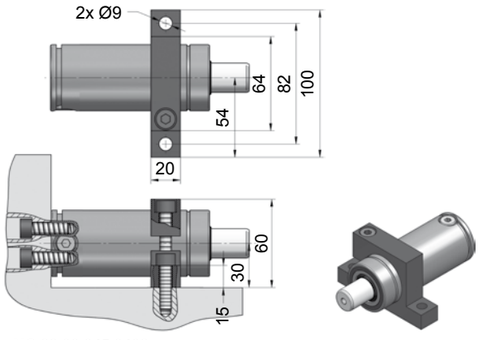
NC.88.00.045.0276



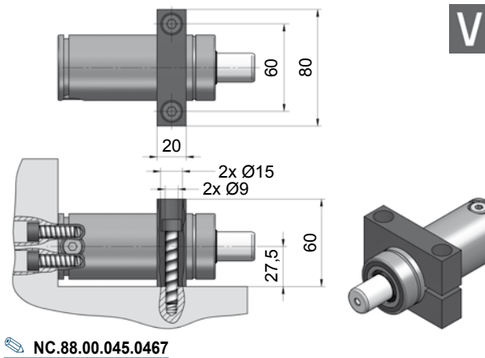
NC.88.00.045.0305



NC.88.00.045.0320

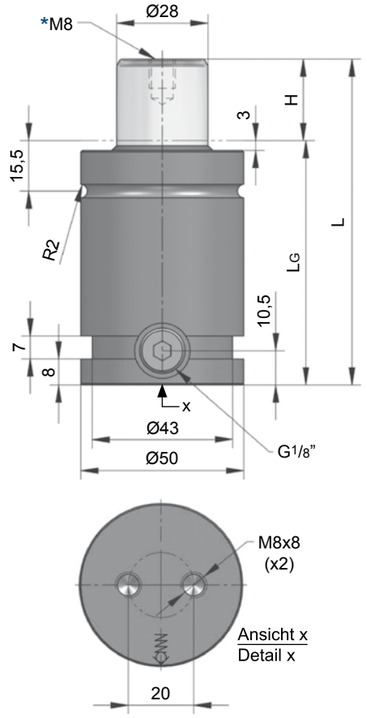


NC.88.00.045.0402



NC.88.00.045.0467

NC.016.00.01000...3



Technische Daten:

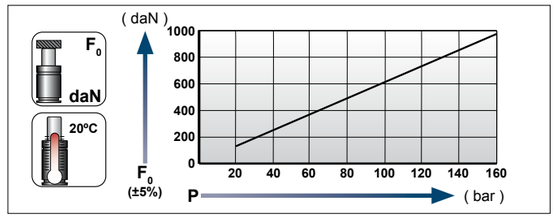
Medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

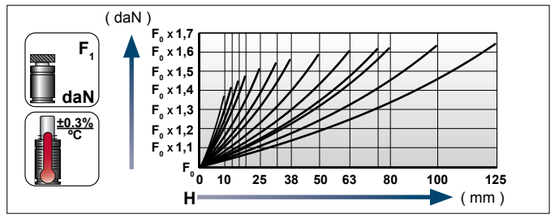
Specifications:

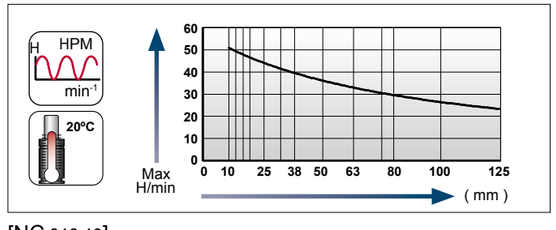
Pressure medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.016.00.01000.063.3

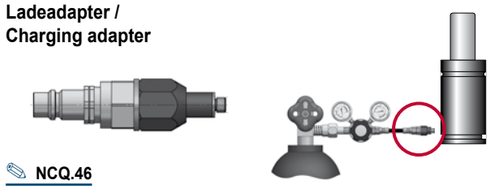
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (160 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	70	60	985	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	76	63	985	
016	82	66	985	
019	88	69	985	
025	100	75	985	
032	114	82	985	
038	126	88	985	
050	150	100	985	
063	176	113	985	
075	200	125	985	
080	210	130	985	
100	250	150	985	
125	300	175	985	







Ladeadapter / Charging adapter



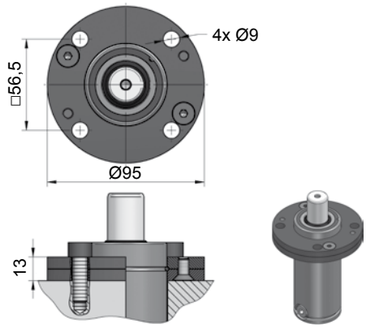
NCQ.46

[16.04.2020]

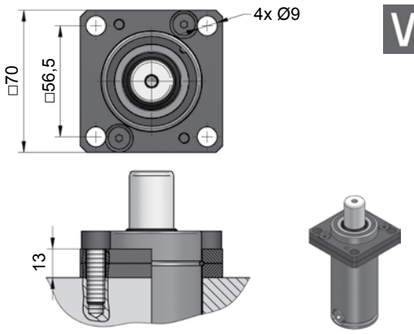
[16.04.2020]

GDF, niedrigbauend, System NK
GS, smaller height, NK series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

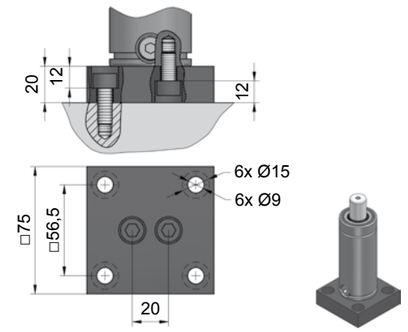
Flansche für / Flanges for **NC.016.00.01000…3**



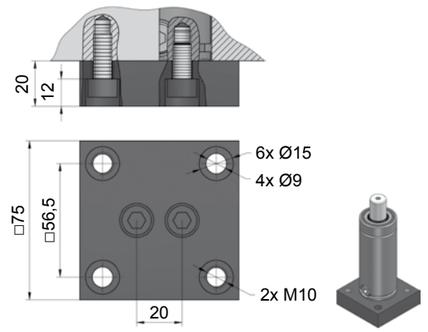
NC.88.00.050.0114



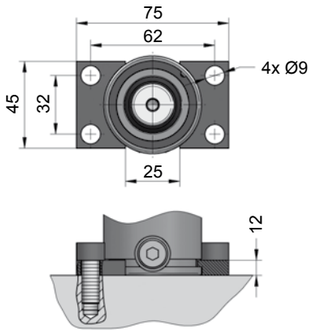
NC.88.00.050.0134



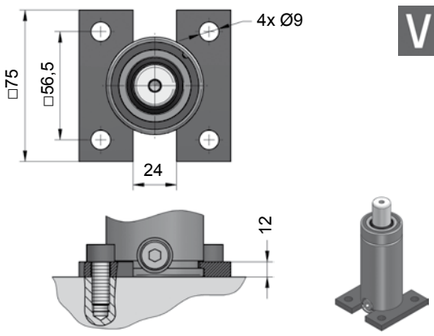
NC.88.00.050.0221



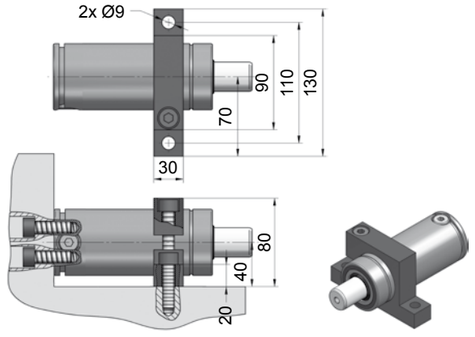
NC.88.00.050.0276



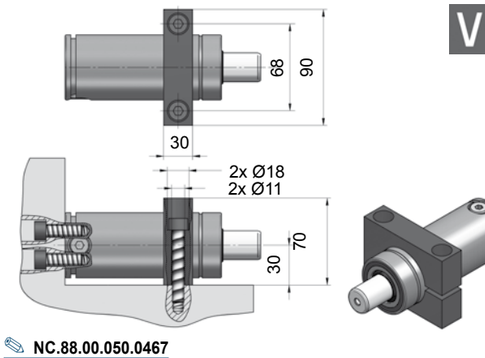
NC.88.00.050.0305



NC.88.00.050.0320

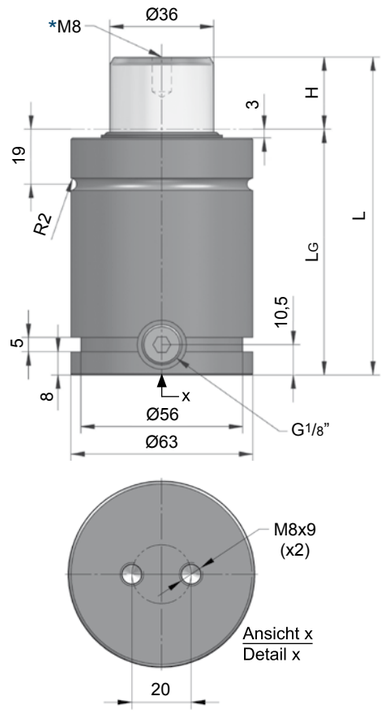


NC.88.00.050.0402



NC.88.00.050.0467

NC.016.00.01500...2



Technische Daten:

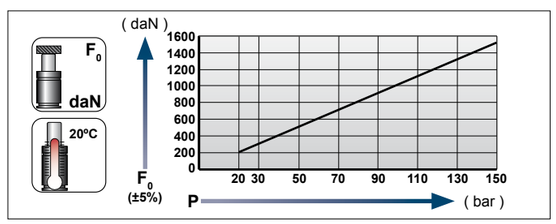
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

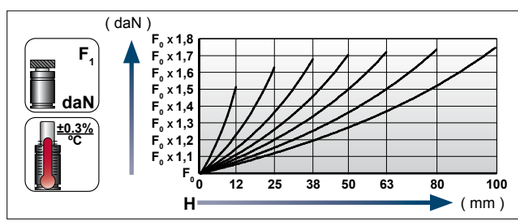
Specifications:

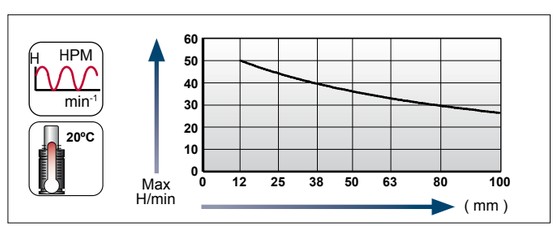
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.016.00.
01500.080.2

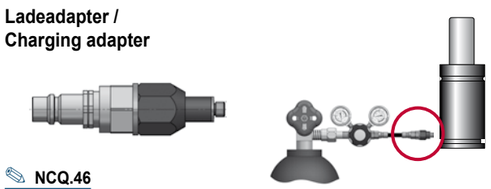
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
012	84	72	1530	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	110	85	1530	
038	136	98	1530	
050	160	110	1530	
063	186	123	1530	
080	220	140	1530	
100	260	160	1530	







Ladeadapter / Charging adapter



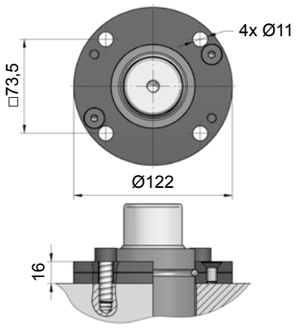
NCQ.46

[16.04.2020]

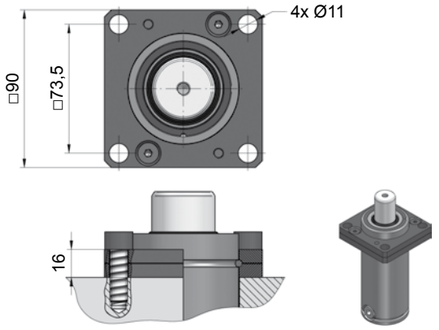
[16.04.2020]

GDF, niedrigbauend, System NK
GS, smaller height, NK series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

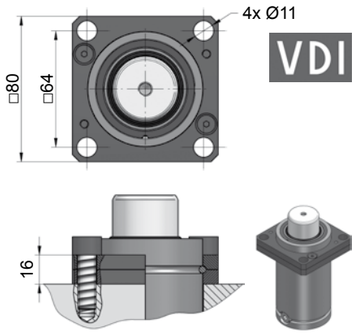
Flansche für / Flanges for **NC.016.00.01500…2**



NC.88.00.063.0114



NC.88.00.063.0139



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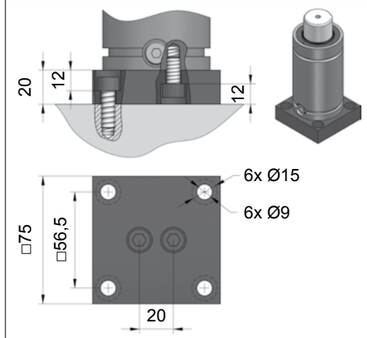
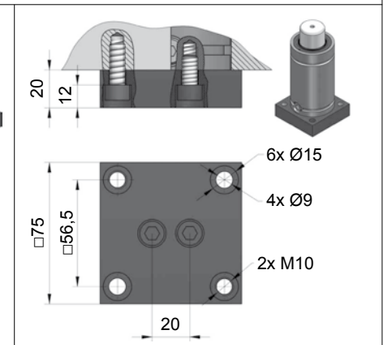
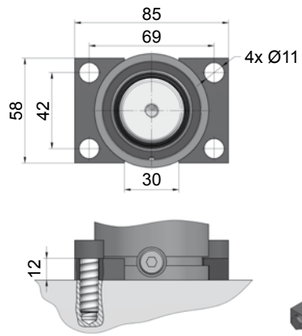


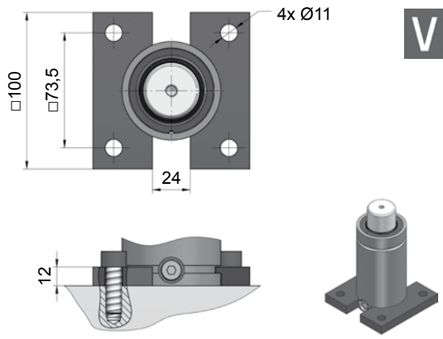
NC.88.00.063.0221



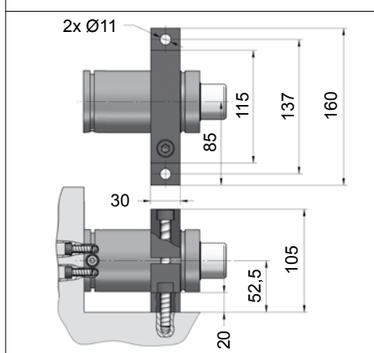
NC.88.00.063.0276



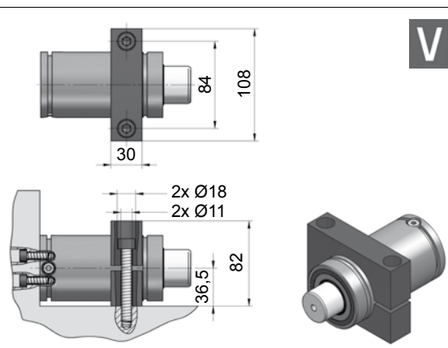
NC.88.00.063.0305



NC.88.00.063.0335



NC.88.00.063.0402



NC.88.00.063.0467

[NC]

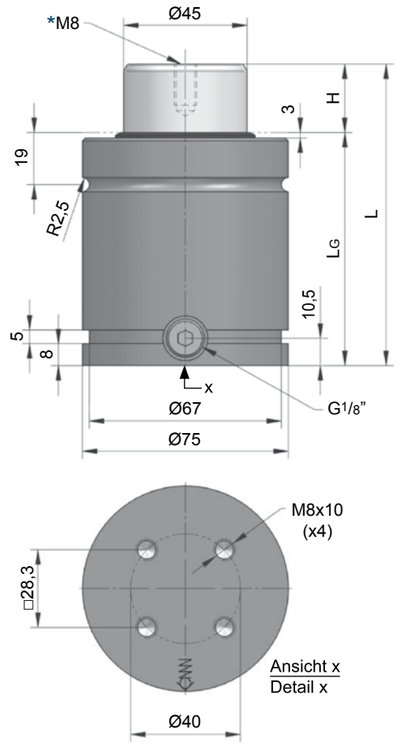
NC.016.00.02500...1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

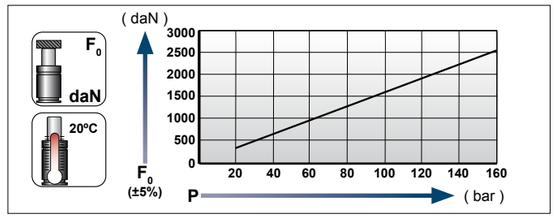
Pressure medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

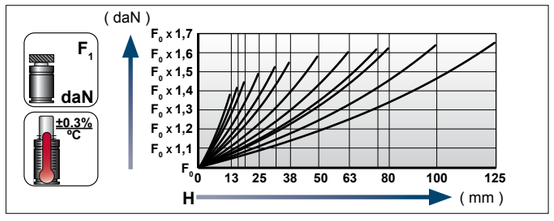


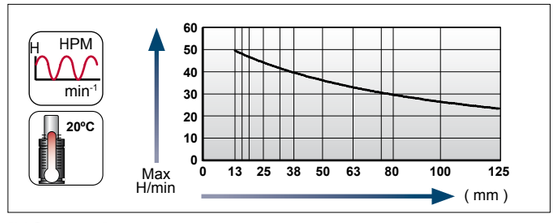
INFO [NC.21]

NC.016.00.02500.100.1

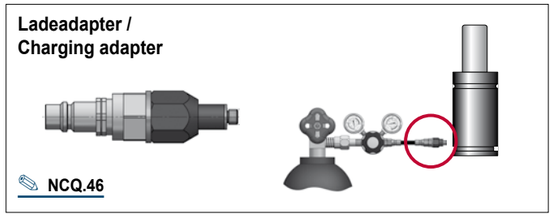
H Hub / Stroke	L ±0,25	LG	Kraft / Force (160 bar) Anfang / Initial [daN]	Ende / Final [daN]
013	86	73	2545	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	92	76	2545	
019	98	79	2545	
025	110	85	2545	
032	124	92	2545	
038	136	98	2545	
050	160	110	2545	
063	186	123	2545	
075	210	135	2545	
080	220	140	2545	
100	260	160	2545	
125	310	185	2545	







Ladeadapter / Charging adapter



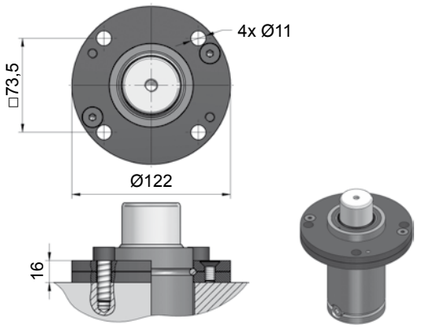
NCQ.46

[16.04.2020]

[16.04.2020]

GDF, niedrigbauend, System NK
GS, smaller height, NK series
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.016.00.02500…1**



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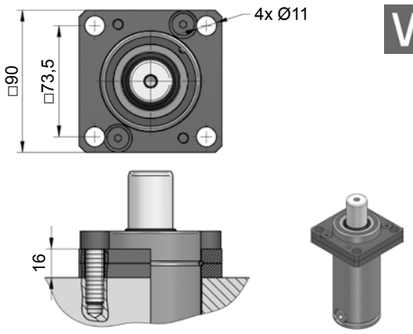

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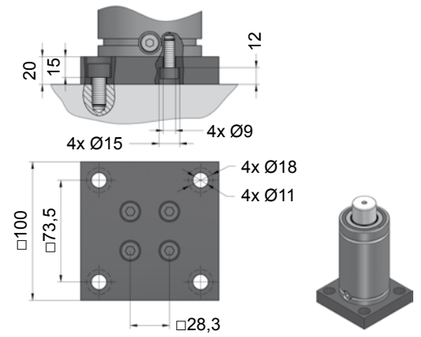

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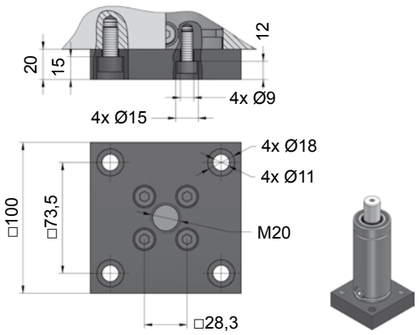
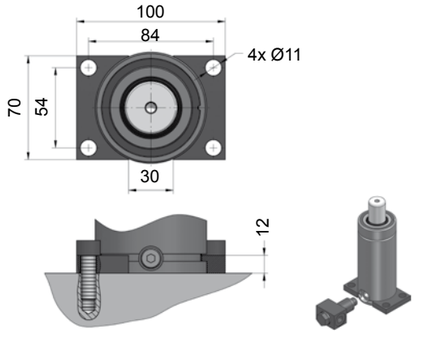


NC.88.00.075.0276



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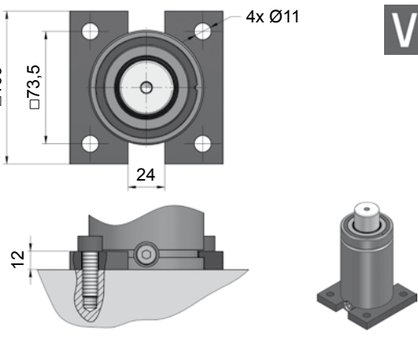
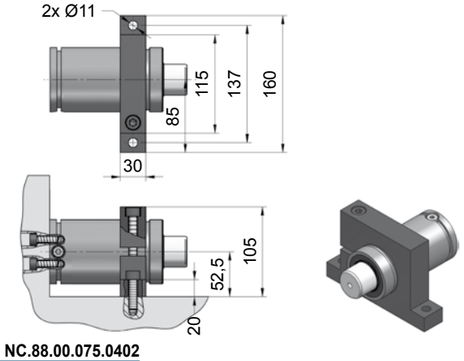
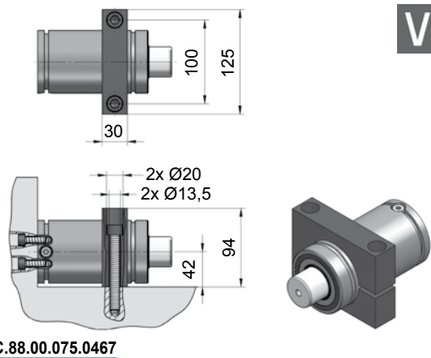


NC.88.00.075.0320



NC.88.00.075.0402



NC.88.00.075.0467

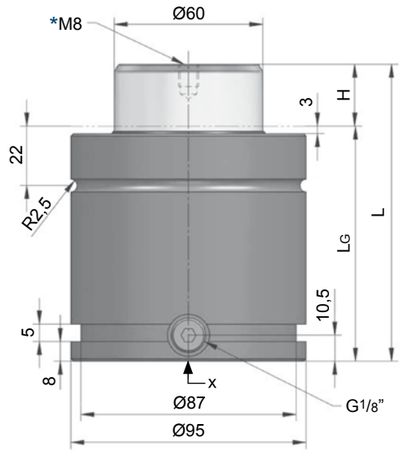
NC.016.00.04000...1

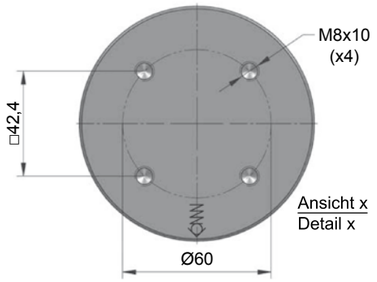
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

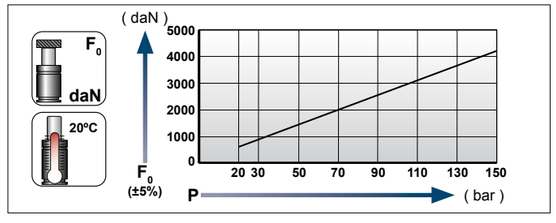
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

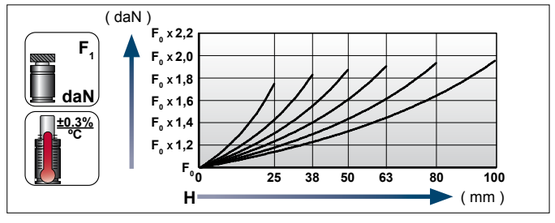


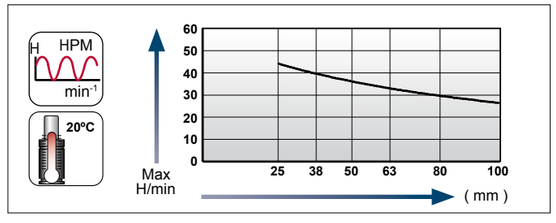


NC.016.00.
04000.100.1

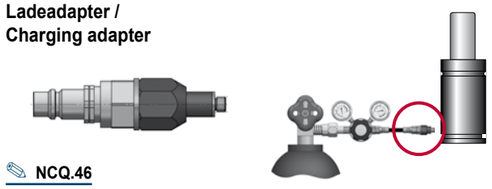
H Hub / Stroke	L ±0,25	LG	Kraft / Force (140 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	120	95	3960	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	146	108	3960	
050	170	120	3960	
063	196	133	3960	
080	230	150	3960	
100	270	170	3960	







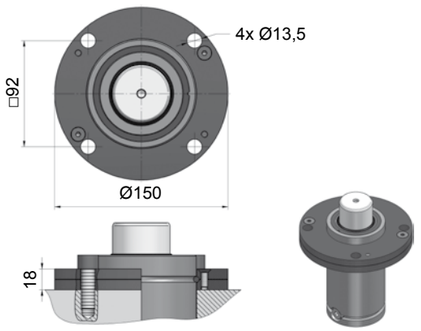
Ladeadapter / Charging adapter



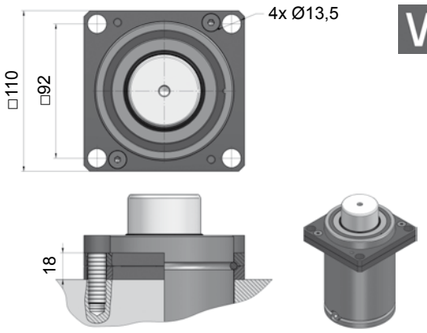
NCQ.46

[31.01.2020]
[16.04.2020]

Flansche für / Flanges for **NC.016.00.04000…1**



NC.88.00.095.0114



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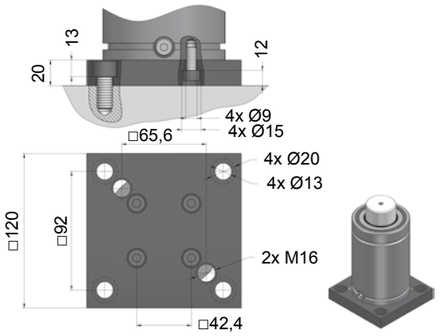

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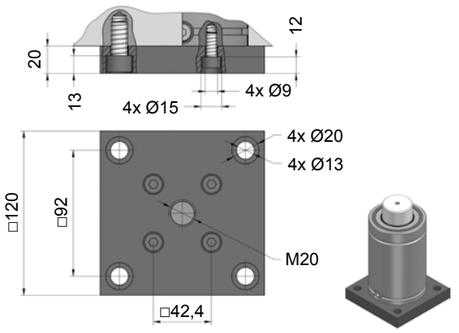

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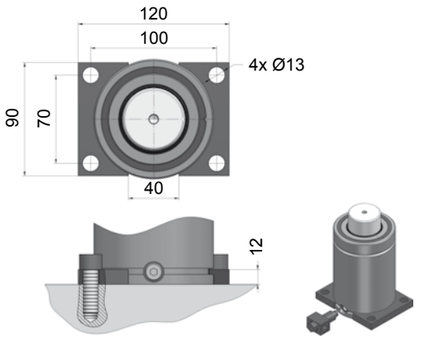

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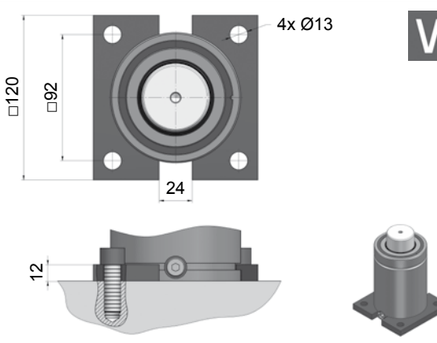
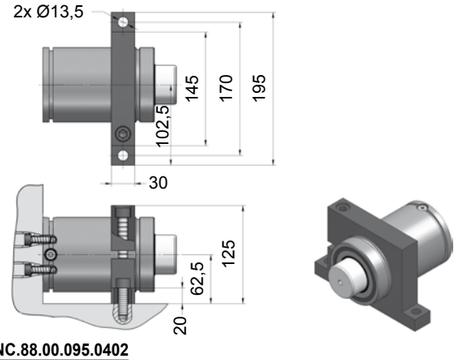
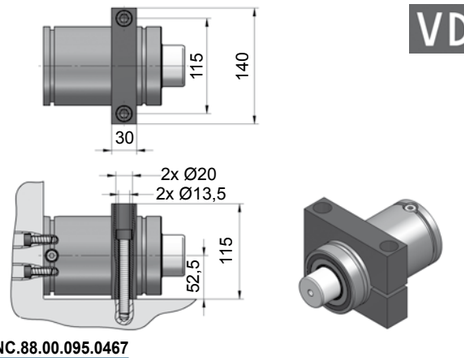


NC.88.00.095.0320



NC.88.00.095.0402



NC.88.00.095.0467

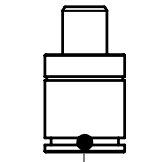
Technische Information Serie NC.028.00

Die Gasdruckfedern der Serie **NC.028.00** sind baugleich mit den kleineren Abmessungen der Serie **NC.015.00**, haben aber einen verstärkten Boden zur Unterbringung eines G1/8“-Anschlussgewindes.

Technical information NC.028.00 series

The **NC.028.00**-gas springs have the same outside dimensions as the smaller size **NC.015.00**-series. However, in order to accomodate a G1/8“ - thread, their base plate is thicker.

Größenübersicht Serie NC.028.00

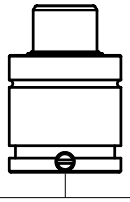


NC.028.00.00750...2
740 daN
10 - 125 mm
Ø45

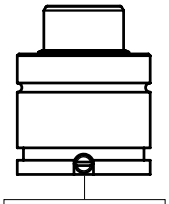


NC.028.00.01000...2
920 daN
10 - 125 mm
Ø50

Gas spring index NC.028.00 series

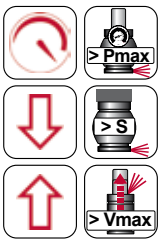


NC.028.00.01500
1530 daN
13 - 125 mm
Ø63



NC.028.00.02400...2
2385 daN
13 - 125 mm
Ø75

SICHERHEITSSYSTEME



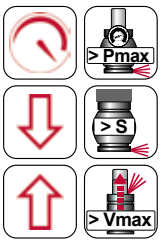
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



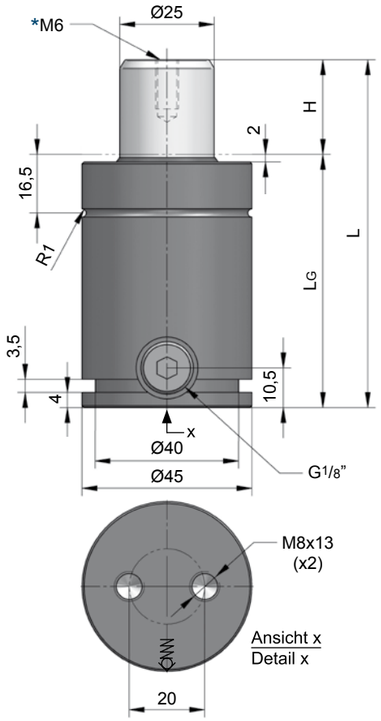
Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

NC.028.00.00750...2



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.028.00.00750.025.2

H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	62	52	740	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	68	55	740	
016	74	58	740	
019	80	61	740	
025	92	67	740	
032	106	74	740	
038	118	80	740	
050	142	92	740	
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080	202	122	740	
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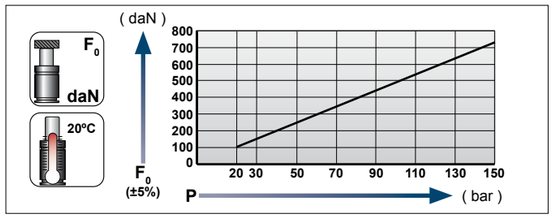
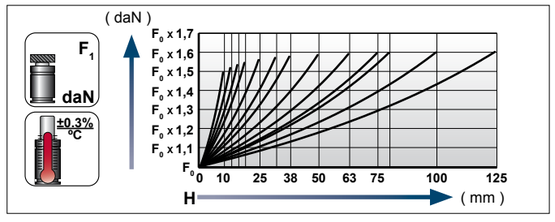
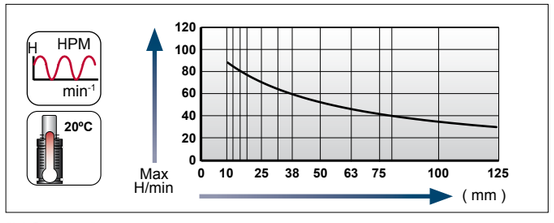
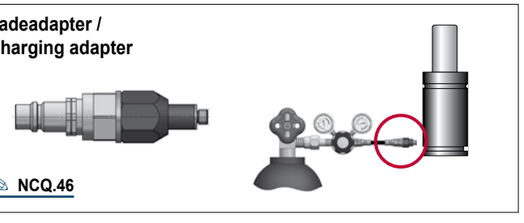
125	292	167	740	







Ladeadapter / Charging adapter

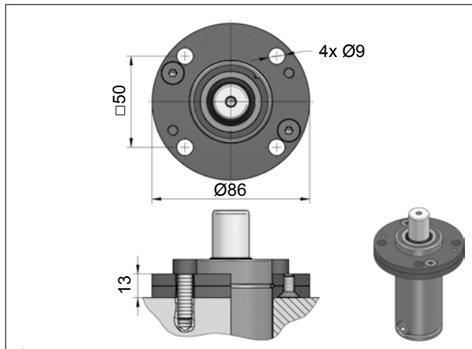


NCQ.46

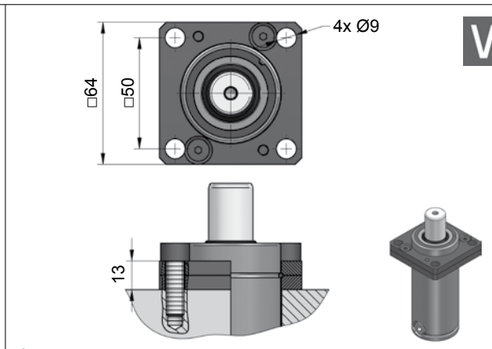
[27.01.2020]

GDF, niedrigbauend, G1/8“
GS, smaller height, G1/8“
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

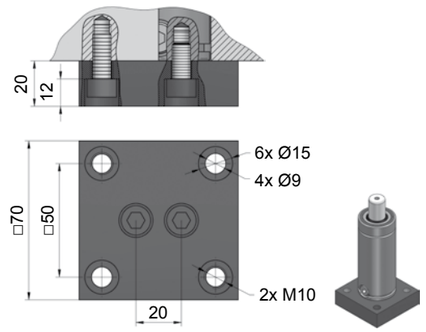
Flansche für / Flanges for **NC.028.00.00750…2**



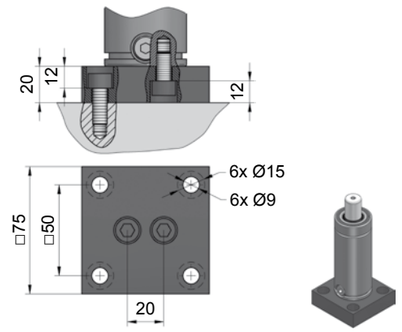
NC.88.00.045.0114



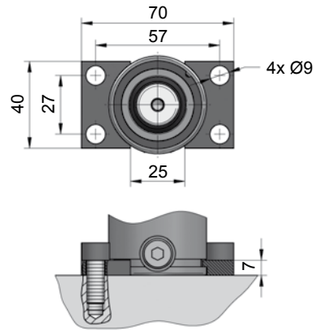
NC.88.00.045.0134



NC.88.00.045.0236



NC.88.00.045.0241



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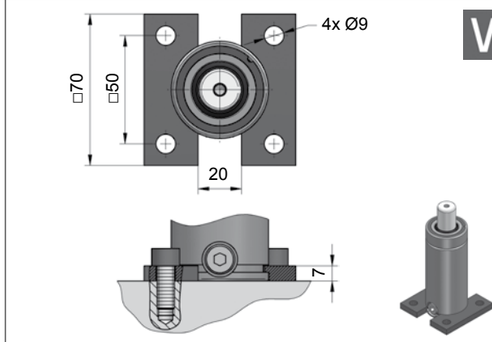
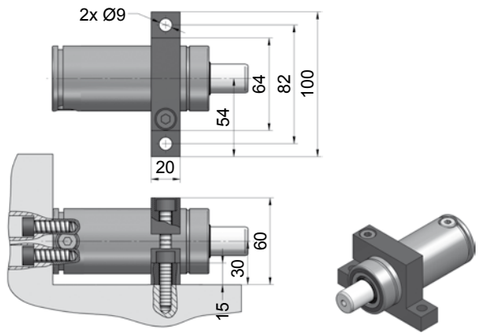
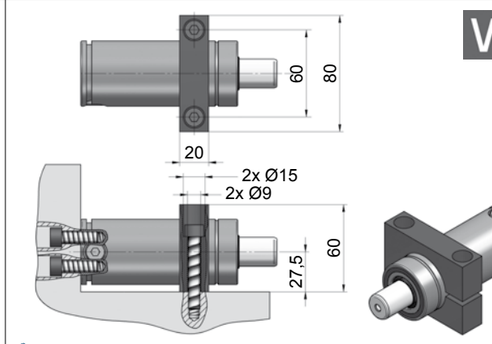


NC.88.00.045.0320



NC.88.00.045.0402



NC.88.00.045.0467

[27.01.2020]

[NC]

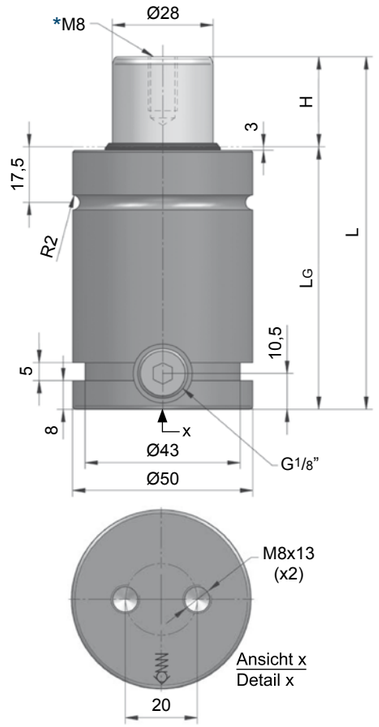
NC.028.00.01000...2

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

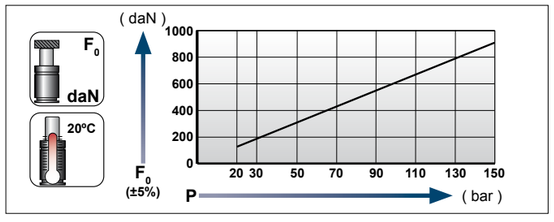
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

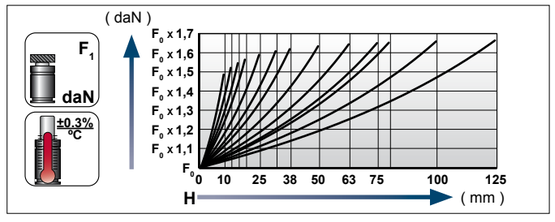


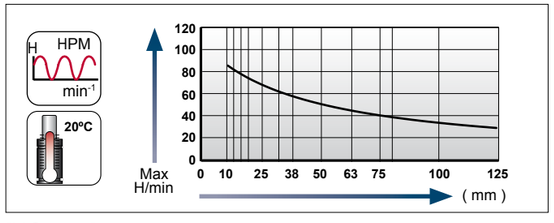
INFO [NC.21]

NC.028.00.
01000.032.2

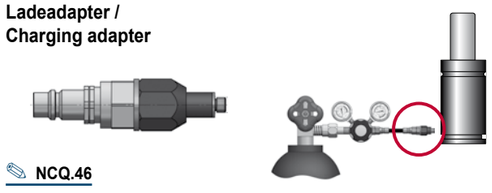
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	68	58	920	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	74	61	920	
016	80	64	920	
019	86	67	920	
025	98	73	920	
032	112	80	920	
038	124	86	920	
050	148	98	920	
063	174	111	920	
075	198	123	920	
080	208	128	920	
100	248	148	920	
125	298	173	920	







Ladeadapter / Charging adapter

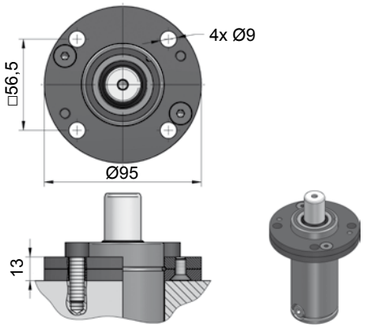


NCQ.46

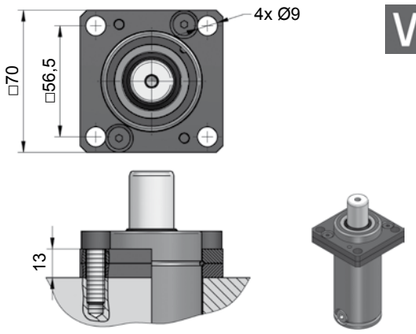
[27.01.2020]

GDF, niedrigbauend, G1/8“
GS, smaller height, G1/8“
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

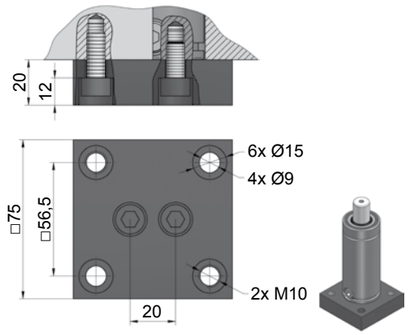
Flansche für / Flanges for **NC.028.00.01000…2**



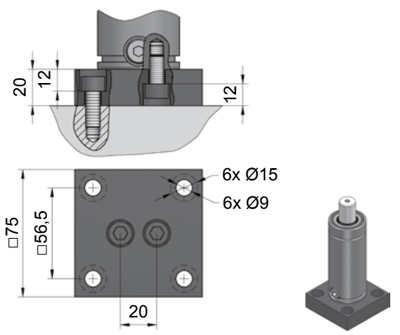
NC.88.00.050.0114



NC.88.00.050.0134



NC.88.00.050.0236



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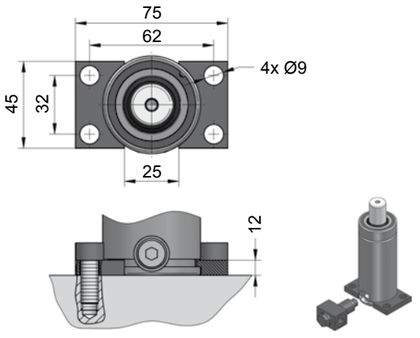
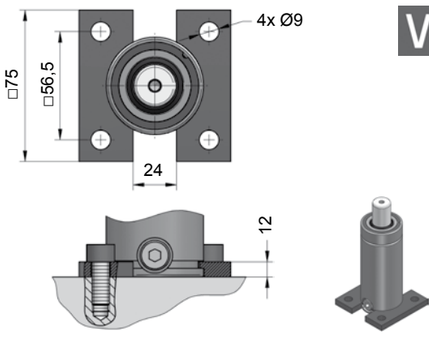
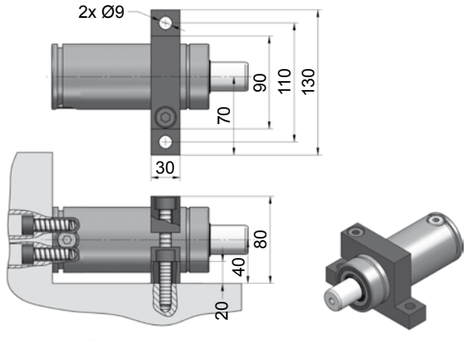


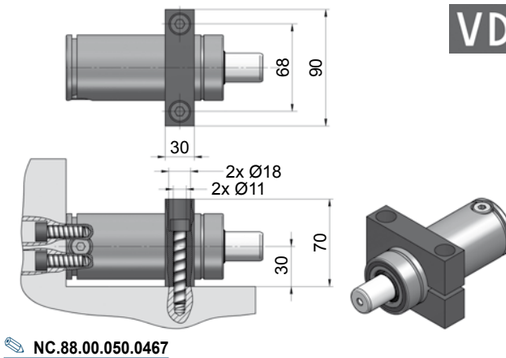
NC.88.00.050.0305



NC.88.00.050.0320



NC.88.00.050.0402

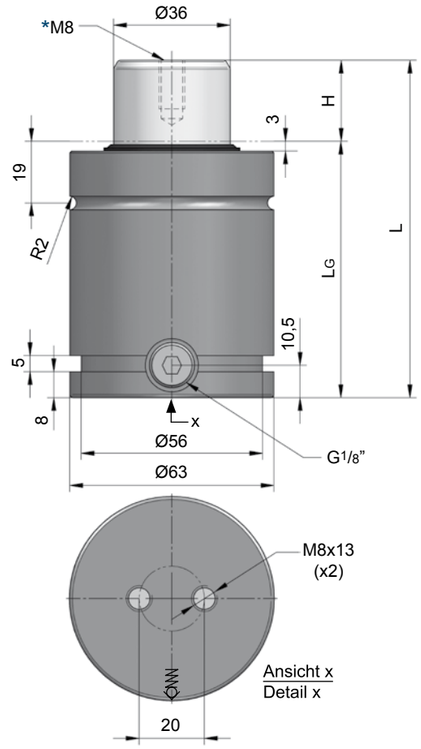


NC.88.00.050.0467

[27.01.2020]

[NC]

NC.028.00.01500



Technische Daten:

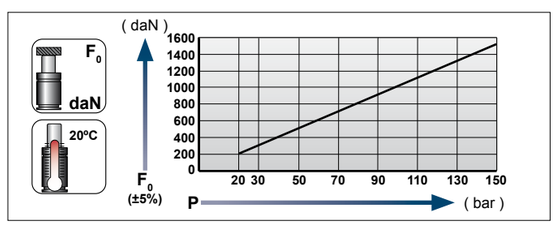
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

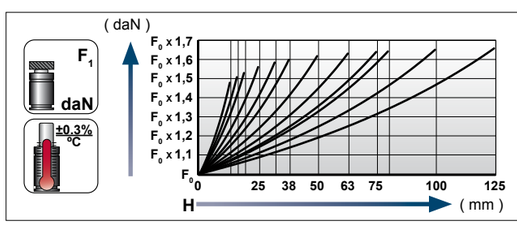
Specifications:

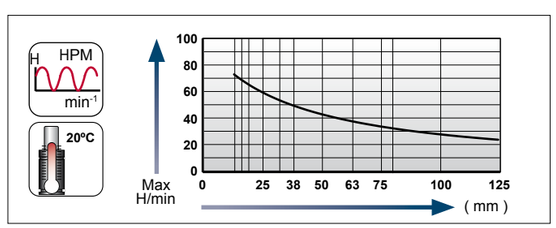
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.028.00.
01500.050

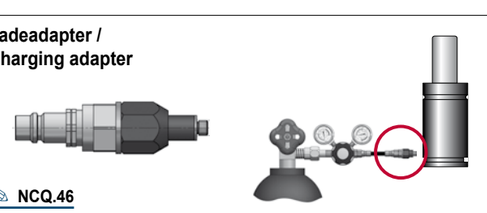
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
013	80	67	1530	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	86	70	1530	
019	92	73	1530	
025	104	79	1530	
032	118	86	1530	
038	130	92	1530	
050	154	104	1530	
063	180	117	1530	
075	204	129	1530	
080	214	134	1530	
100	254	154	1530	
125	304	179	1530	







Ladeadapter / Charging adapter

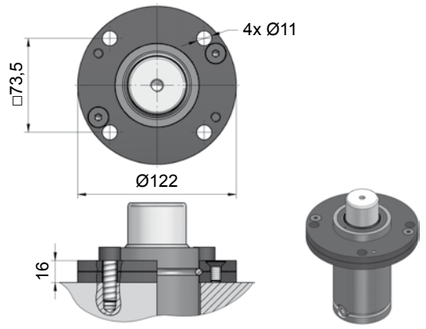


NCQ.46

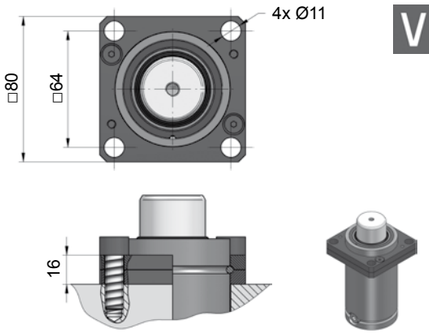
[27.01.2020]

GDF, niedrigbauend, G1/8“
GS, smaller height, G1/8“
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.028.00.01500**



NC.88.00.063.0114



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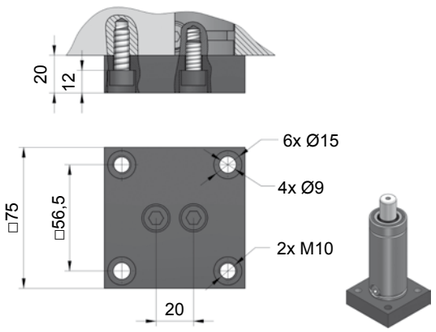

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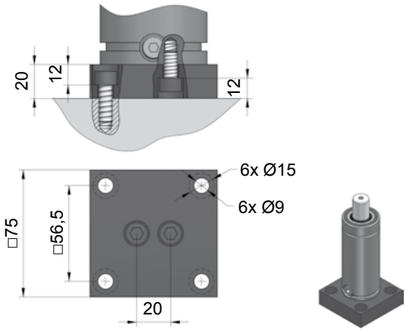
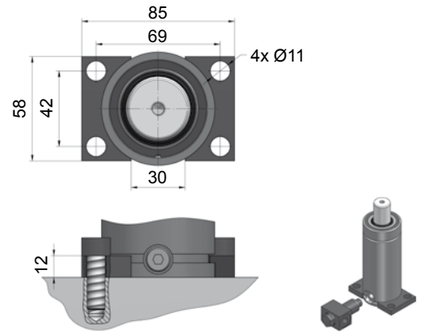
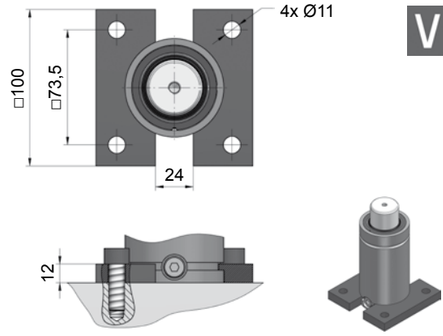


NC.88.00.063.0241



NC.88.00.063.0305



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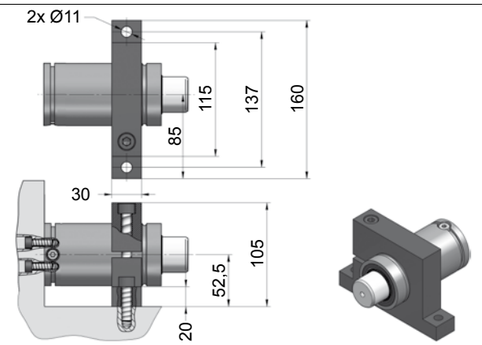
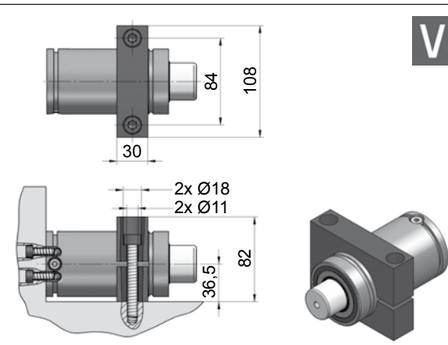


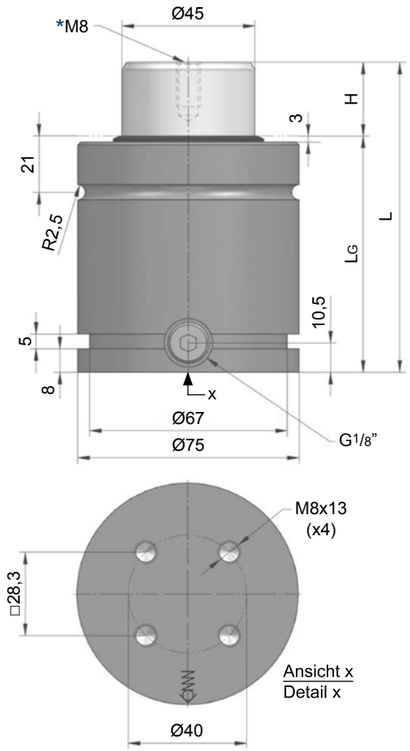
NC.88.00.063.0402



NC.88.00.063.0467

[27.01.2020]

NC.028.00.02400...2



Technische Daten:

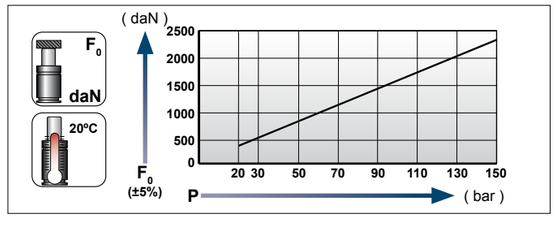
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

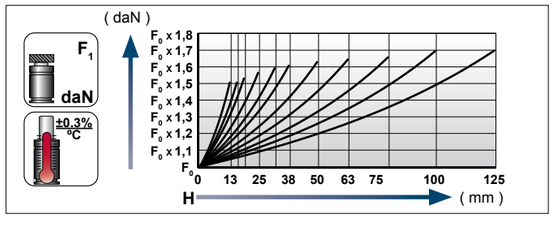
Specifications:

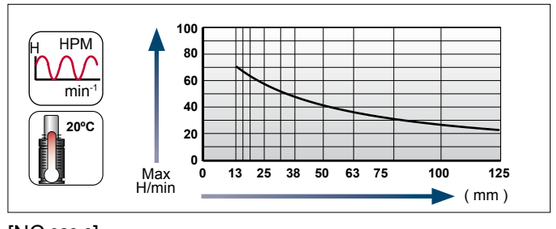
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.028.00.02400.075.2

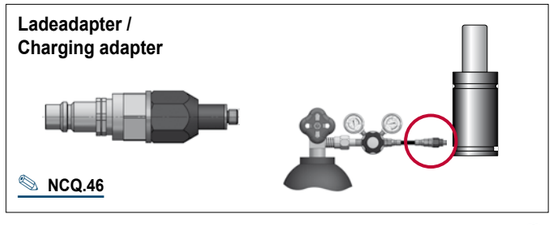
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
013	81	68	2385	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	87	71	2385	
019	93	74	2385	
025	105	80	2385	
032	119	87	2385	
038	131	93	2385	
050	155	105	2385	
063	181	118	2385	
075	205	130	2385	
080	215	135	2385	
100	255	155	2385	
125	305	180	2385	







Ladeadapter / Charging adapter



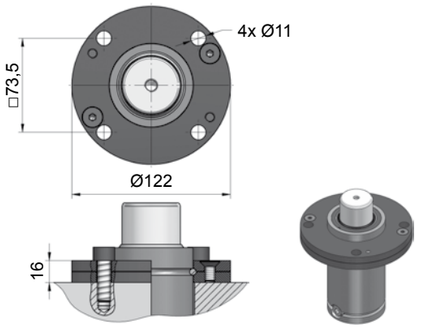
NCQ.46

[27.01.2020]

[27.01.2020]

GDF, niedrigbauend, G1/8“
GS, smaller height, G1/8“
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.028.00.02400...2**



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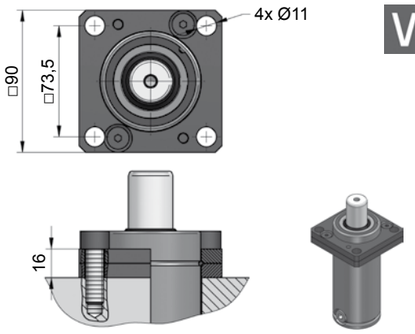
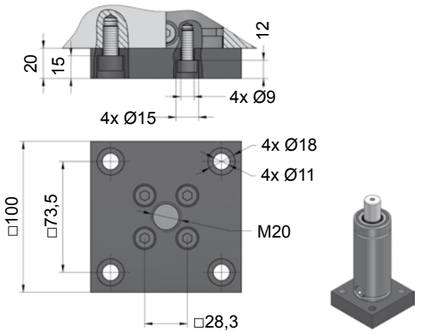


NC.88.00.075.0134



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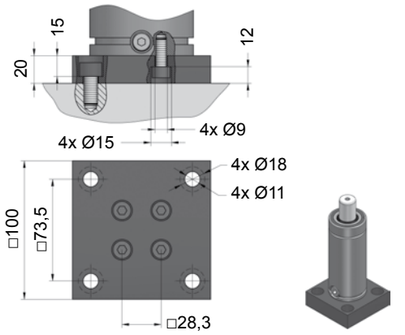
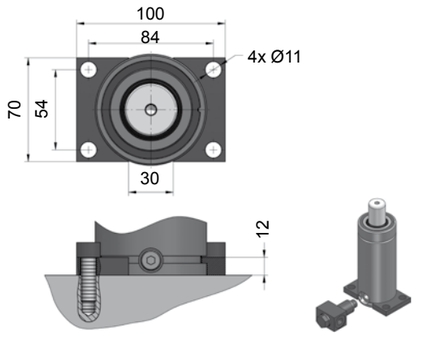
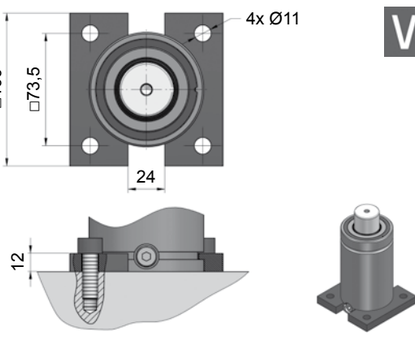


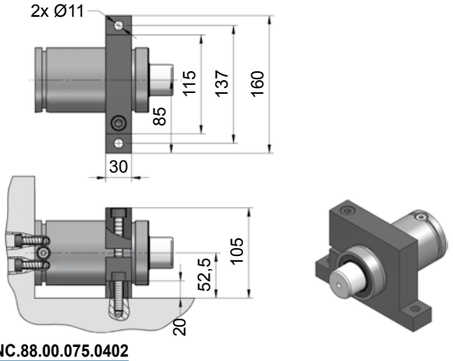
NC.88.00.075.0241



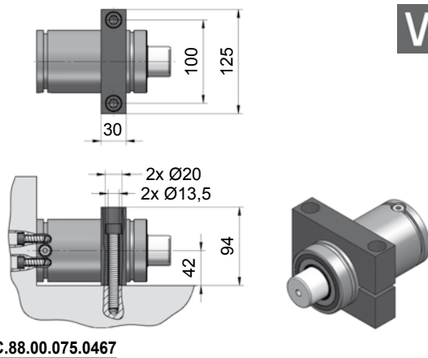
NC.88.00.075.0305



NC.88.00.075.0320



NC.88.00.075.0402



NC.88.00.075.0467

Technische Information Serie NC.030.00

Beim Einsatz von Gasdruckfedern ist darauf zu achten, dass diese vor Schmutz, Ziehölen und sonstigen Fluiden geschützt werden. Zwar verfügen die meisten Gasdruckfedern über einen Schmutzabstreifer, der das Eindringen von Fremdkörpern verhindern soll, allerdings besteht der beste Schutz darin, erst gar keine Verunreinigung an die Zylinder kommen zu lassen.

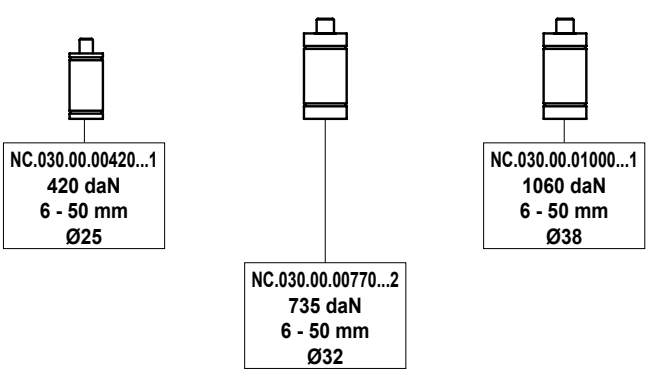
Die Gasdruckfedern der **NC.030**-Serie haben einen besonderen Aufbau (Kolben mit Kolbenkopf). Bei diesem Zylinder-Typ entsteht an der Zylinder-Oberseite ein Saugeffekt, der Flüssigkeiten oder Schmutz in den Zylinder-innenraum ziehen kann. Da sich der Raum für den Stickstoff dadurch verringert, entsteht ein kontinuierlich ansteigender Druck, der letztendlich zum frühzeitigen Ausfall des Zylinders führen kann. Aus diesem Grund müssen die Gasdruckfedern **NC.030** konsequent gegen Verunreinigung geschützt werden.

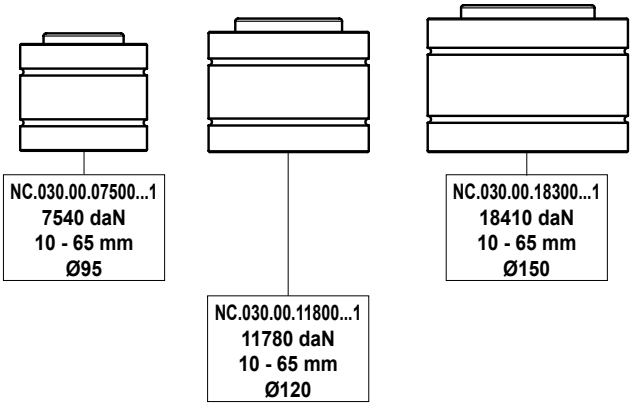
Technical information NC.030.00 series

Using gas springs it is mandatory to protect them from dirt, oil and similar fluids. For that reason, most springs have a plastic dirt-scraper, to prevent the penetration of these external particles. However, the best protection is not to let any dirt get to the springs at all in the first place.

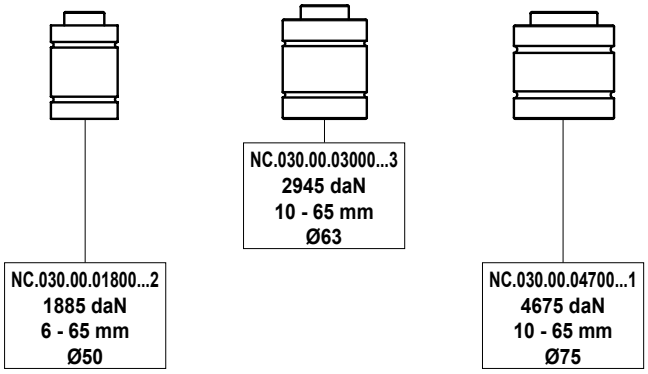
Due to the specific design of the **NC.030.00**-gas springs there is a „sucking“ effect at the top of the cylinder body. This effect can lead to foreign particles being pulled inside. Since the room designated for the nitrogne thereby continously decreases, the cylinder life - time may be negatively affected. It is for this reason, that the gas springs of this series must be well protected against dirt and fluids.

Größenübersicht Serie NC.030.00

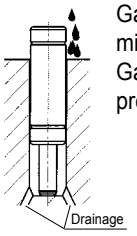




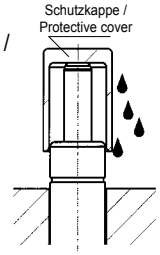
Gas spring index NC.030.00 series

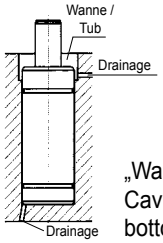


Gasdruckfeder-Einbau „über Kopf“ mit Drainage im Boden / Upside-Down - Application, drain-hole at the bottom



Gasdruckfeder mit Schutzkappe / Gas spring with protective cover





„Wanne“ mit Drainage oben, zusätzlich Boden-Drainage / Cavity with upper drain-hole, additional drain hole at the bottom

SICHERHEITSSYSTEME



Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

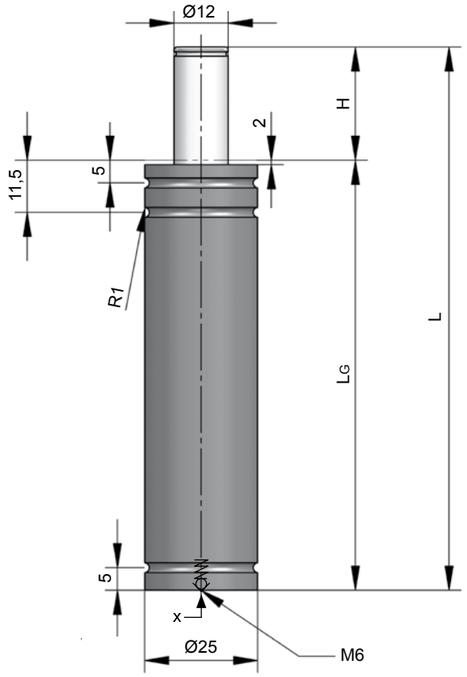
NC.030.00.00420...1

Technische Daten:

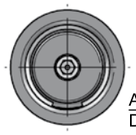
Medium:	N_2
$P_{max.}$ (20 °C):	165 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s
Ventil:	**NCR.99.082**

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	165 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s
Valve:	**NCR.99.082**

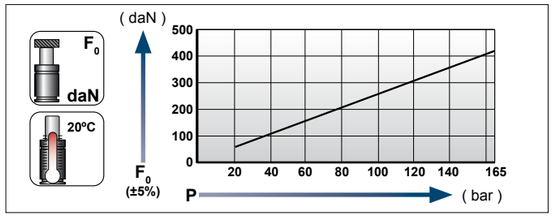


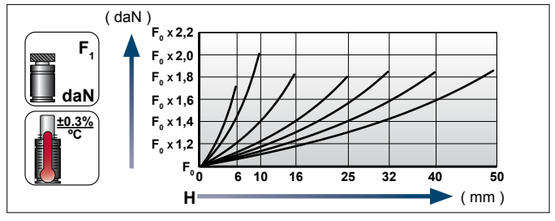
NC.030.00.00420.032.1

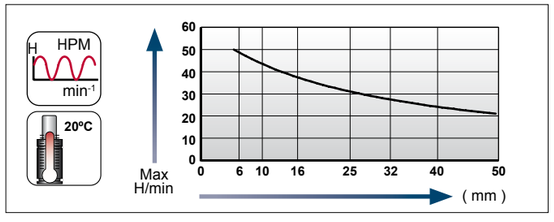


Ansicht x
Detail x

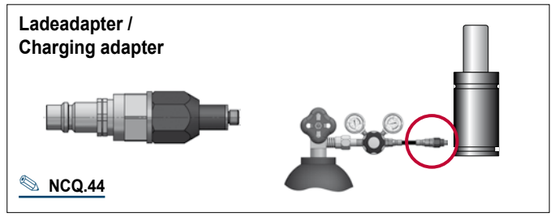
H Hub / Stroke	L ±0,25	LG	Kraft / Force (165 bar) Anfang / Initial [daN]	Ende / Final [daN]
006	56	50	420	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	70	60	420	
016	91	75	420	
025	120	95	420	
032	140	108	420	
040	165	125	420	
050	195	145	420	







Ladeadapter /
Charging adapter

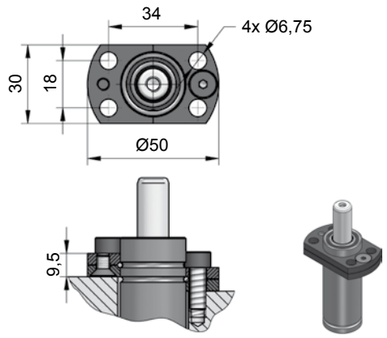


NCQ.44

[28.01.2020]

GDF, kompakt
GS, compact
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.030.00.00420…1**

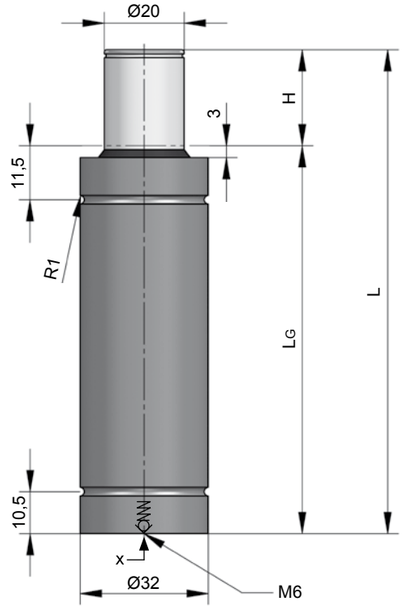


NC.88.00.025.0144

[28.01.2020]

[NC]

NC.030.00.00770...2



Technische Daten:

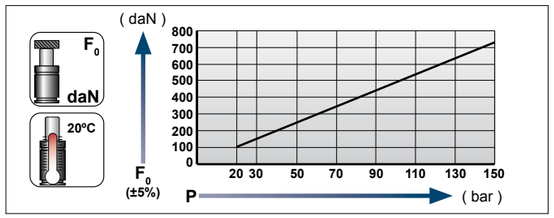
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

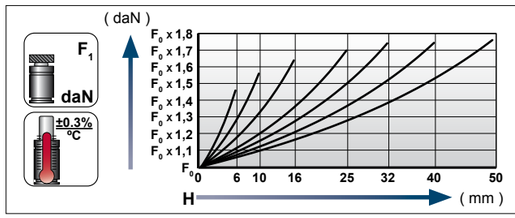
Specifications:

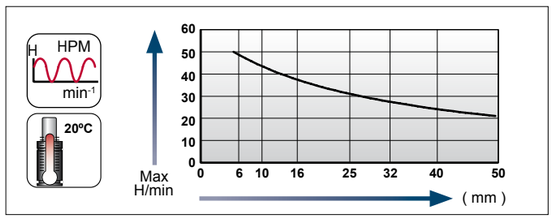
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

NC.030.00.00770.032.2

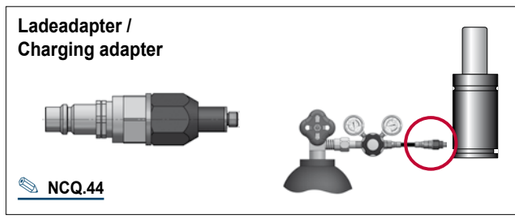
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
006	63	57	735	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	75	65	735	
016	93	77	735	
025	120	95	735	
032	140	108	735	
040	165	125	735	
050	195	145	735	







Ladeadapter / Charging adapter

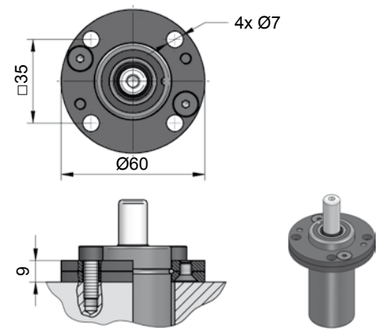


NCQ.44

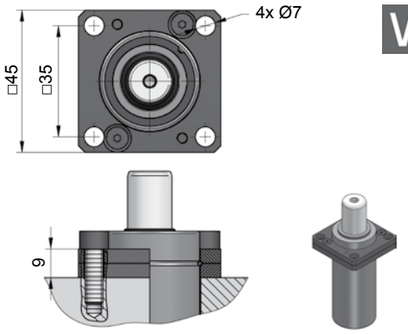
[28.01.2020]

GDF, kompakt
GS, compact
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.030.00.00770…2**



NC.88.00.032.0114



NC.88.00.032.0134

[28.01.2020]

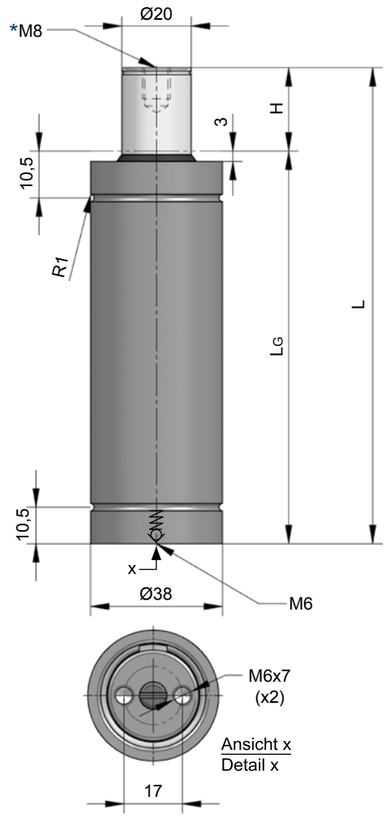
NC.030.00.01000...1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Specifications:

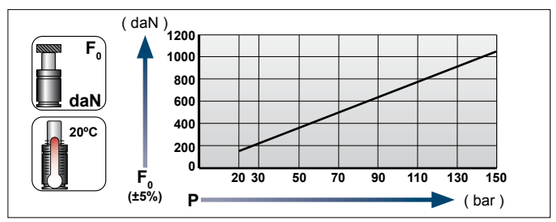
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

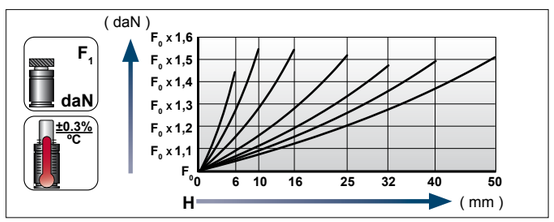


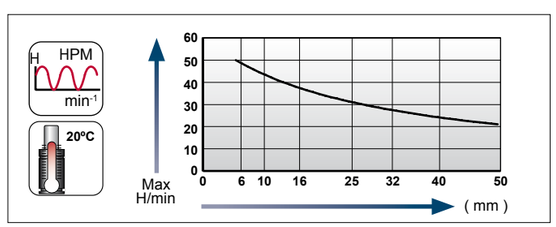


NC.030.00.
01000.016.1

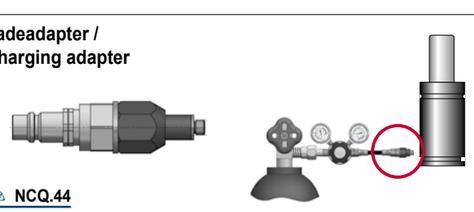
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
006	61	55	1060	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	78	68	1060	
016	100	84	1060	
025	135	110	1060	
032	167	135	1060	
040	195	155	1060	
050	230	180	1060	







Ladeadapter / Charging adapter

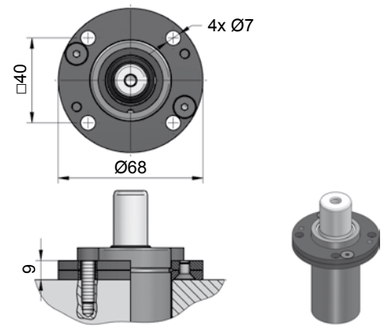


NCQ.44

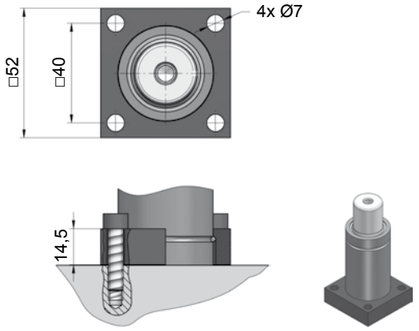
[28.01.2020]

[28.01.2020]

Flansche für / Flanges for **NC.030.00.01000…1**



NC.88.00.038.0114



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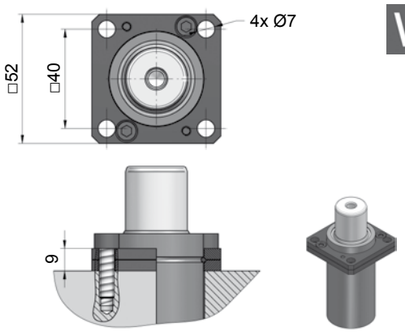


NC.88.00.038.0134

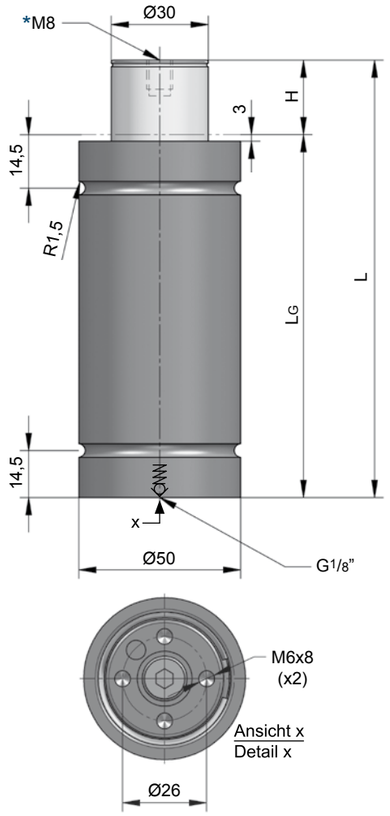
NC.030.00.01800...2

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

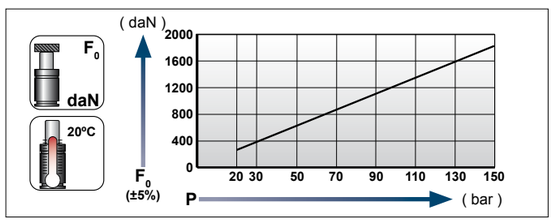


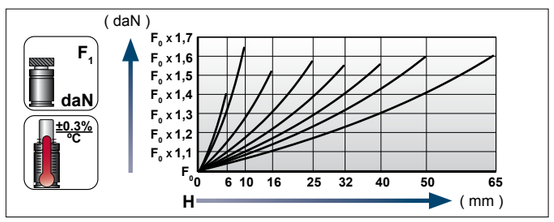
INFO [NC.21]

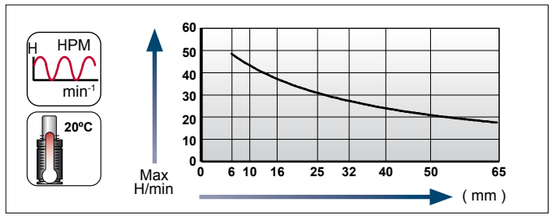
NC.030.00.01800.025.2

MAIL

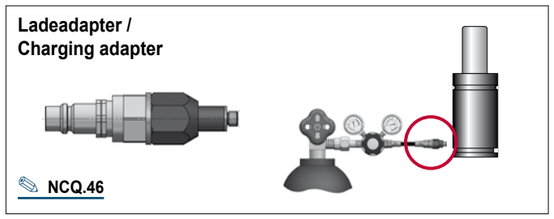
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
006	66	60	1885	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	80	70	1885	
016	106	90	1885	
025	135	110	1885	
032	162	130	1885	
040	190	150	1885	
050	220	170	1885	
065	271	206	1885	







Ladeadapter / Charging adapter

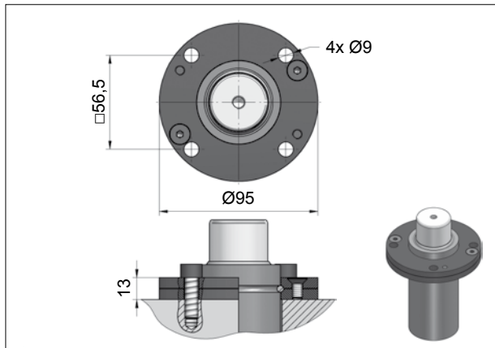


NCQ.46

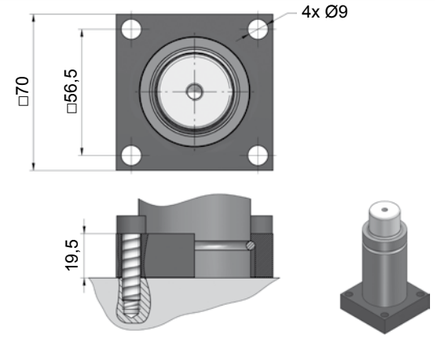
[28.01.2020]

[28.01.2020]

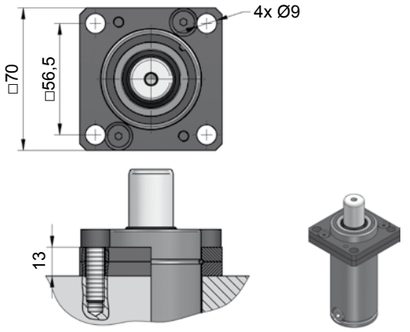
Flansche für / Flanges for **NC.030.00.01800…2**



NC.88.00.050.0149



NC.88.00.050.0154



NC.88.00.050.0159

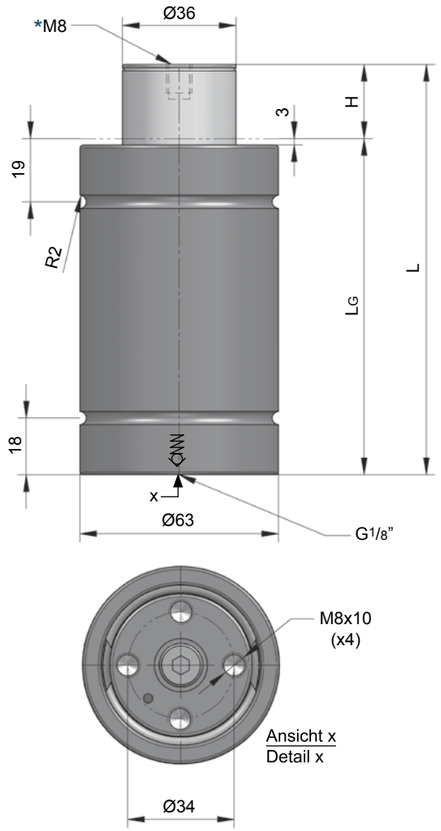
NC.030.00.03000...3

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

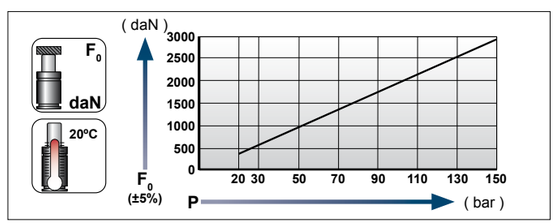


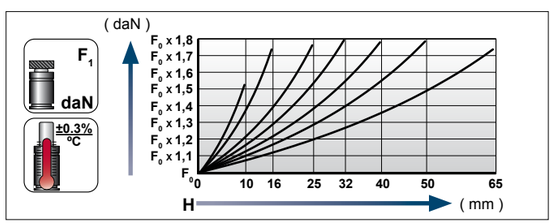
INFO [NC.21]

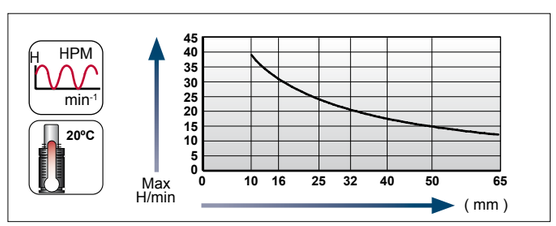
NC.030.00.
03000.016.3

MAIL

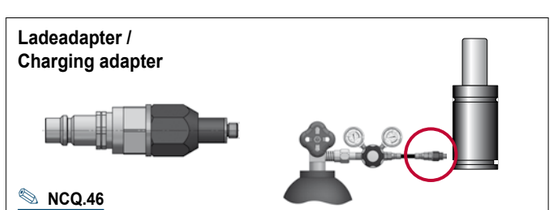
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	85	75	2945	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	103	87	2945	
025	130	105	2945	
032	150	118	2945	
040	175	135	2945	
050	205	155	2945	
065	256	191	2945	







Ladeadapter / Charging adapter

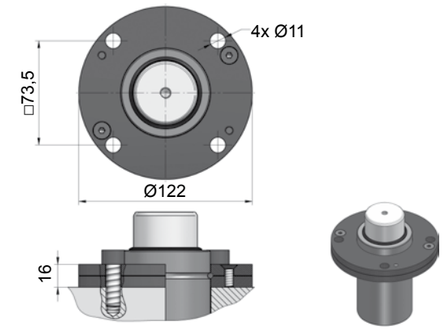


NCQ.46

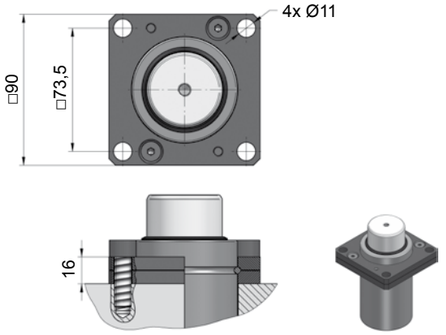
[28.01.2020]

[28.01.2020]

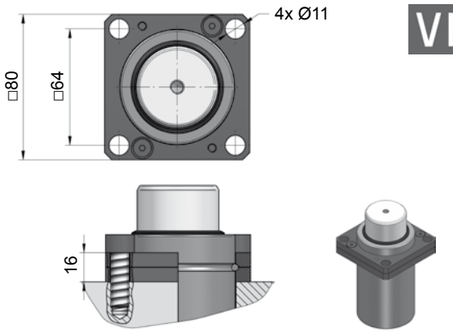
Flansche für / Flanges for **NC.030.00.03000…3**



NC.88.00.063.0114



NC.88.00.063.0139



NC.88.00.063.0169

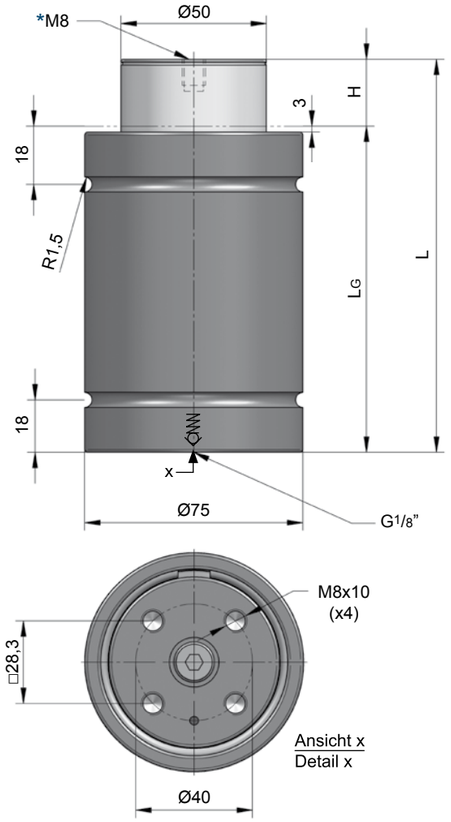
NC.030.00.04700...1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s



ZUGELASSEN PED 2014/68/EU

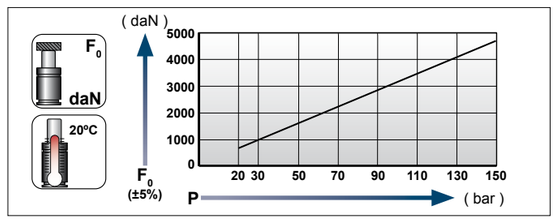
> Pmax

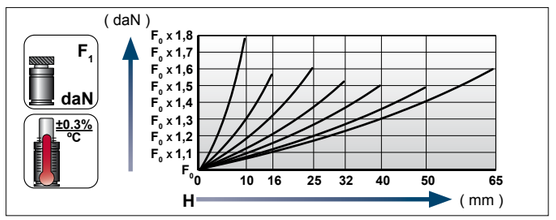
* INFO [NC.21]

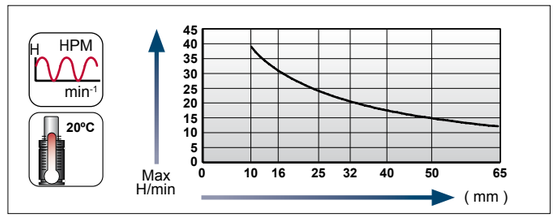
NC.030.00.04700.032.1

MAIL

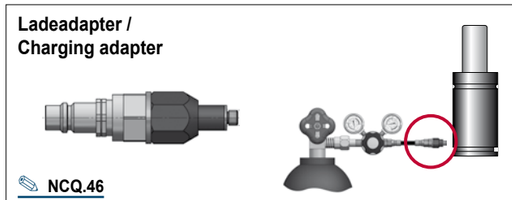
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	80	70	4675	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	106	90	4675	
025	135	110	4675	
032	167	135	4675	
040	200	160	4675	
050	240	190	4675	
065	273	208	4675	







Ladeadapter / Charging adapter

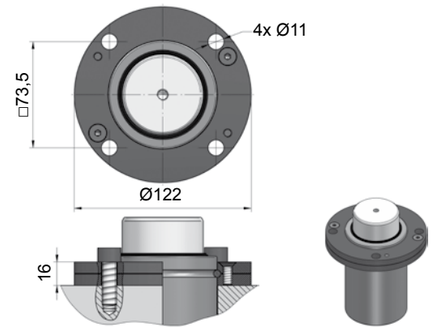


NCQ.46

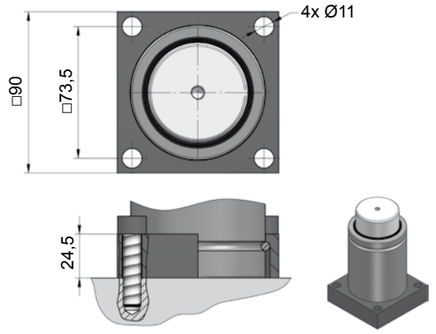
[28.01.2020]

[28.01.2020]

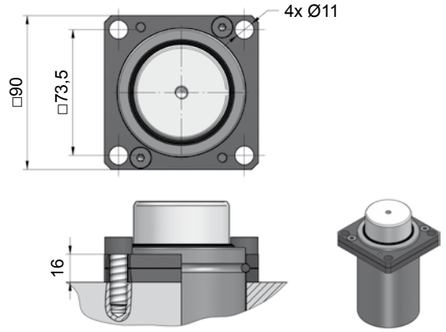
Flansche für / Flanges for **NC.030.00.04700...1**



NC.88.00.075.0149



NC.88.00.075.0154



NC.88.00.075.0159

[NC]

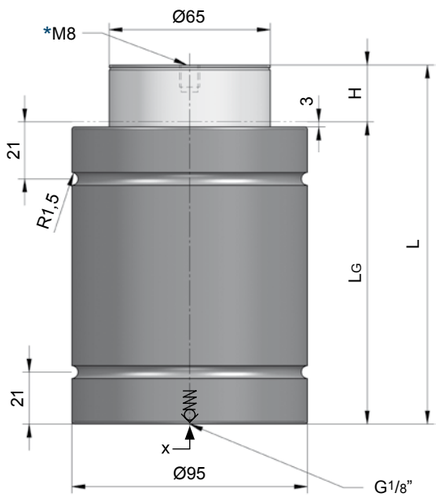
NC.030.00.07500...1

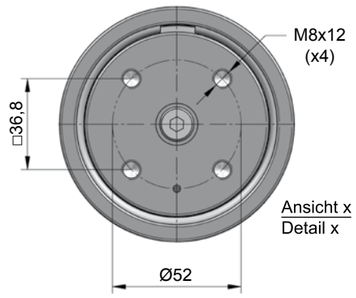
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 -80 °C
Max. piston rod speed:	0,5 m/s

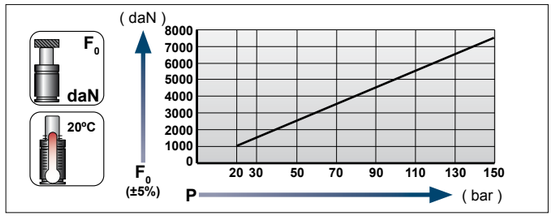


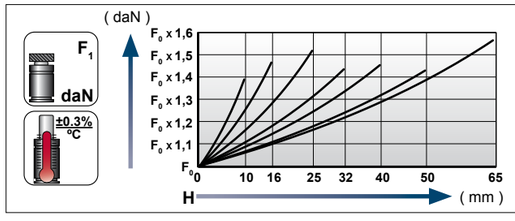


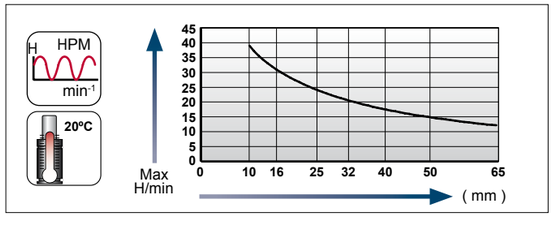
INFO [NC.21]

NC.030.00.
07500.040.1

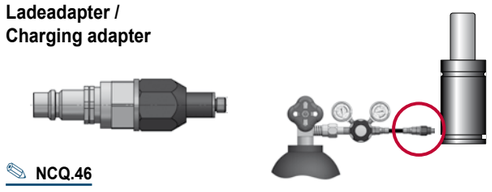
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	90	80	7540	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	116	100	7540	
025	145	120	7540	
032	182	150	7540	
040	210	170	7540	
050	255	205	7540	
065	279	214	7540	







Ladeadapter /
Charging adapter

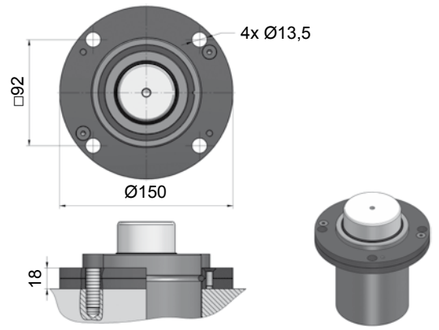


NCQ.46

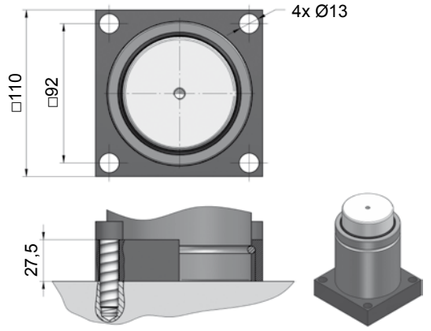
[28.01.2020]

GDF, kompakt
GS, compact
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

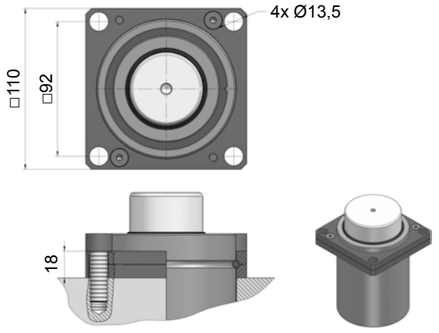
Flansche für / Flanges for **NC.030.00.07500…1**



NC.88.00.095.0149



NC.88.00.095.0154



NC.88.00.095.0159

[28.01.2020]

[NC]

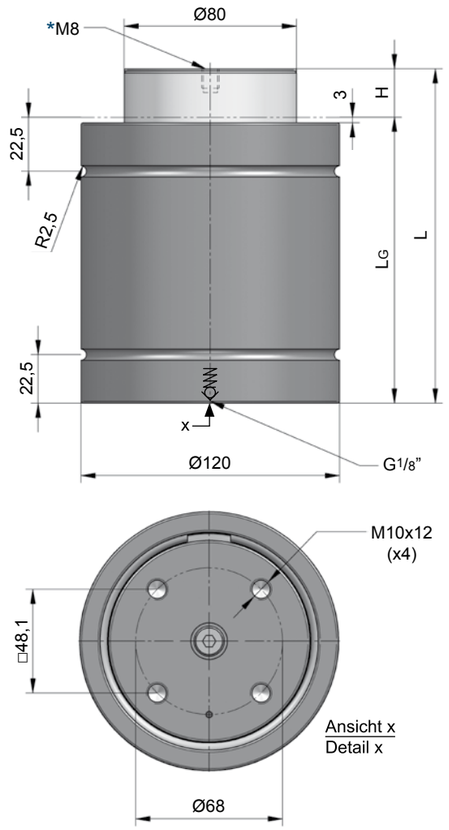
NC.030.00.11800...1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Specifications:

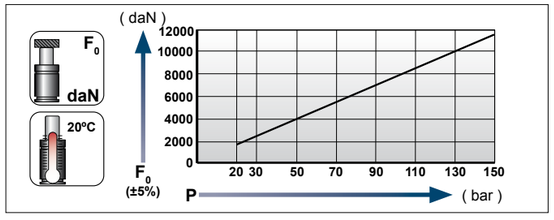
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

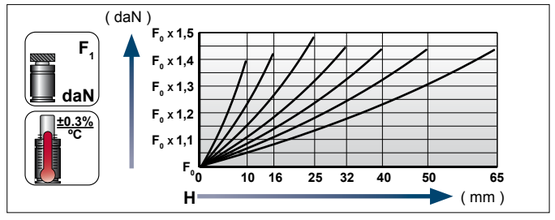


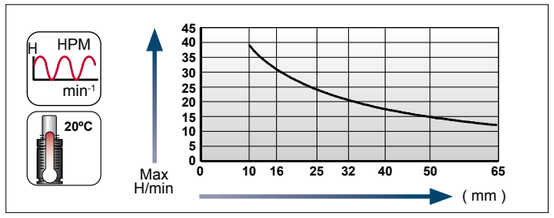
INFO [NC.21]

NC.030.00.11800.050.1

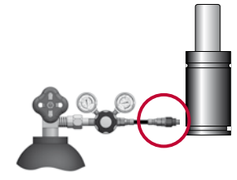
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	100	90	11780	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	126	110	11780	
025	155	130	11780	
032	187	155	11780	
040	220	180	11780	
050	260	210	11780	
065	320	255	11780	







Ladeadapter / Charging adapter

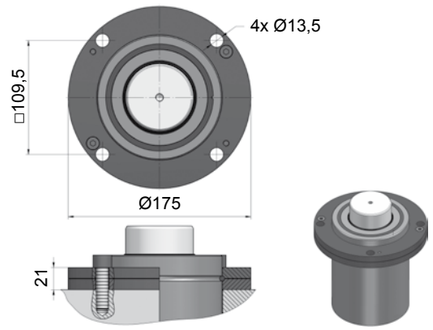


NCQ.46

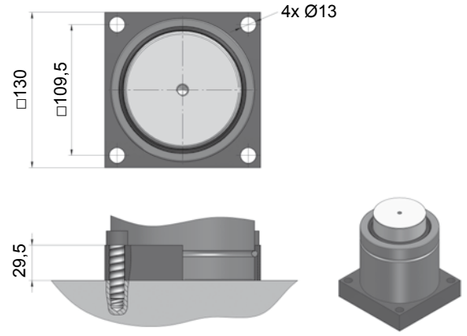
[28.01.2020]

GDF, kompakt
GS, compact
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

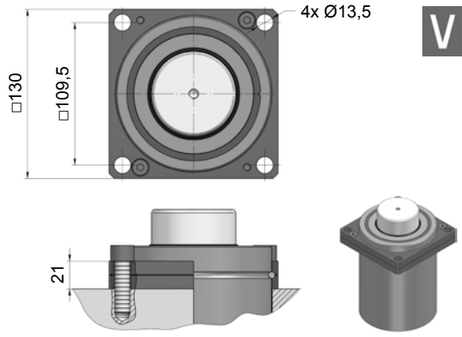
Flansche für / Flanges for **NC.030.00.11800…1**



NC.88.00.120.0114



NC.88.00.120.0119



NC.88.00.120.0134

[28.01.2020]

[NC]

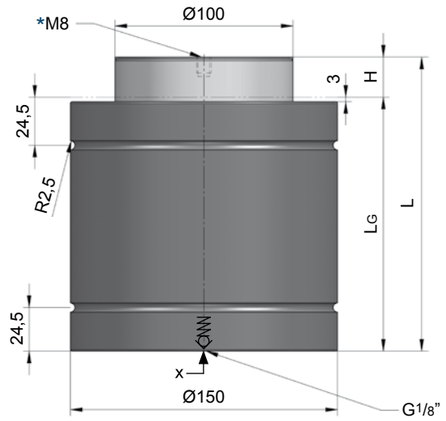
NC.030.00.18300...1

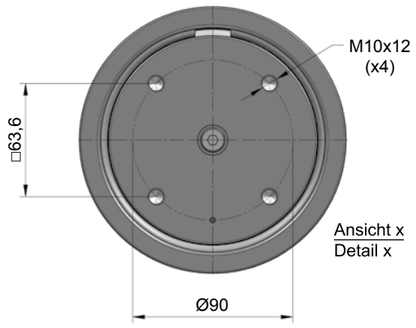
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Specifications:

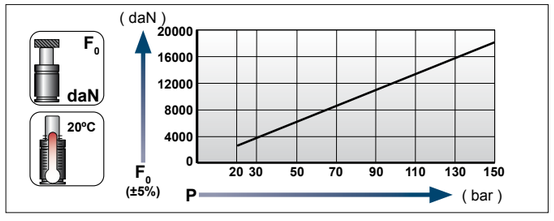
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

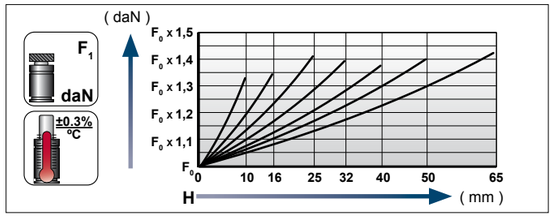


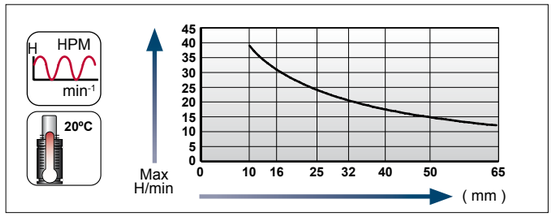


NC.030.00.
18300.010.1

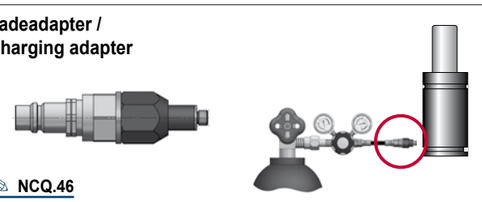
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	110	100	18410	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	136	120	18410	
025	165	140	18410	
032	197	165	18410	
040	235	195	18410	
050	270	220	18410	
065	323	258	18410	







Ladeadapter /
Charging adapter

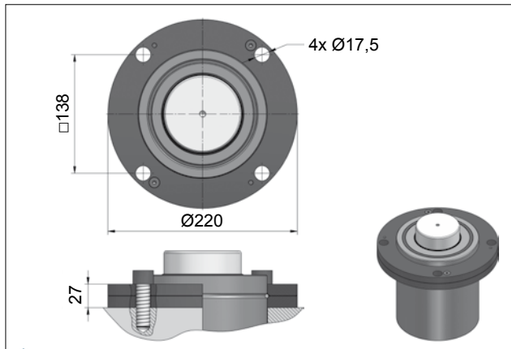


NCQ.46

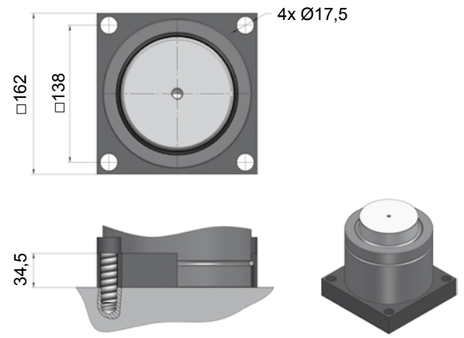
[28.01.2020]

GDF, kompakt
GS, compact
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

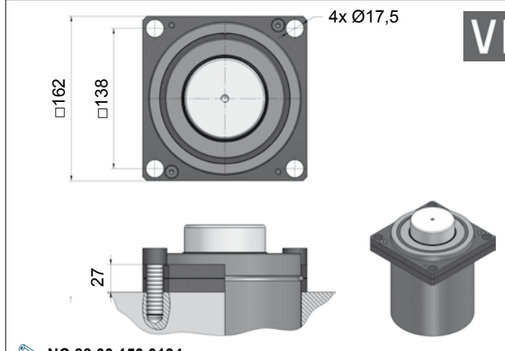
Flansche für / Flanges for **NC.030.00.18300...1**



NC.88.00.150.0114



NC.88.00.150.0119



NC.88.00.150.0134

[28.01.2020]

[NC]

Technische Information Serie NC.030.20

Beim Einsatz von Gasdruckfedern ist darauf zu achten, dass diese vor Schmutz, Ziehölen und sonstigen Fluiden geschützt werden. Zwar verfügen die meisten Gasdruckfedern über einen Schmutzabstreifer, der das Eindringen von Fremdkörpern verhindern soll, allerdings besteht der beste Schutz darin, erst gar keine Verunreinigung an die Zylinder kommen zu lassen.

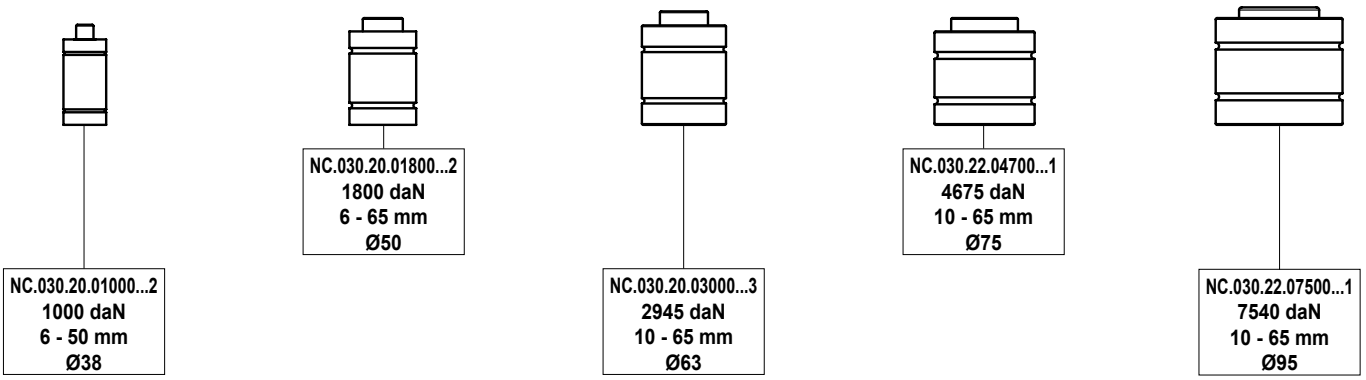
Die Gasdruckfedern der **NC.030**-Serie haben einen besonderen Aufbau (Kolben mit Kolbenkopf). Bei diesem Zylinder-Typ entsteht an der Zylinder-Oberseite ein Saugeffekt, der Flüssigkeiten oder Schmutz in den Zylinderinnenraum ziehen kann. Da sich der Raum für den Stickstoff dadurch verringert, entsteht ein kontinuierlich ansteigender Druck, der letztendlich zum frühzeitigen Ausfall des Zylinders führen kann. Aus diesem Grund müssen die Gasdruckfedern **NC.030** konsequent gegen Verunreinigung geschützt werden.

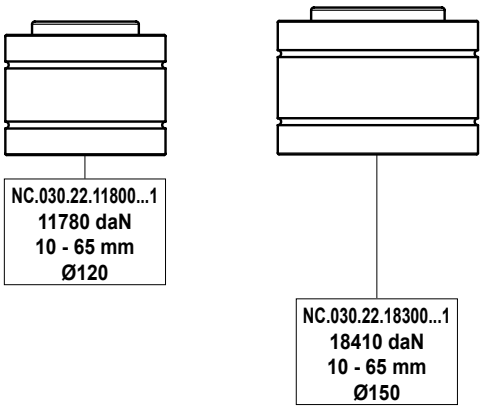
Technical information NC.030.20 series

Using gas springs it is mandatory to protect them from dirt, oil and similar fluids. For that reason, most springs have a plastic dirt-scraper, to prevent the penetration of these external particles. However, the best protection is not to let any dirt get to the springs at all in the first place.

Due to the specific design of the **NC.030**-gas springs there is a „sucking“ effect at the top of the cylinder body. This effect can lead to foreign particles being pulled inside. Since the room designated for the nitrogne thereby continously decreases, the cylinder life - time may be negatively affected. It is for this reason, that the gas springs of this series must be well protected against dirt and fluids.

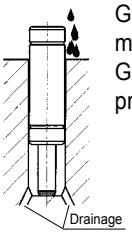
Größenübersicht Serie NC.030.20



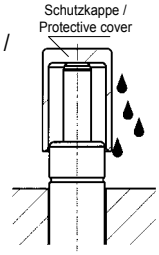


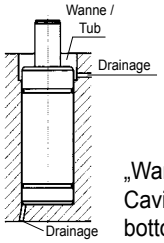
Gas spring index NC.030.20 series

Gasdruckfeder-Einbau „über Kopf“ mit Drainage im Boden / Upside-Down - Application, drain-hole at the bottom



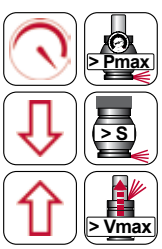
Gasdruckfeder mit Schutzkappe / Gas spring with protective cover





„Wanne“ mit Drainage oben, zusätzlich Boden-Drainage / Cavity with upper drain-hole, additional drain hole at the bottom

SICHERHEITSSYSTEME



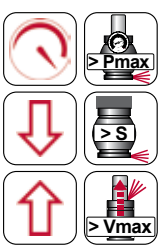
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

NC.030.20.01000...2

Technische Daten:

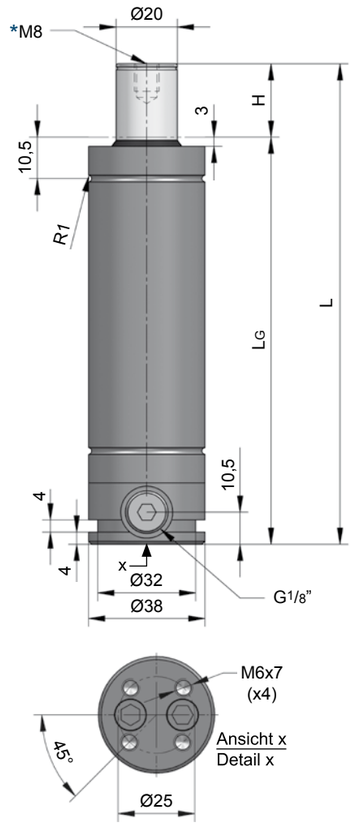
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!

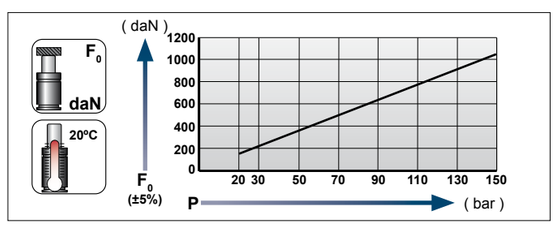


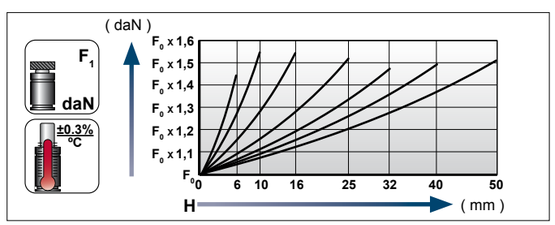
INFO [NC.21]

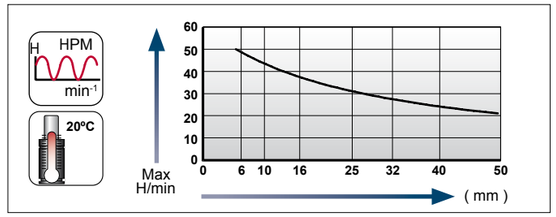
Gasdruckfeder kann nur im Verbund eingesetzt werden (ohne Ventil) / Gas spring only to be used in a permanent connection (valveless)

NC.030.20.
01000.016.2

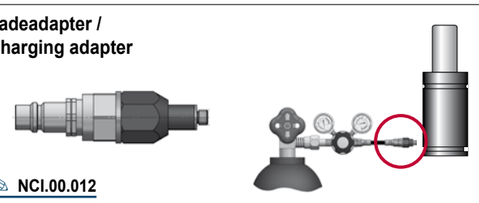
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
006	81	75	1000	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	98	88	1000	
016	120	104	1000	
025	155	130	1000	
032	187	155	1000	
040	215	175	1000	
050	250	200	1000	







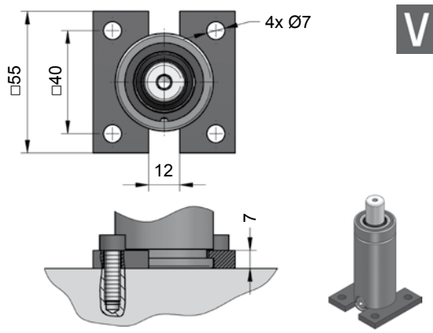
Ladeadapter / Charging adapter



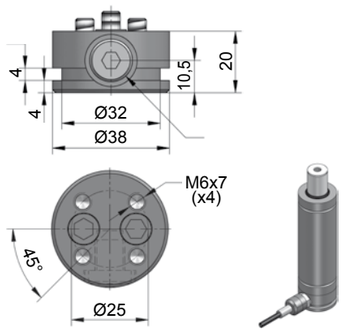
NCI.00.012

MAIL

Flansche für / Flanges for **NC.030.20.01000…2**



NC.88.00.038.0320



NC.030.00.01000.77.1

[29.01.2020]

NC.030.20.01800...2

Technische Daten:

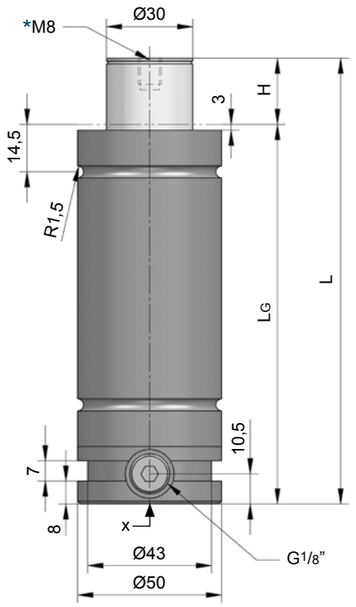
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

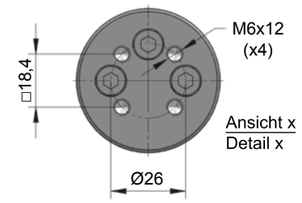
Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!





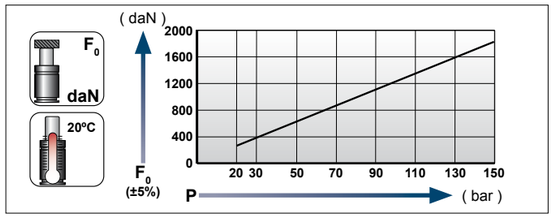
INFO [NC.21]

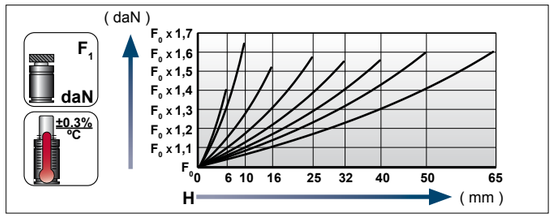
Gasdruckfeder kann nur im Verbund eingesetzt werden (ohne Ventil) / Gas spring only to be used in a permanent connection (valveless)

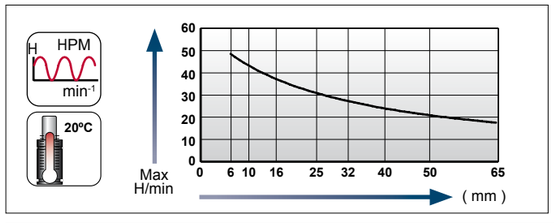
NC.030.20. 01800.025.2

MAIL

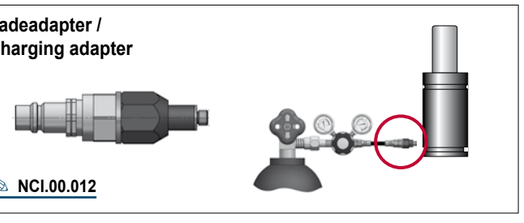
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
006	86	80	1800	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
010	100	90	1800	
016	126	110	1800	
025	155	130	1800	
032	182	150	1800	
040	210	170	1800	
050	240	190	1800	
065	291	226	1800	







Ladeadapter / Charging adapter

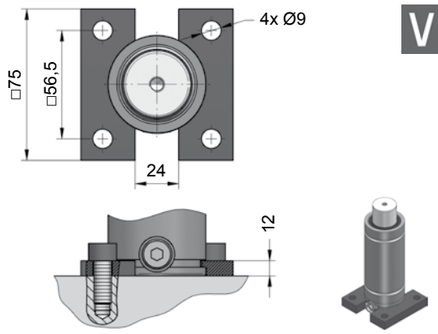


NCI.00.012

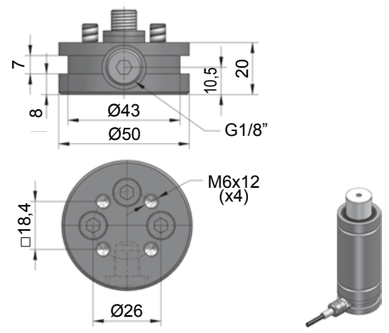
[29.01.2020]

GDF, kompakt, seitlicher Anschluss
GS, compact, side connection
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.030.20.01800…2**



NC.88.00.050.0320



NC.030.00.01800.77.1

[29.01.2020]

[NC]

NC.030.20.03000...3

Technische Daten:

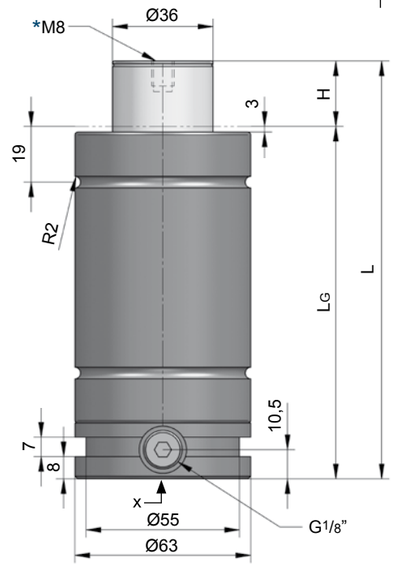
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

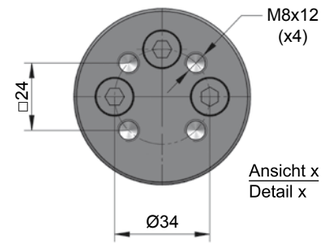
Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!

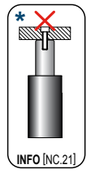




Ansicht x
Detail x







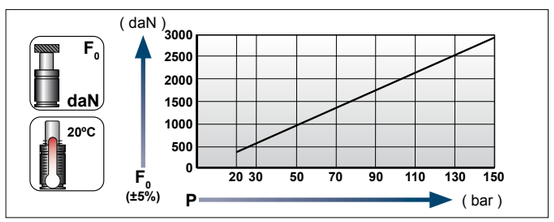


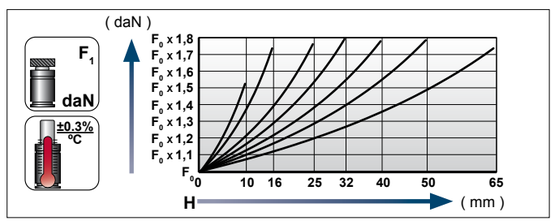
Gasdruckfeder kann nur im Verbund eingesetzt werden (ohne Ventil) / Gas spring only to be used in a permanent connection (valveless)

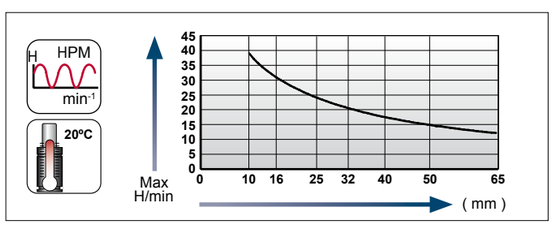


NC.030.20. 03000.016.3

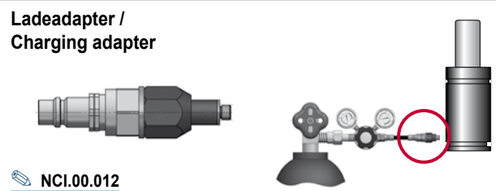
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	105	95	2945	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	123	107	2945	
025	150	125	2945	
032	170	138	2945	
040	195	155	2945	
050	225	175	2945	
065	276	211	2945	







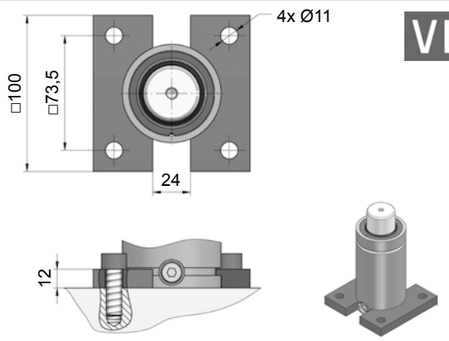
Ladeadapter / Charging adapter



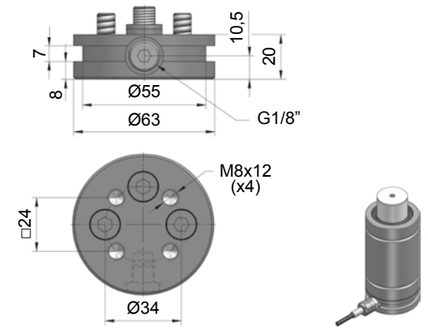
NCI.00.012

[29.01.2020]

Flansche für / Flanges for **NC.030.20.03000…3**



NC.88.00.063.0335

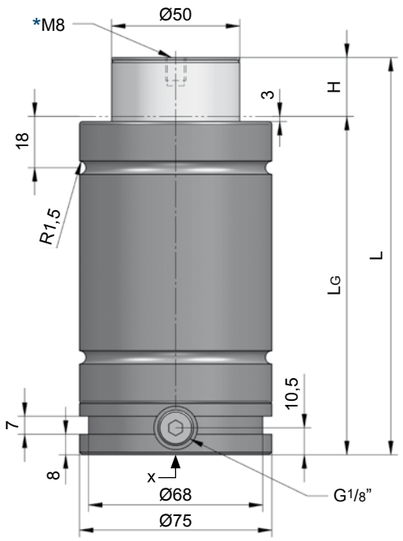


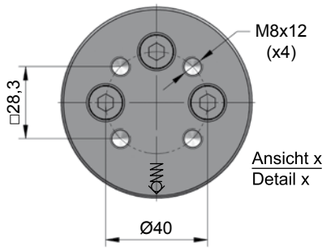
NC.030.00.03000.77.1

[29.01.2020]

[NC]

NC.030.22.04700...1





Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

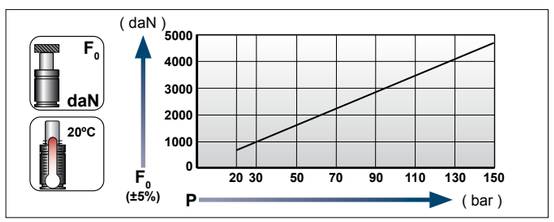
Specifications:

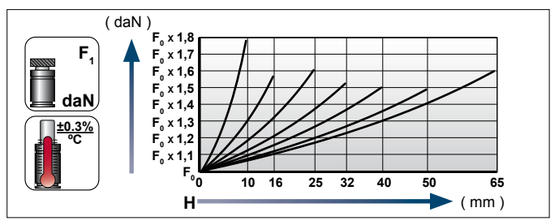
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

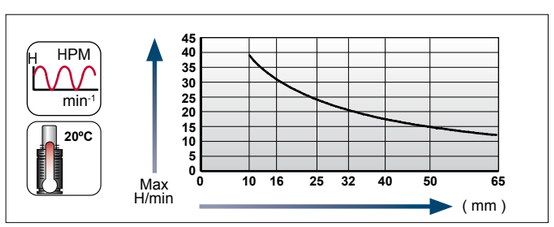
Attention: Maintenance only at manufacturer‘s site!

NC.030.22.04700.032.1

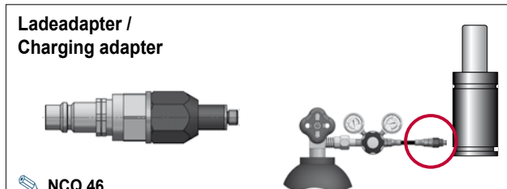
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	100	90	4675	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	126	110	4675	
025	155	130	4675	
032	187	155	4675	
040	220	180	4675	
050	260	210	4675	
065	293	228	4675	







Ladeadapter / Charging adapter

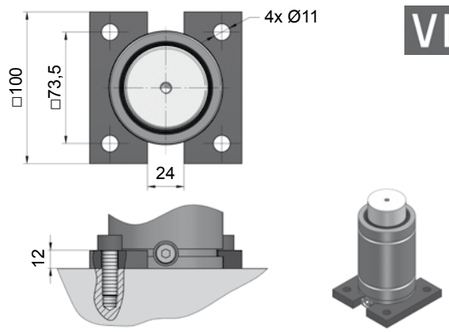


NCQ.46

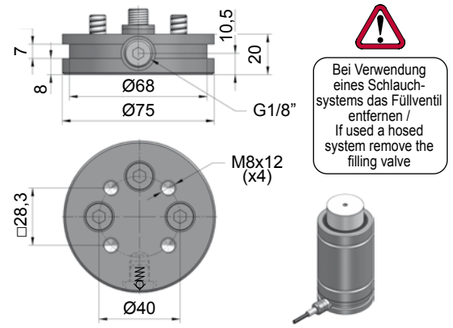
[29.01.2020]

GDF, kompakt, seitlicher Anschluss
GS, compact, side connection
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.030.22.04700…1**



NC.88.00.075.0320



NC.030.00.04700.77.1

[29.01.2020]

[NC]

NC.030.22.07500...1

Technische Daten:

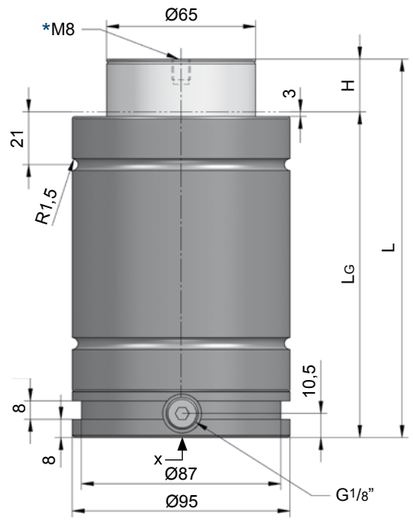
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

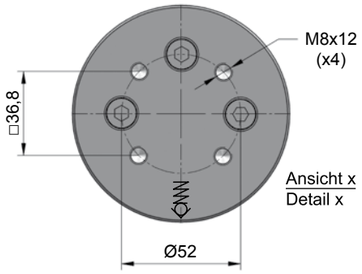
Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

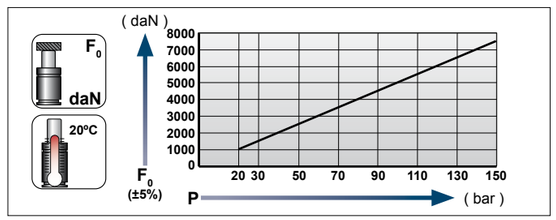
Attention: Maintenance only at manufacturer's site!

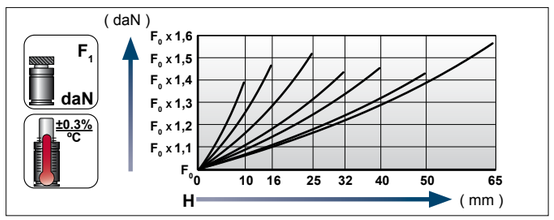


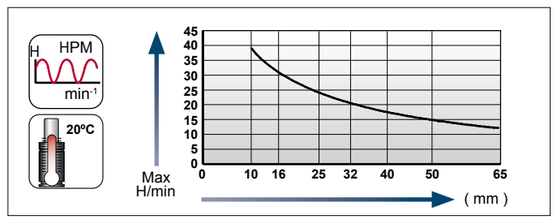


NC.030.22.
07500.040.1

H Hub / Stroke	L ±0,25	Lg	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	110	100	7540	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	136	120	7540	
025	165	140	7540	
032	202	170	7540	
040	230	190	7540	
050	275	225	7540	
065	299	234	7540	







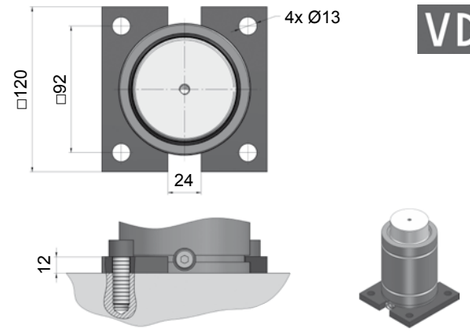
Ladeadapter / Charging adapter



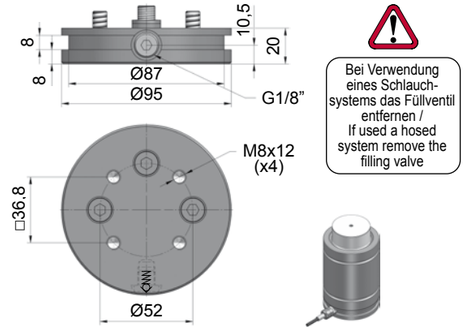
NCQ.46

[29.01.2020]

Flansche für / Flanges for **NC.030.22.07500…1**



NC.88.00.095.0320



NC.030.00.07500.77.1

[29.01.2020]

NC.030.22.11800...1

Technische Daten:

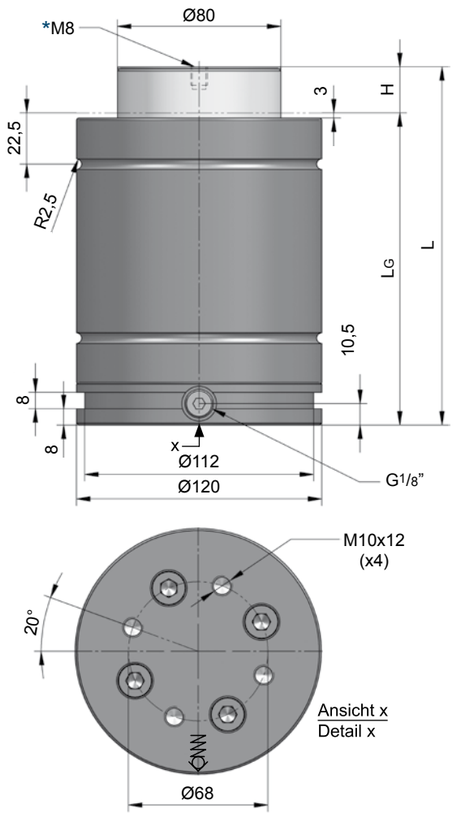
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!

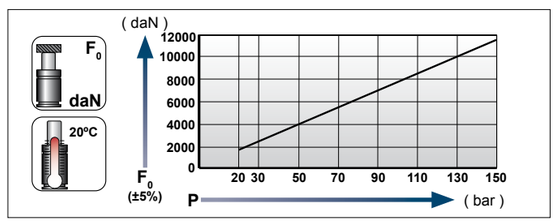


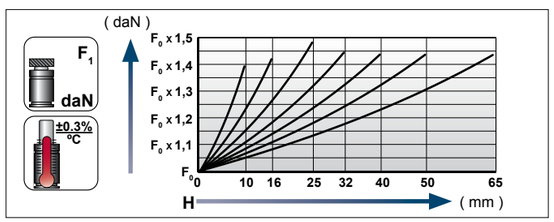
INFO [NC.21]

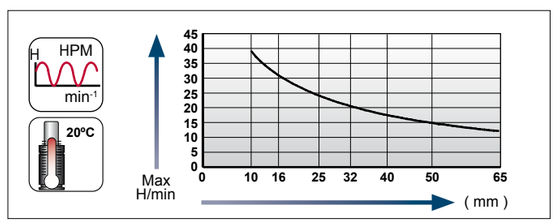
NC.030.22.
11800.050.1

MAIL

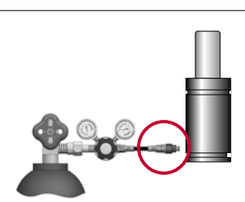
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	120	110	11780	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	146	130	11780	
025	175	150	11780	
032	207	175	11780	
040	240	200	11780	
050	280	230	11780	
065	340	275	11780	







Ladeadapter / Charging adapter

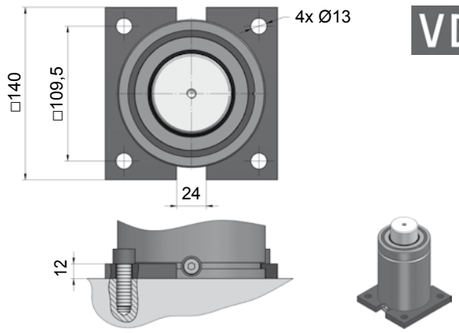


NCQ.46

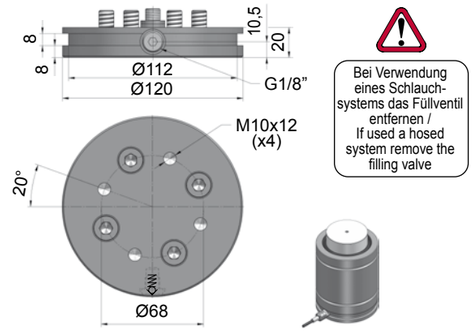
[29.01.2020]

GDF, kompakt, seitlicher Anschluss
GS, compact, side connection
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.030.22.11800…1**



NC.88.00.120.0320



NC.030.00.11800.77.1

[29.01.2020]

[NC]

NC.030.22.18300...1

Technische Daten:

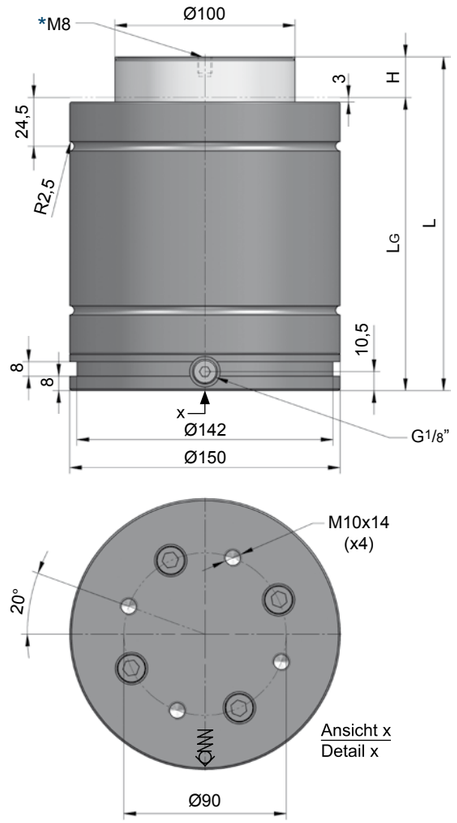
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!

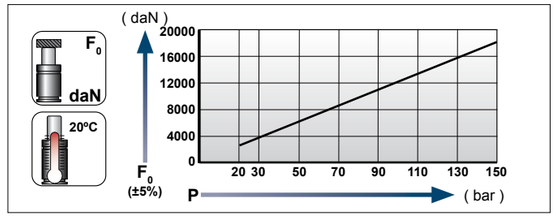


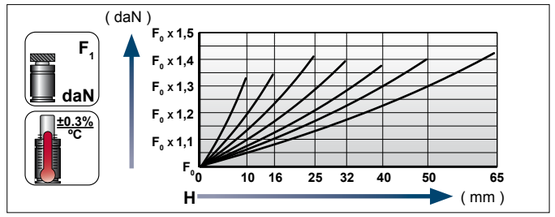


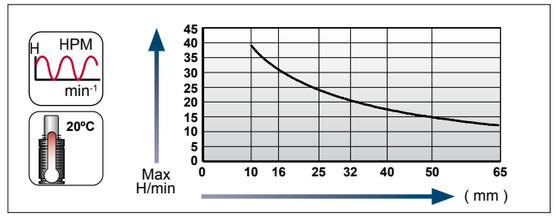
NC.030.22.
18300.010.1

MAIL

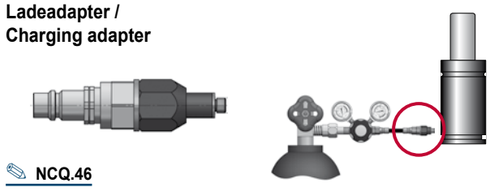
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	130	120	18410	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
016	156	140	18410	
025	185	160	18410	
032	217	185	18410	
040	255	215	18410	
050	290	240	18410	
065	343	278	18410	







Ladeadapter / Charging adapter

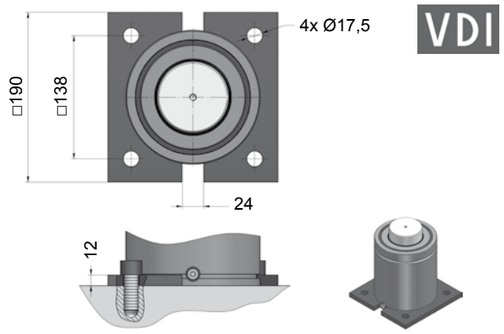


NCQ.46

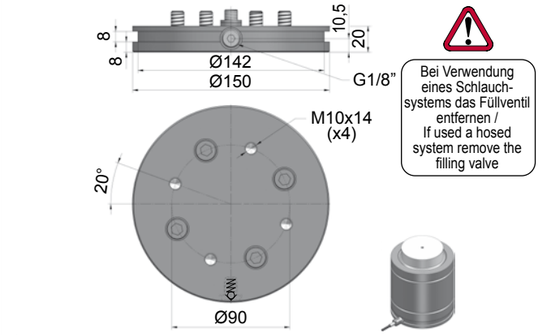
[29.01.2020]

GDF, kompakt, seitlicher Anschluss
GS, compact, side connection
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.030.22.18300…1**



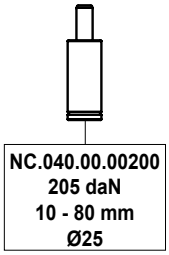
NC.88.00.150.0320



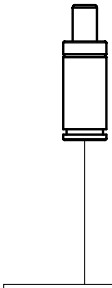
NC.030.00.18300.77.1

[NC]

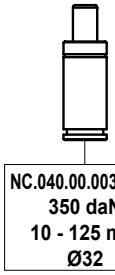
Größenübersicht Serie NC.040.00



NC.040.00.00200
205 daN
10 - 80 mm
Ø25

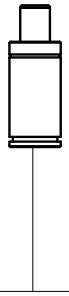


NC.040.00.00300
300 daN
10 - 125 mm
Ø32

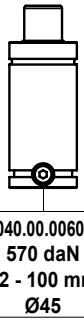


NC.040.00.00350...1
350 daN
10 - 125 mm
Ø32

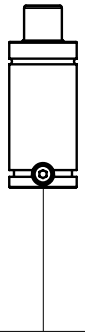
Gas spring index NC.040.00 series



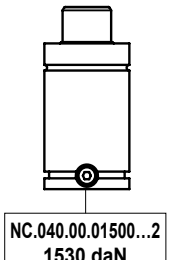
NC.040.00.00500...2
470 daN
10 - 125 mm
Ø38



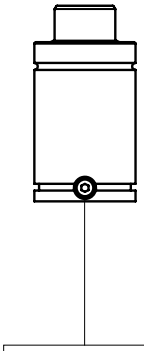
NC.040.00.00600...1
570 daN
12 - 100 mm
Ø45



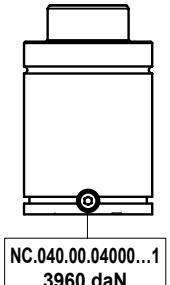
NC.040.00.01000...1
985 daN
13 - 200 mm
Ø50



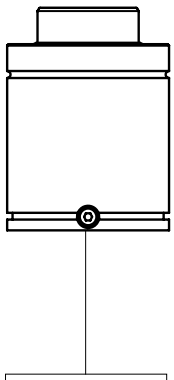
NC.040.00.01500...2
1530 daN
13 - 200 mm
Ø63



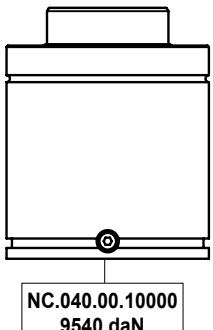
NC.040.00.02500...1
2465 daN
25 - 200 mm
Ø75



NC.040.00.04000...1
3960 daN
25 - 200 mm
Ø95

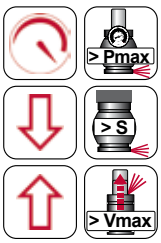


NC.040.00.06500...1
6405 daN
25 - 200 mm
Ø120



NC.040.00.10000
9540 daN
25 - 200 mm
Ø150

SICHERHEITSSYSTEME



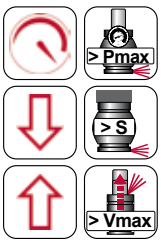
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

[NC]

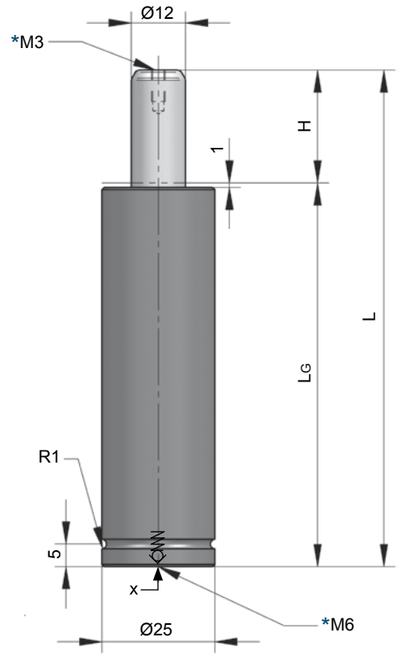
NC.040.00.00200

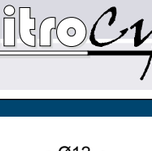
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

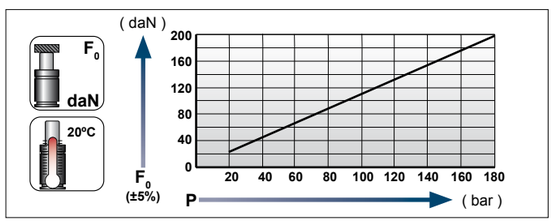


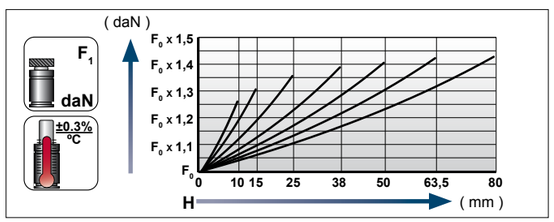


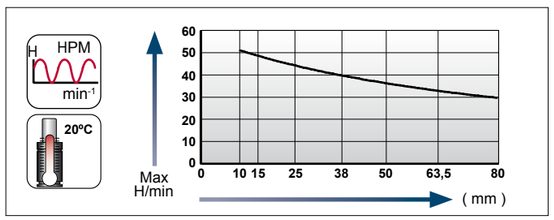
Ansicht x
Detail x

NC.040.00.00200.015

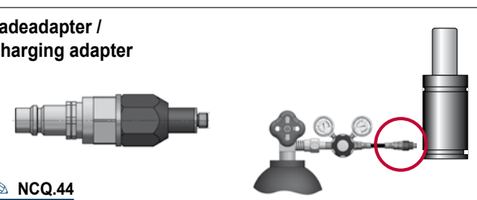
H Hub / Stroke	L ±0,25	LG	Kraft / Force (180 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	80	70	205	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	90	75	205	
025	110	85	205	
038	136	98	205	
050	160	110	205	
063,5	186,5	123	205	
080	220	140	205	







Ladeadapter / Charging adapter

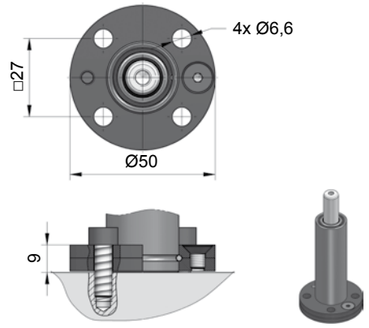


NCQ.44

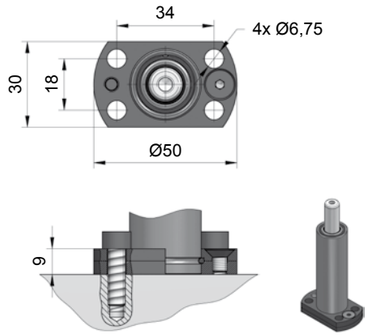
[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.040.00.00200**

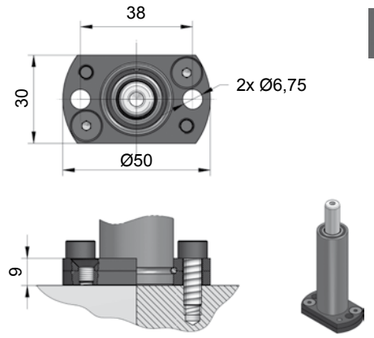


NC.88.00.025.0114



NC.88.00.025.0144

VDI

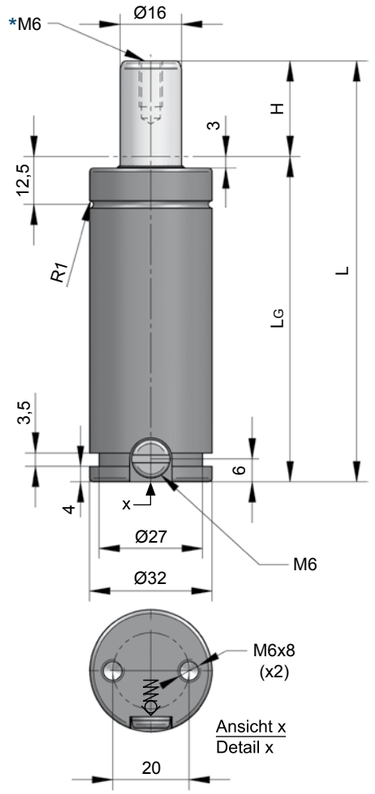


NC.88.00.025.0149

[04.02.2020]

[NC]

NC.040.00.00300



Technische Daten:

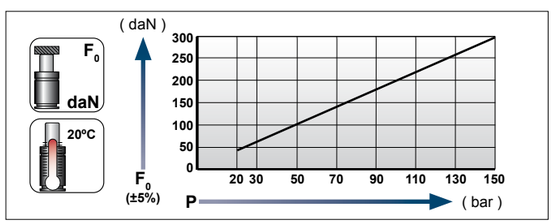
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

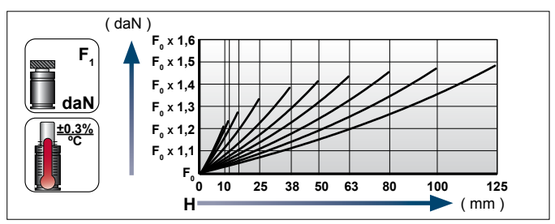
Specifications:

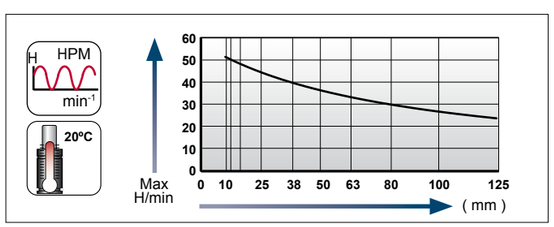
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.040.00.00300.012

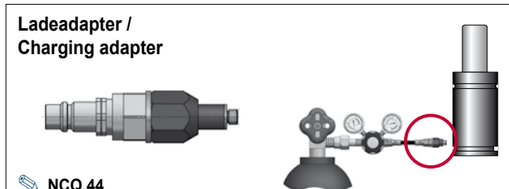
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	80	70	300	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
012	84	72	300	
016	92	76	300	
025	110	85	300	
038	136	98	300	
050	160	110	300	
063	186	123	300	
080	220	140	300	
100	260	160	300	
125	310	185	300	







Ladeadapter / Charging adapter

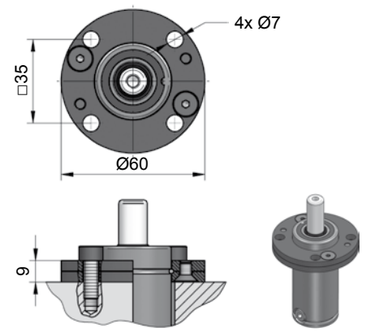


NCQ.44

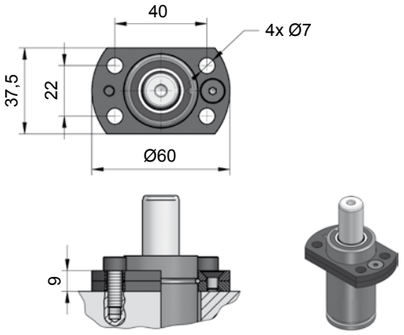
[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

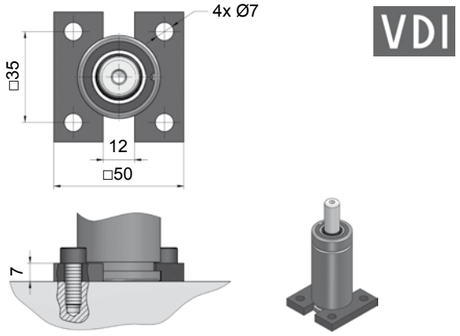
Flansche für / Flanges for **NC.040.00.00300**



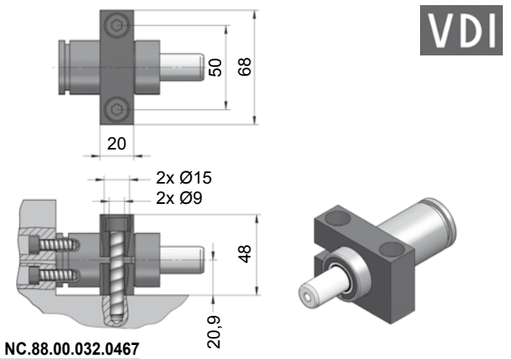
NC.88.00.032.0114



NC.88.00.032.0144



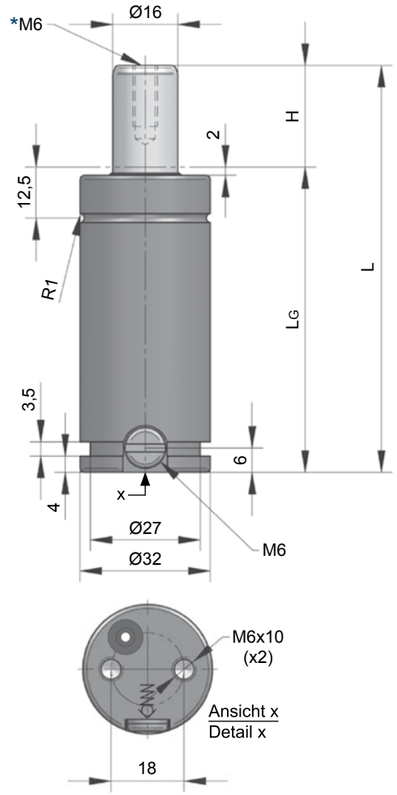
NC.88.00.032.0320



NC.88.00.032.0467

[04.02.2020]

NC.040.00.00350...1



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

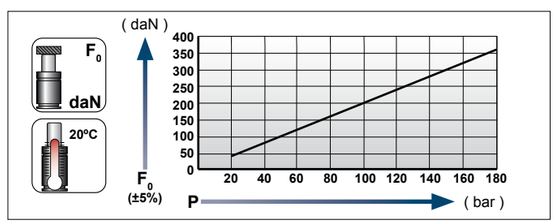
Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

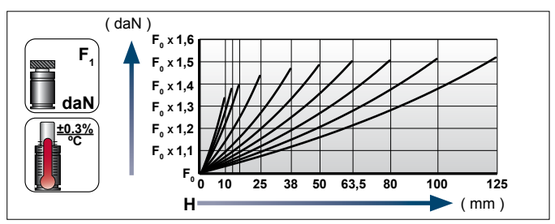
> Pmax
> S
> Vmax
INFO [NC.21]

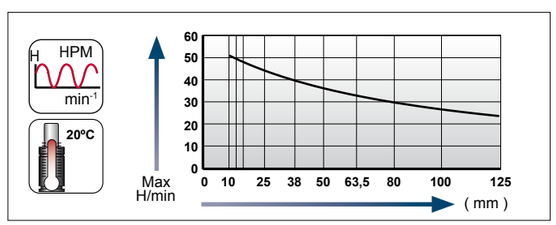
NC.040.00.00350.015.1

MAIL

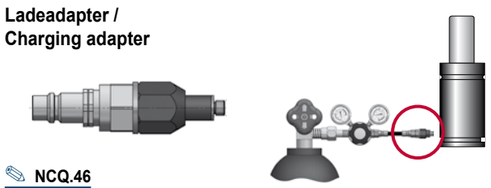
H Hub / Stroke	L ±0,25	LG	Kraft / Force (175 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	70	60	350	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
012,7	75,4	62,7	350	
016	82	66	350	
025	100	75	350	
038	126	88	350	
050	150	100	350	
063,5	177	113,5	350	
080	210	130	350	
100	250	150	350	
125	300	175	350	







Ladeadapter / Charging adapter

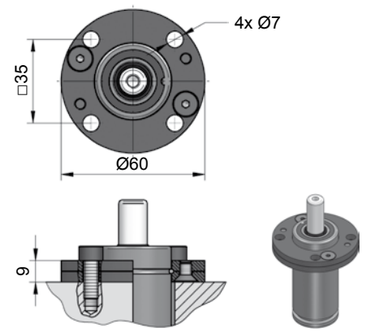


NCQ.46

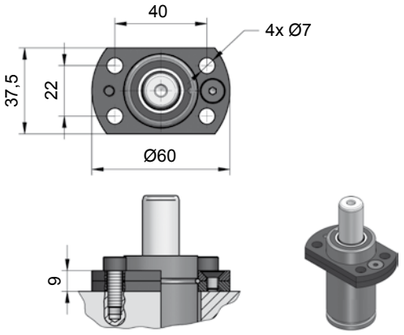
[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

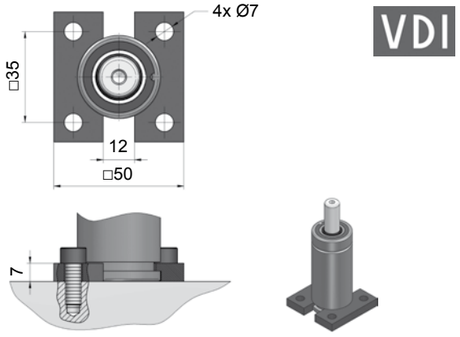
Flansche für / Flanges for **NC.040.00.00350...1**



NC.88.00.032.0114

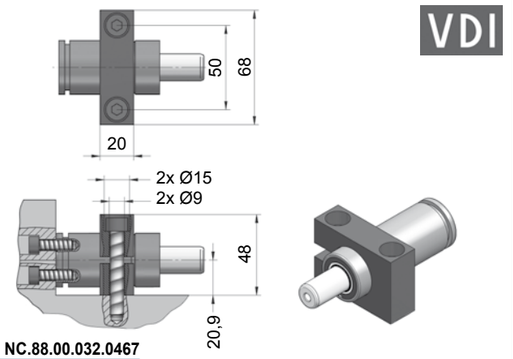


NC.88.00.032.0144



VDI

NC.88.00.032.0320



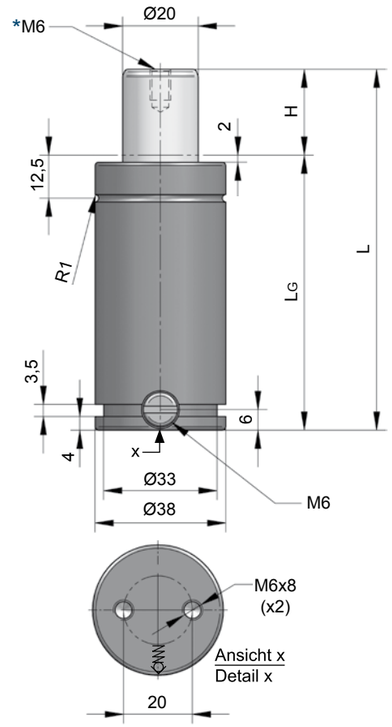
VDI

NC.88.00.032.0467

[04.02.2020]

[NC]

NC.040.00.00500…2



Technische Daten:

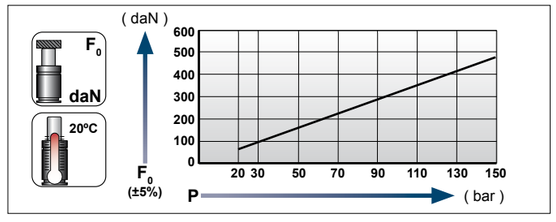
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

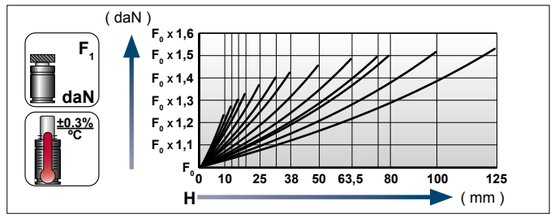
Specifications:

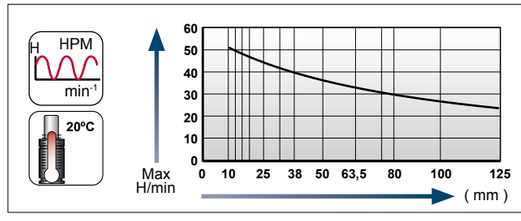
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.040.00.
00500.038.2

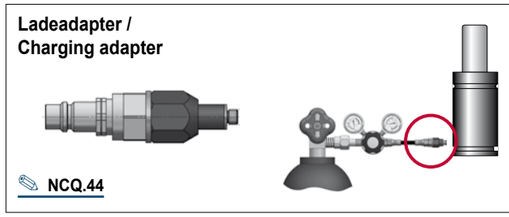
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	75	65	470	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	81	68	470	
016	87	71	470	
019	93	74	470	
025	105	80	470	
032	119	87	470	
038	131	93	470	
050	155	105	470	
063,5	187	123,5	470	
075	210	135	470	
080	220	140	470	
100	260	160	470	
125	310	185	470	







Ladeadapter /
Charging adapter

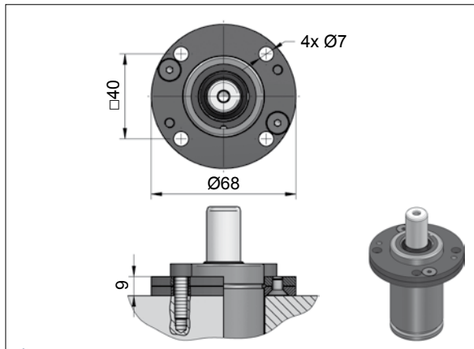


NCQ.44

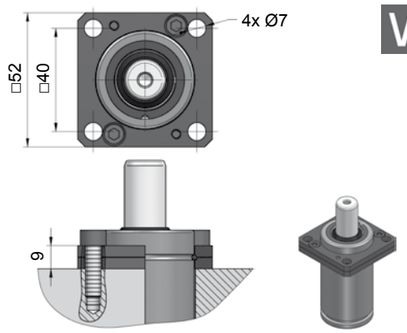
[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

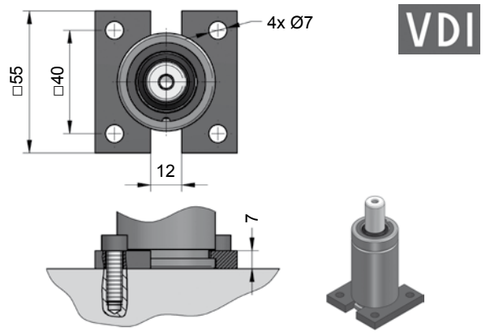
Flansche für / Flanges for **NC.040.00.00500…2**



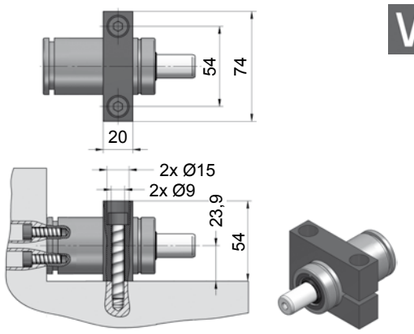
NC.88.00.038.0114



NC.88.00.038.0134



NC.88.00.038.0320

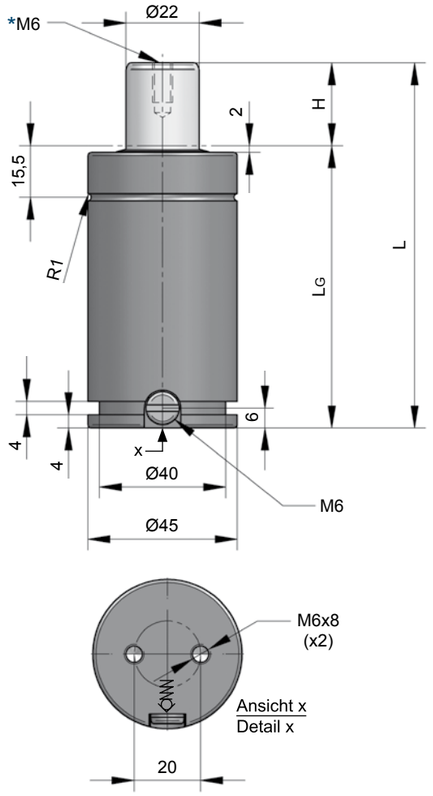


NC.88.00.038.0467

[04.02.2020]

[NC]

NC.040.00.00600...1



Technische Daten:

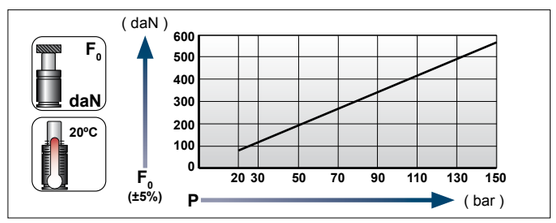
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

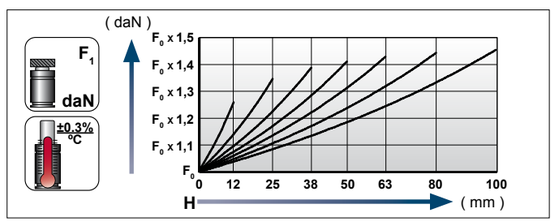
Specifications:

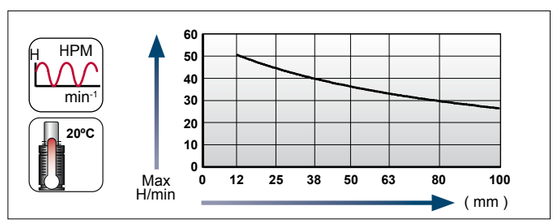
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.040.00.00600.038.1

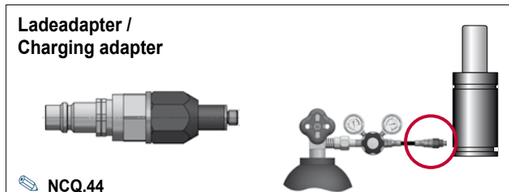
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
012	84	72	570	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	110	85	570	
038	136	98	570	
050	160	110	570	
063	186	123	570	
080	220	140	570	
100	260	160	570	







Ladeadapter / Charging adapter

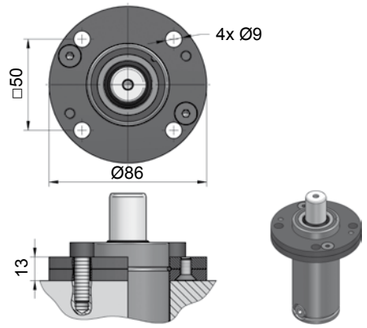


NCQ.44

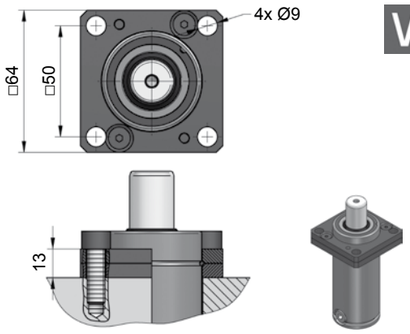
[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

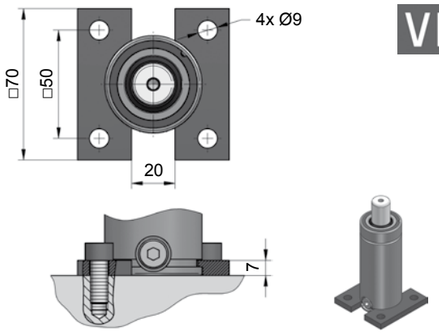
Flansche für / Flanges for **NC.040.00.00600...1**



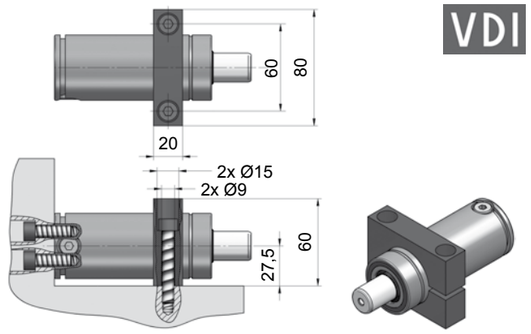
NC.88.00.045.0114



NC.88.00.045.0134



NC.88.00.045.0320

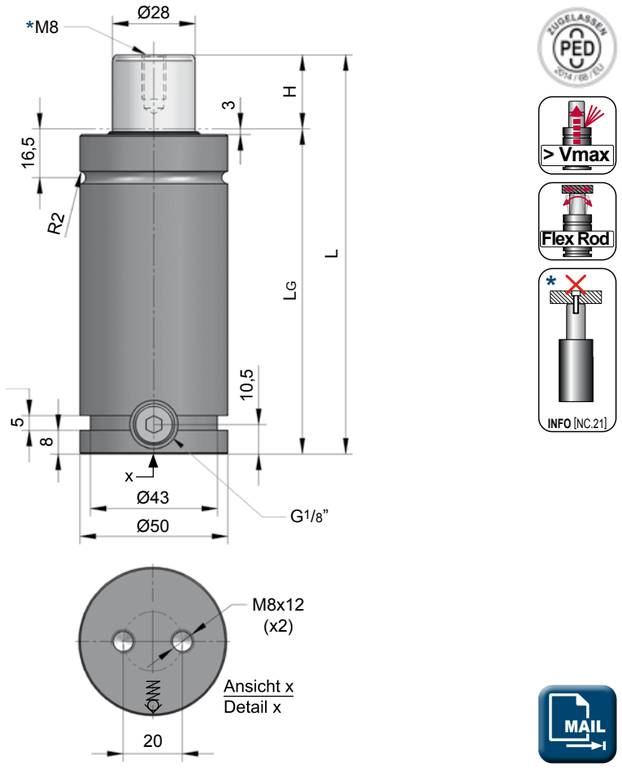


NC.88.00.045.0467

[04.02.2020]

[NC]

NC.040.00.01000...1



Technische Daten:

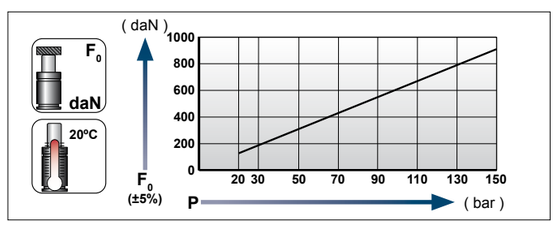
Medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

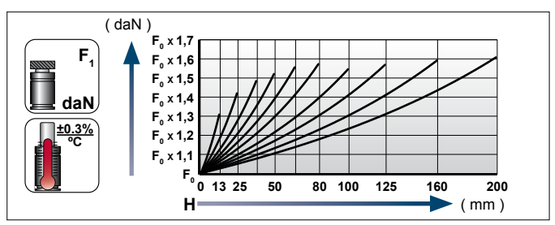
Specifications:

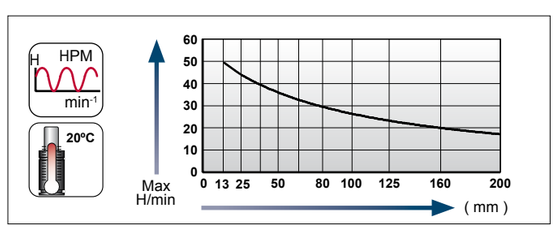
Pressure medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.040.00.
01000.038.1

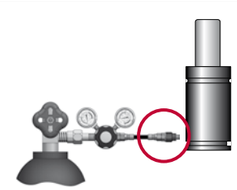
H Hub / Stroke	L ±0,25	LG	Kraft / Force (160 bar) Anfang / Initial [daN]	 Ende / Final [daN]
013	111	98	985	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	135	110	985	
038	161	123	985	
050	185	135	985	
063,5	212	148,5	985	
080	245	165	985	
100	295	195	985	
125	345	220	985	
160	415	255	985	
200	495	295	985	







**Ladeadapter /
Charging adapter**

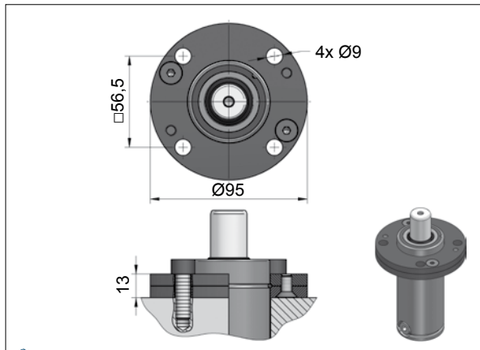


NCQ.46

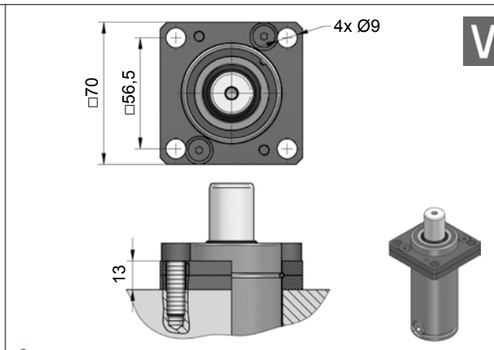
[04.02.2020]

[04.02.2020]

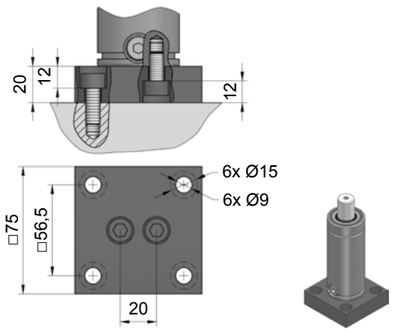
Flansche für / Flanges for **NC.040.00.01000...1**



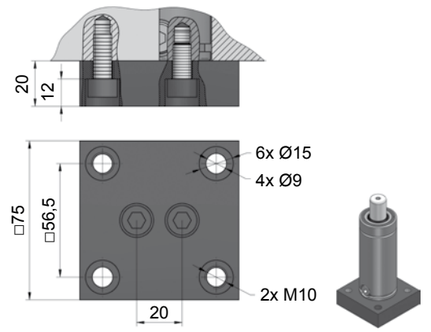
NC.88.00.050.0114



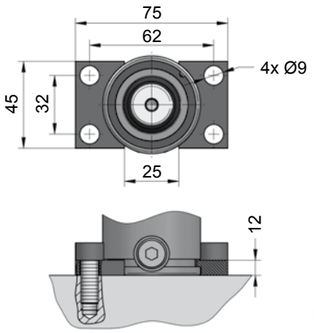
NC.88.00.050.0134



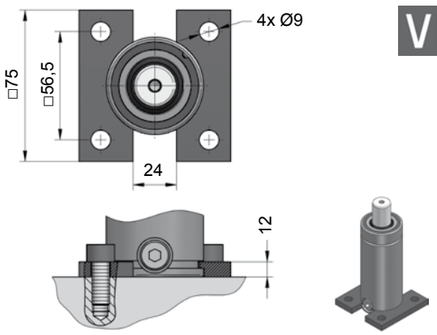
NC.88.00.050.0221



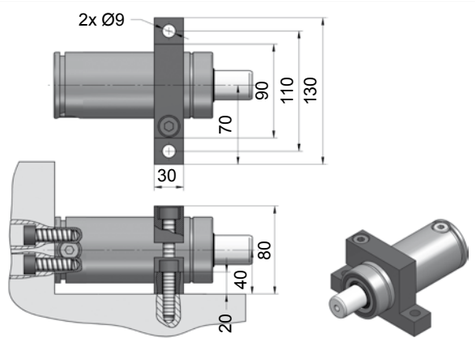
NC.88.00.050.0276



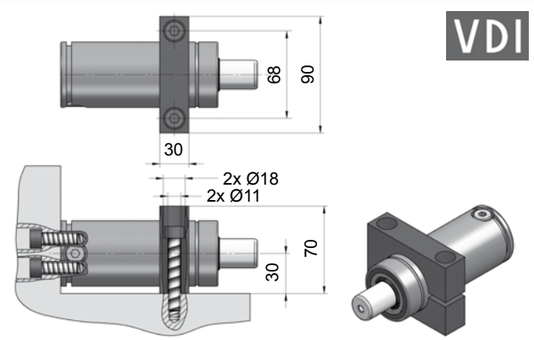
NC.88.00.050.0305



NC.88.00.050.0320

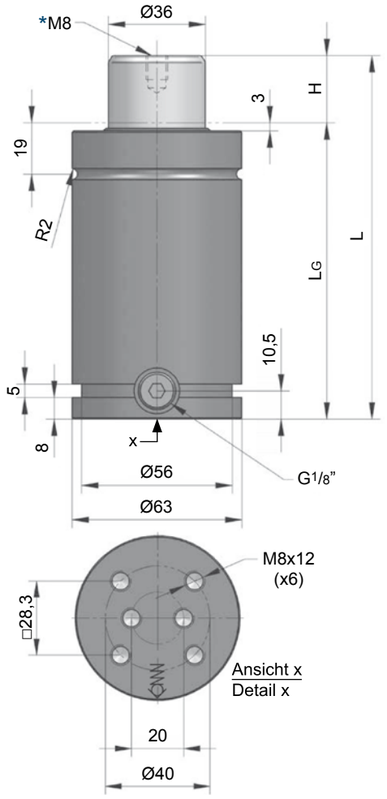


NC.88.00.050.0402



NC.88.00.050.0467

NC.040.00.01500…2



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

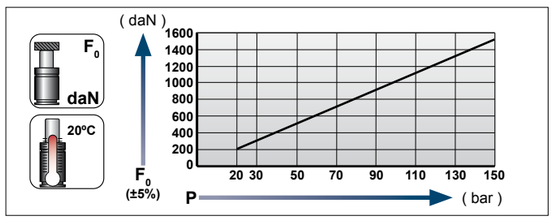
Specifications:

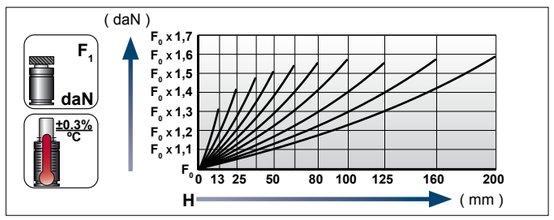
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

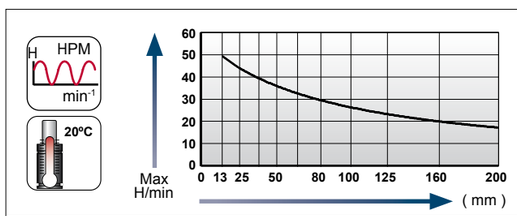
NC.040.00.
01500.050.2

INFO [NC.21]

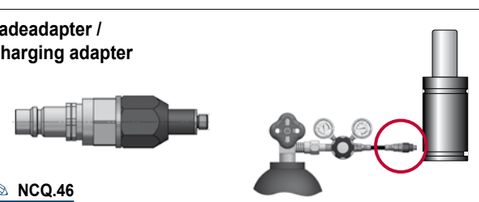
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
013	111	98	1530	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	135	110	1530	
038	161	123	1530	
050	185	135	1530	
063,5	211	148,5	1530	
080	245	165	1530	
100	285	185	1530	
125	345	220	1530	
160	415	255	1530	
200	495	295	1530	







**Ladeadapter /
Charging adapter**



NCQ.46

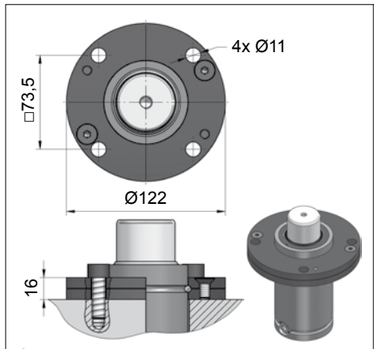
[NC.040.14]

[04.02.2020]

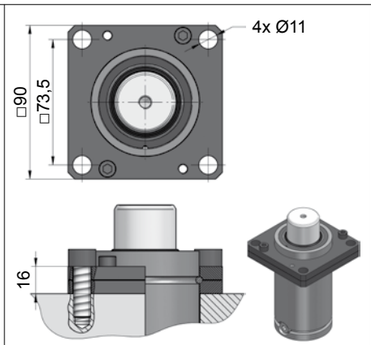
[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.040.00.01500…2**



NC.88.00.063.0114



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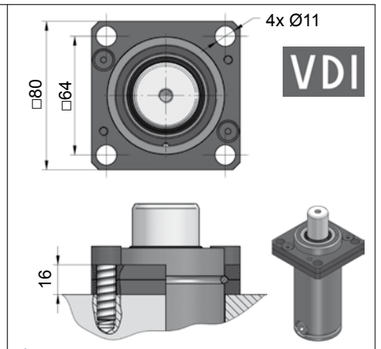

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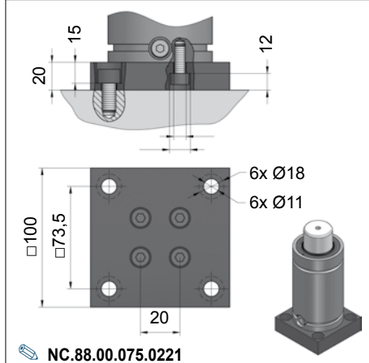
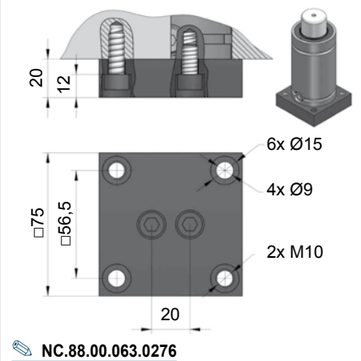
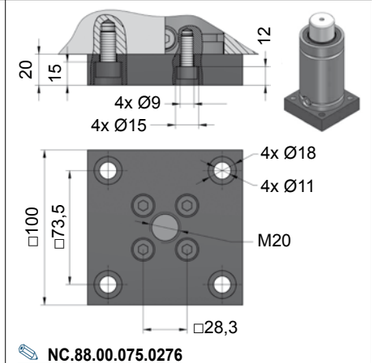


NC.88.00.075.0221



NC.88.00.063.0276



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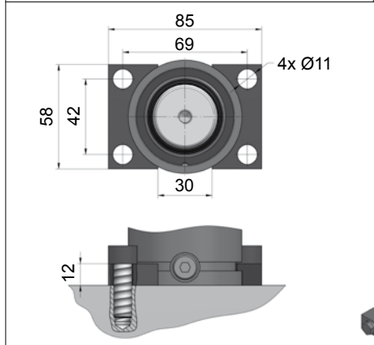
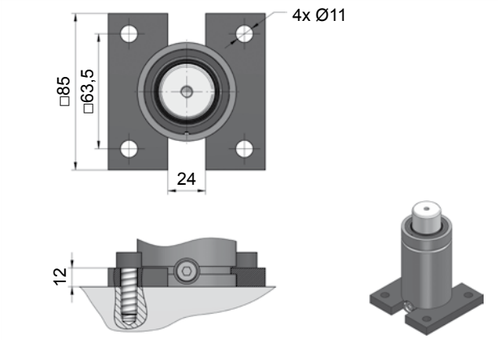
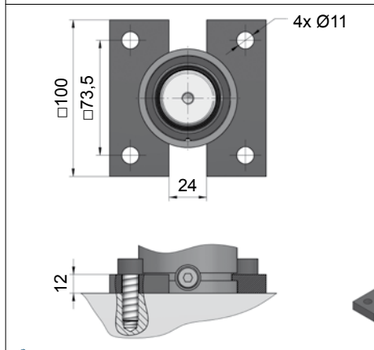


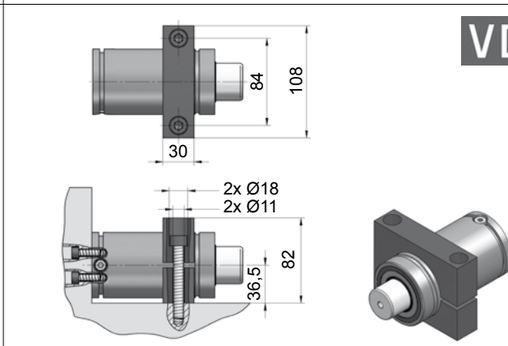
NC.88.00.063.0305



NC.88.00.063.0330



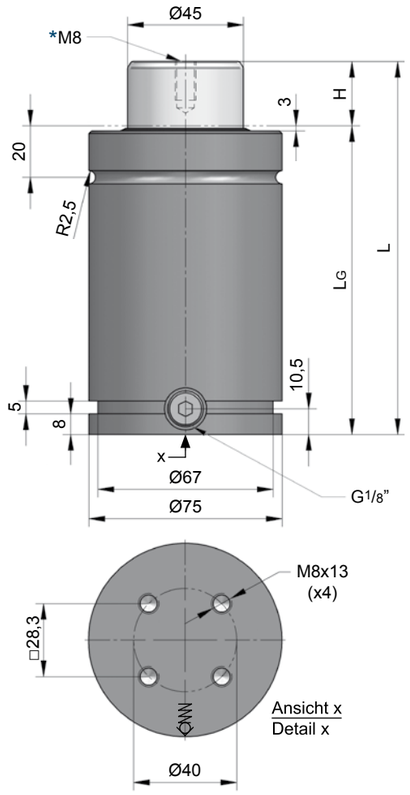
NC.88.00.063.0335



NC.88.00.063.0467

[NC.040.15]

NC.040.00.02500...1



Technische Daten:

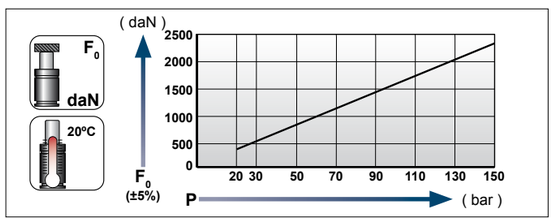
Medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

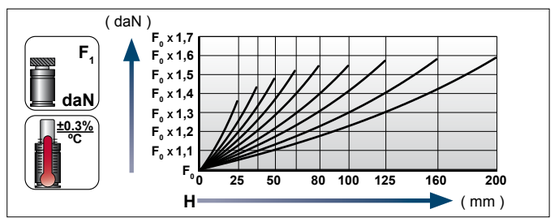
Specifications:

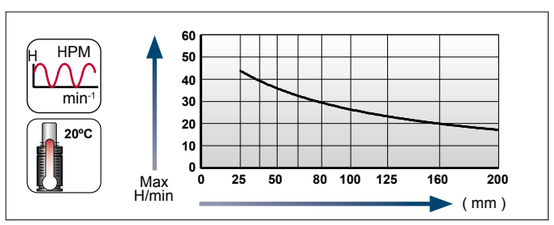
Pressure medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.040.00.02500.063.1

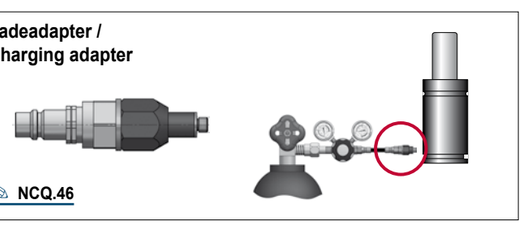
H Hub / Stroke	L ±0,25	LG	Kraft / Force (155 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	145	120	2465	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	171	133	2465	
050	195	145	2465	
063,5	222	158,5	2465	
080	255	175	2465	
100	300	200	2465	
125	350	225	2465	
160	425	265	2465	
200	510	310	2465	







Ladeadapter / Charging adapter

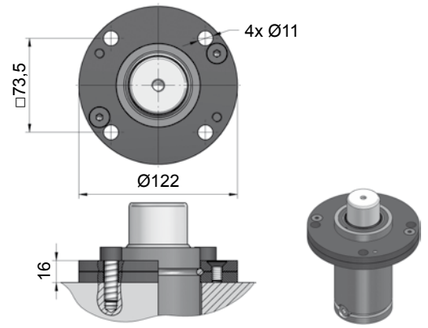


NCQ.46

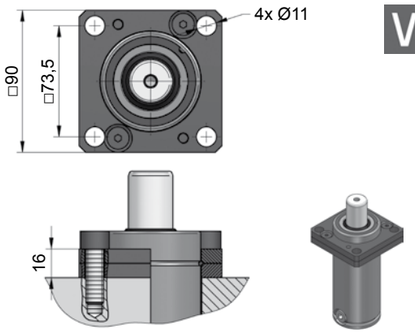
[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

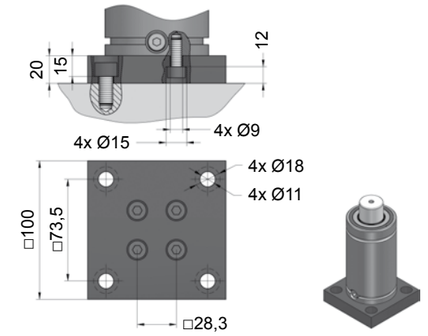
Flansche für / Flanges for **NC.040.00.02500...1**



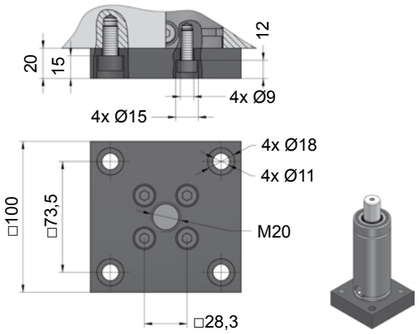
NC.88.00.075.0114



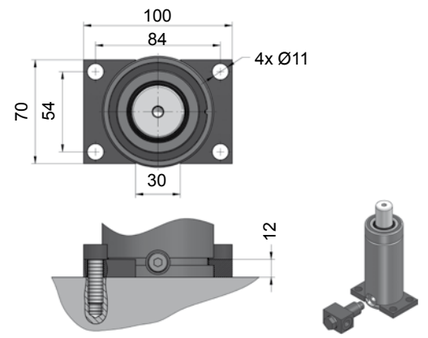
NC.88.00.075.0134



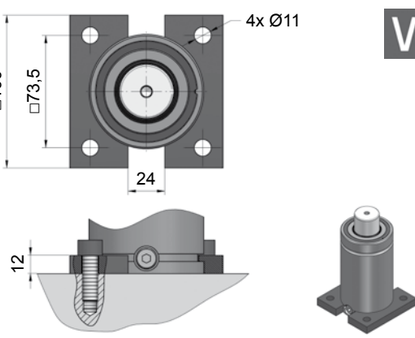
NC.88.00.075.0221



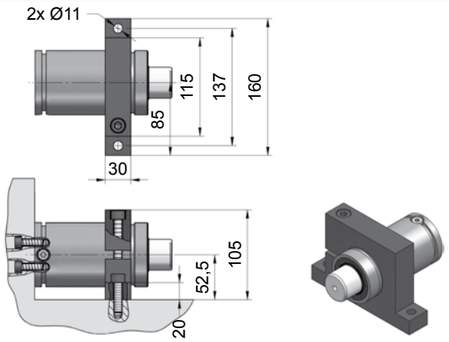
NC.88.00.075.0276



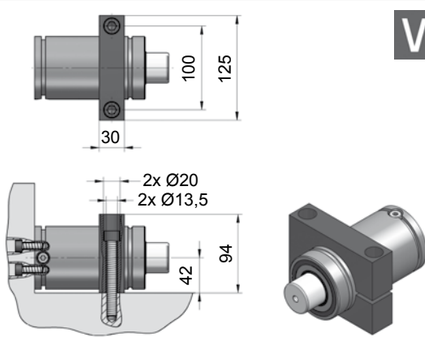
NC.88.00.075.0305



NC.88.00.075.0320



NC.88.00.075.0402



NC.88.00.075.0467

[04.02.2020]

[NC]

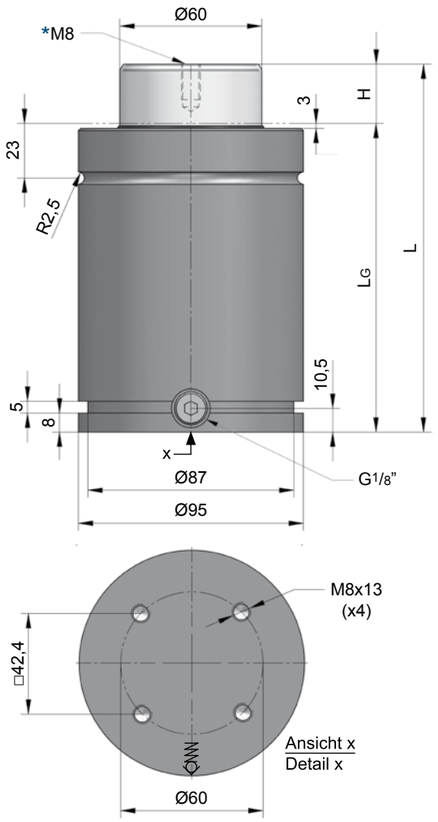
NC.040.00.04000...1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

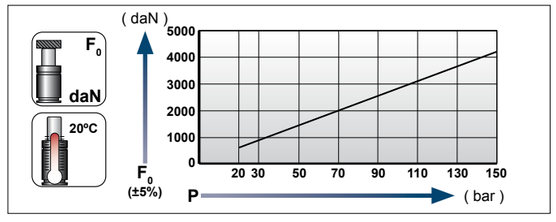
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

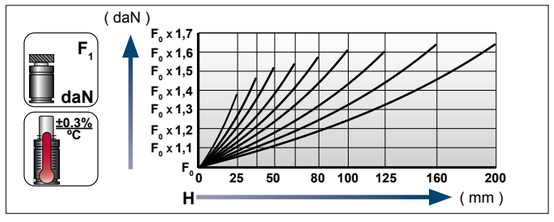


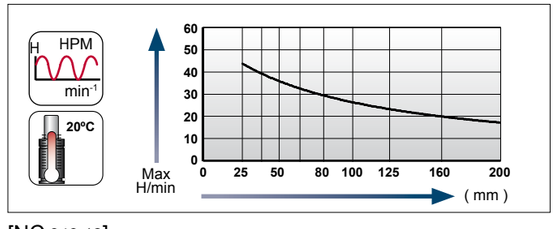
INFO [NC.21]

NC.040.00.
04000.080.1

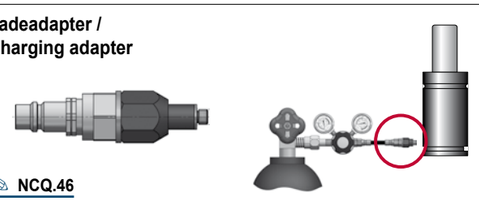
H Hub / Stroke	L ±0,25	LG	Kraft / Force (140 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	155	130	3960	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	181	143	3960	
050	205	155	3960	
063,5	237	173,5	3960	
080	270	190	3960	
100	310	210	3960	
125	370	245	3960	
160	440	280	3960	
200	530	330	3960	







Ladeadapter / Charging adapter

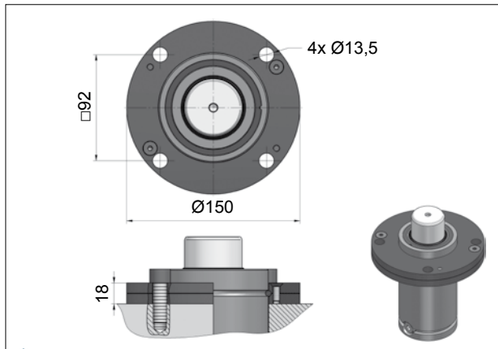


NCQ.46

[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.040.00.04000...1**



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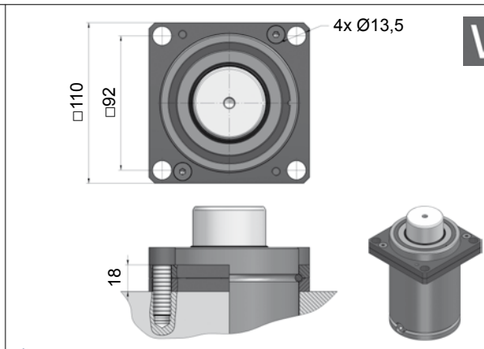

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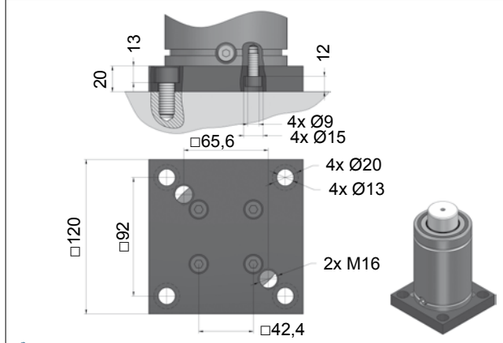
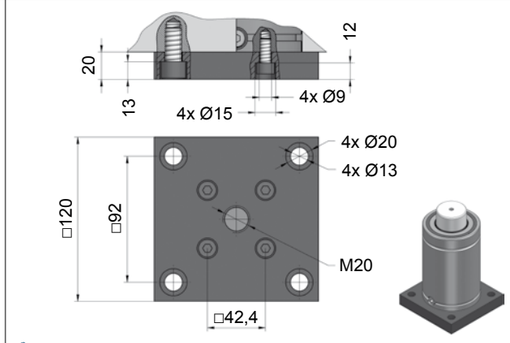
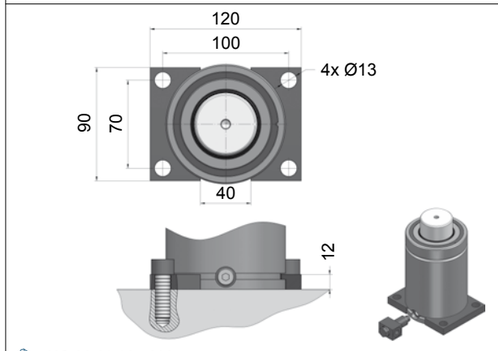


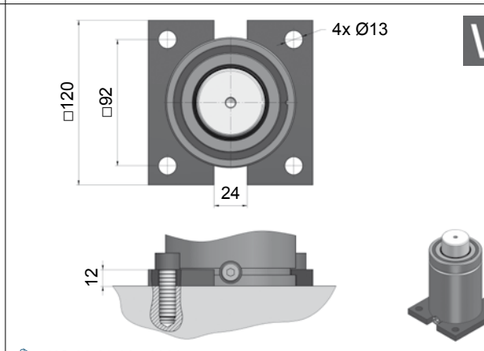
NC.88.00.095.0221



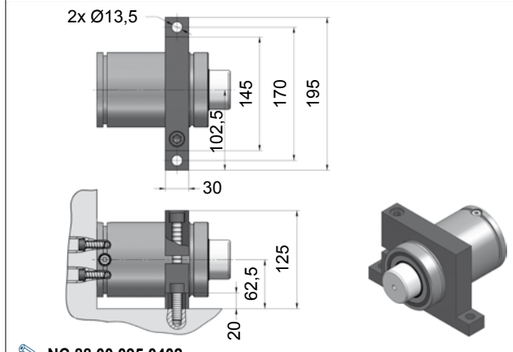
NC.88.00.095.0276



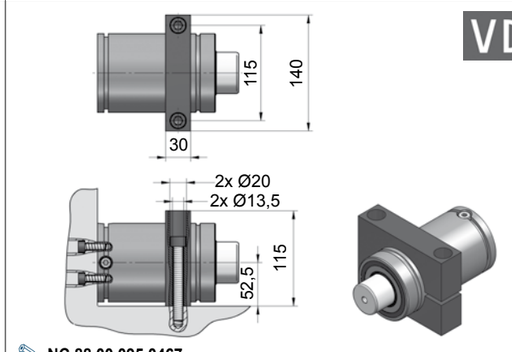
NC.88.00.095.0305



NC.88.00.095.0320



NC.88.00.095.0402



NC.88.00.095.0467

[04.02.2020]

[NC]

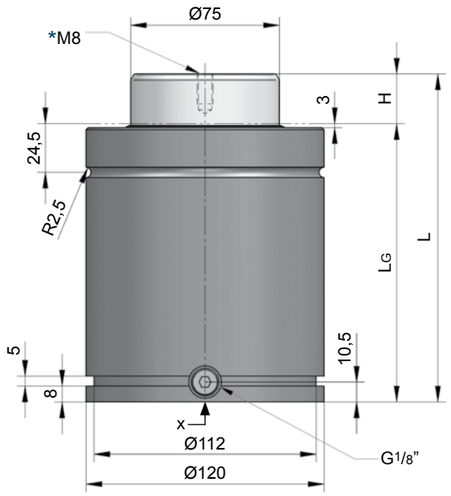
NC.040.00.06500...1

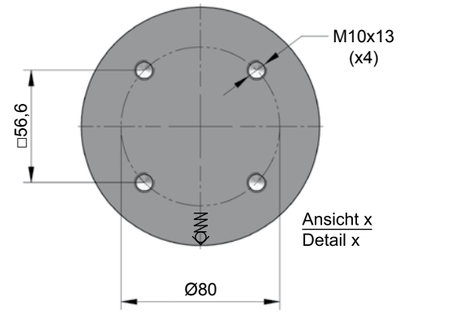
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

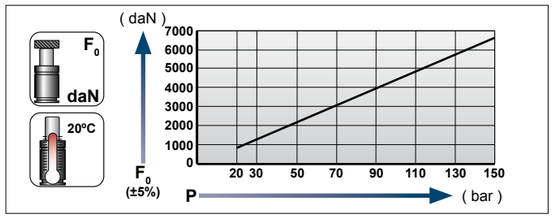
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

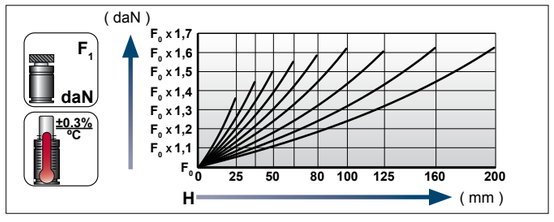


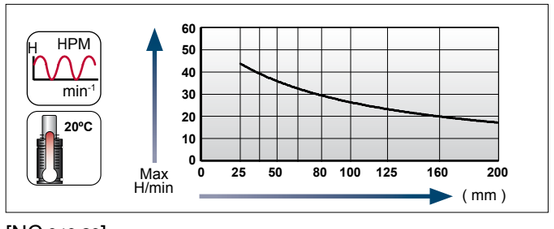


NC.040.00.06500.080.1

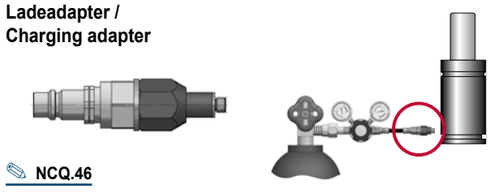
H Hub / Stroke	L ±0,25	LG	Kraft / Force (145 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	165	140	6405	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	191	153	6405	
050	215	165	6405	
063,5	242	178,5	6405	
080	275	195	6405	
100	315	215	6405	
125	375	250	6405	
160	450	290	6405	
200	540	340	6405	







Ladeadapter / Charging adapter

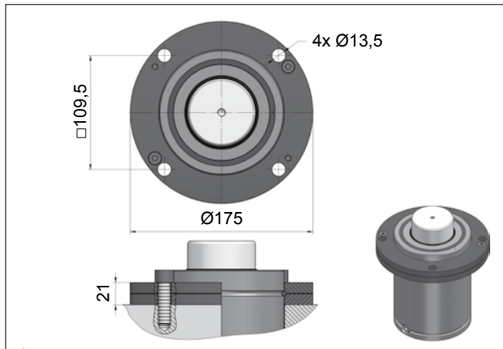


NCQ.46

[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.040.00.06500...1**



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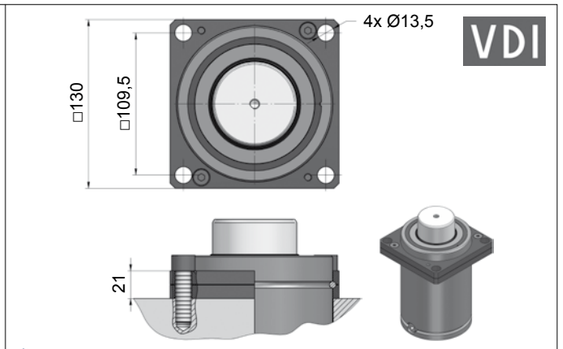

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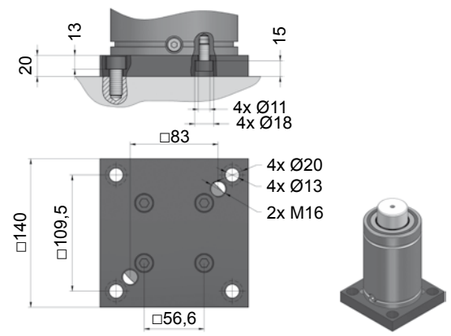
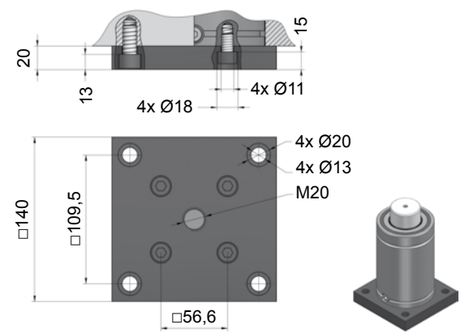


NC.88.00.120.0221



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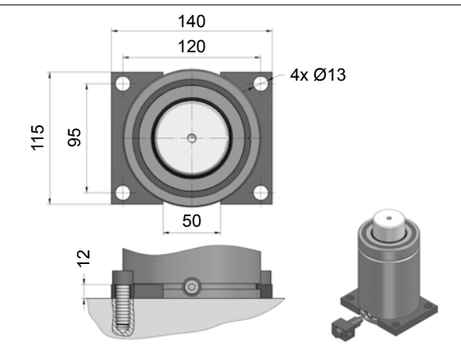
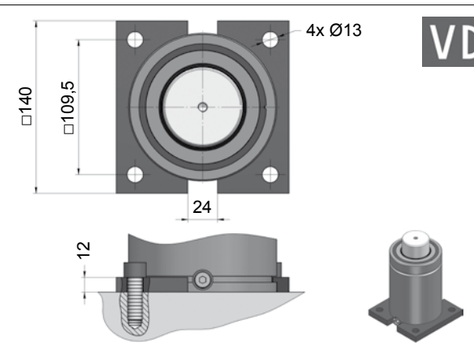
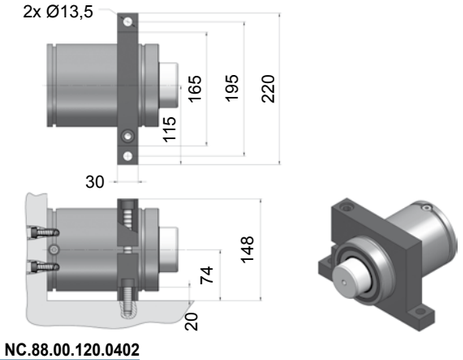


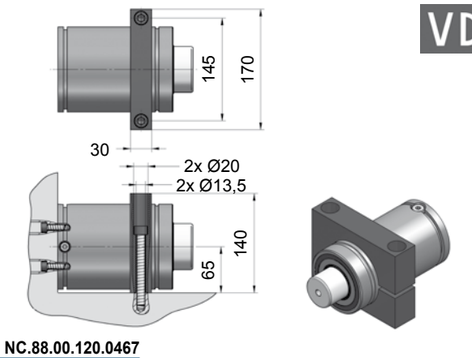
NC.88.00.120.0305



NC.88.00.120.0320



NC.88.00.120.0402



NC.88.00.120.0467

[04.02.2020]

[NC]

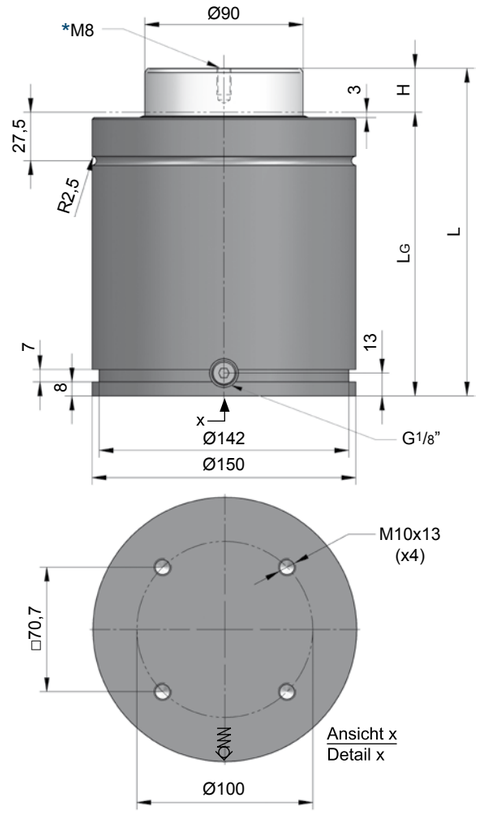
NC.040.00.10000

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

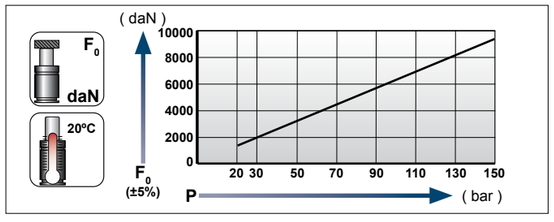
Pressure medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

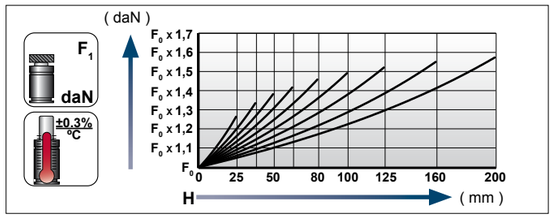


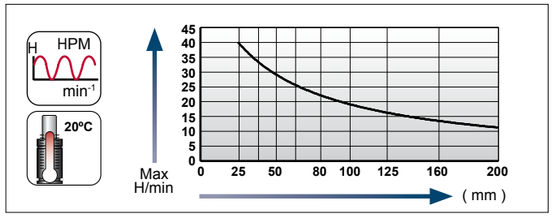


NC.040.00.10000.100

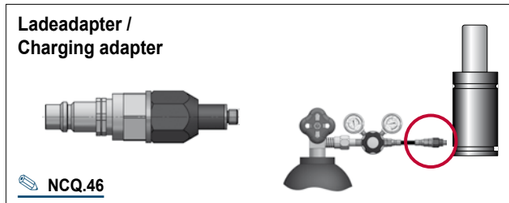
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	186	161	9540	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	212	174	9540	
050	236	186	9540	
063,5	263	199,5	9540	
080	296	216	9540	
100	336	236	9540	
125	386	261	9540	
160	456	296	9540	
200	536	336	9540	







Ladeadapter / Charging adapter

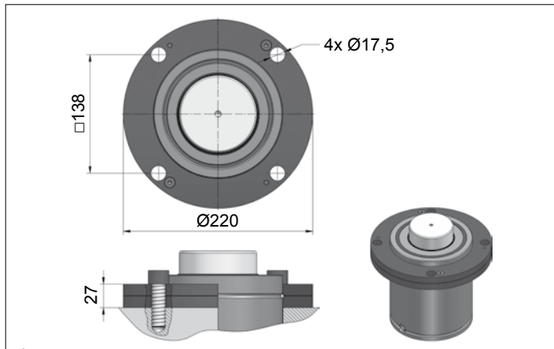


NCQ.46

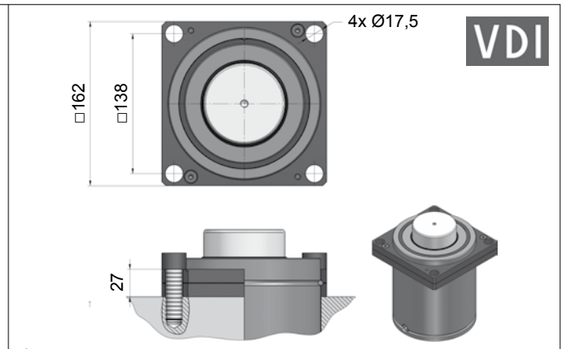
[04.02.2020]

GDF, mittlere Größen
GS, medium sizes
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.040.00.10000**



NC.88.00.150.0114



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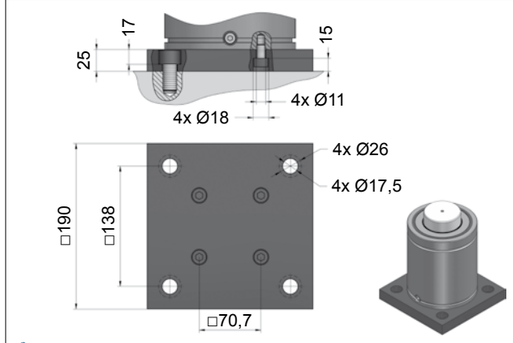
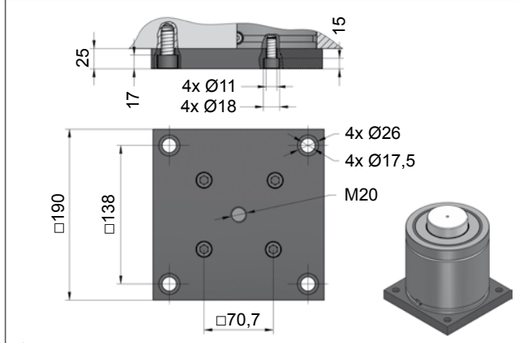
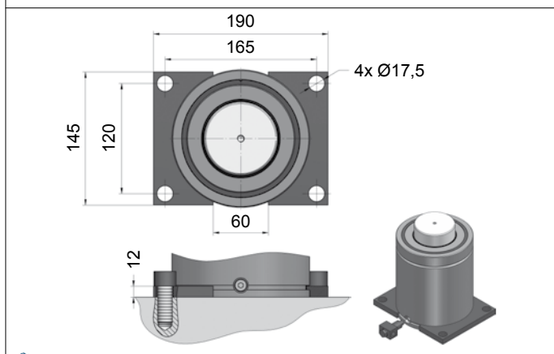


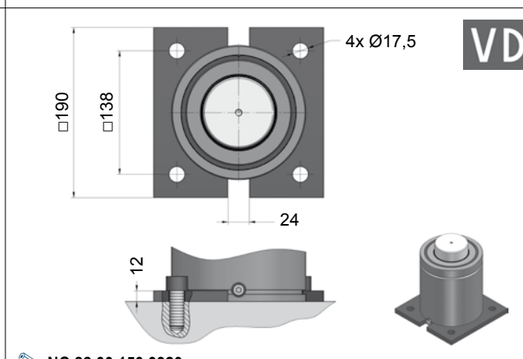
NC.88.00.150.0221



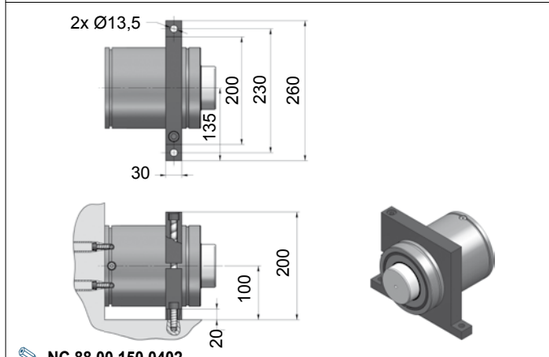
NC.88.00.150.0276



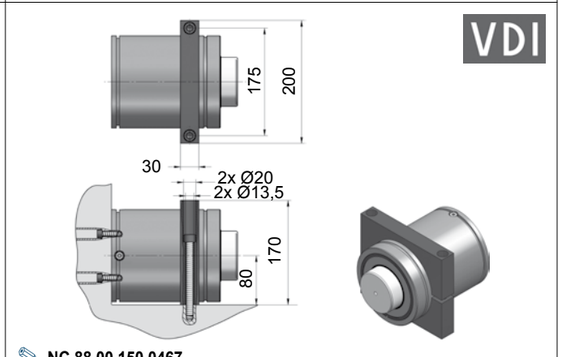
NC.88.00.150.0305



NC.88.00.150.0320



NC.88.00.150.0402

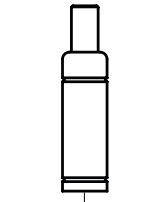


NC.88.00.150.0467

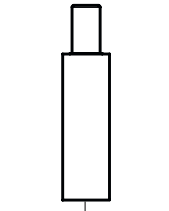
[NC]

Größenübersicht Serie NC.041.00

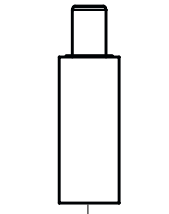
Gas spring index NC.041.00 series



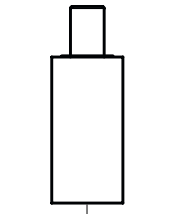
NC.041.00.00150...1
150 daN
10 - 80 mm
Ø19



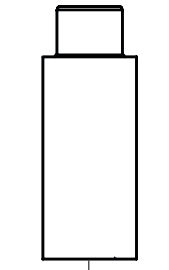
NC.041.00.00300...1
300 daN
10 - 80 mm
Ø25



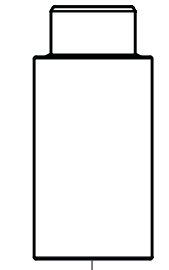
NC.041.00.00500...1
485 daN
10 - 80 mm
Ø32



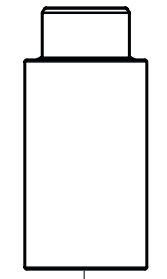
NC.041.00.01000...1
960 daN
10 - 80 mm
Ø38



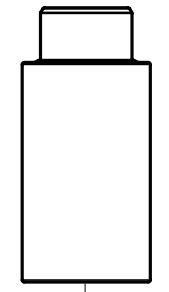
NC.041.00.02000...2
1925 daN
10 - 80 mm
Ø50



NC.041.00.03000...1
2860 daN
10 - 80 mm
Ø63



NC.041.00.05000...1
4925 daN
10 - 80 mm
Ø75



NC.041.00.08000...1
7950 daN
10 - 80 mm
Ø95

NC.041.00.00150…1

Technische Daten:

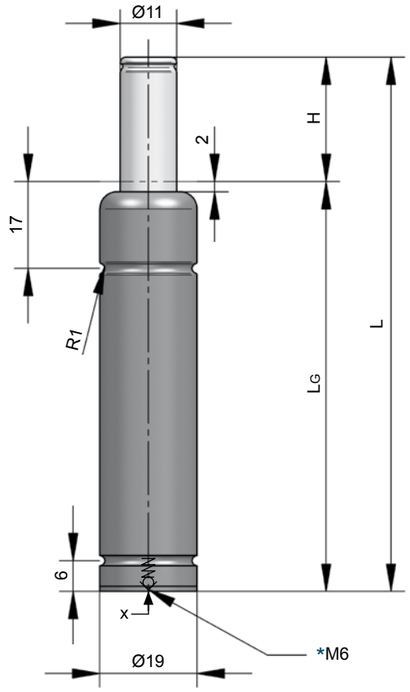
Medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Einwegfeder ist nicht reparierbar!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

One-way spring is irreparable!

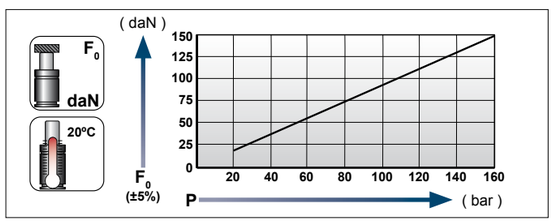


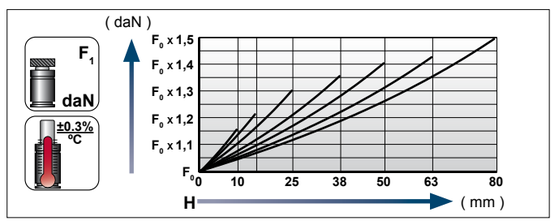


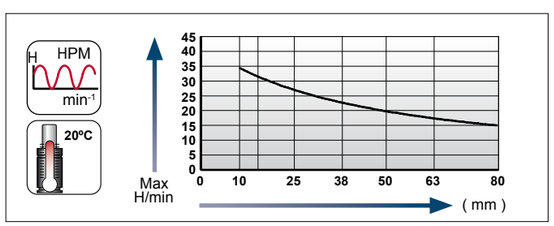
NC.041.00.00150.015.1



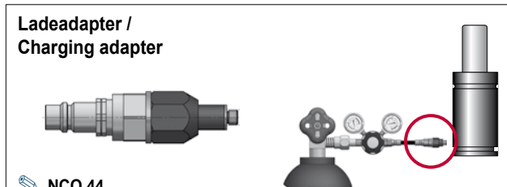
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (160 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	75	65	150	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	85	70	150	
025	105	80	150	
038	135	97	150	
050	160	110	150	
063	190	127	150	
080	220	140	150	







Ladeadapter /
Charging adapter



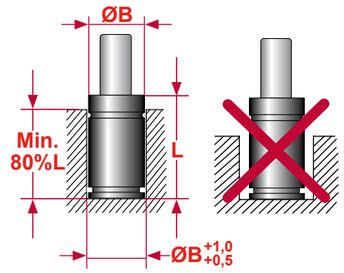
NCQ.44

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Einbauhinweis für / Mounting instruction for **NC.041.00.00150…1**

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.



When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

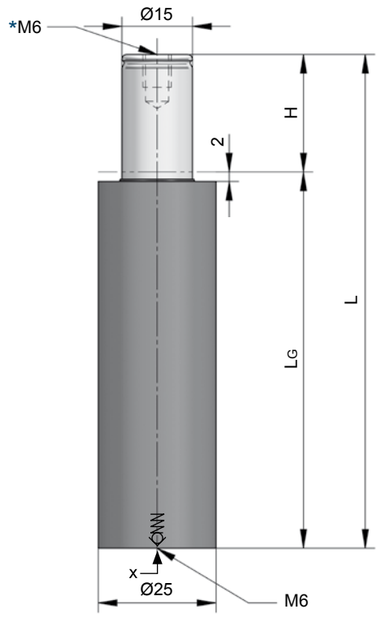
NC.041.00.00300…1

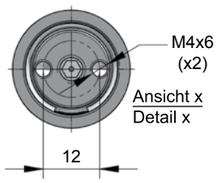
Technische Daten:

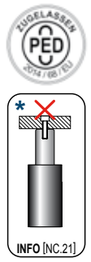
Medium:	N_2
$P_{max.}$ (20 °C):	170 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	170 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s



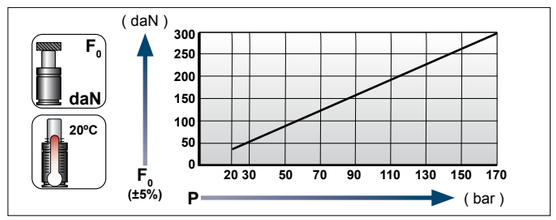


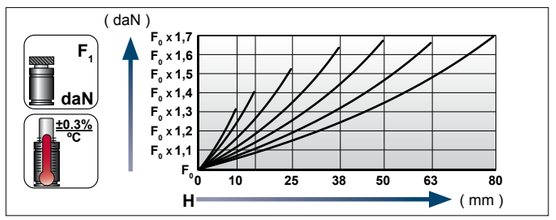


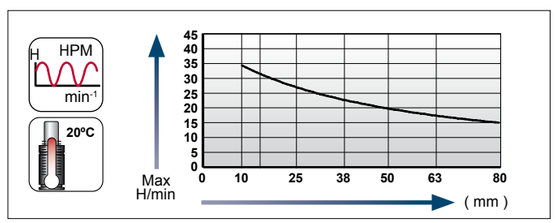
NC.041.00.
00300.015.1

MAIL

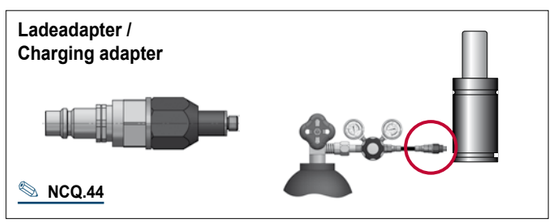
H Hub / Stroke	L ±0,25	LG	Kraft / Force (170 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	75	65	300	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	85	70	300	
025	105	80	300	
038	130	92	300	
050	155	105	300	
063	185	122	300	
080	220	140	300	







Ladeadapter / Charging adapter



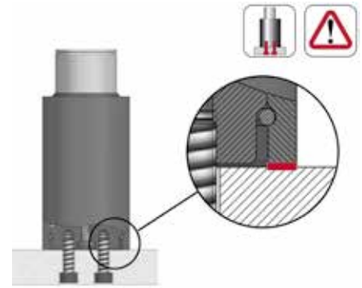
NCQ.44

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

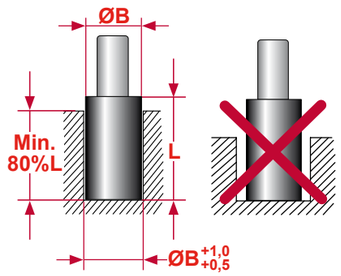
Einbauhinweise für / Mounting instructions for **NC.041.00.00300…1**

Gasdruckfedern vom Typ **NC.041.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.041.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.



When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

NC.041.00.00500…1

Technische Daten:

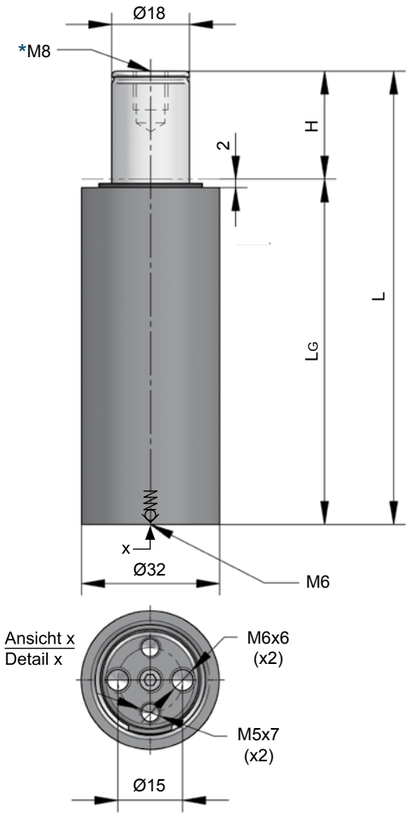
Medium:	N_2
$P_{max.}$ (20 °C):	200 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N2
$P_{max.}$ (20 °C):	200 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!

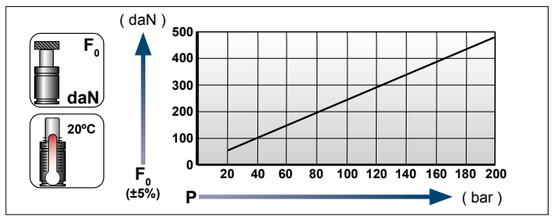


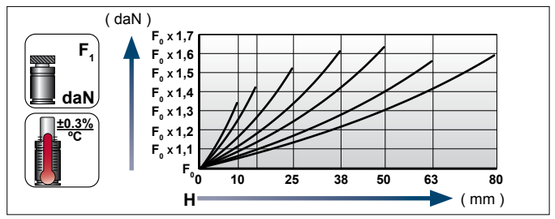
INFO [NC.21]

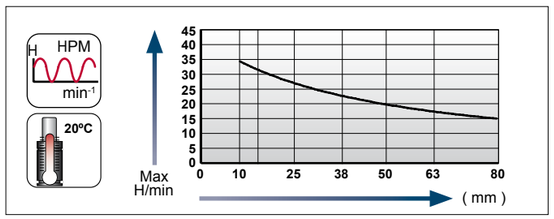
NC.041.00.00500.025.1

MAIL

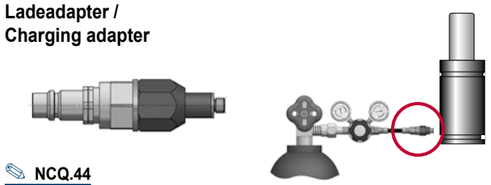
H Hub / Stroke	L ±0,25	LG	Kraft / Force (190 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	75	65	485	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	85	70	485	
025	105	80	485	
038	130	92	485	
050	155	105	485	
063	190	127	485	
080	225	145	485	







Ladeadapter / Charging adapter



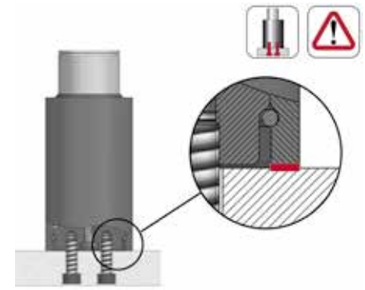
NCQ.44

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

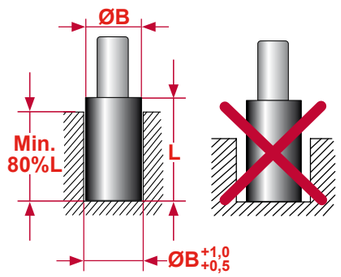
Einbauhinweise für / Mounting instructions for **NC.041.00.00500…1**

Gasdruckfedern vom Typ **NC.041.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.041.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.



When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

NC.041.00.01000...1

Technische Daten:

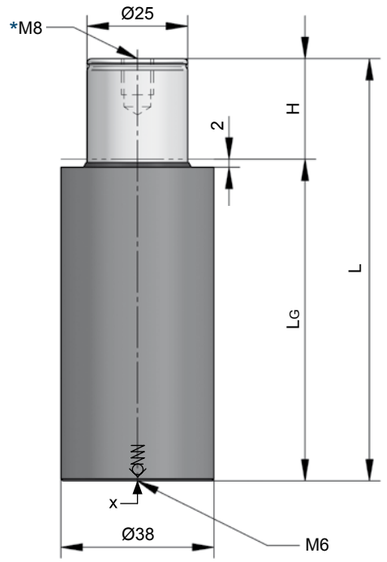
Medium:	N_2
$P_{max.}$ (20 °C):	205 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

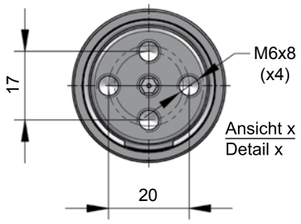
Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N2
$P_{max.}$ (20 °C):	205 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!

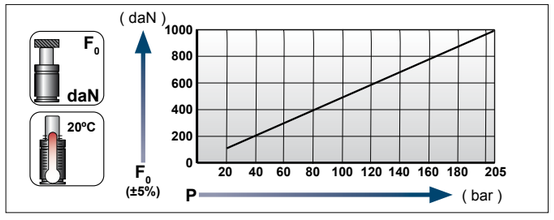


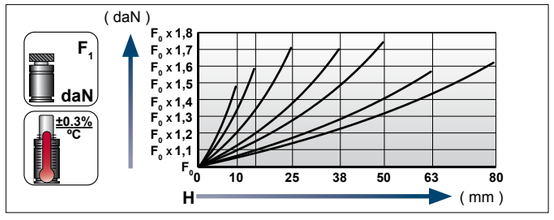


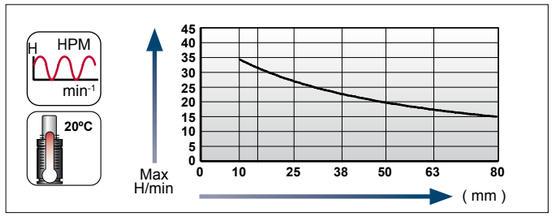


NC.041.00.
01000.038.1

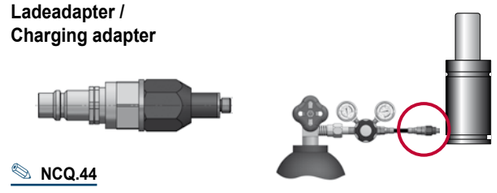
H Hub / Stroke	L ±0,25	LG	Kraft / Force (195 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	75	65	960	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	85	70	960	
025	105	80	960	
038	135	97	960	
050	160	110	960	
063	205	142	960	
080	240	160	960	







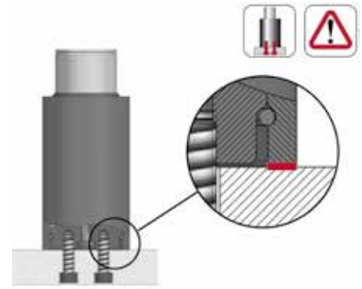
Ladeadapter / Charging adapter



NCQ.44

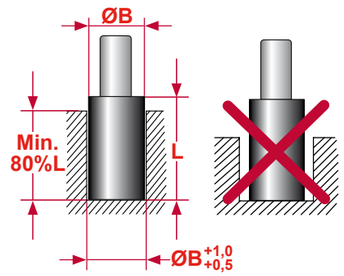
Einbauhinweise für / Mounting instructions for **NC.041.00.01000...1**

Gasdruckfedern vom Typ **NC.041.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



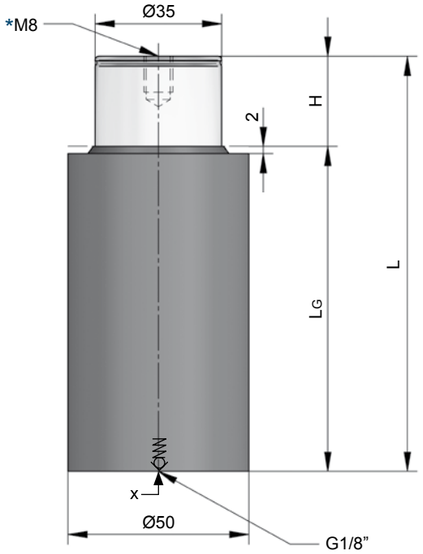
Gas springs of type **NC.041.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

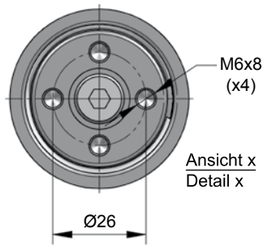
Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.



When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

NC.041.00.02000…2





Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	210 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

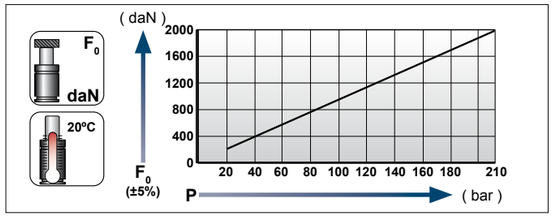
Specifications:

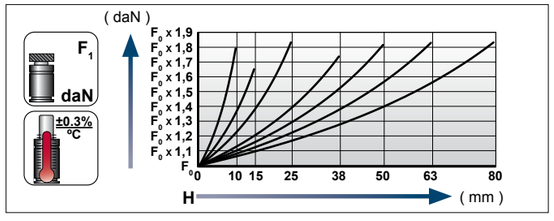
Pressure medium:	N2
$P_{max.}$ (20 °C):	210 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

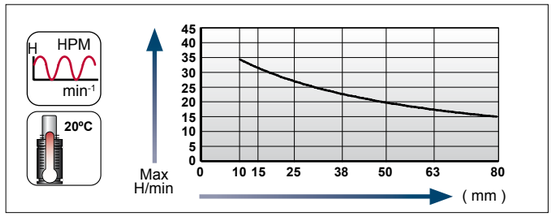
Attention: Maintenance only at manufacturer‘s site!

NC.041.00.02000.050.2

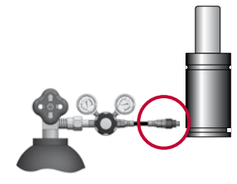
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (200 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	80	70	1925	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	95	80	1925	
025	115	90	1925	
038	150	112	1925	
050	175	125	1925	
063	205	142	1925	
080	245	165	1925	







Ladeadapter / Charging adapter



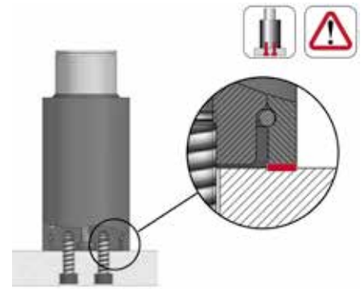
NCQ.46

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

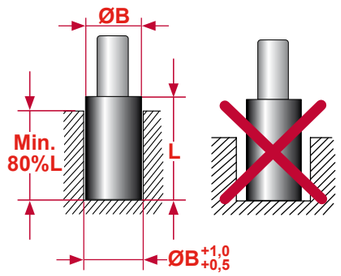
Einbauhinweise für / Mounting instructions for **NC.041.00.02000…2**

Gasdruckfedern vom Typ **NC.041.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.041.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

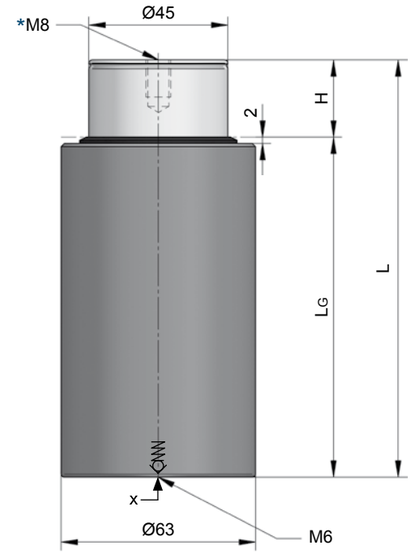
Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.



When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

NC.041.00.03000…1





Technische Daten:

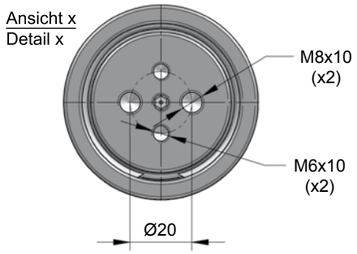
Medium:	N_2
$P_{max.}$ (20 °C):	190 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N2
$P_{max.}$ (20 °C):	190 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

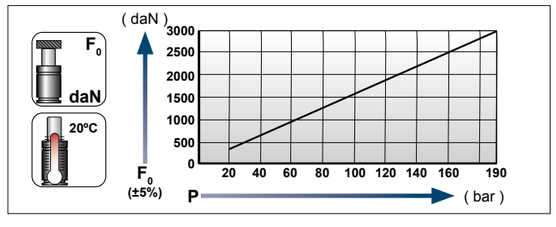
Attention: Maintenance only at manufacturer's site!

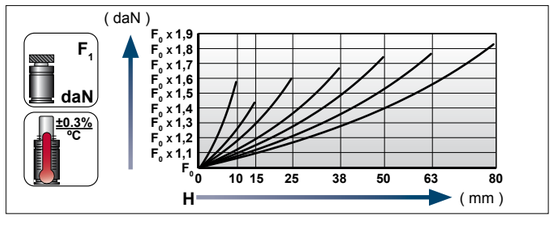


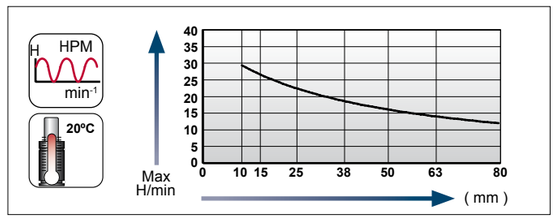
NC.041.00.
03000.063.1

MAIL

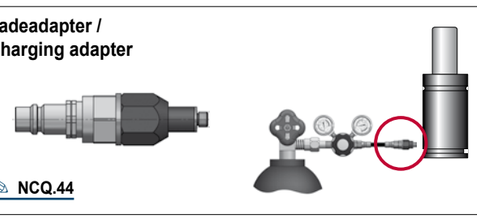
H Hub / Stroke	L ±0,25	LG	Kraft / Force (180 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	95	85	2860	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	115	100	2860	
025	135	110	2860	
038	165	127	2860	
050	190	140	2860	
063	220	157	2860	
080	255	175	2860	







Ladeadapter / Charging adapter



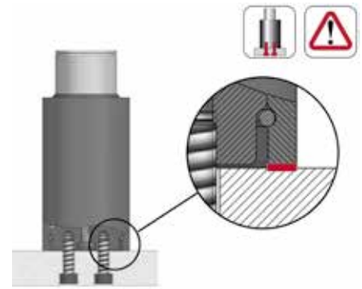
NCQ.44

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

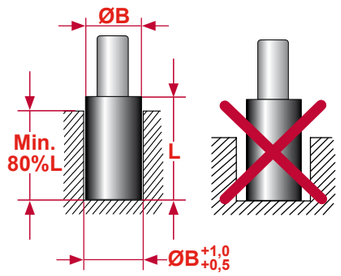
Einbauhinweise für / Mounting instructions for **NC.041.00.03000…1**

Gasdruckfedern vom Typ **NC.041.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.041.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.



When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

NC.041.00.05000…1

Technische Daten:

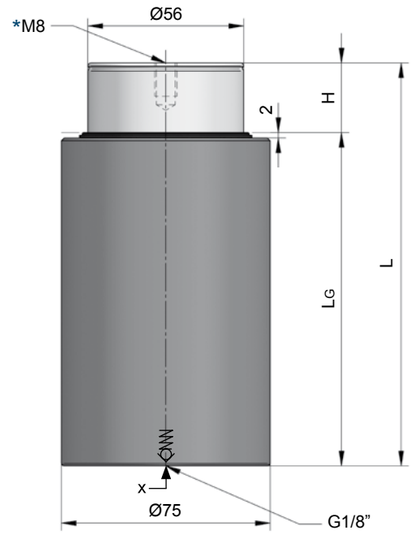
Medium:	N_2
$P_{max.}$ (20 °C):	200 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

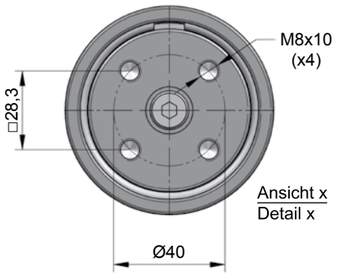
Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N2
$P_{max.}$ (20 °C):	200 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!



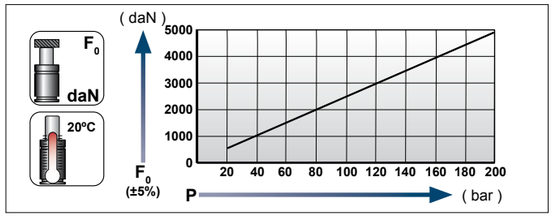


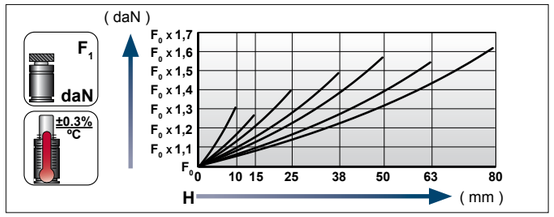
INFO [NC.21]

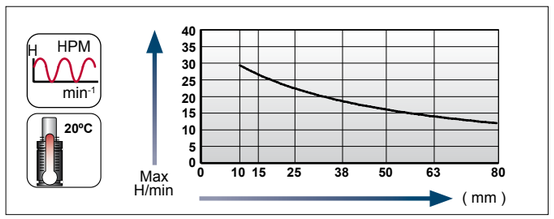
NC.041.00.
05000.080.1

MAIL

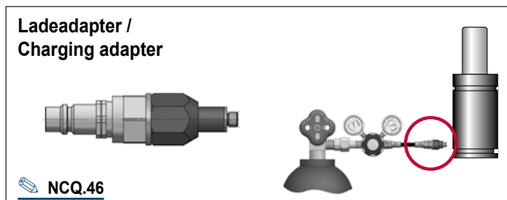
H Hub / Stroke	L ±0,25	LG	Kraft / Force (200 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	100	90	4925	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	125	110	4925	
025	145	120	4925	
038	175	137	4925	
050	200	150	4925	
063	240	177	4925	
080	275	195	4925	







Ladeadapter / Charging adapter



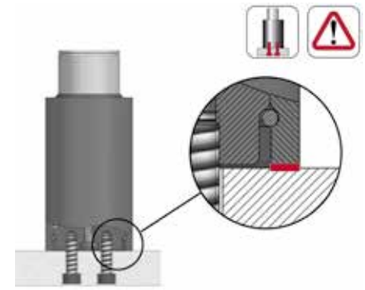
NCQ.46

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

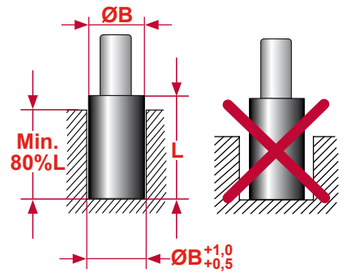
Einbauhinweise für / Mounting instructions for **NC.041.00.05000…1**

Gasdruckfedern vom Typ **NC.041.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.041.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

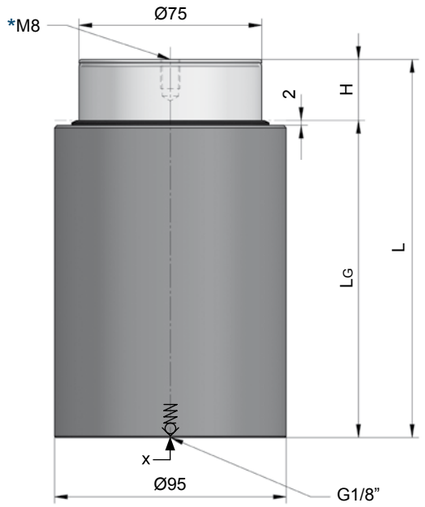
Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.

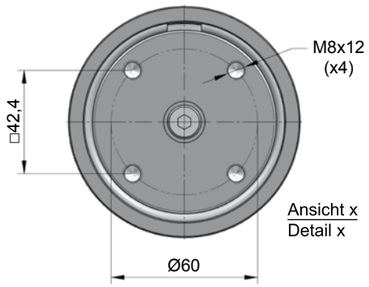


When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

NC.041.00.08000...1





Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

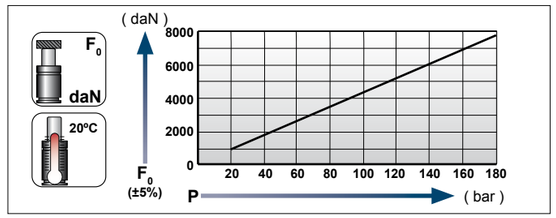
Specifications:

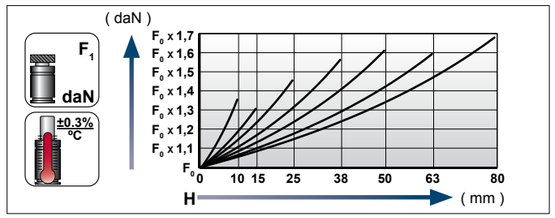
Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

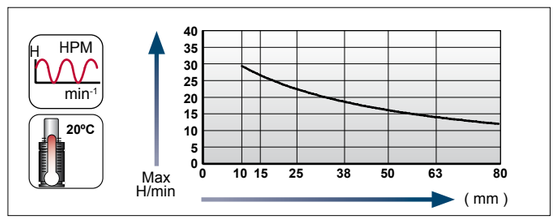
Attention: Maintenance only at manufacturer‘s site!

NC.041.00.08000.010.1

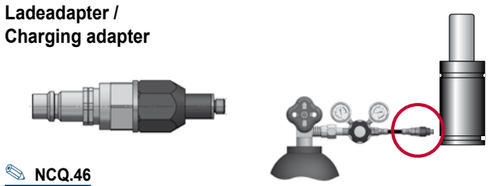
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (180 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	110	100	7950	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	135	120	7950	
025	155	130	7950	
038	185	147	7950	
050	215	165	7950	
063	255	192	7950	
080	290	210	7950	







Ladeadapter / Charging adapter



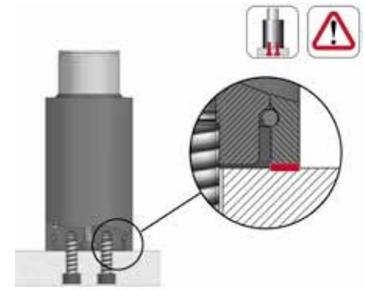
NCQ.46

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

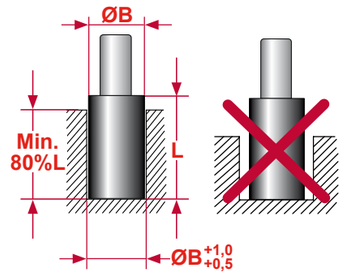
Einbauhinweise für / Mounting instructions for **NC.041.00.08000...1**

Gasdruckfedern vom Typ **NC.041.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.041.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.

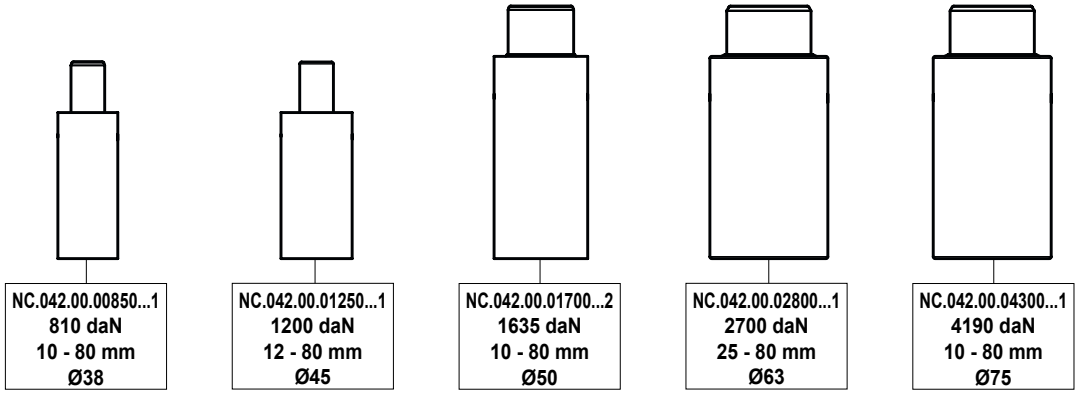


When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

Größenübersicht Serie NC.042.00

Gas spring index NC.042.00 series



NC.042.00.00850...1

Technische Daten:

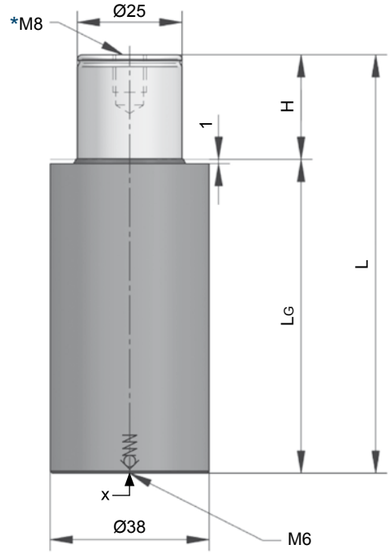
Medium:	N_2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

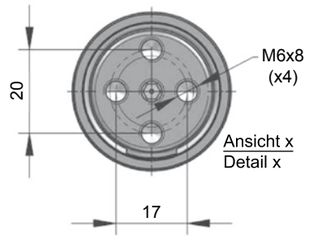
Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!



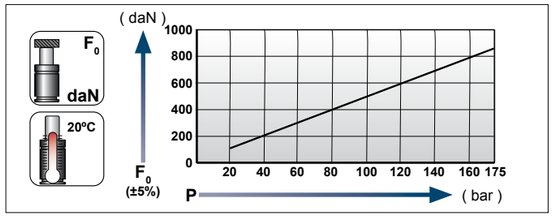


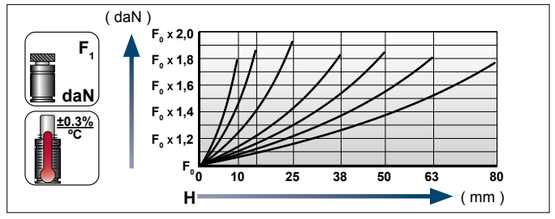
INFO [NC.21]

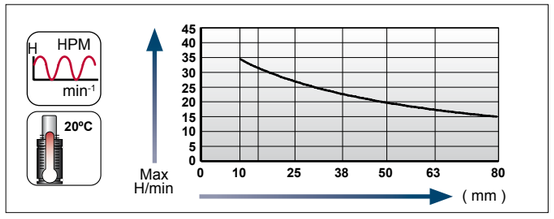
MAIL

NC.042.00.00850.038.1

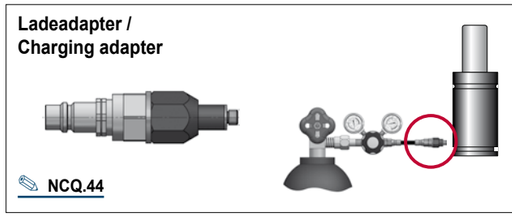
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (165 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	70	60	810	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	80	65	810	
025	100	75	810	
038	130	92	810	
050	155	105	810	
063	185	122	810	
080	225	145	810	







Ladeadapter / Charging adapter



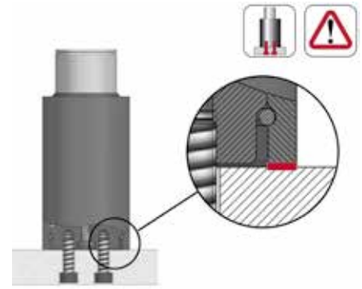
NCQ.44

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

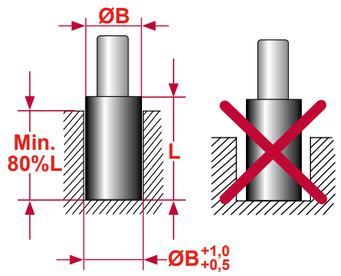
Einbauhinweise für / Mounting instructions for **NC.042.00.00850…1**

Gasdruckfedern vom Typ **NC.042.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.042.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.

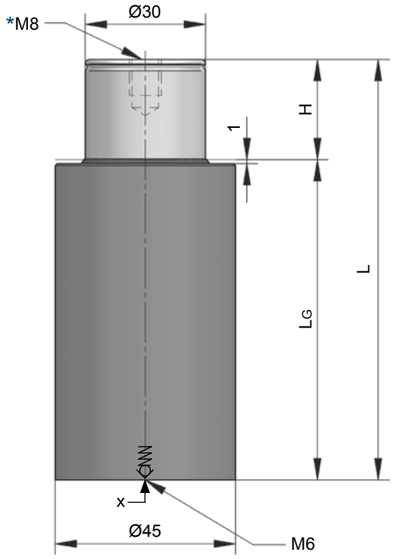


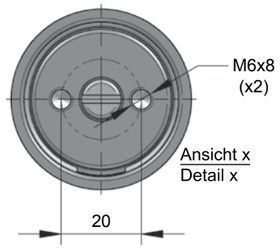
When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

[NC]

NC.042.00.01250...1





Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

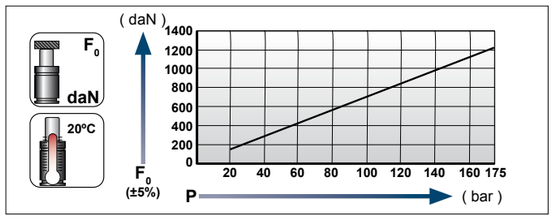
Specifications:

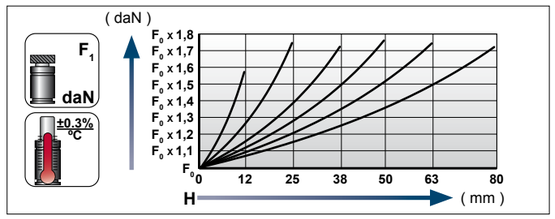
Pressure medium:	N2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

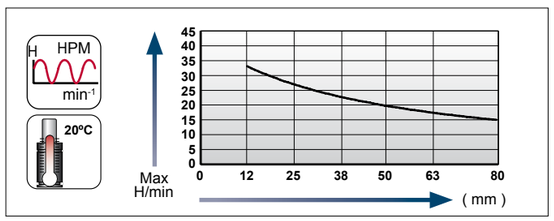
Attention: Maintenance only at manufacturer's site!

NC.042.00.01250.050.1

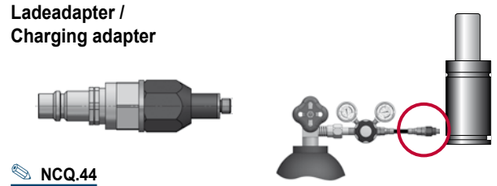
H Hub / Stroke	L ±0,25	LG	Kraft / Force (170 bar) Anfang / Initial [daN]	Ende / Final [daN]
012	79	67	1200	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	105	80	1200	
038	135	97	1200	
050	160	110	1200	
063	190	127	1200	
080	230	150	1200	







Ladeadapter / Charging adapter



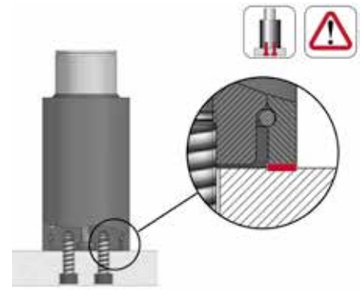
NCQ.44

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

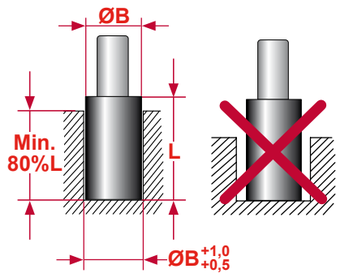
Einbauhinweise für / Mounting instructions for **NC.042.00.01250…1**

Gasdruckfedern vom Typ **NC.042.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.042.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.



When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

NC.042.00.01700...2

Technische Daten:

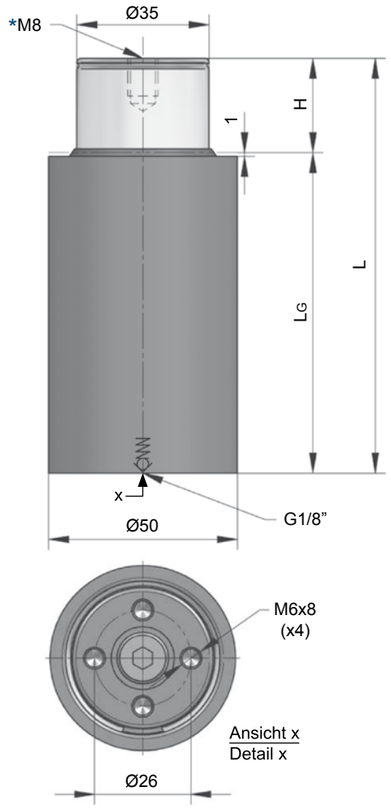
Medium:	N_2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!

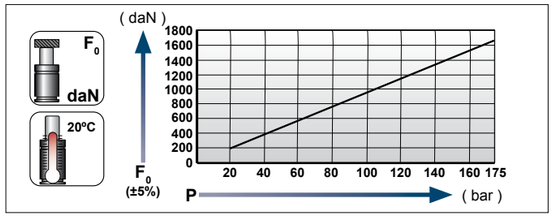


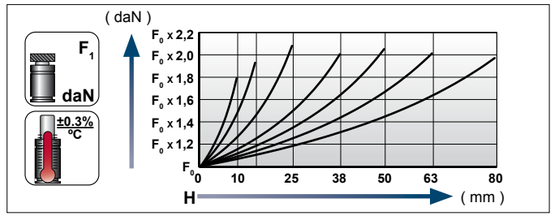
INFO [NC.21]

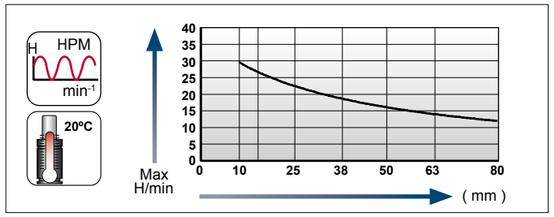
NC.042.00.01700.063.2

MAIL

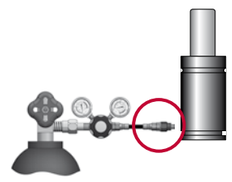
H Hub / Stroke	L ±0,25	LG	Kraft / Force (170 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	80	70	1635	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	90	75	1635	
025	110	85	1635	
038	140	102	1635	
050	165	115	1635	
063	195	132	1635	
080	235	155	1635	







Ladeadapter / Charging adapter



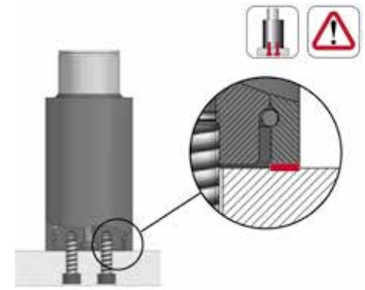
NCQ.46

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

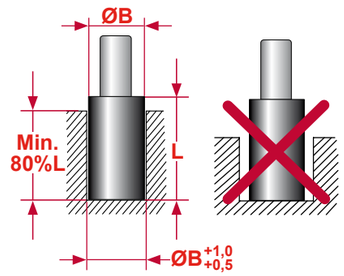
Einbauhinweise für / Mounting instructions for **NC.042.00.01700…2**

Gasdruckfedern vom Typ **NC.042.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.042.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.



When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

NC.042.00.02800...1

Technische Daten:

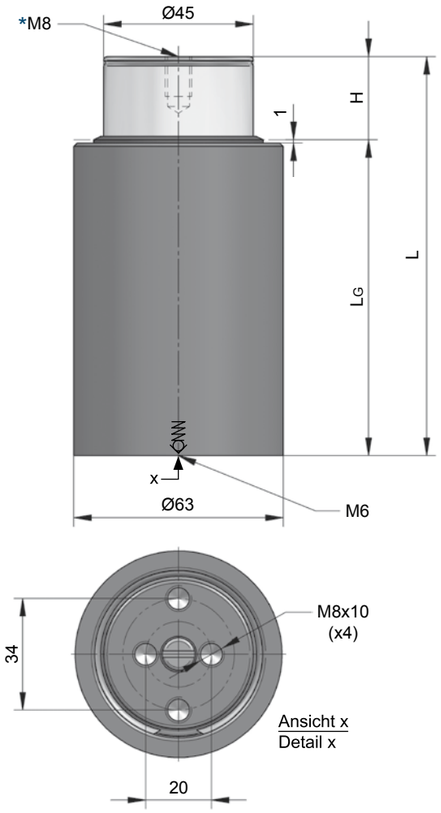
Medium:	N_2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Attention: Maintenance only at manufacturer's site!

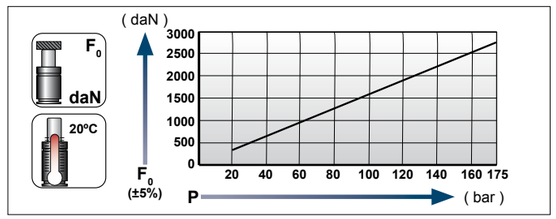


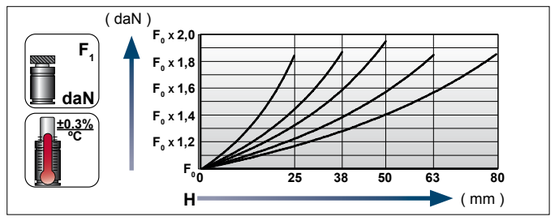
INFO [NC.21]

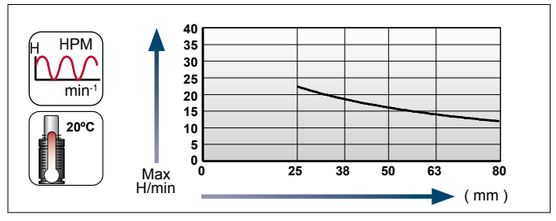
NC.042.00.
02800.063.1

MAIL

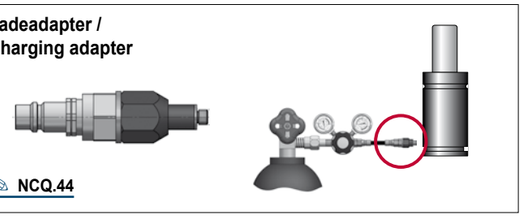
H Hub / Stroke	L ±0,25	LG	Kraft / Force (170 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	120	95	2700	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	150	112	2700	
050	175	125	2700	
063	210	147	2700	
080	250	170	2700	







Ladeadapter / Charging adapter



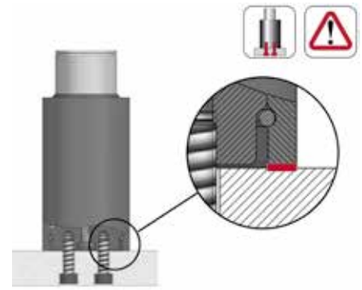
NCQ.44

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

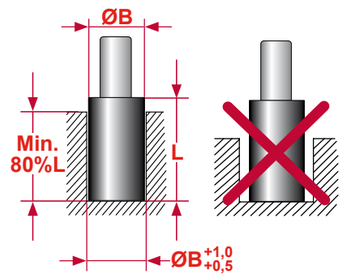
Einbauhinweise für / Mounting instructions for **NC.042.00.02800…1**

Gasdruckfedern vom Typ **NC.042.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.042.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.

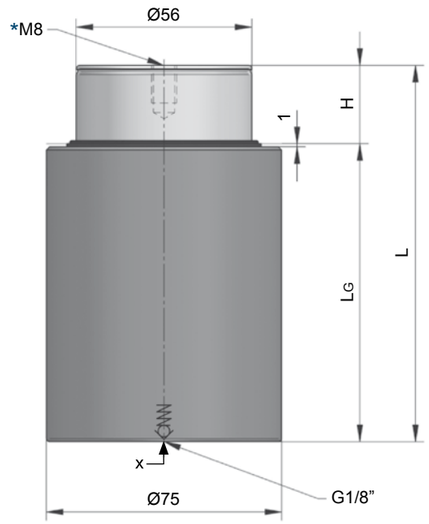


When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

[NC]

NC.042.00.04300...1





Technische Daten:

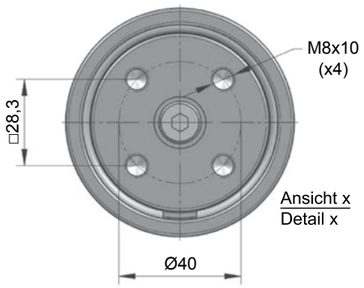
Medium:	N_2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Achtung: Wartungsarbeiten nur durch den Hersteller!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	175 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

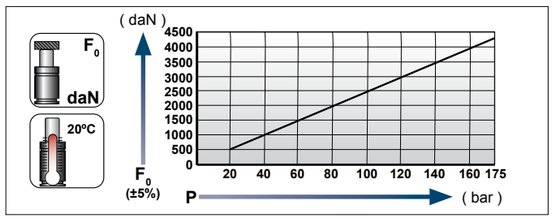
Attention: Maintenance only at manufacturer‘s site!

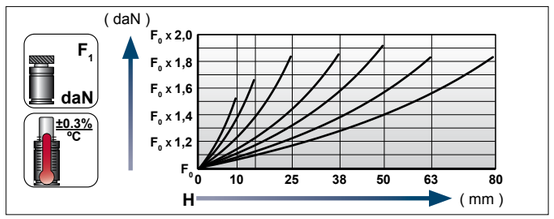


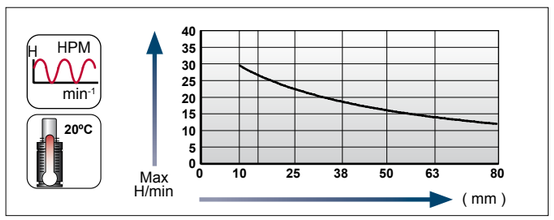
NC.042.00.04300.063.1



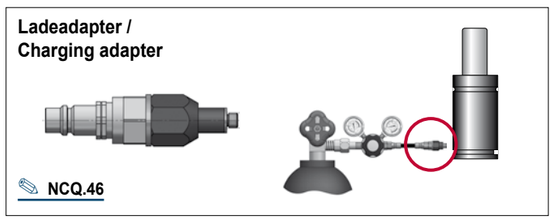
H Hub / Stroke	L ±0,25	LG	Kraft / Force (170 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	90	80	4190	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	100	85	4190	
025	120	95	4190	
038	150	112	4190	
050	175	125	4190	
063	210	147	4190	
080	250	170	4190	







Ladeadapter / Charging adapter



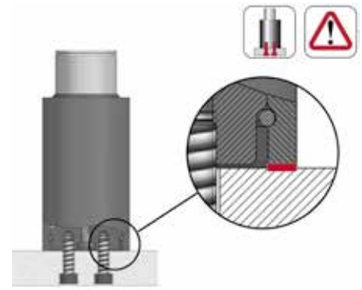
NCQ.46

[25.02.2020]

GDF, mit erhöhter Kraft
GS, with higher force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

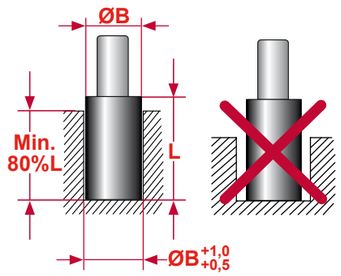
Einbauhinweise für / Mounting instructions for **NC.042.00.04300…1**

Gasdruckfedern vom Typ **NC.042.00**, die mit Schrauben befestigt werden, benötigen eine absolut plane und winklige Anschraubfläche.



Gas springs of type **NC.042.00**, which are fastened with screws, require an absolutely flat and angled screwing surface.

Werden Gasdruckfedern in einer Vertiefung eingebaut, sollte der Bohrungsdurchmesser nur 1 mm grösser als der Federdurchmesser sein. Die Kaverne sollte mindestens 80% von L betragen, und die Stellfläche absolut plan sein.

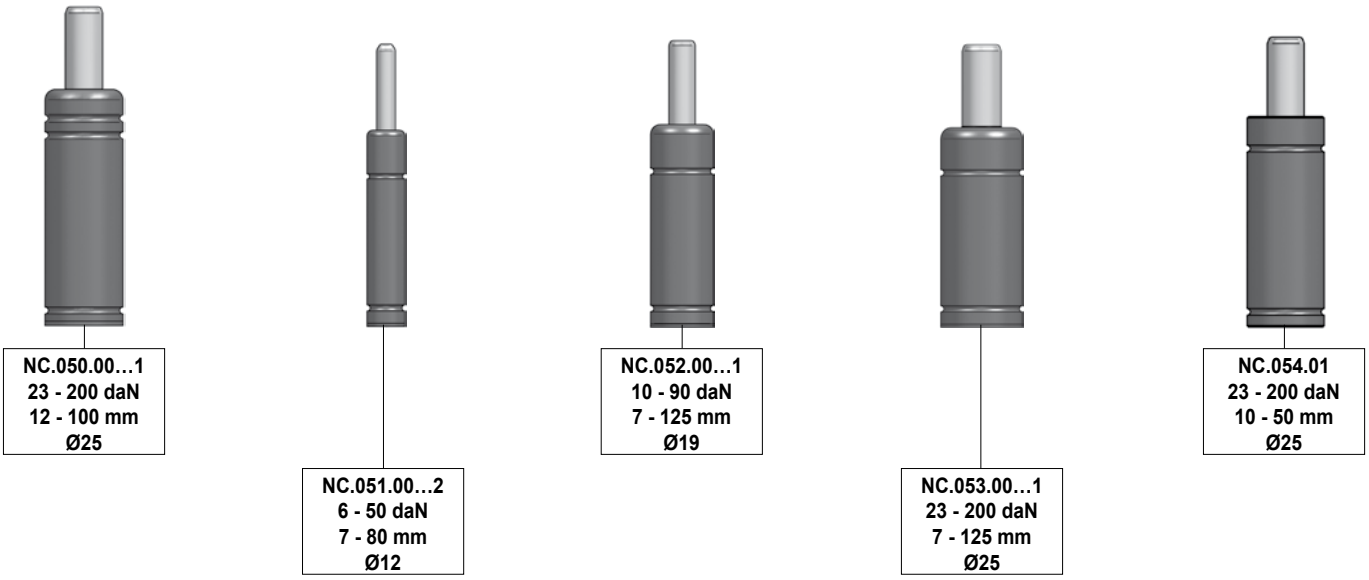


When the gas springs are installed into a bored pocket, the bored pocket diameter should not exceed 1 mm larger than the gas spring body diameter. The bore pocket depth must be minimum 80% of L and a flat surface against the base is always required.

[25.02.2020]

Größenübersicht Serie NC.05X.00

Gas spring index NC.05X.00 series



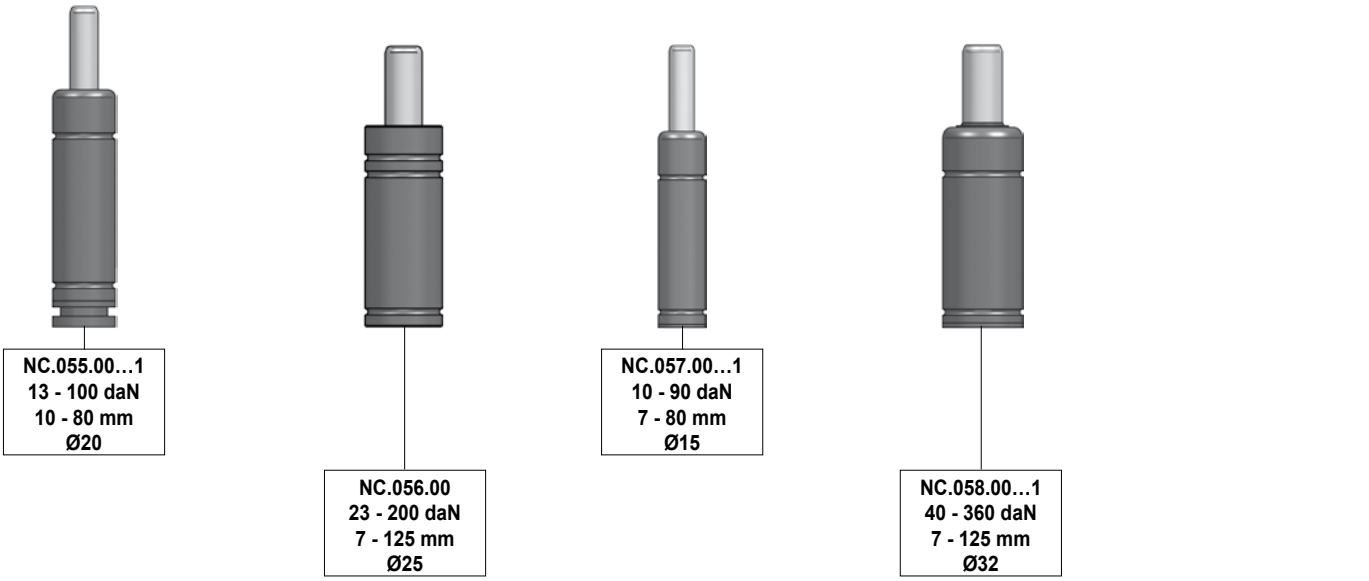
NC.050.00…1
23 - 200 daN
12 - 100 mm
Ø25

NC.051.00…2
6 - 50 daN
7 - 80 mm
Ø12

NC.052.00…1
10 - 90 daN
7 - 125 mm
Ø19

NC.053.00…1
23 - 200 daN
7 - 125 mm
Ø25

NC.054.01
23 - 200 daN
10 - 50 mm
Ø25



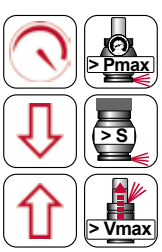
NC.055.00…1
13 - 100 daN
10 - 80 mm
Ø20

NC.056.00
23 - 200 daN
7 - 125 mm
Ø25

NC.057.00…1
10 - 90 daN
7 - 80 mm
Ø15

NC.058.00…1
40 - 360 daN
7 - 125 mm
Ø32

SICHERHEITSSYSTEME



Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

NC.050.00…1

Technische Daten:

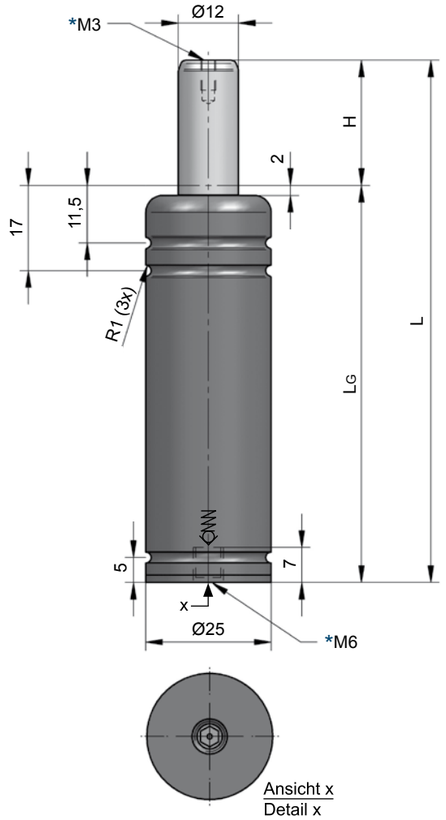
Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

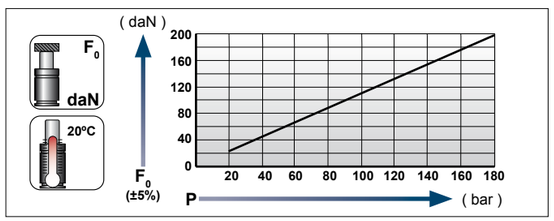


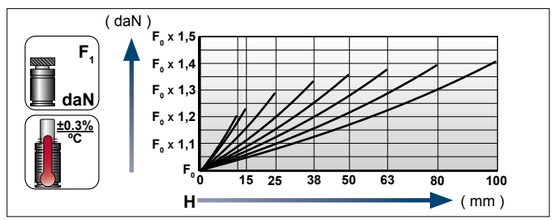


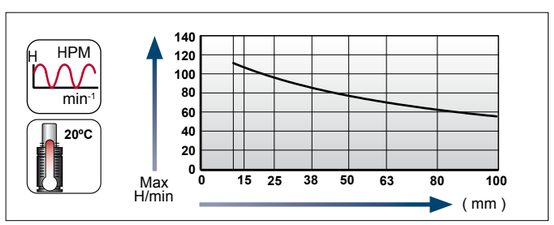
NC.050.00. 00050.015.1

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.050.00.00050.1	Grün / Green	45	50	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.050.00.00100.1	Blau / Blue	90	100	
NC.050.00.00150.1	Rot / Red	135	150	
NC.050.00.00200.1	Gelb / Yellow	180	200	
NC.050.00.00000.1	Schwarz / Black	20 - 180	23 - 200	

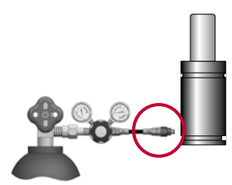
Hub / Stroke	L ±0,25	LG
012	78	66
015	84	69
025	104	79
038	130	92
050	154	104
063	180	117
080	214	134
100	254	154







Ladeadapter / Charging adapter

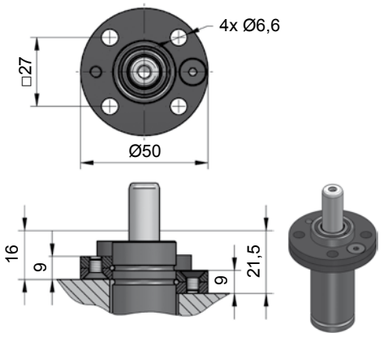


NCQ.44

[07.02.2020]

GDF, kleine Abmessungen
GS, Micro springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.050.00.00050.1, …00100.1, …00150.1, …00200.1, …00000.1**

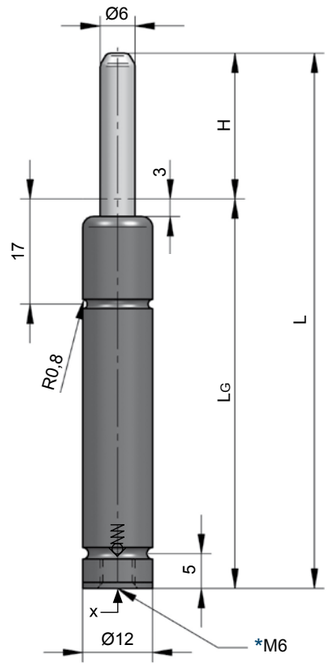


NC.88.00.025.0114

[07.02.2020]

[NC]

NC.051.00…2



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

Achtung: Das Mittengewinde M6 im Boden der Gasdruckfeder darf nicht zur Befestigung genutzt werden.

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

Important: Do not use the centre-thread M6 in the bottom for fixing the gas spring into the tool.

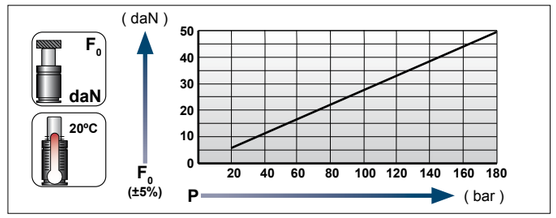


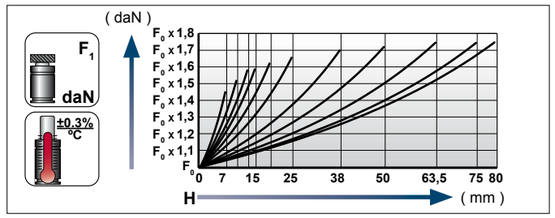
NC.051.00. 00025.025.2

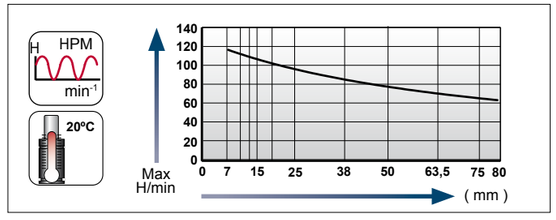

Ansicht x
Detail x

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.051.00.00013.2	Grün / Green	45	13	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.051.00.00025.2	Blau / Blue	90	25	
NC.051.00.00038.2	Rot / Red	135	38	
NC.051.00.00050.2	Gelb / Yellow	180	50	
NC.051.00.00000.2	Schwarz / Black	20 - 180	6 - 50	

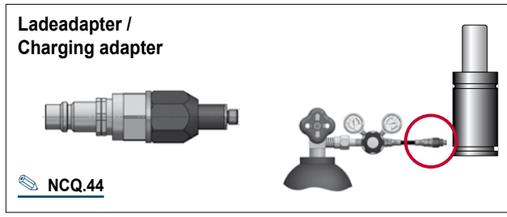
Hub / Stroke	L ±0,25	LG
007	56	49
010	62	52
012,7	67,4	54,7
015	72	57
019	80	61
025	92	67
038	118	80
050	142	92
063,5	172	108,5
075	195	120
080	205	125







Ladeadapter / Charging adapter

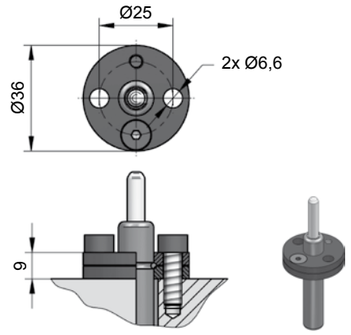


NCQ.44

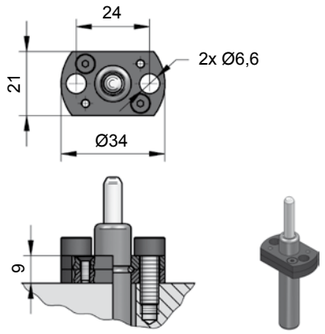
[07.02.2020]

GDF, kleine Abmessungen
GS, Micro springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.051.00.00013.2, …00025.2, …00038.2, …00050.2, …00000.2**



NC.88.00.012.0114



NC.88.00.012.0159

[07.02.2020]

NC.052.00…1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

Achtung: Das Mittengewinde M6 im Boden der Gasdruckfeder darf nicht zur Befestigung genutzt werden.

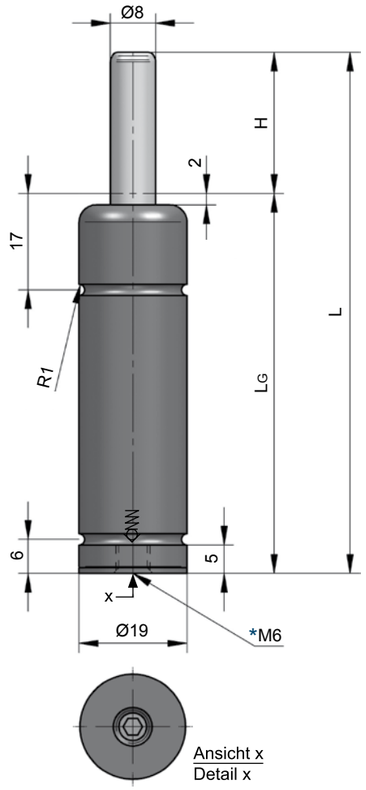
Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

Important: Do not use the centre-thread M6 in the bottom for fixing the gas spring into the tool.

NC.052.00.00030.080.1



ZUGELASSEN PED 2014/68/EU

VDI 3003

> Pmax

> S

> Vmax

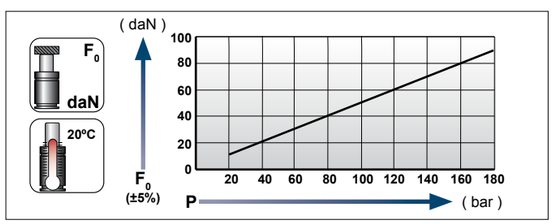
*

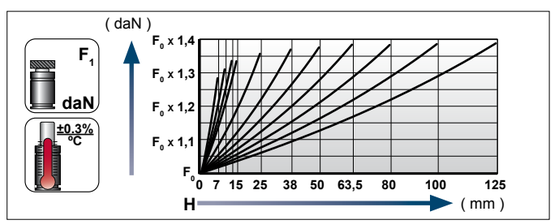
INFO [NC.21]

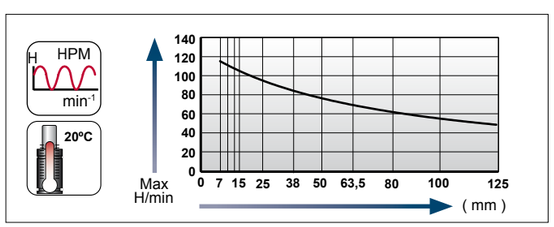
MAIL

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.052.00.00030.1	Grün / Green	60	30	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.052.00.00050.1	Blau / Blue	100	50	
NC.052.00.00070.1	Rot / Red	140	70	
NC.052.00.00090.1	Gelb / Yellow	180	90	
NC.052.00.00000.1	Schwarz / Black	20 - 180	10 - 90	

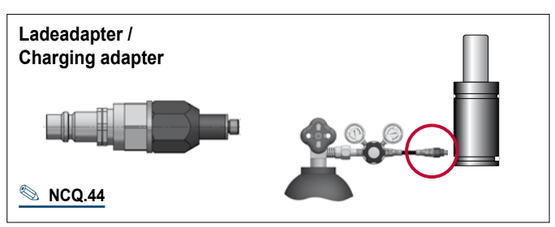
Hub / Stroke	L ±0,25	LG
007	56	49
010	62	52
012,7	67,4	54,7
015	72	57
025	92	67
038	118	80
050	142	92
063,5	172	108,5
080	205	125
100	245	145
125	295	170







Ladeadapter / Charging adapter

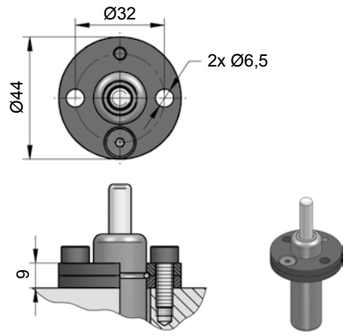


NCQ.44

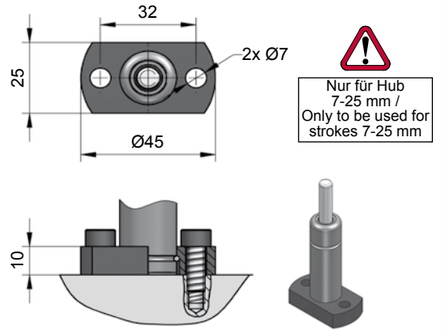
[07.02.2020]

[07.02.2020]

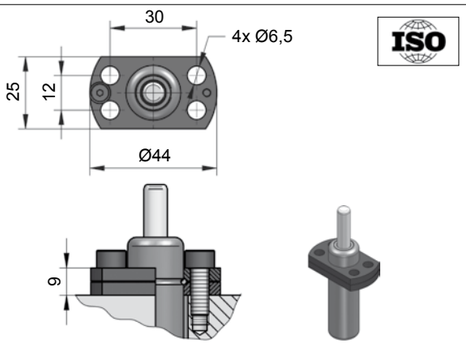
Flansche für / Flanges for **NC.052.00.00030.1, …00050.1, …00070.1, …00090.1, …00000.1**



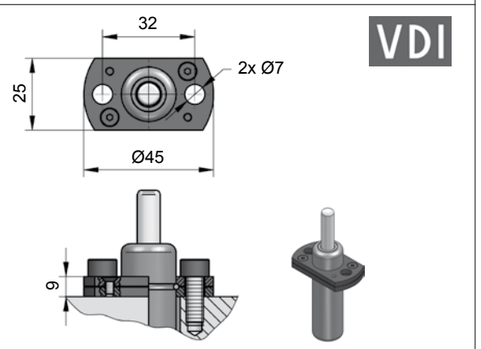
NC.88.00.019.0114



NC.88.00.019.0119



NC.88.00.019.0144



NC.88.00.019.0159

NC.053.00…1

Technische Daten:

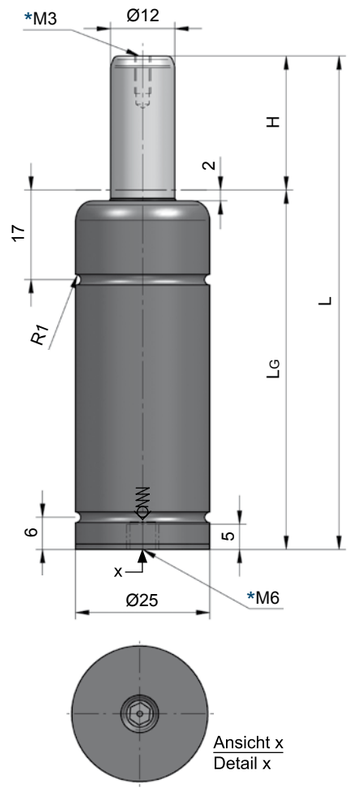
Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

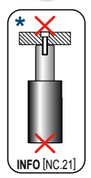
Einwegfeder ist nicht reparierbar!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

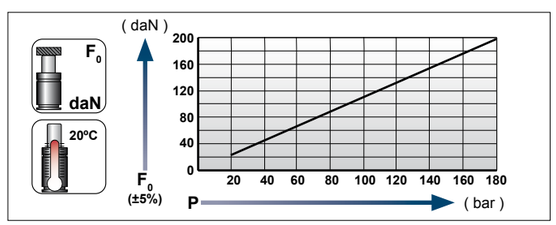


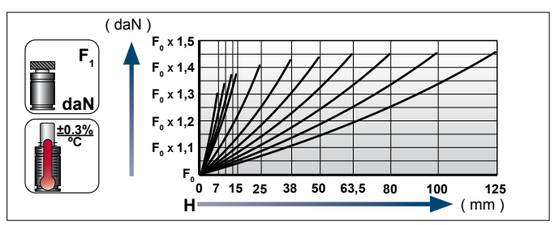


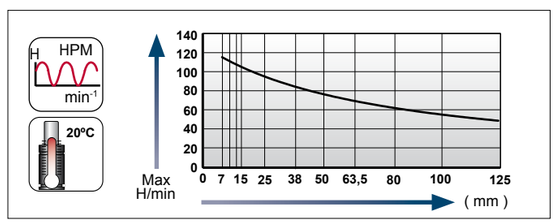
NC.053.00.
00050.007.1

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.053.00.00050.1	Grün / Green	45	50	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.053.00.00100.1	Blau / Blue	90	100	
NC.053.00.00150.1	Rot / Red	135	150	
NC.053.00.00200.1	Gelb / Yellow	180	200	
NC.053.00.00000.1	Schwarz / Black	20 - 180	23 - 200	

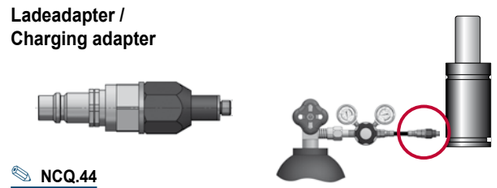
Hub / Stroke	L ±0,25	LG
007	56	49
010	62	52
012,7	67,4	54,7
015	72	57
025	92	67
038	118	80
050	142	92
063,5	172	108,5
080	205	125
100	245	145
125	295	170





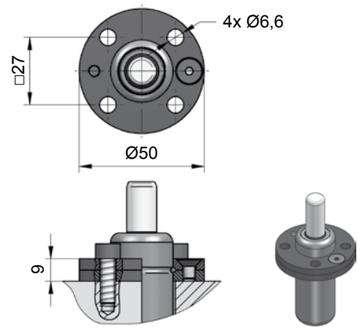


Ladeadapter / Charging adapter

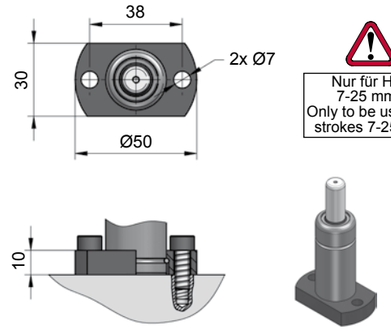


NCQ.44

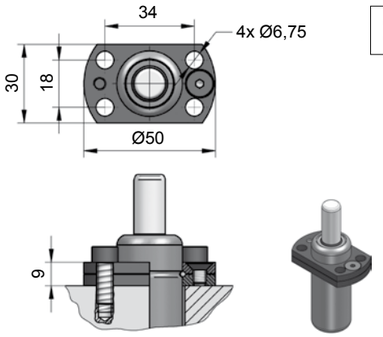
Flansche für / Flanges for **NC.053.00.00050.1, …00100.1, …00150.1, …00200.1, …00000.1**



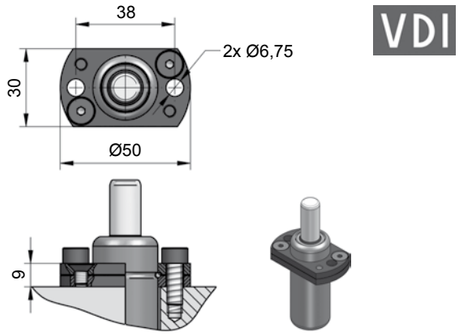
NC.88.00.025.0114



NC.88.00.025.0119



NC.88.00.025.0144



NC.88.00.025.0149

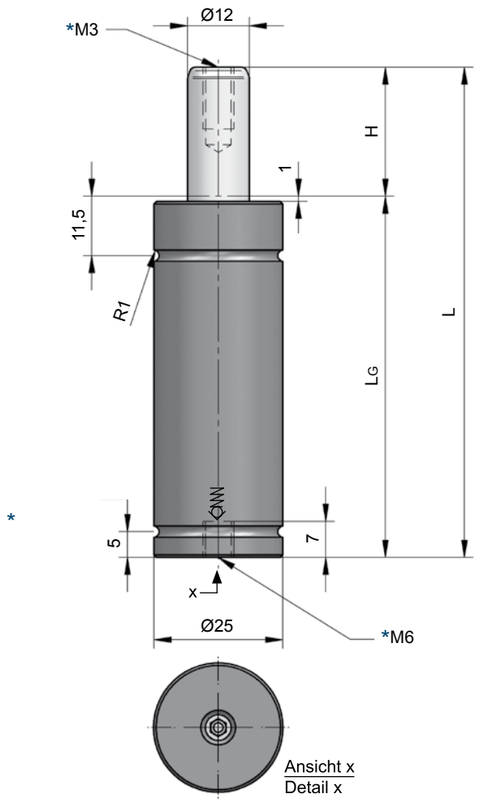
NC.054.01

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

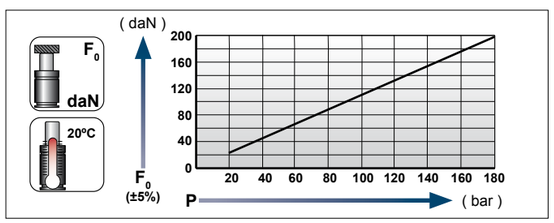


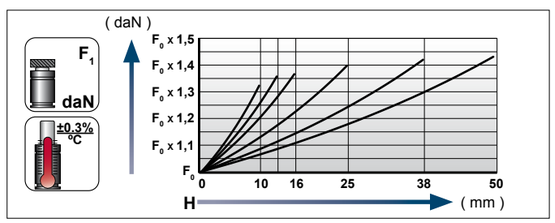


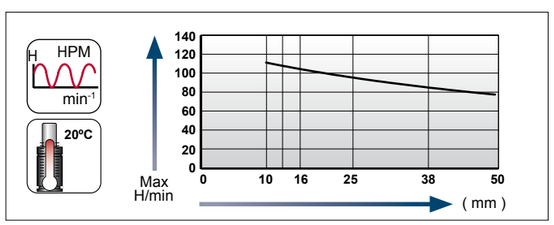
NC.054.01.
00050.016

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.054.01.00050	Grün / Green	45	50	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.054.01.00100	Blau / Blue	90	100	
NC.054.01.00150	Rot / Red	135	150	
NC.054.01.00200	Gelb / Yellow	180	200	
NC.054.01.00000	Schwarz / Black	20 - 180	23 - 200	

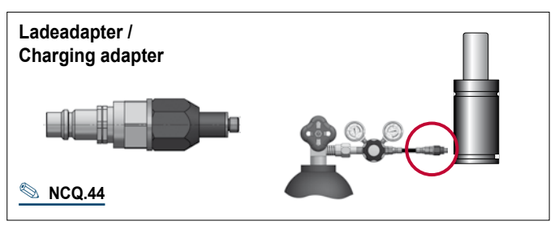
Hub / Stroke	L ±0,25	LG
010	65	55
012,7	70,4	57,7
016	77	61
025	95	70
038	121	83
050	145	95







Ladeadapter / Charging adapter



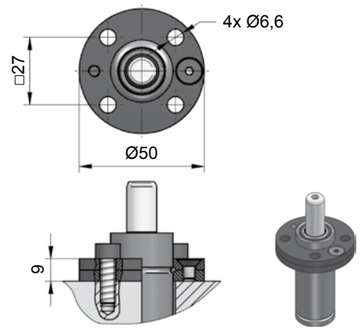
NCQ.44

[07.02.2020]

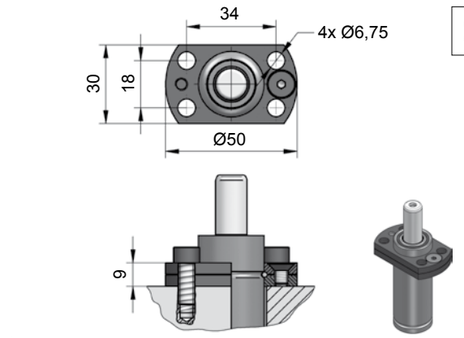
[07.02.2020]

GDF, kleine Abmessungen
GS, Micro springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

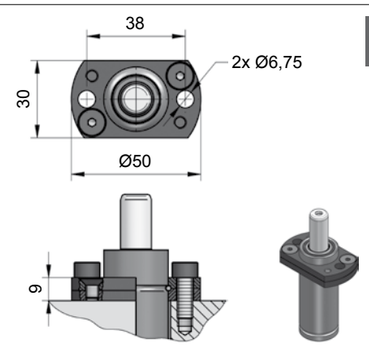
Flansche für / Flanges for **NC.054.01.00050, ...00100, ...00150, ...00200, ...00000**



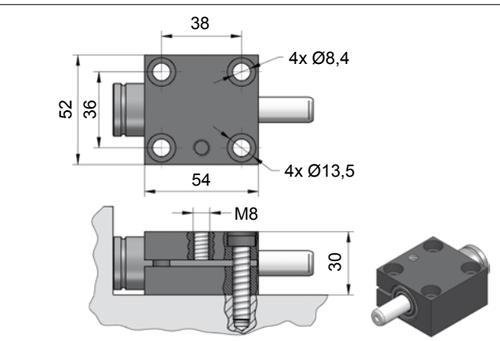
NC.88.00.025.0114



NC.88.00.025.0144



NC.88.00.025.0149



NC.88.00.025.0402

NC.055.00…1

Technische Daten:

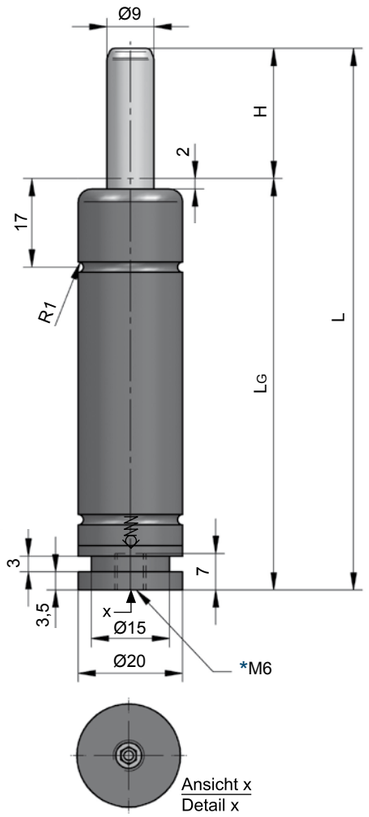
Medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

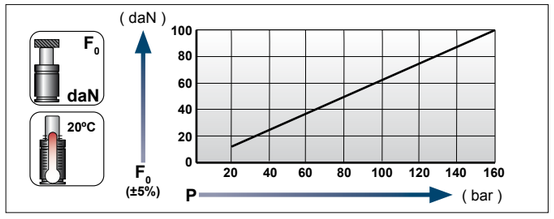


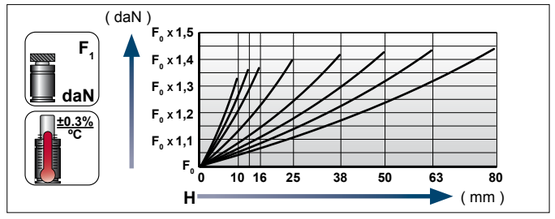


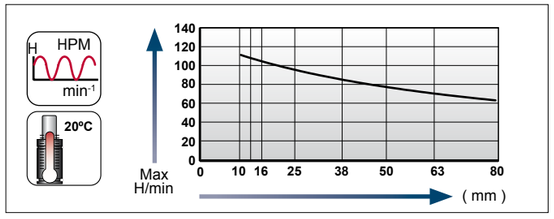
NC.055.00.00025.050.1

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.055.00.00025.1	Grün / Green	40	25	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.055.00.00050.1	Blau / Blue	80	50	
NC.055.00.00075.1	Rot / Red	120	75	
NC.055.00.00100.1	Gelb / Yellow	160	100	
NC.055.00.00000.1	Schwarz / Black	20 - 160	13 - 100	

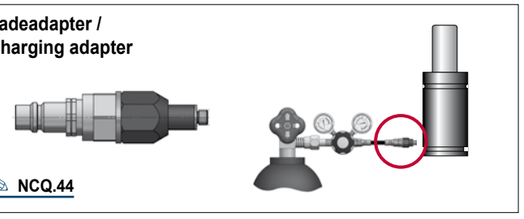
Hub / Stroke	L ±0,25	LG
010	74	64
012,7	79,4	66,7
016	86	70
025	104	79
038	130	92
050	154	104
063	180	117
080	214	134







Ladeadapter / Charging adapter

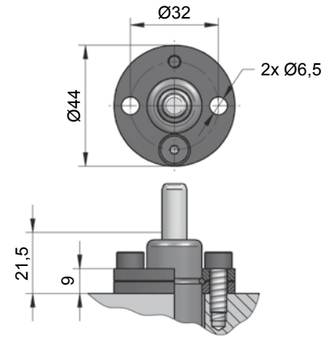


NCQ.44

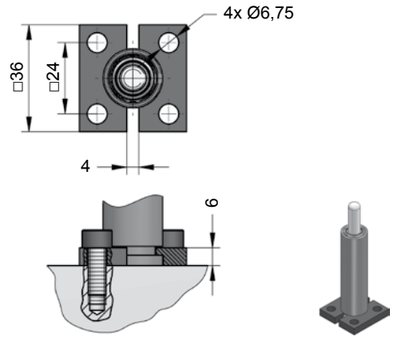
[07.02.2020]

GDF, kleine Abmessungen
GS, Micro springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.055.00.00025.1, …00050.1, …00075.1, …00100.1, 00000.1**



NC.88.00.020.0114



NC.88.00.020.0315

[07.02.2020]

[NC]

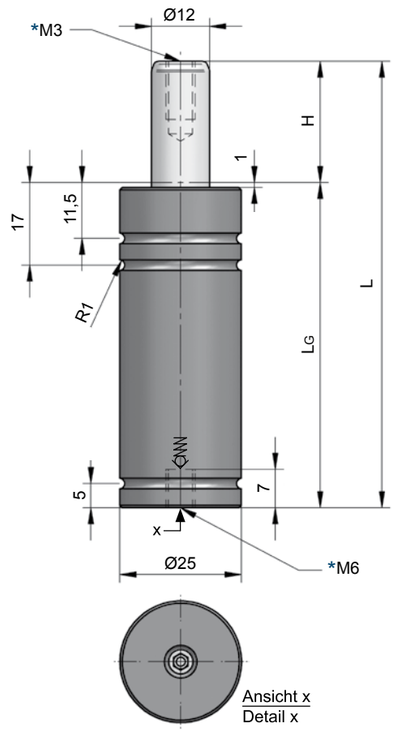
NC.056.00

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

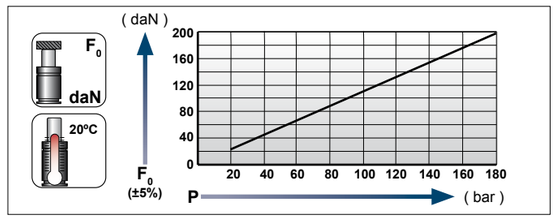


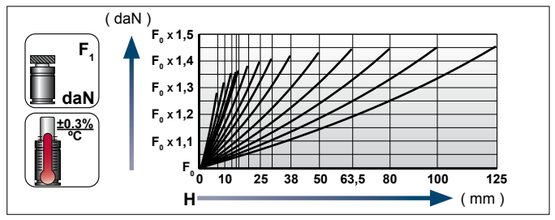
INFO [NC.21]

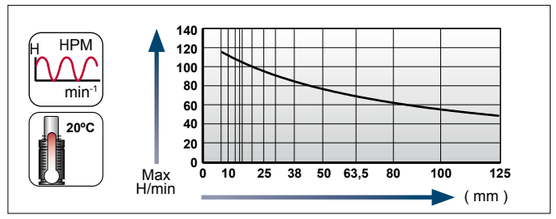
NC.056.00.00150.016

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.056.00.00050	Grün / Green	45	50	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.056.00.00100	Blau / Blue	90	100	
NC.056.00.00150	Rot / Red	135	150	
NC.056.00.00200	Gelb / Yellow	180	200	
NC.056.00.00000	Schwarz / Black	20 - 180	23 - 200	

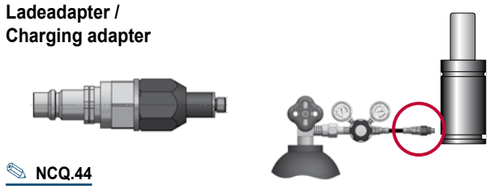
Hub / Stroke	L ±0,5	LG
007	56	49
010	62	52
012,7	67,4	54,7
015	72	57
016	74	58
020	82	62
025	92	67
030	102	72
038	118	80
050	142	92
063,5	172	108,5
080	205	125
100	245	145
125	295	170







Ladeadapter / Charging adapter

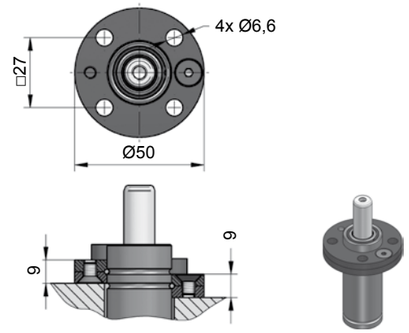


NCQ.44

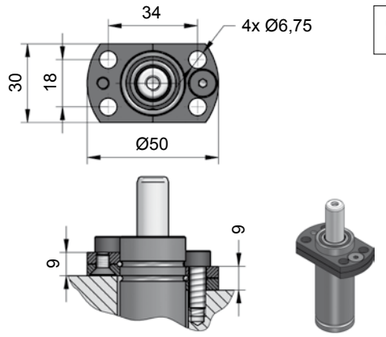
[07.02.2020]

GDF, kleine Abmessungen
GS, Micro springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

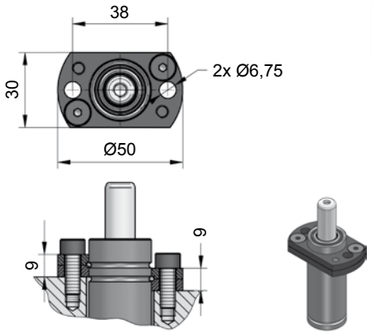
Flansche für / Flanges for **NC.056.00.00050, ...00100, ...00150, ...00200, ...00000**



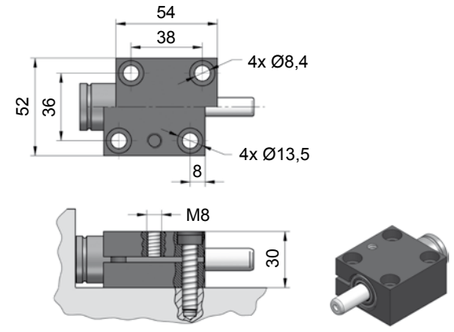
NC.88.00.025.0114



NC.88.00.025.0144



NC.88.00.025.0149



NC.88.00.025.0402

NC.057.00…1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

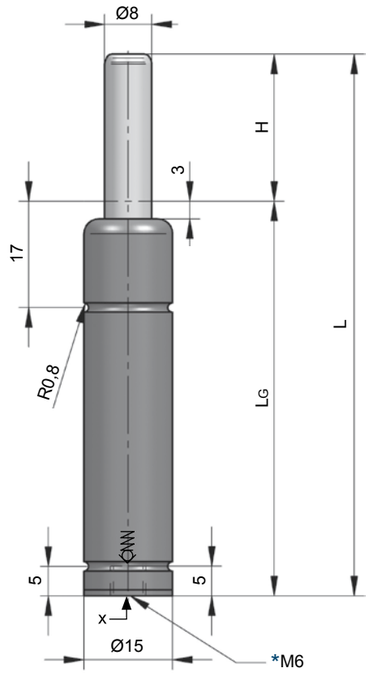
Achtung: Das Mittengewinde M6 im Boden der Gasdruckfeder darf nicht zur Befestigung genutzt werden.

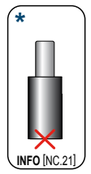
Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

Important: Do not use the centre-thread M6 in the bottom for fixing the gas spring into the tool.



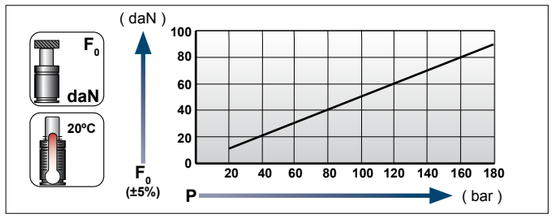


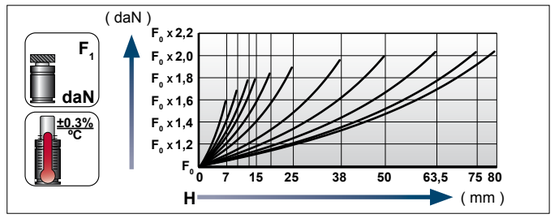
NC.057.00.00090.015.1

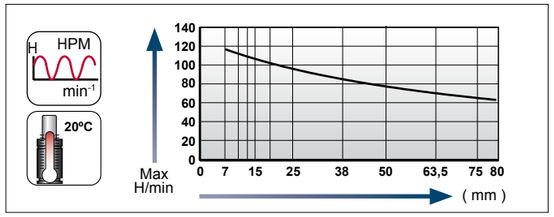


Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.057.00.00018.1	Grün / Green	35	18	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.057.00.00035.1	Blau / Blue	70	35	
NC.057.00.00050.1	Rot / Red	100	50	
NC.057.00.00070.1	Gelb / Yellow	140	70	
NC.057.00.00000.1	Schwarz / Black	20 - 180	10 - 90	

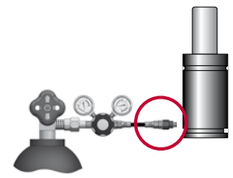
Hub / Stroke	L ±0,5	LG
007	56	49
010	62	52
012,7	67,4	54,7
015	72	57
019	80	61
025	92	67
038	118	80
050	142	92
063,5	172	108,5
075	195	120
080	205	125







Ladeadapter / Charging adapter

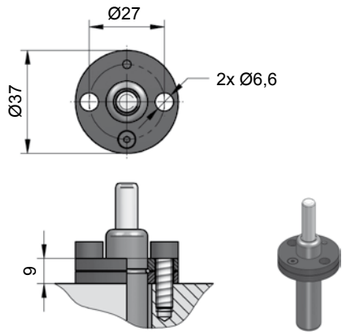


NCQ.44

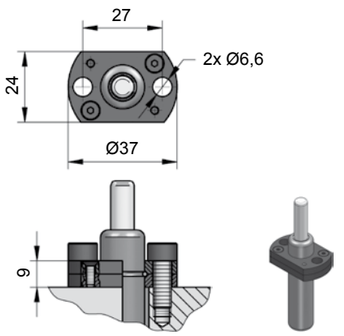
[07.02.2020]

GDF, kleine Abmessungen
GS, Micro springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.057.00.00018.1, …00035.1, …00050.1, …00070.1, …00000.1**



NC.88.00.015.0114



NC.88.00.015.0149

[07.02.2020]

[NC]

NC.058.00…1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

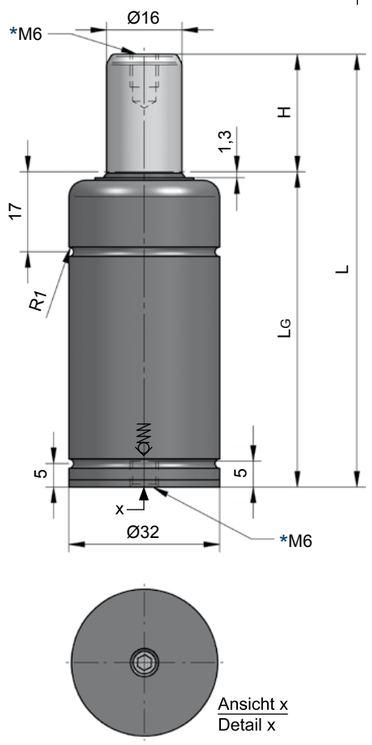
Einwegfeder ist nicht reparierbar!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

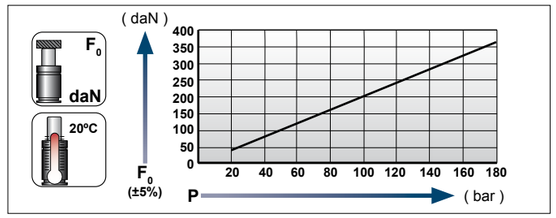
NC.058.00.00160.038.1

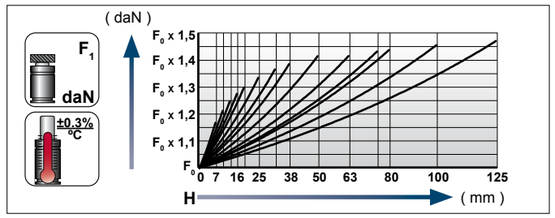


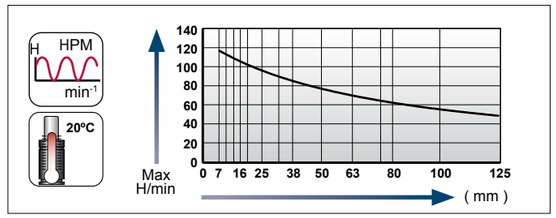


Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.058.00.00080.1	Grün / Green	40	80	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.058.00.00160.1	Blau / Blue	80	160	
NC.058.00.00240.1	Rot / Red	120	240	
NC.058.00.00310.1	Gelb / Yellow	155	310	
NC.058.00.00000.1	Schwarz / Black	20 - 180	40 - 360	

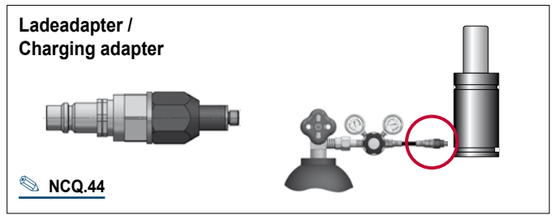
Hub / Stroke	L ±0,5	LG
007	56	49
010	62	52
013	68	55
016	74	58
019	80	61
025	92	67
032	106	74
038	118	80
050	142	92
063	171	108
075	195	120
080	205	125
100	245	145
125	295	170







Ladeadapter / Charging adapter

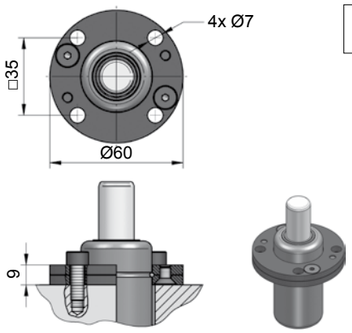


NCQ.44

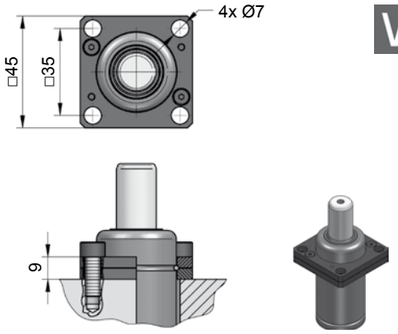
[07.02.2020]

GDF, kleine Abmessungen
GS, Micro springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

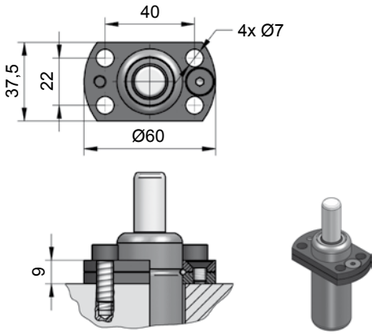
Flansche für / Flanges for **NC.058.00.00080.1, …00160.1, …00240.1, …00310.1, …00000.1**



NC.88.00.032.0114



NC.88.00.032.0134

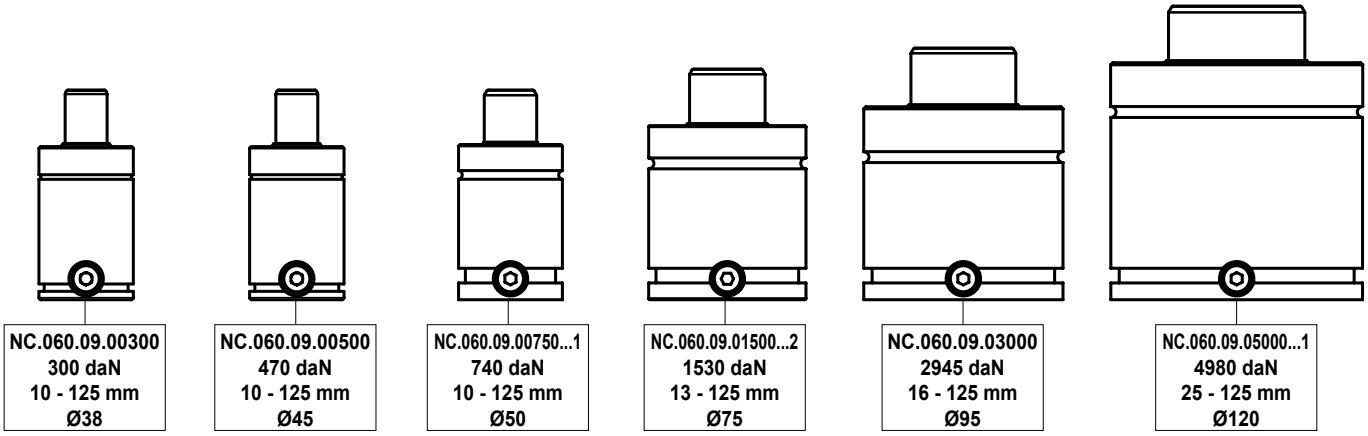


NC.88.00.032.0144

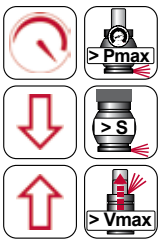
[NC]

Größenübersicht Serie NC.060.09

Gas spring index 060.09 series



SICHERHEITSSYSTEME



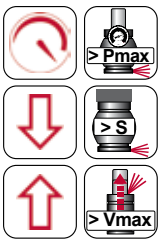
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

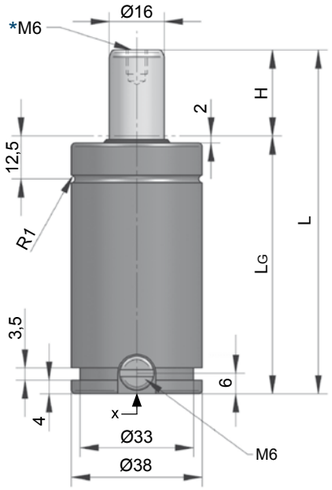
Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

[NC]

NC.060.09.00300



Technische Daten:

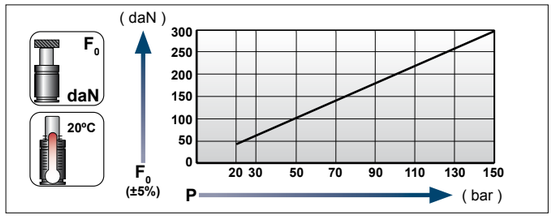
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

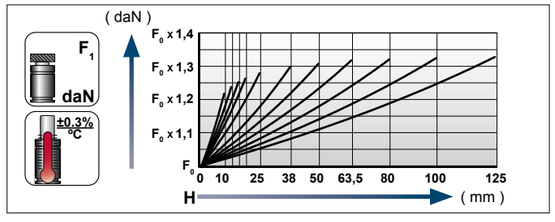
Specifications:

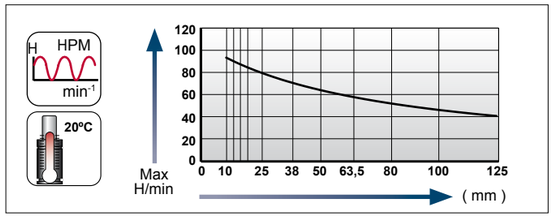
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.060.09.
00300.010

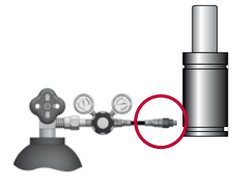
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	70	60	300	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	76	63	300	
016	82	66	300	
019	88	69	300	
025	100	75	300	
038	126	88	300	
050	150	100	300	
063,5	177	113,5	300	
080	210	130	300	
100	250	150	300	
125	300	175	300	







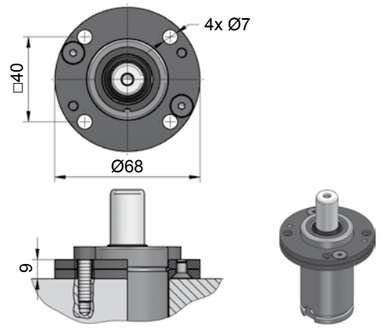
Ladeadapter /
Charging adapter



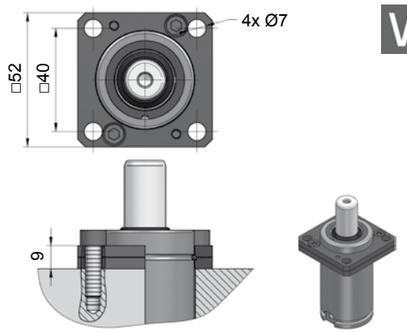
NCQ.44

GDF, Standard, kompakt
GS, Standard, compact height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

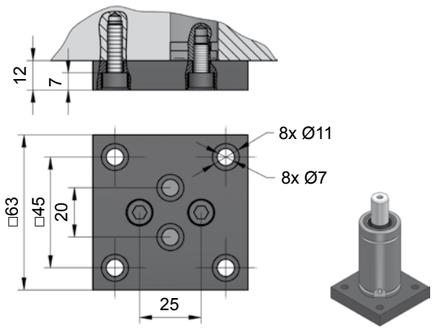
Flansche für / Flanges for **NC.060.09.00300**



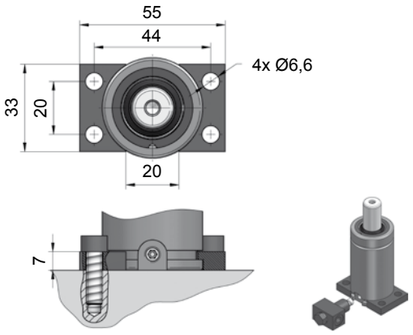
NC.88.00.038.0114



NC.88.00.038.0134

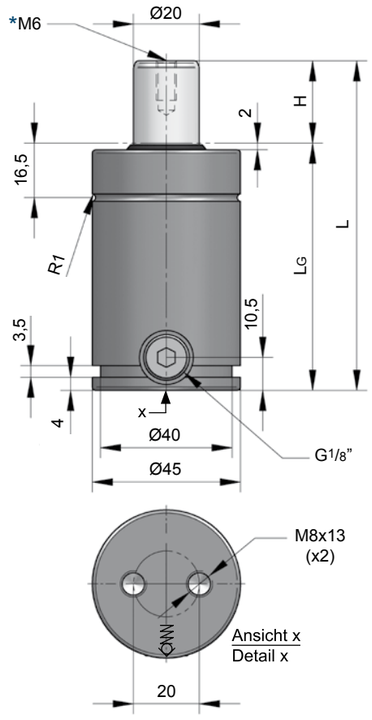


NC.88.00.038.0276



NC.88.00.038.0305

NC.060.09.00500



Technische Daten:

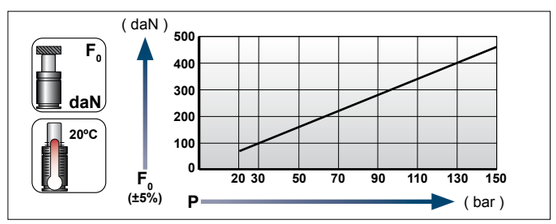
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

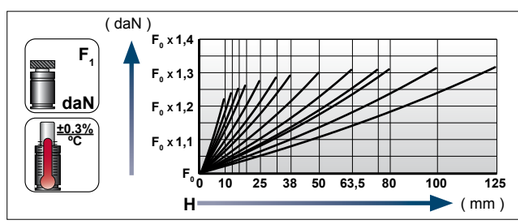
Specifications:

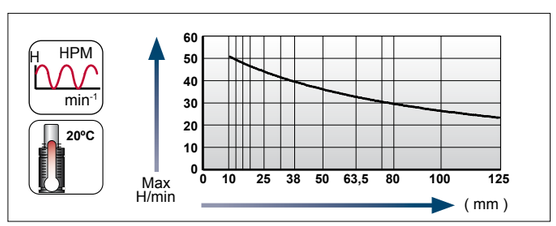
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.060.09.00500.013

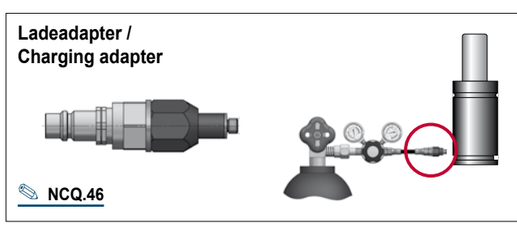
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	70	60	470	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	76	63	470	
016	82	66	470	
019	88	69	470	
025	100	75	470	
032	114	82	470	
038	126	88	470	
050	150	100	470	
063,5	177	113,5	470	
075	200	125	470	
080	210	130	470	
100	250	150	470	
125	300	175	470	







Ladeadapter / Charging adapter

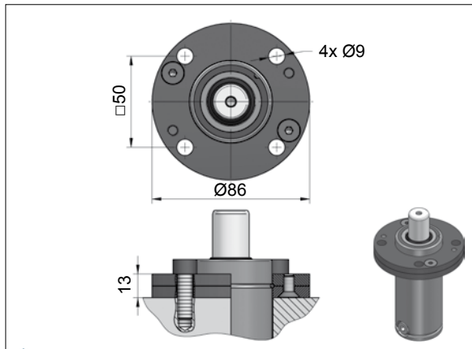


NCQ.46

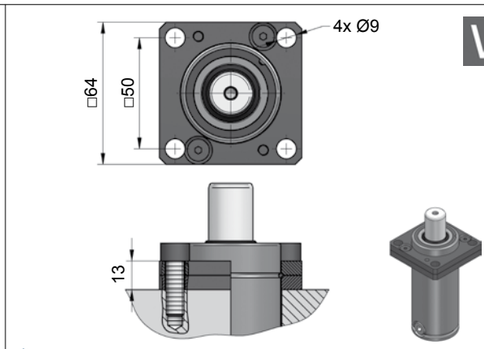
[25.02.2020]

GDF, Standard, kompakt
GS, Standard, compact height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

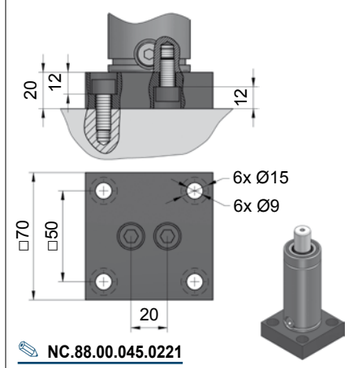
Flansche für / Flanges for **NC.060.09.00500**



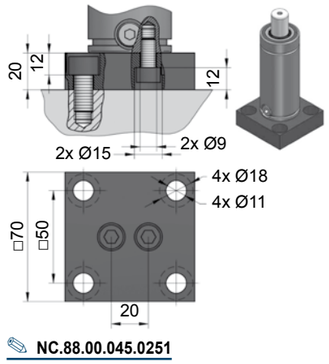
NC.88.00.045.0114



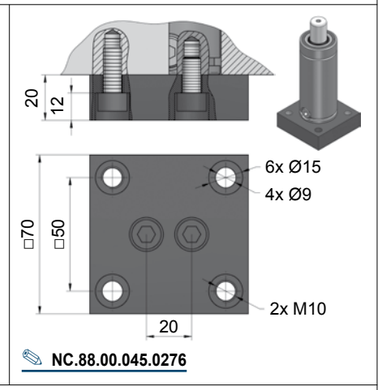
NC.88.00.045.0134



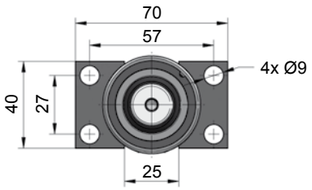
NC.88.00.045.0221



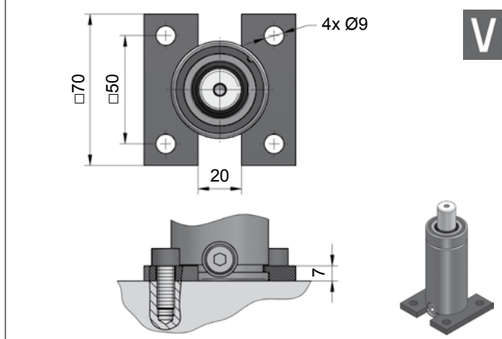
NC.88.00.045.0251



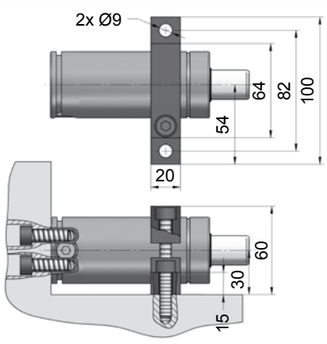
NC.88.00.045.0276



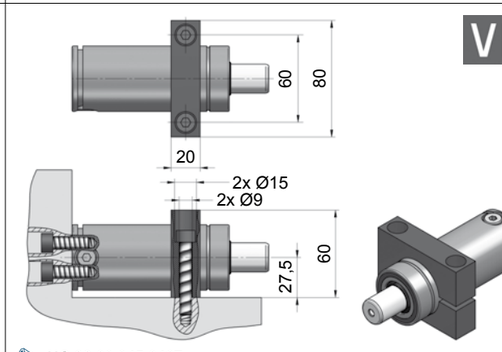
NC.88.00.045.0305



NC.88.00.045.0320



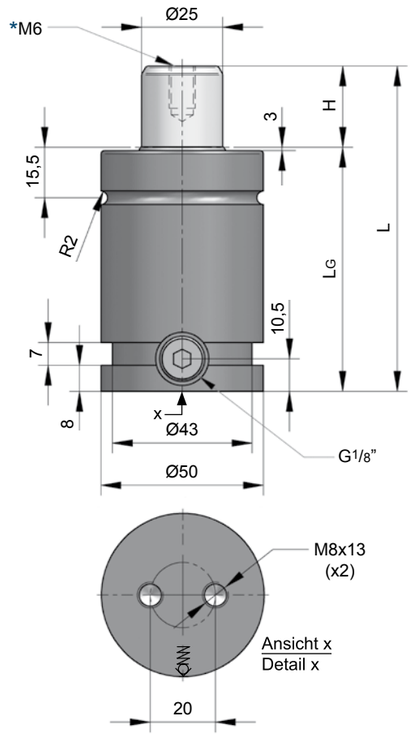
NC.88.00.045.0402



NC.88.00.045.0467

[25.02.2020]

NC.060.09.00750...1



Technische Daten:

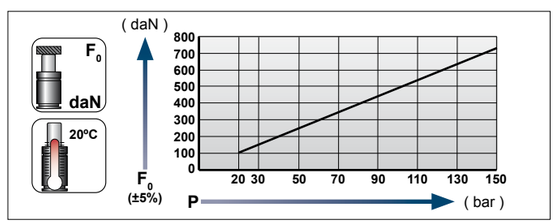
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

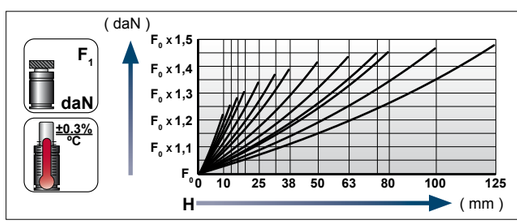
Specifications:

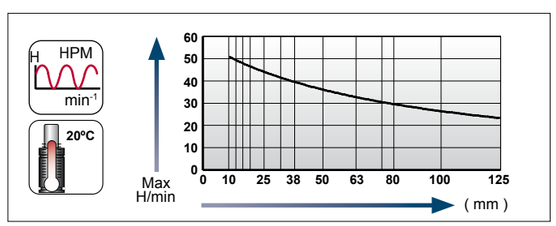
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.060.09.
00750.016.1

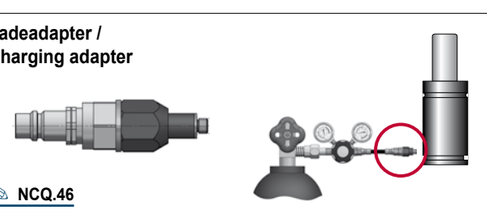
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	70	60	740	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	76	63	740	
016	82	66	740	
019	88	69	740	
025	100	75	740	
032	114	82	740	
038	126	88	740	
050	150	100	740	
063	176	113	740	
075	200	125	740	
080	210	130	740	
100	250	150	740	
125	300	175	740	







Ladeadapter / Charging adapter



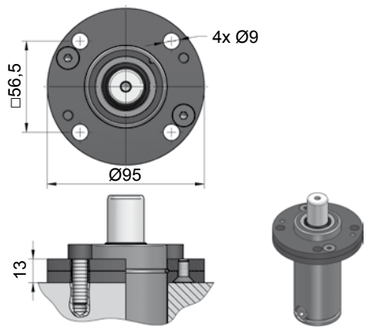
NCQ.46

[NC.060.6]

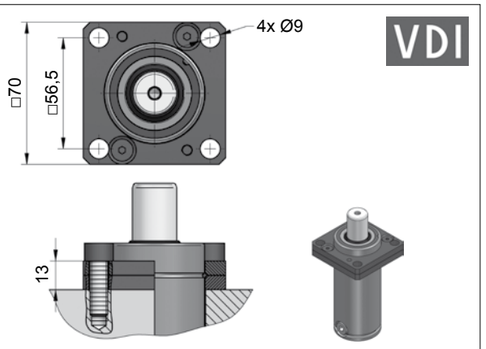
[25.02.2020]

GDF, Standard, kompakt
GS, Standard, compact height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

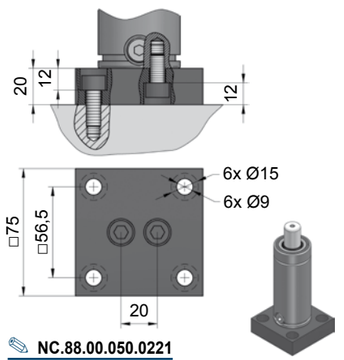
Flansche für / Flanges for **NC.060.09.00750…1**



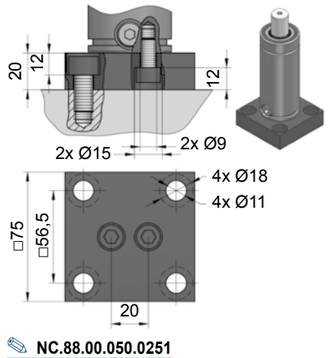
NC.88.00.050.0114



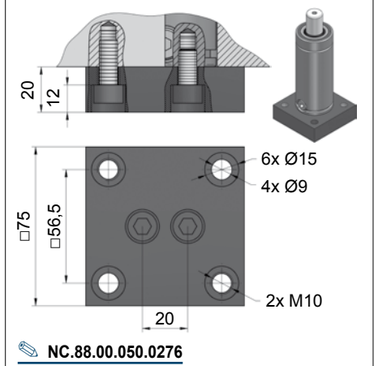
NC.88.00.050.0134



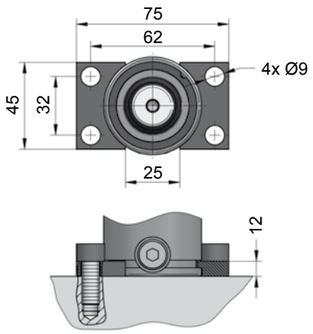
NC.88.00.050.0221



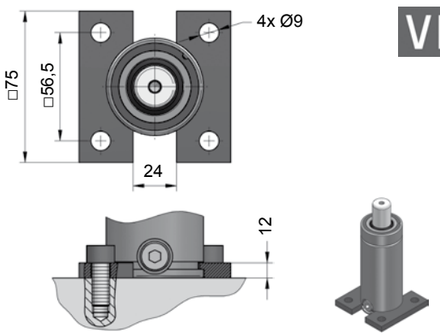
NC.88.00.050.0251



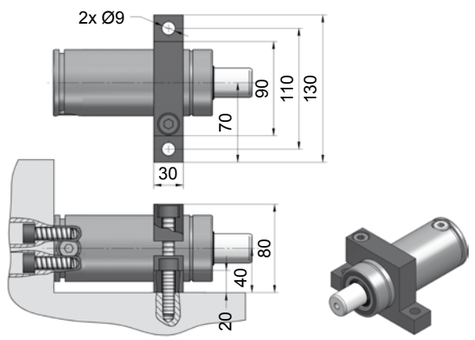
NC.88.00.050.0276



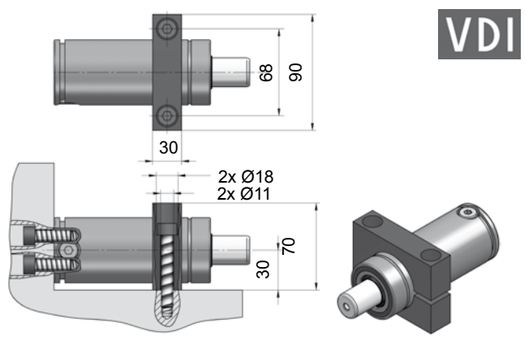
NC.88.00.050.0305



NC.88.00.050.0320



NC.88.00.050.0402



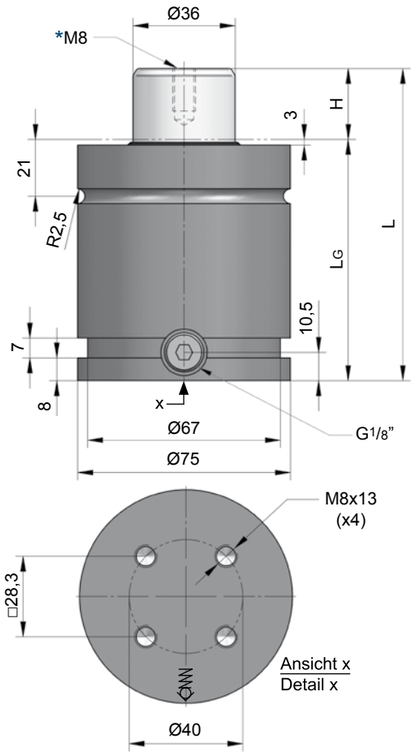
NC.88.00.050.0467

[NC.060.7]

[25.02.2020]

[NC]

NC.060.09.01500...2



Technische Daten:

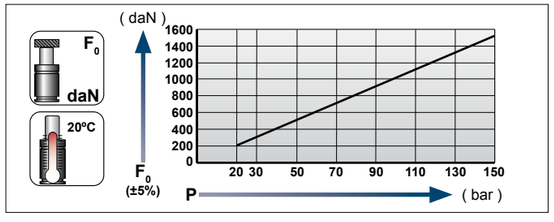
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

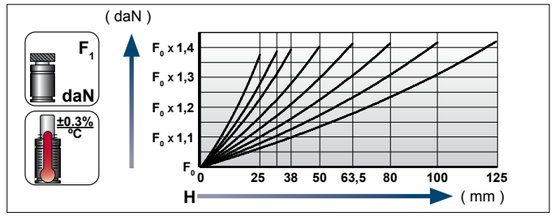
Specifications:

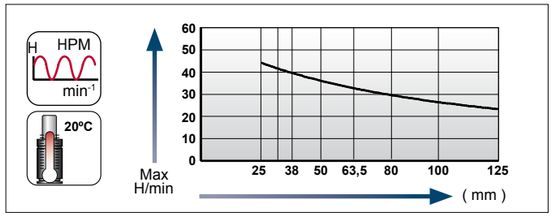
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.060.09.
01500.038.2

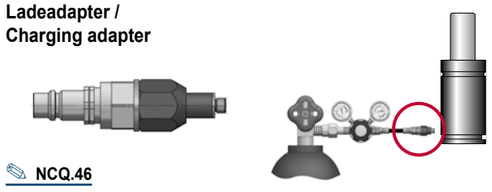
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	110	85	1530	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
032	124	92	1530	
038	136	98	1530	
050	160	110	1530	
063,5	187	123,5	1530	
080	220	140	1530	
100	260	160	1530	
125	310	185	1530	







Ladeadapter /
Charging adapter

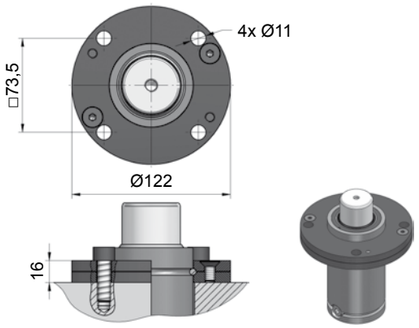


NCQ.46

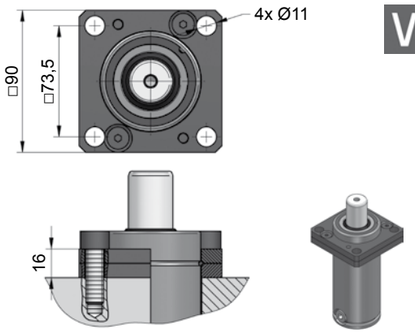
[25.02.2020]

GDF, Standard, kompakt
GS, Standard, compact height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

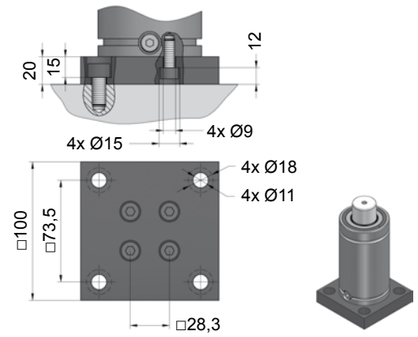
Flansche für / Flanges for **NC.060.09.01500…2**



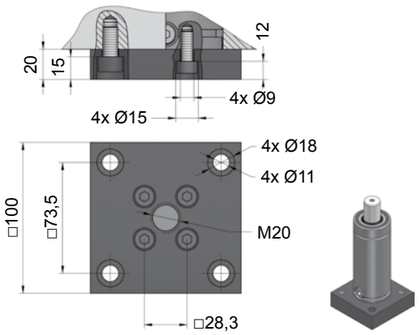
NC.88.00.075.0114



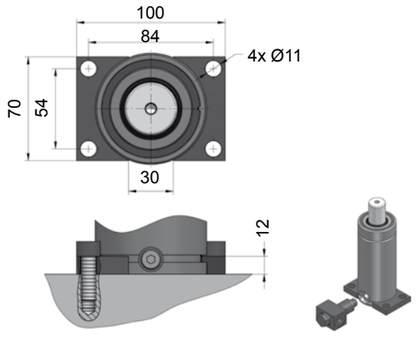
NC.88.00.075.0134



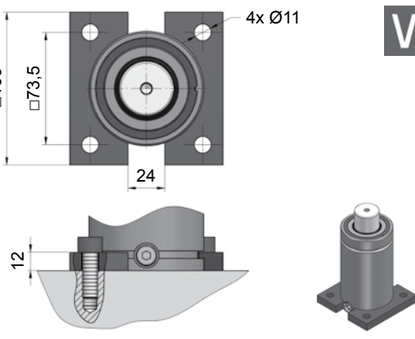
NC.88.00.075.0221



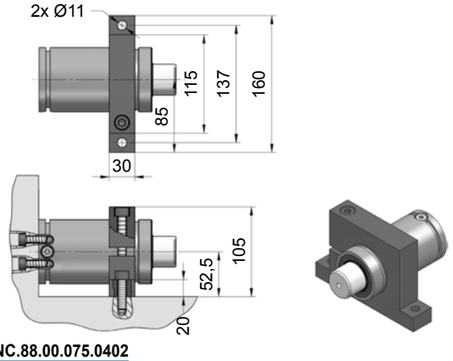
NC.88.00.075.0276



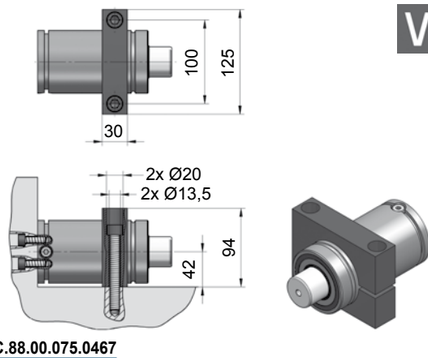
NC.88.00.075.0305



NC.88.00.075.0320



NC.88.00.075.0402

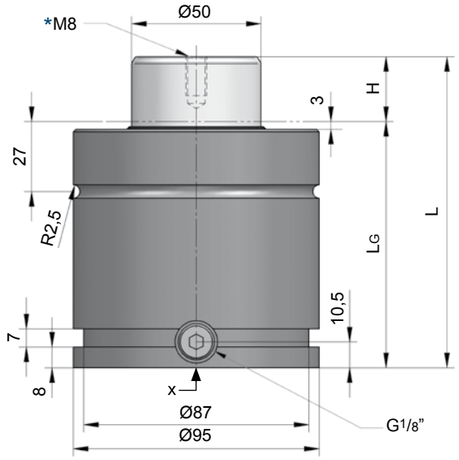


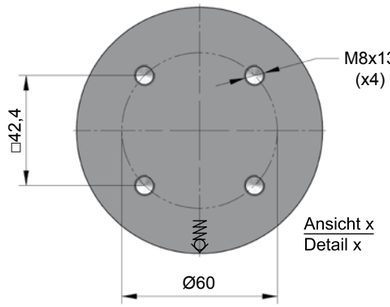
NC.88.00.075.0467

[25.02.2020]

[NC]

NC.060.09.03000





Technische Daten:

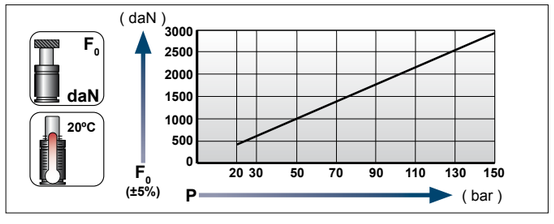
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

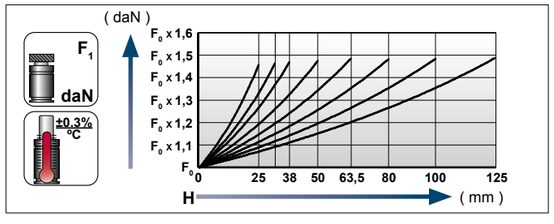
Specifications:

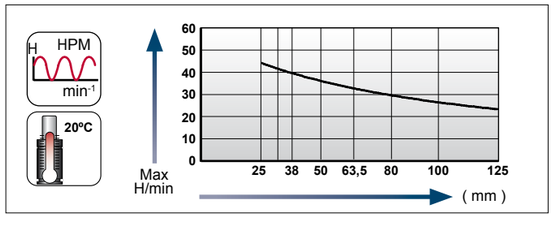
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.060.09.
03000.050

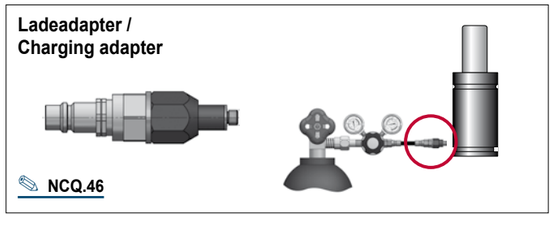
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	120	95	2945	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
032	134	102	2945	
038	146	108	2945	
050	170	120	2945	
063,5	197	133,5	2945	
080	230	150	2945	
100	270	170	2945	
125	320	195	2945	







Ladeadapter /
Charging adapter



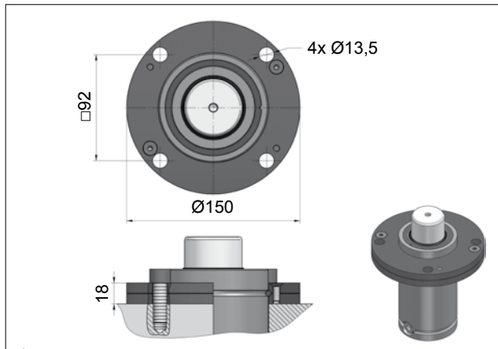
NCQ.46

[25.02.2020]

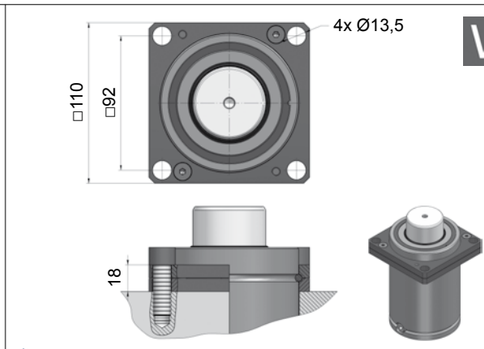
[25.02.2020]

GDF, Standard, kompakt
GS, Standard, compact height
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.060.09.03000**



NC.88.00.095.0114



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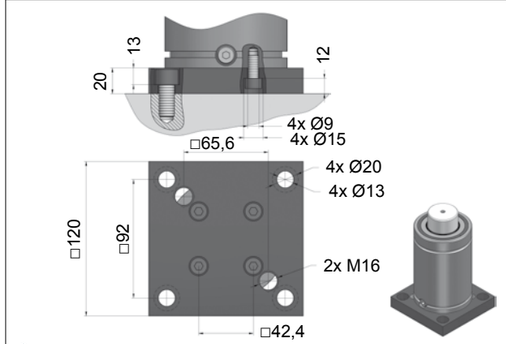

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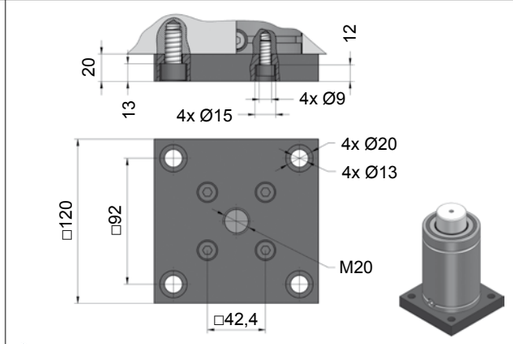
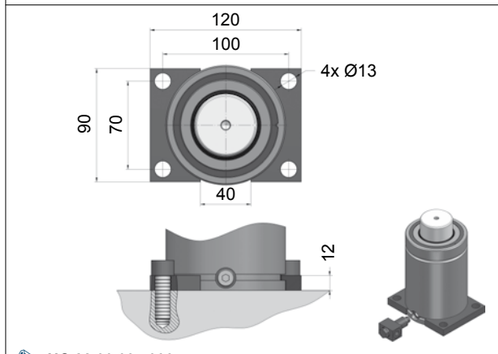
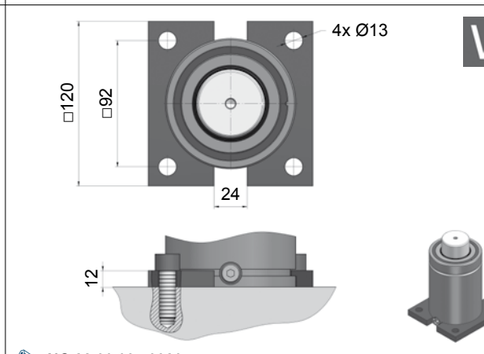


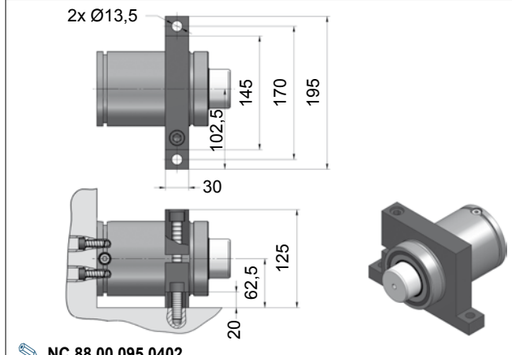
NC.88.00.095.0276



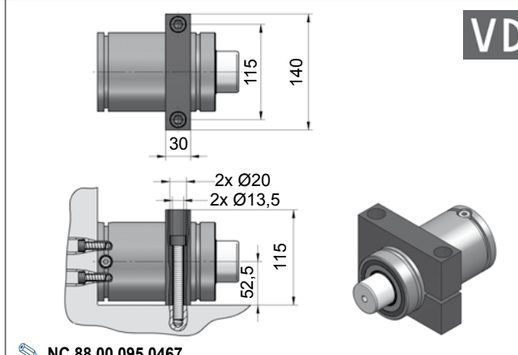
NC.88.00.095.0305



NC.88.00.095.0320



NC.88.00.095.0402



NC.88.00.095.0467

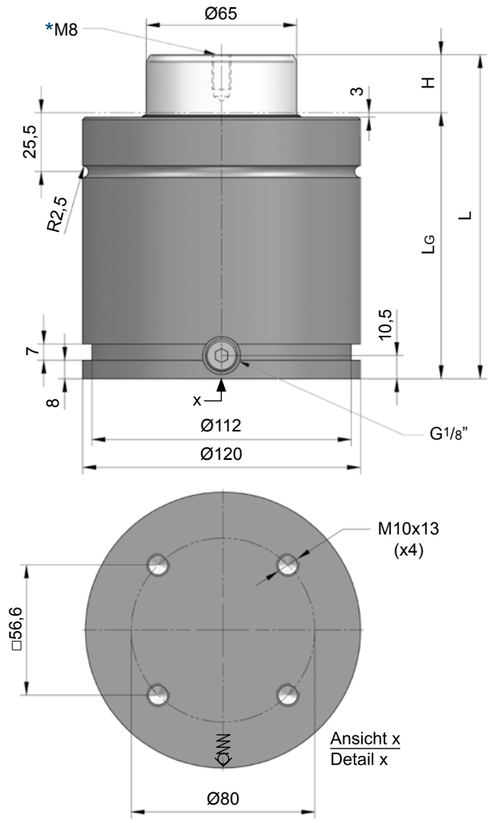
NC.060.09.05000...1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

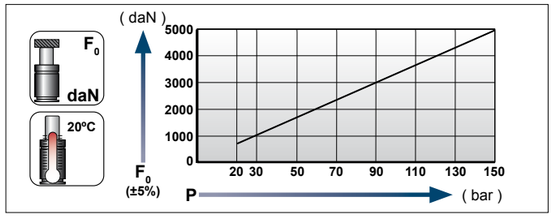


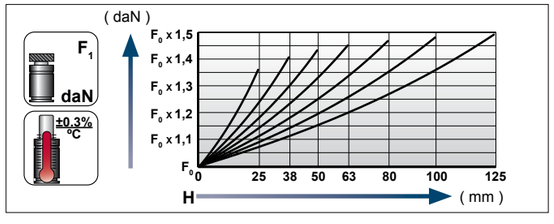
INFO [NC.21]

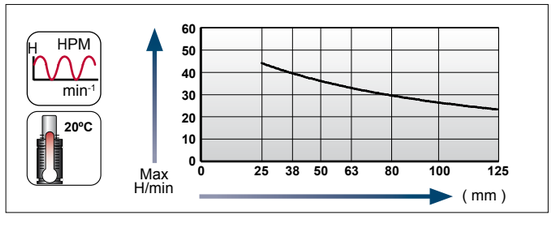
NC.060.09.
05000.080.1

MAIL

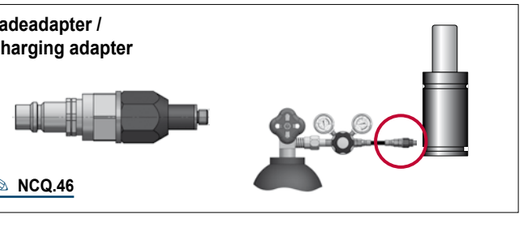
H Hub / Stroke	L ±0,5	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	140	115	4980	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	166	128	4980	
050	190	140	4980	
063	216	153	4980	
080	250	170	4980	
100	290	190	4980	
125	340	215	4980	







Ladeadapter / Charging adapter

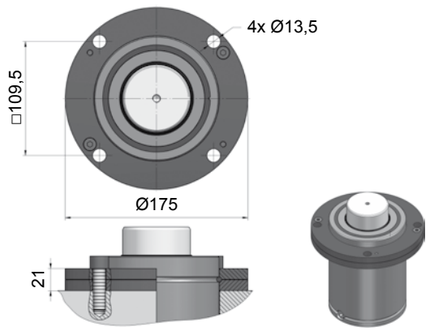


NCQ.46

[25.02.2020]

[25.02.2020]

Flansche für / Flanges for **NC.060.09.05000**



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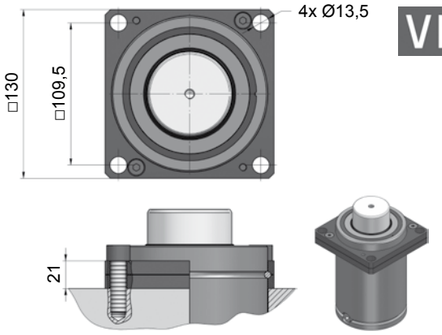

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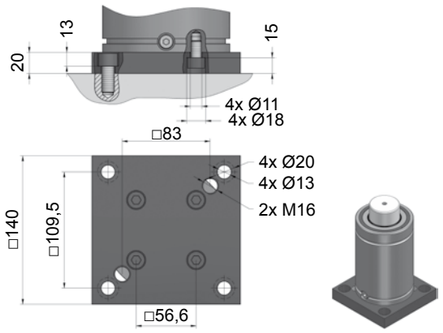

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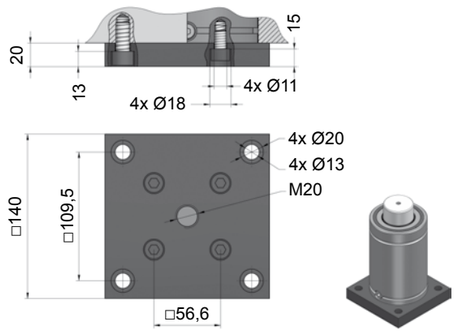

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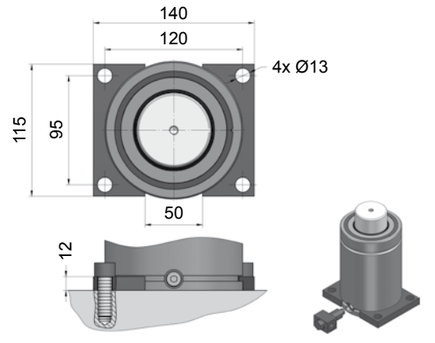

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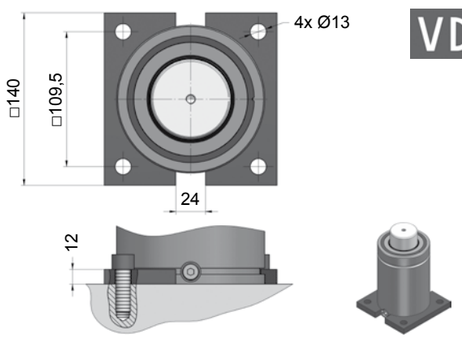

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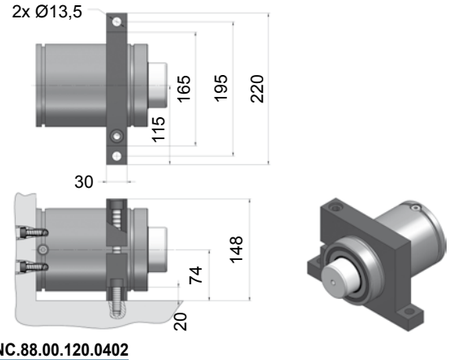
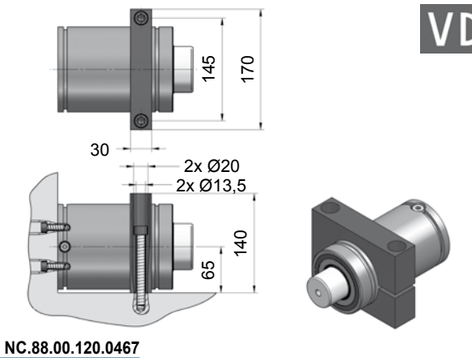


NC.88.00.120.0402



NC.88.00.120.0467

Technische Information Serie NC.060.10

Die Gasdruckfedern der Serie **NC.060.10** sind bei allen Hüben mit FlexRod ausgestattet und sind zusätzlich zur Standard- auch in der Version-B-Ausführungen erhältlich.

Version **B** = Doppelanschluss

Die Standard-Bestellnummer muss um den Versionsbuchstaben ergänzt werden.

Technical information NC.060.10 series

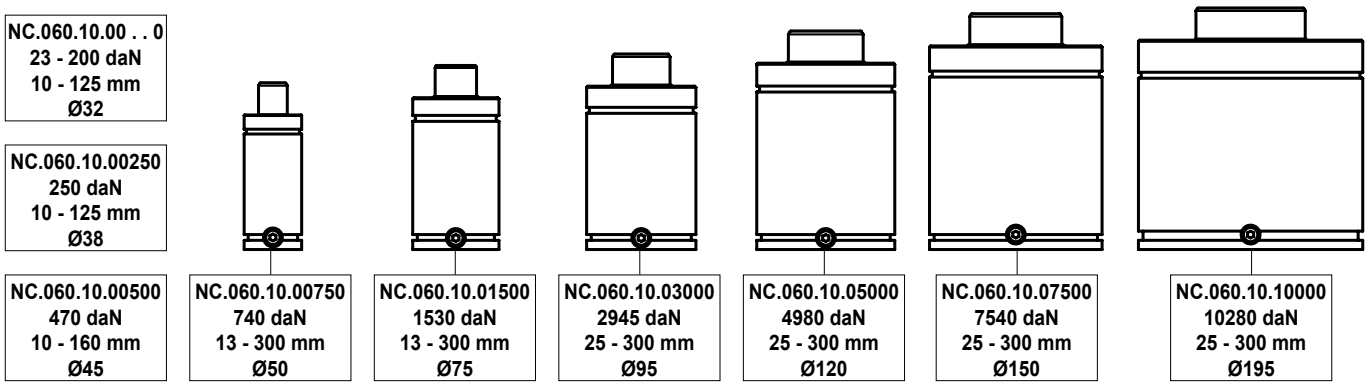
All gas springs of this family come with the built-in „Flexrod“ feature. They are not only available as standards, but with Version B as well.

Version **B** = with double connecting ports

Please add the corresponding letter to the order number.

Größenübersicht Serie NC.060.10

Gas spring index 060.10 series



Die Gasdruckfedern der Serie **NC.060.10** sind grundsätzlich mit einem Spezial-Dichtungs-System ausgestattet, welches eine maximalen Kolbengeschwindigkeit von 2 m/s ermöglicht.

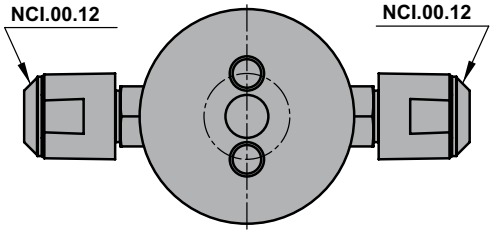


The **NC.060.10**-gas springs are all equipped with special seals, enabling them to operate with a maximum rod-speed of 2 m/s.

Serie NC.060.10
Version B

Die Gasdruckfedern der Serie **NC.060.10** besitzen in der Version B zwei Anschlüsse G1/8“. Ausgestattet mit zwei Anschlussstücken wird die Verschlauchung im System erheblich vereinfacht. Die Gasdruckfedern können aber auch mit anderen Anschlussstücken (siehe Zubehör) versehen werden.

Vorschlag / Proposal



NC.060.10 series
Version B

The **NC.060.10**-gas springs of this version are designed with two (!) G1/8“ - connection threads.
Using two adapters simplifies the connection of the springs with hoses significantly.
Other adapters may be used as well.

SICHERHEITSSYSTEME

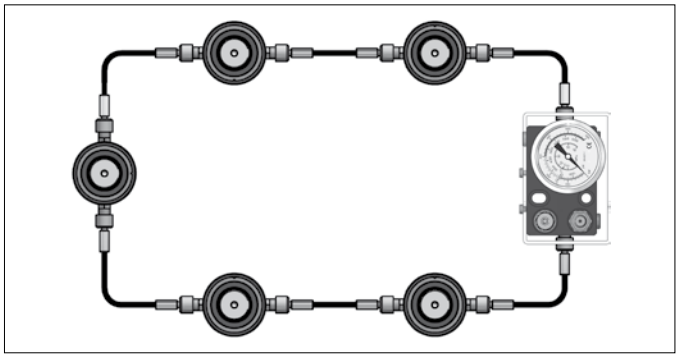


Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.



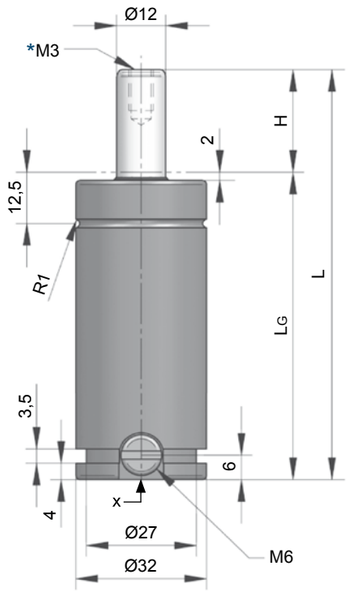
NC.060.10

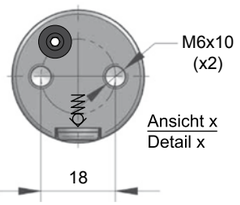
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

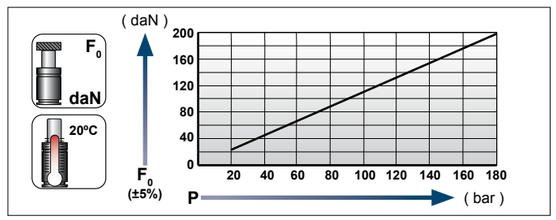


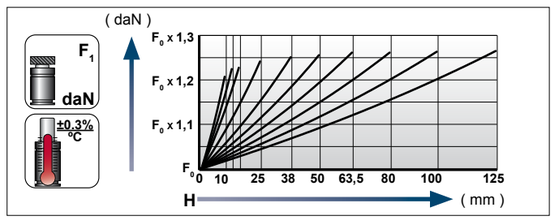


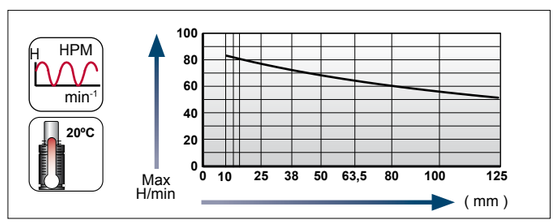
NC.060.10.
00150.038

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.060.00.00050	Grün / Green	45	50	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.060.00.00100	Blau / Blue	90	100	
NC.060.00.00150	Rot / Red	135	150	
NC.060.00.00200	Gelb / Yellow	180	200	
NC.060.00.00XXX	Schwarz / Black	20 - 180	23 - 200	

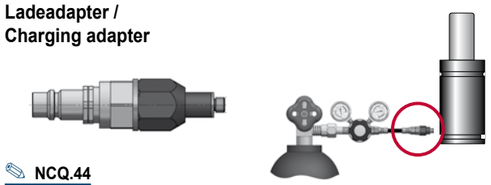
Hub / Stroke	L ±0,25	LG
010	70	60
012,7	75,4	62,7
016	82	66
025	100	75
038	126	88
050	150	100
063,5	177	113,5
080	210	130
100	250	150
125	300	175







Ladeadapter / Charging adapter

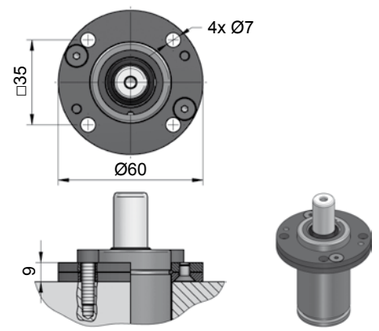


NCQ.44

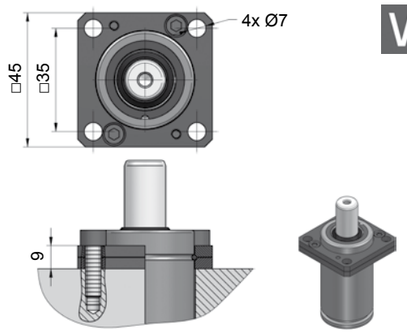
[NC.060.16]

[25.02.2020]

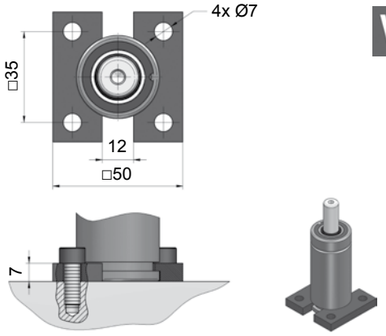
Flansche für / Flanges for **NC.060.10.00050, ...00100, ...00150, ...00200**



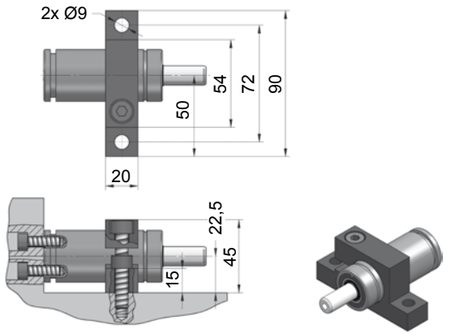
NC.88.00.032.0114



NC.88.00.032.0134



NC.88.00.032.0320



NC.88.00.032.0402

[NC.060.17]

[25.02.2020]

[NC]

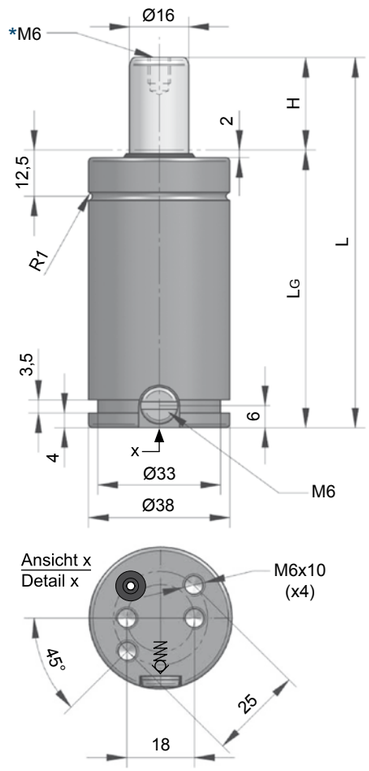
NC.060.10.00250

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

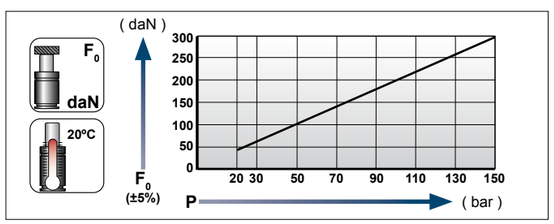


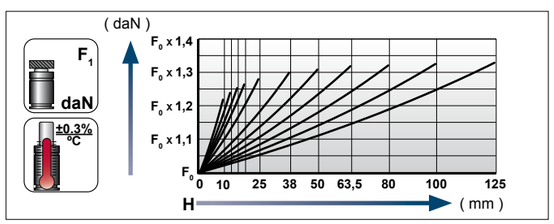
INFO [NC.060.15]

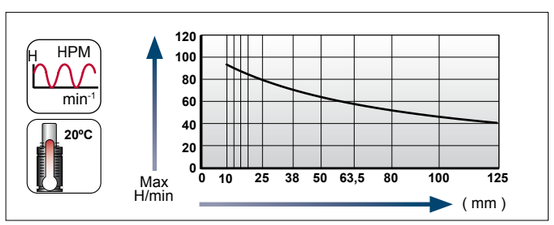
INFO [NC.21]

NC.060.10.00250.025

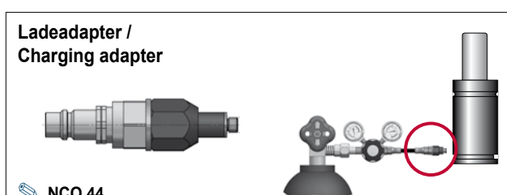
H Hub / Stroke	L ±0,25	LG	Kraft / Force (125 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	70	60	250	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	76	63	250	
016	82	66	250	
019	88	69	250	
025	100	75	250	
038	126	88	250	
050	150	100	250	
063,5	177	113,5	250	
080	210	130	250	
100	250	150	250	
125	300	175	250	







Ladeadapter / Charging adapter

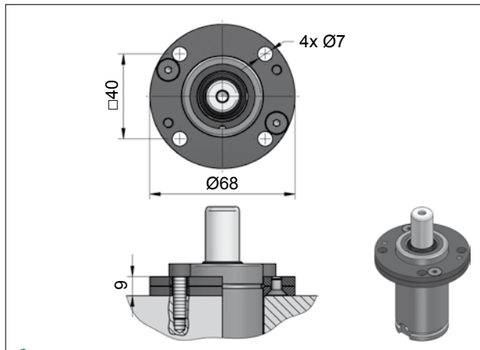


NCQ.44

[25.02.2020]

GDF, Standard nach VDI 3003
GS, Standard acc. to VDI 3003
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.060.10.00250**



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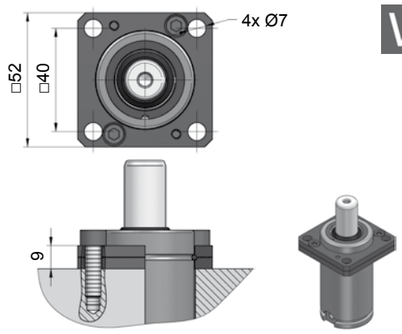

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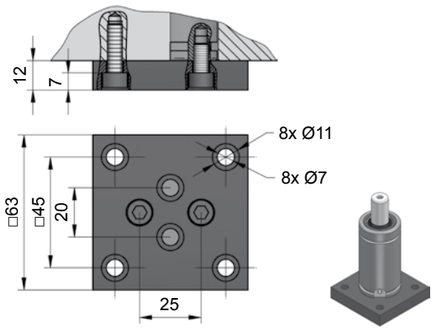
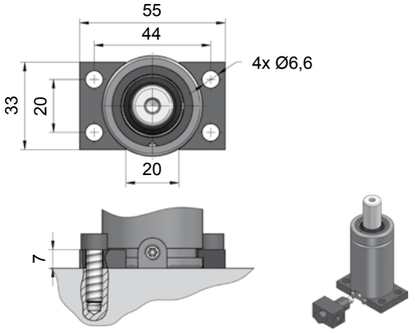
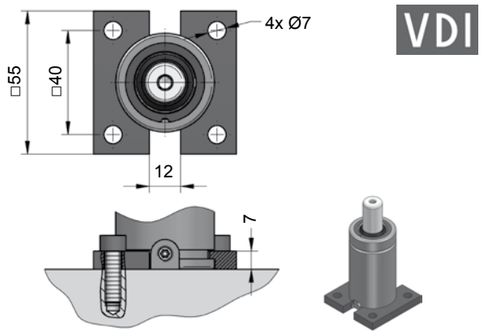


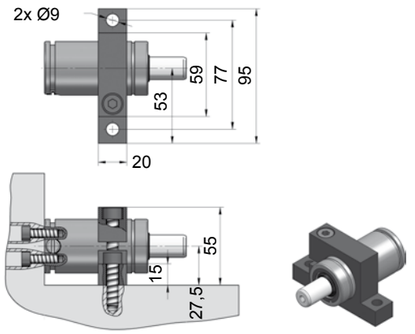
NC.88.00.038.0276



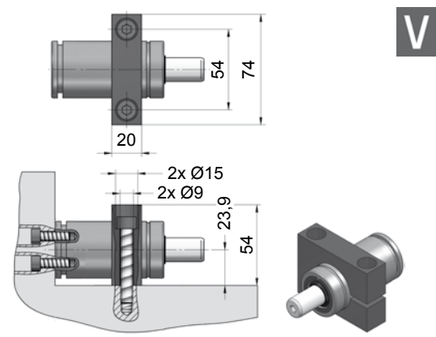
NC.88.00.038.0305



NC.88.00.038.0320



NC.88.00.038.0402

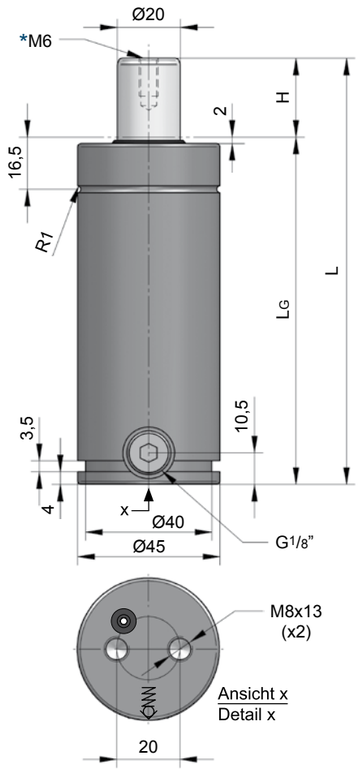


NC.88.00.038.0467

[25.02.2020]

[NC]

NC.060.10.00500



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

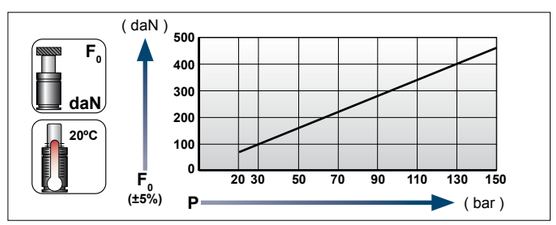
Specifications:

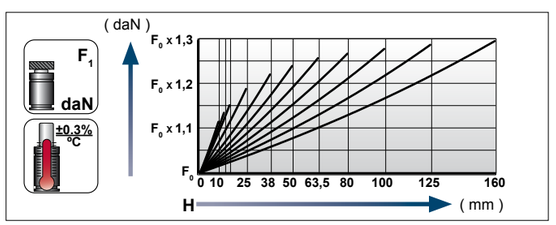
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

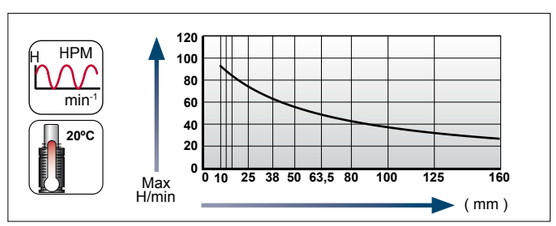
INFO [NC.060.15]

NC.060.10.00500.025

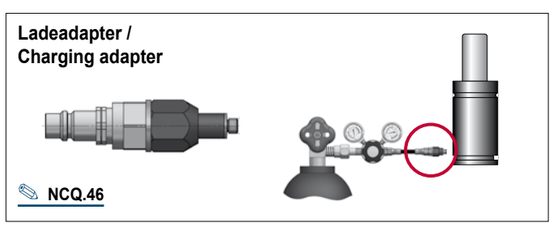
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	105	95	470	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	111	98	470	
016	117	101	470	
025	135	110	470	
038	161	123	470	
050	185	135	470	
063,5	212	148,5	470	
080	245	165	470	
100	285	185	470	
125	335	210	470	
160	405	245	470	







Ladeadapter / Charging adapter

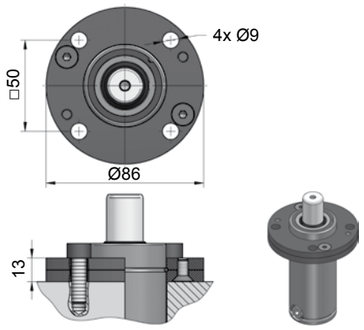


NCQ.46

[25.02.2020]

GDF, Standard nach VDI 3003
GS, Standard acc. to VDI 3003
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.060.10.00500**



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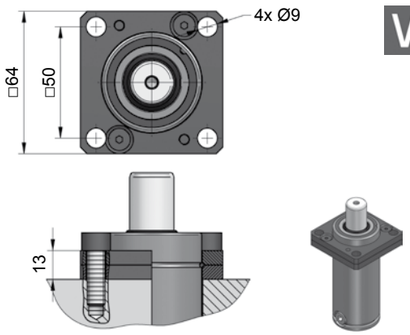
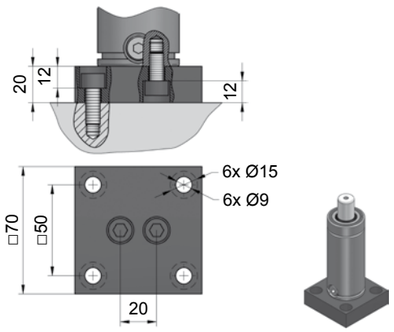
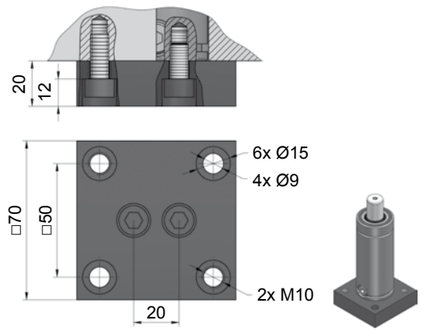


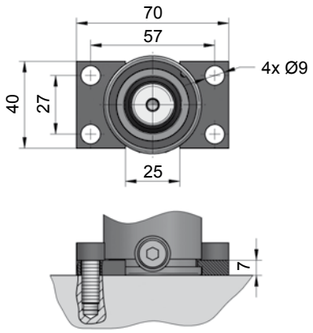
NC.88.00.045.0134



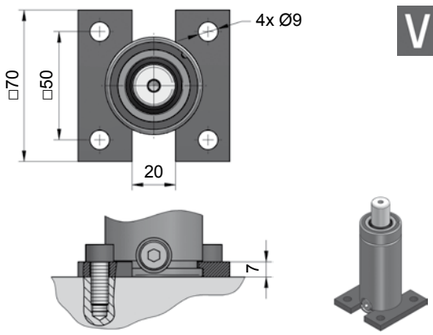
NC.88.00.045.0221



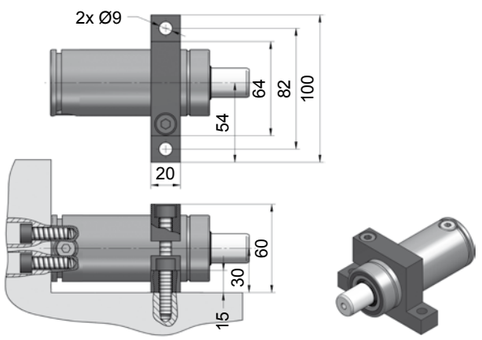
NC.88.00.045.0276



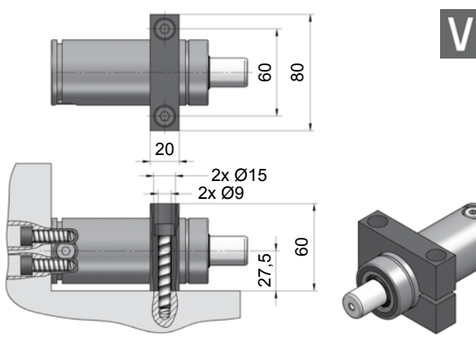
NC.88.00.045.0305



NC.88.00.045.0320



NC.88.00.045.0402



NC.88.00.045.0467

[25.02.2020]

[NC]

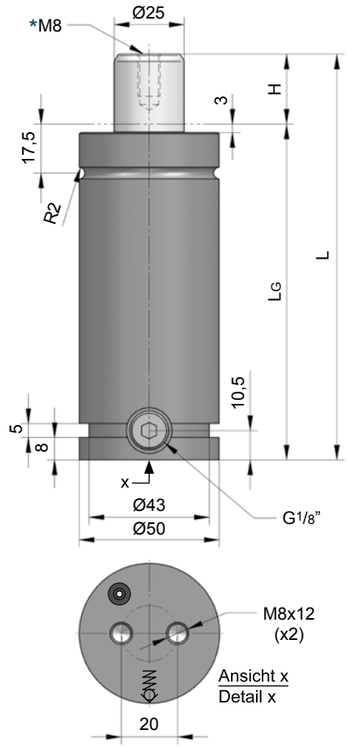
NC.060.10.00750

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	2 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	2 m/s



INFO [NC.21]

ZUGELASSEN PED 2014/68/EU

VDI 3003

> Pmax

> S

> Vmax

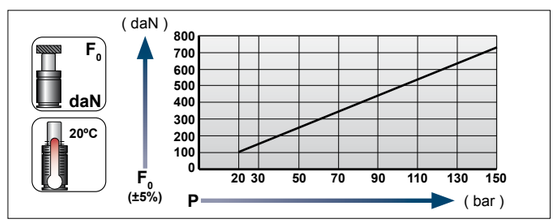
Flex Rod

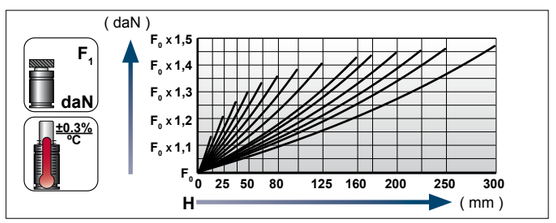
INFO [NC.060.15]

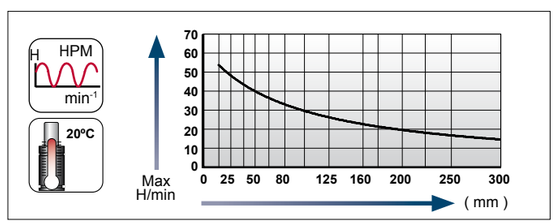
MAIL

NC.060.10.□.00750.100

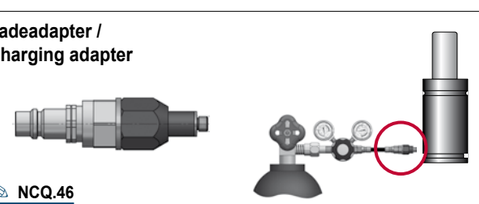
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
013	121	108	740	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	145	120	740	
038	171	133	740	
050	195	145	740	
063,5	222	158,5	740	
080	255	175	740	
100	295	195	740	
125	345	220	740	
160	415	255	740	
175	445	270	740	
200	495	295	740	
225	545	320	740	
250	595	345	740	
300	695	395	740	







Ladeadapter / Charging adapter



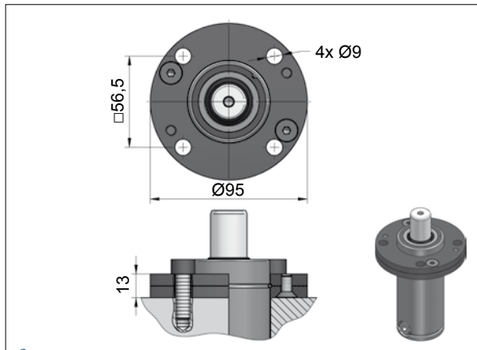
NCQ.46

[25.02.2020]

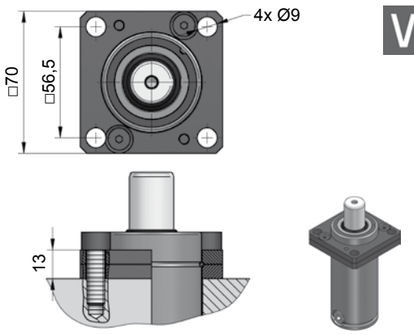
[25.02.2020]

GDF, Standard nach VDI 3003
GS, Standard acc. to VDI 3003
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

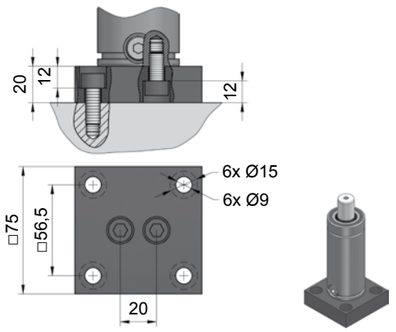
Flansche für / Flanges for **NC.060.10.00750**



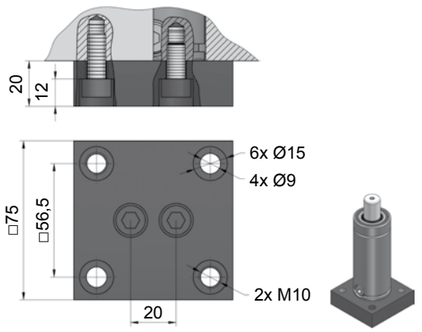
NC.88.00.050.0114



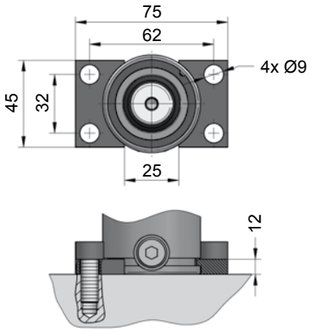
NC.88.00.050.0134



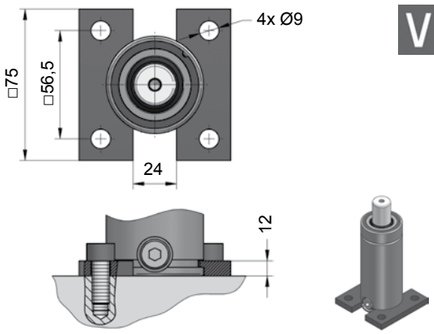
NC.88.00.050.0221



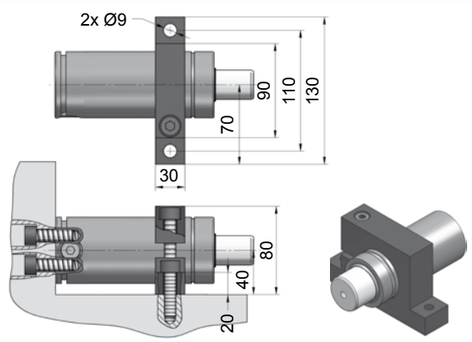
NC.88.00.050.0276



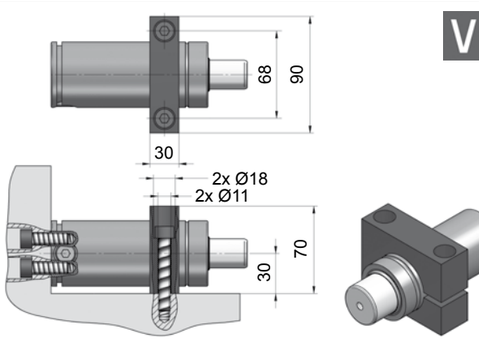
NC.88.00.050.0305



NC.88.00.050.0320



NC.88.00.050.0402



NC.88.00.050.0467

NC.060.10.01500

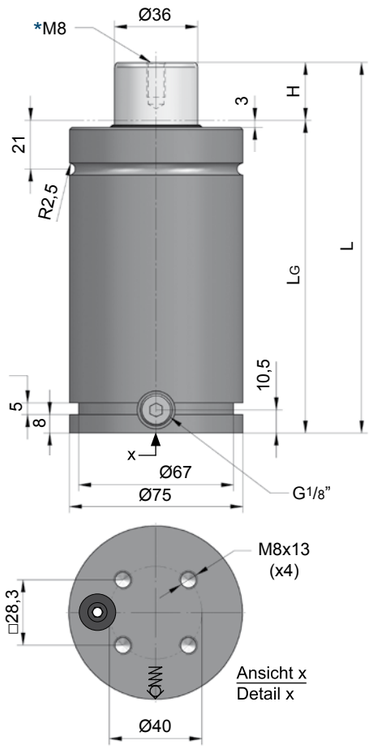
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	2 m/s

INFO [NC.060.15]

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	2 m/s



INFO [NC.21]

ZUGELASSEN PED 2014/68/EU

VDI 3003

> Pmax

> S

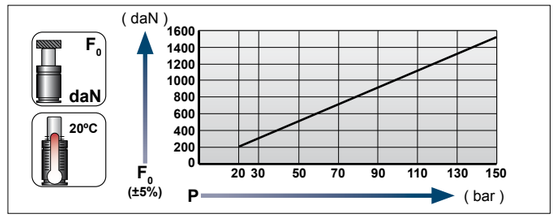
> Vmax

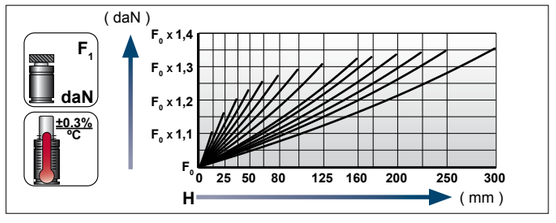
Flex Rod

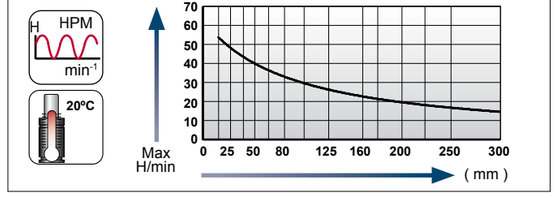
MAIL

NC.060.10.□.
01500.080

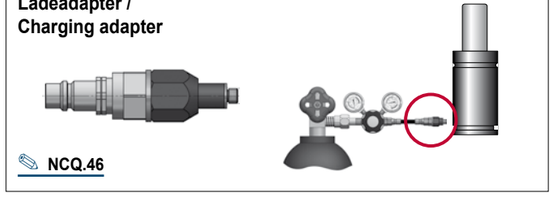
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
013	136	123	1530	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	160	135	1530	
038	186	148	1530	
050	210	160	1530	
063,5	237	173,5	1530	
080	270	190	1530	
100	310	210	1530	
125	360	235	1530	
160	430	270	1530	
175	460	285	1530	
200	510	310	1530	
225	560	335	1530	
250	610	360	1530	
300	710	410	1530	







Ladeadapter / Charging adapter



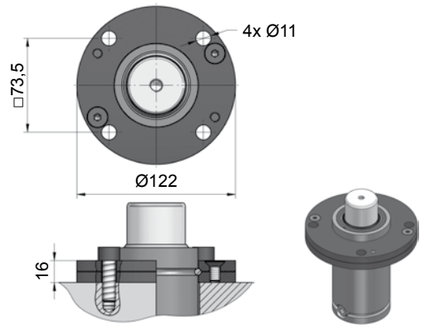
NCQ.46

[25.02.2020]

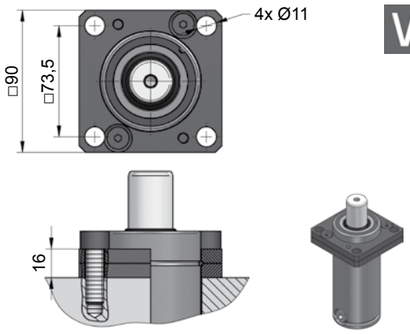
[25.02.2020]

GDF, Standard nach VDI 3003
GS, Standard acc. to VDI 3003
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

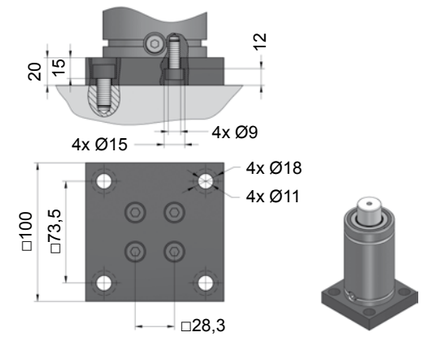
Flansche für / Flanges for **NC.060.10.01500**



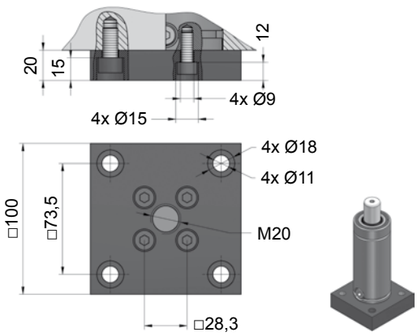
NC.88.00.075.0114



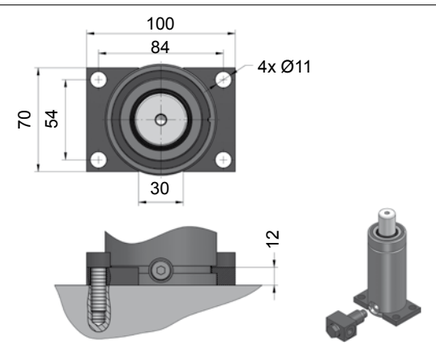
NC.88.00.075.0134



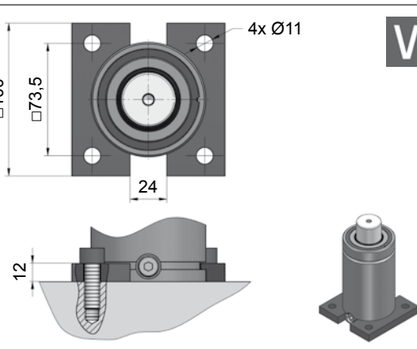
NC.88.00.075.0221



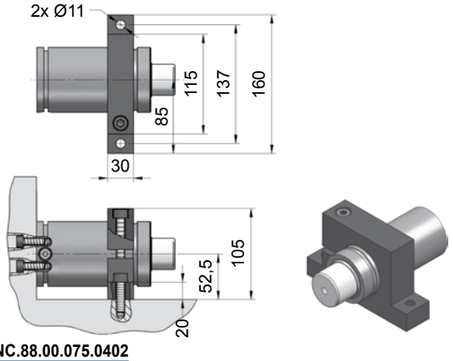
NC.88.00.075.0276



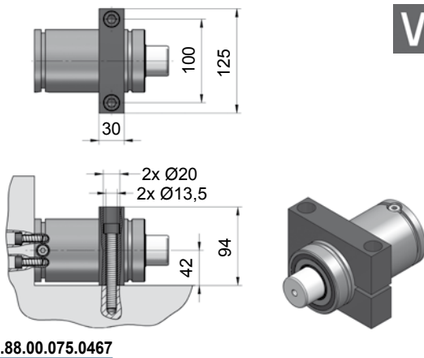
NC.88.00.075.0305



NC.88.00.075.0320



NC.88.00.075.0402



NC.88.00.075.0467

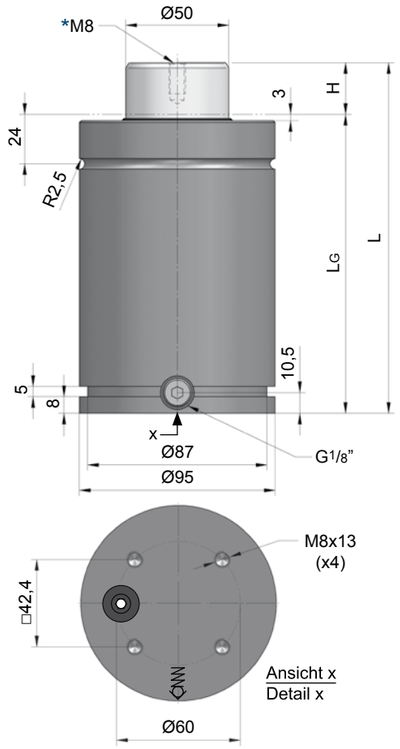
NC.060.10.03000

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	2 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	2 m/s

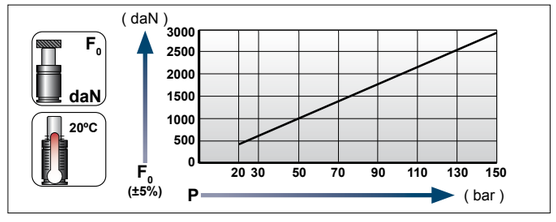


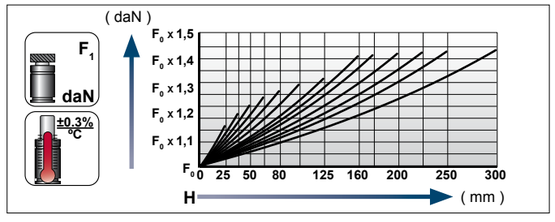
INFO [NC.060.15]

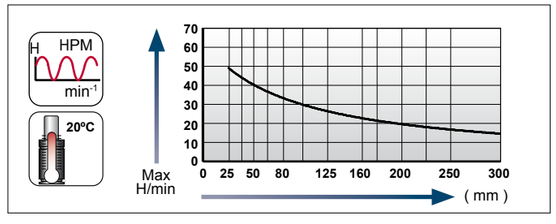
INFO [NC.21]

NC.060.10.□.03000.100

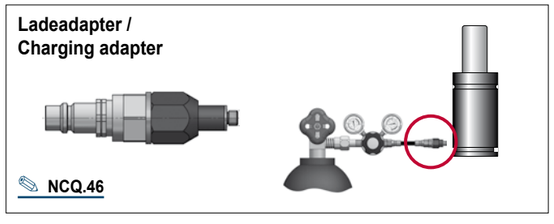
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	170	145	2945	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	196	158	2945	
050	220	170	2945	
063,5	247	183,5	2945	
080	280	200	2945	
100	320	220	2945	
125	370	245	2945	
160	440	280	2945	
175	470	295	2945	
200	520	320	2945	
225	570	345	2945	
250	620	370	2945	
300	720	420	2945	







Ladeadapter / Charging adapter



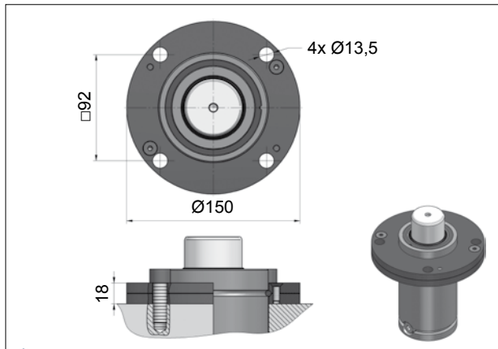
NCQ.46

[25.02.2020]

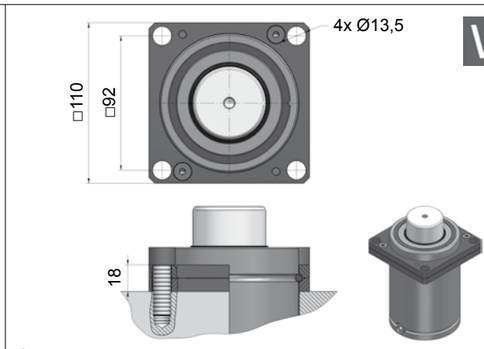
[25.02.2020]

GDF, Standard nach VDI 3003
GS, Standard acc. to VDI 3003
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

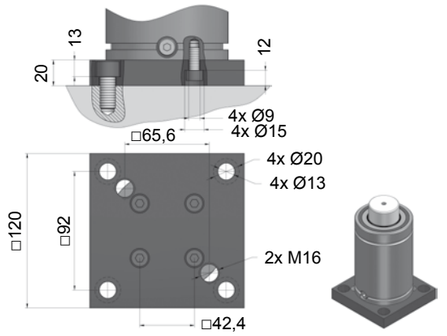
Flansche für / Flanges for **NC.060.10.03000**



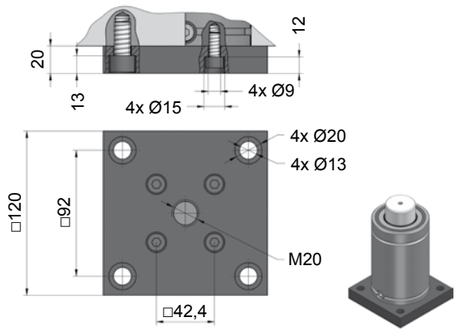
NC.88.00.095.0114



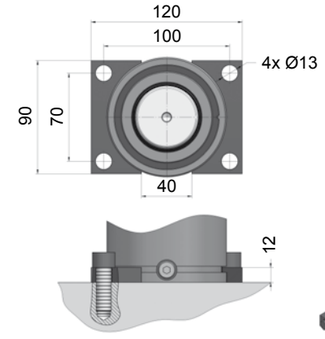
NC.88.00.095.0134



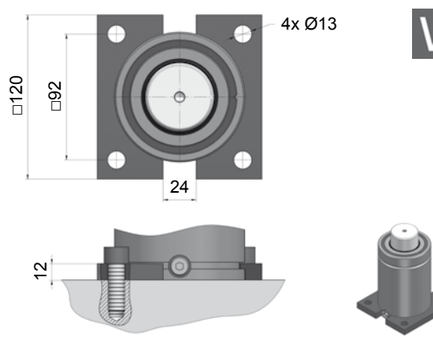
NC.88.00.095.0221



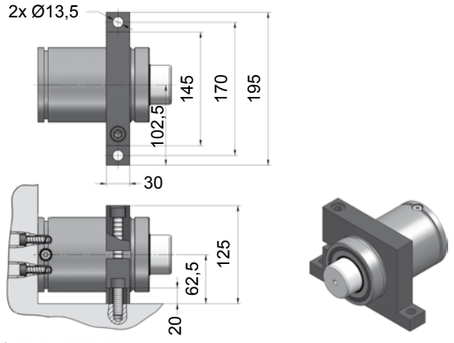
NC.88.00.095.0276



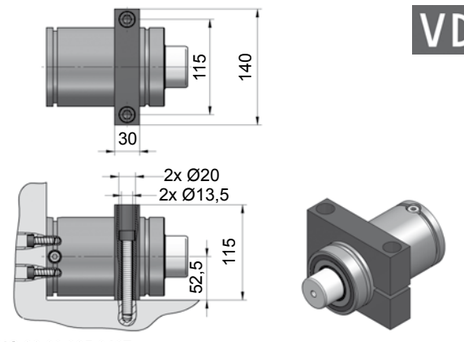
NC.88.00.095.0305



NC.88.00.095.0320



NC.88.00.095.0402



NC.88.00.095.0467

[NC]

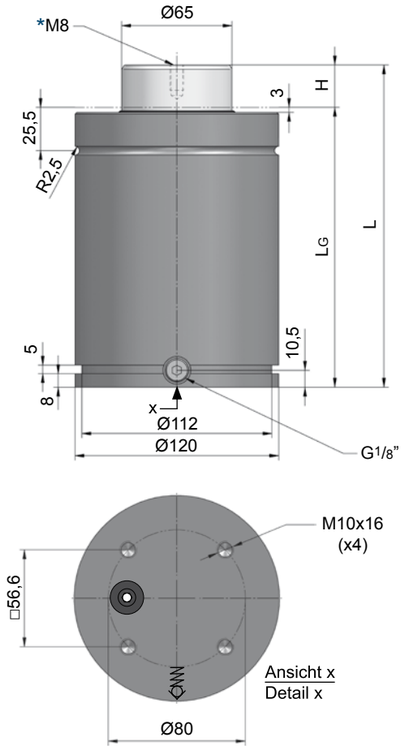
NC.060.10.05000

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	2 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	2 m/s



INFO [NC.21]

ZUGELASSEN PED 2014/68/EU

VDI 3003

> Pmax

> S

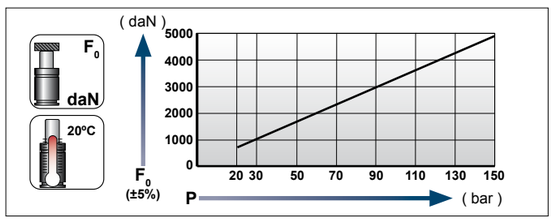
> Vmax

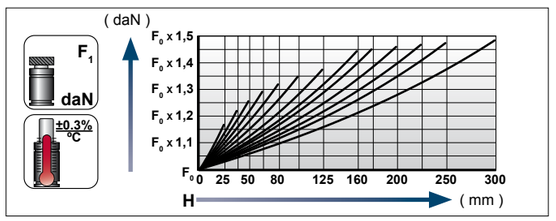
Flex Rod

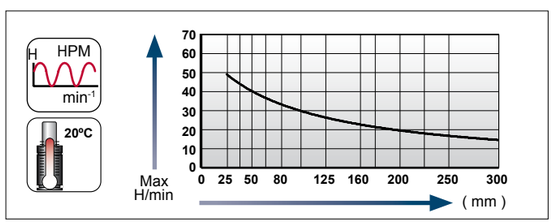
MAIL

NC.060.10.□.
05000.125

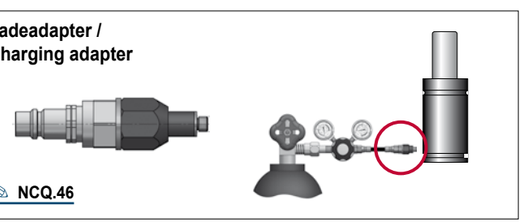
H Hub / Stroke	L ±0,25	Lg	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	190	165	4980	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	216	178	4980	
050	240	190	4980	
063,5	267	203,5	4980	
080	300	220	4980	
100	340	240	4980	
125	390	265	4980	
160	460	300	4980	
175	490	315	4980	
200	540	340	4980	
225	590	365	4980	
250	640	390	4980	
300	740	440	4980	







Ladeadapter / Charging adapter

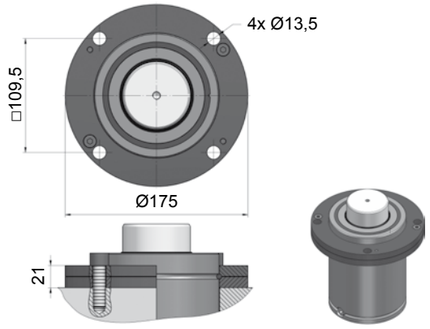


NCQ.46

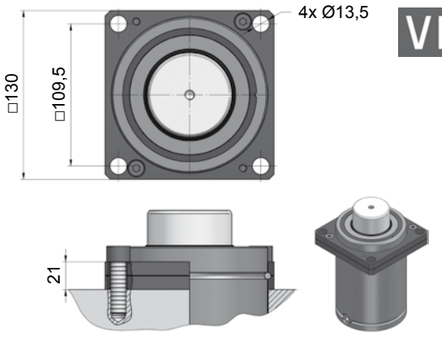
[25.02.2020]

[25.02.2020]

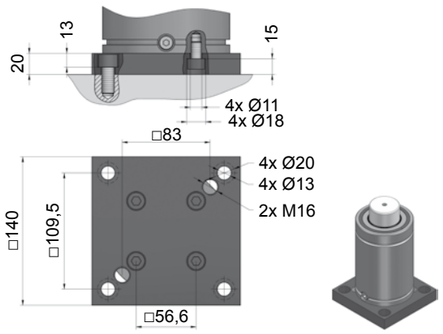
Flansche für / Flanges for **NC.060.10.05000**



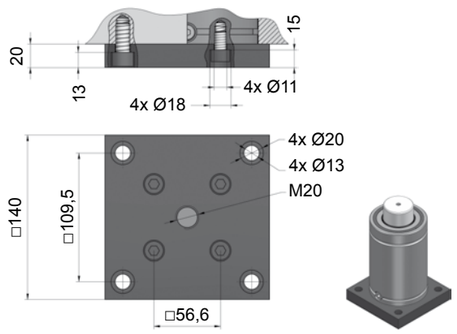
NC.88.00.120.0114



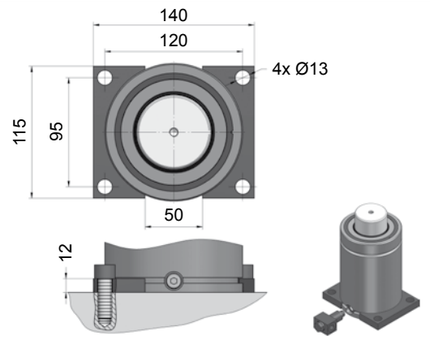
NC.88.00.120.0134



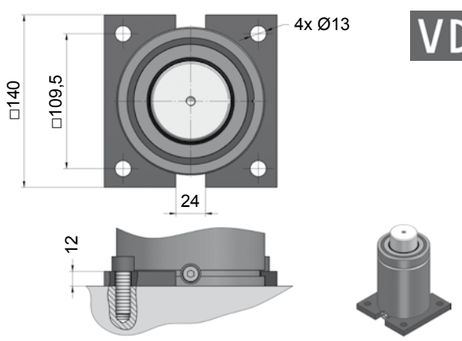
NC.88.00.120.0221



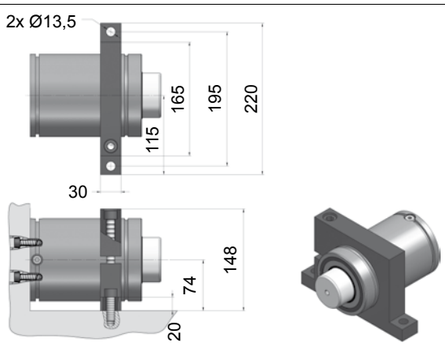
NC.88.00.120.0276



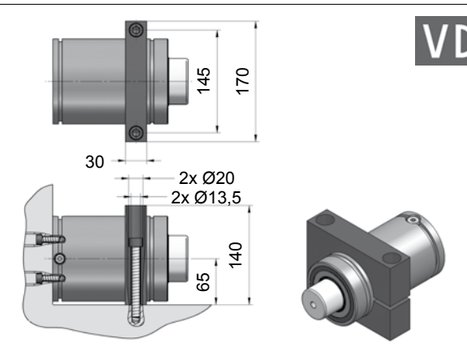
NC.88.00.120.0305



NC.88.00.120.0320



NC.88.00.120.0402



NC.88.00.120.0467

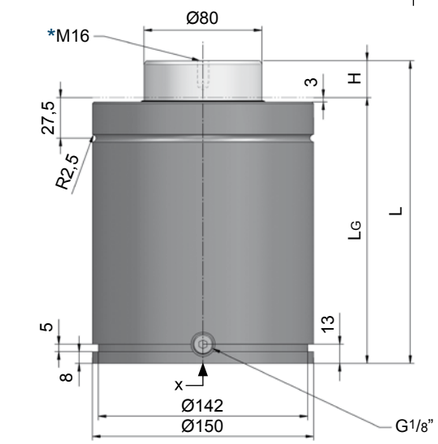
NC.060.10.07500

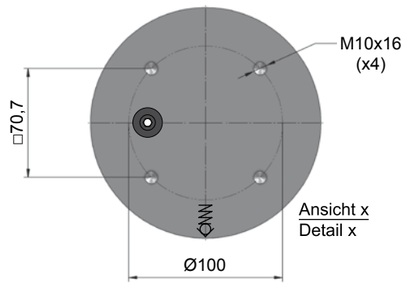
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	2 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	2 m/s





INFO [NC.21]

VDI 3003

> Pmax

> S

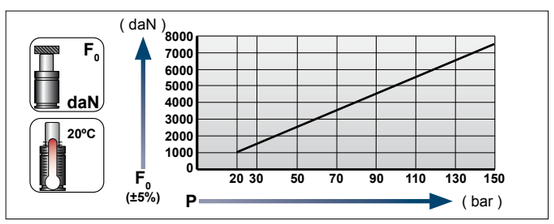
> Vmax

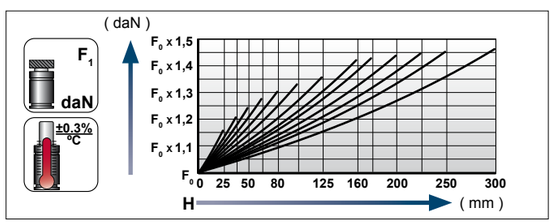
Flex Rod

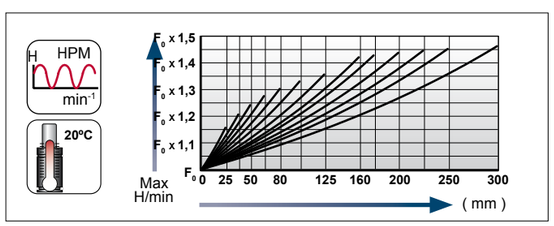
MAIL

NC.060.10.□.
07500.160

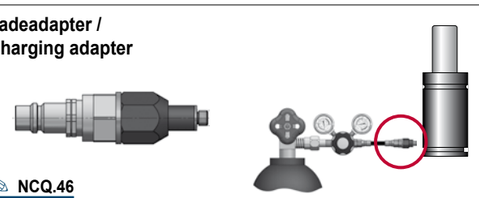
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	205	180	7540	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	231	193	7540	
050	255	205	7540	
063,5	282	218,5	7540	
080	315	235	7540	
100	355	255	7540	
125	405	280	7540	
160	475	315	7540	
175	505	330	7540	
200	555	355	7540	
225	605	380	7540	
250	655	405	7540	
300	755	455	7540	







Ladeadapter / Charging adapter



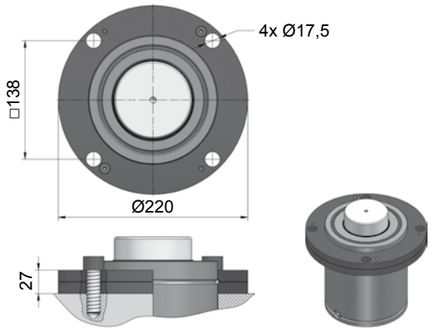
NCQ.46

[25.02.2020]

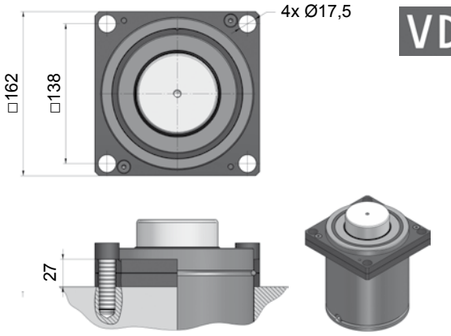
[25.02.2020]

GDF, Standard nach VDI 3003
GS, Standard acc. to VDI 3003
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

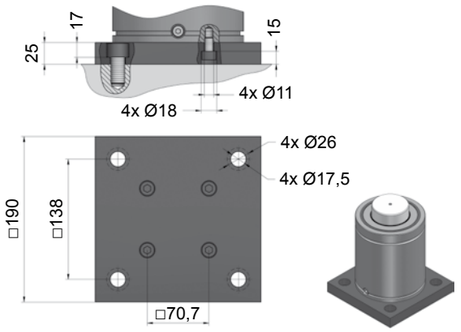
Flansche für / Flanges for **NC.060.10.07500**



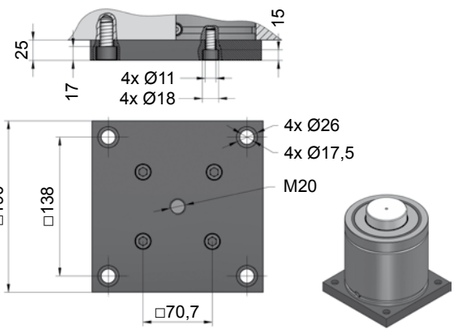
NC.88.00.150.0114



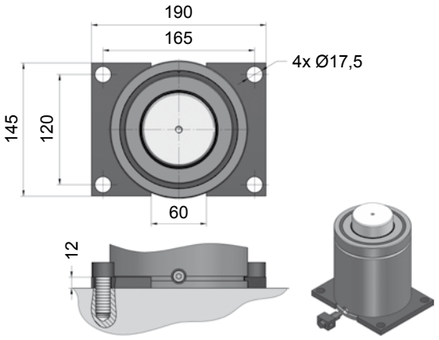
NC.88.00.150.0134



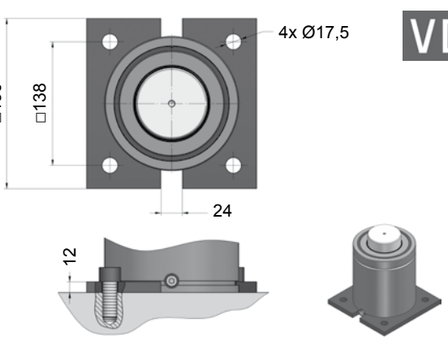
NC.88.00.150.0221



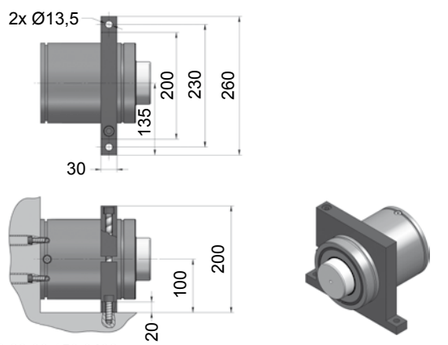
NC.88.00.150.0276



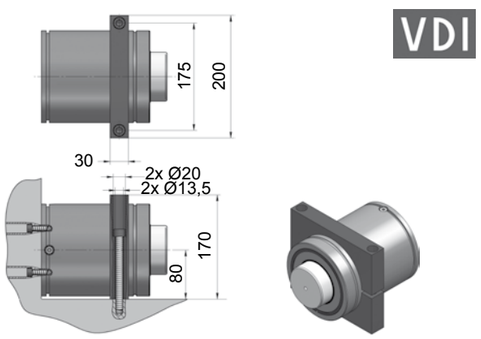
NC.88.00.150.0305



NC.88.00.150.0320



NC.88.00.150.0402



NC.88.00.150.0467

[NC]

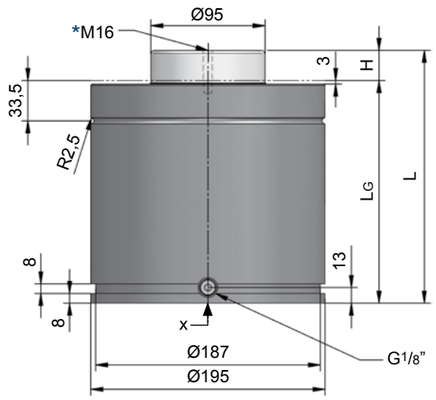
NC.060.10.10000

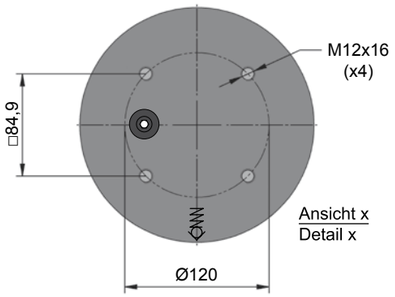
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	2 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	2 m/s





INFO [NC.21]

ZUGELASSEN PED 2014/68/EU

VDI 3003

> Pmax

> S

> Vmax

Flex Rod

MAIL

NC.060.10.□.
10000.200

H Hub / Stroke	L ±0,25	LG	Kraft / Force (145 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	210	185	10280	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	236	198	10280	
050	260	210	10280	
063,5	287	223,5	10280	
080	320	240	10280	
100	360	260	10280	
125	410	285	10280	
160	480	320	10280	
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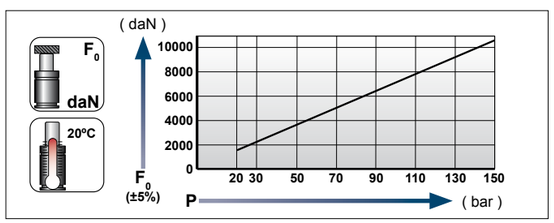
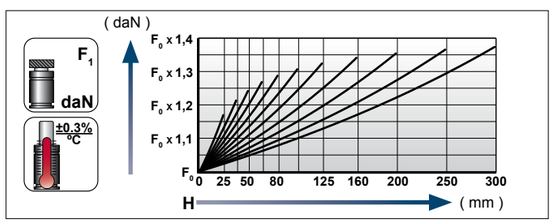
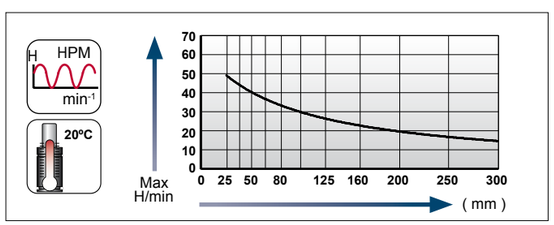
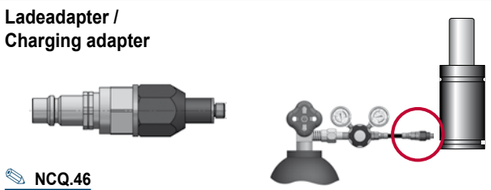
250	660	410	10280	
300	760	460	10280	







Ladeadapter / Charging adapter



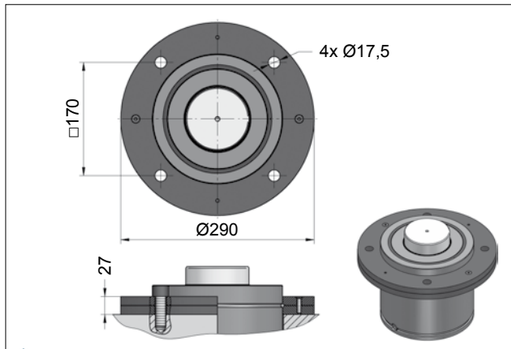
NCQ.46

[25.02.2020]

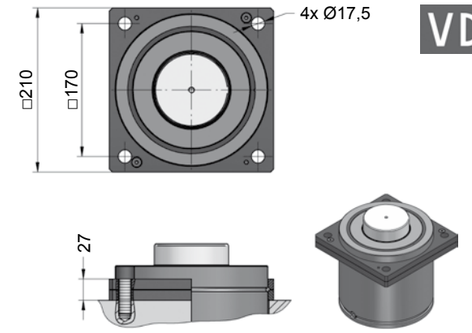
[25.02.2020]

GDF, Standard nach VDI 3003
GS, Standard acc. to VDI 3003
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

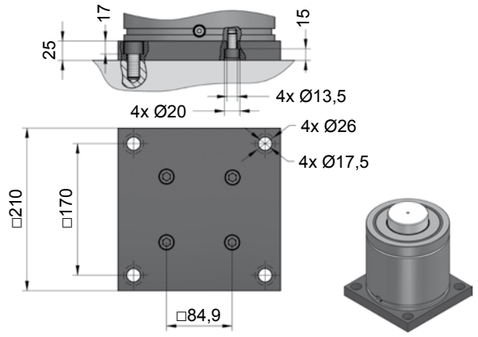
Flansche für / Flanges for **NC.060.10.10000**



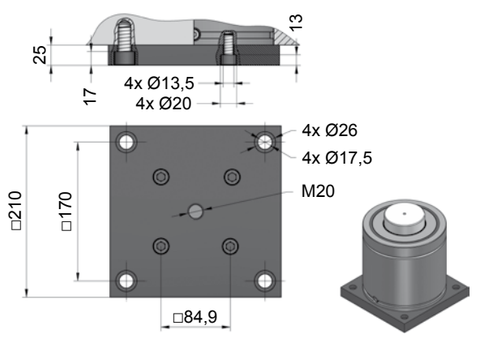
NC.88.00.195.0114



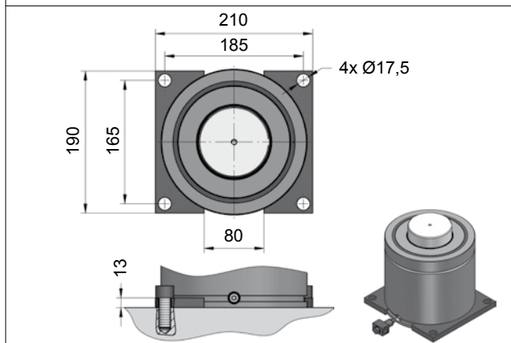
NC.88.00.195.0134



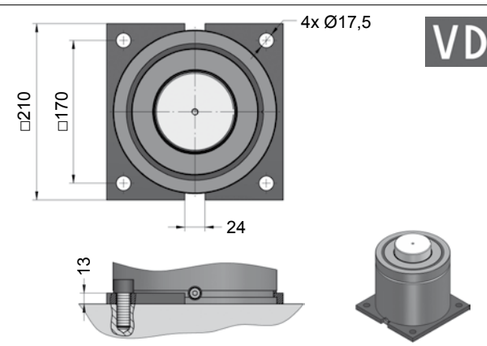
NC.88.00.195.0221



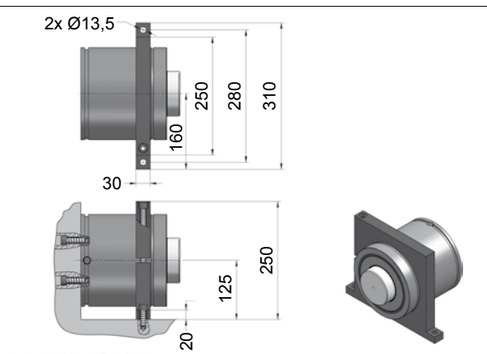
NC.88.00.195.0276



NC.88.00.195.0305



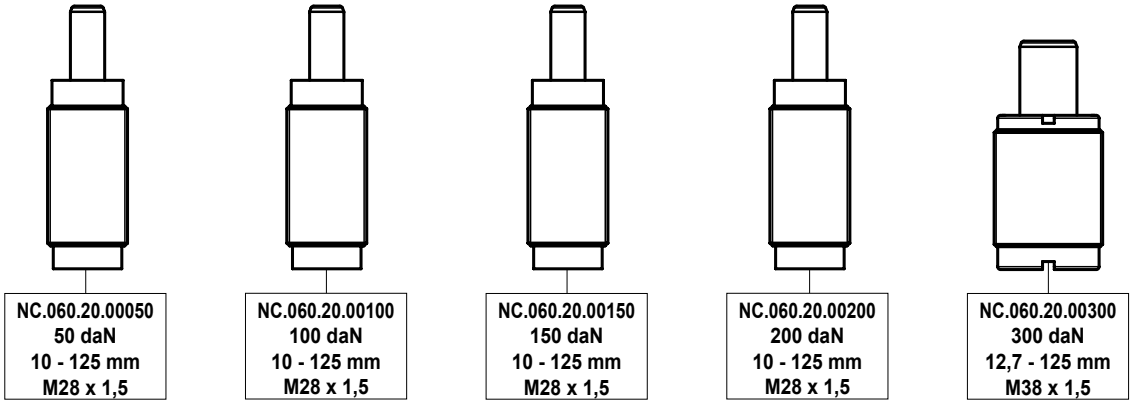
NC.88.00.195.0320



NC.88.00.195.0402

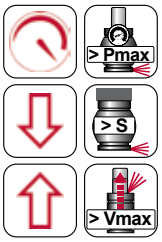
Größenübersicht Serie NC.060.20

Gas spring index 060.20 series



NC.060.20.00050	NC.060.20.00100	NC.060.20.00150	NC.060.20.00200	NC.060.20.00300
50 daN	100 daN	150 daN	200 daN	300 daN
10 - 125 mm	10 - 125 mm	10 - 125 mm	10 - 125 mm	12,7 - 125 mm
M28 x 1,5	M28 x 1,5	M28 x 1,5	M28 x 1,5	M38 x 1,5

SICHERHEITSSYSTEME



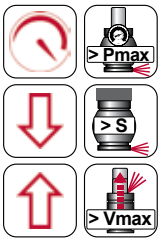
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

[NC]

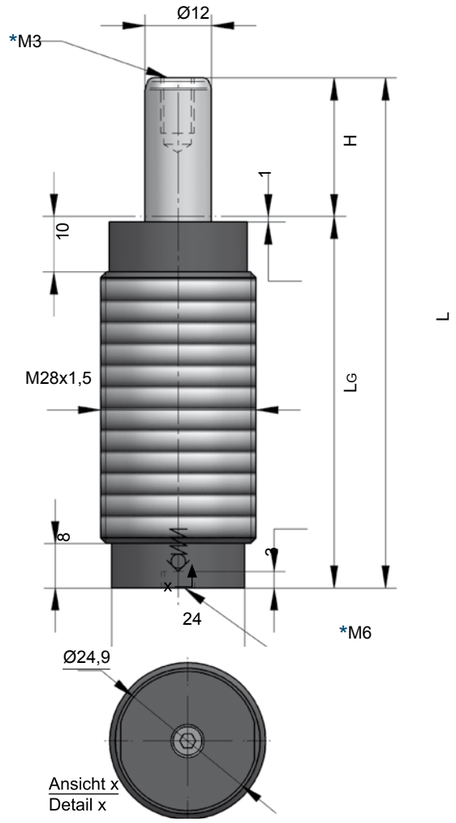
NC.060.20

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

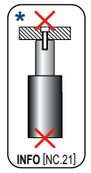
Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s





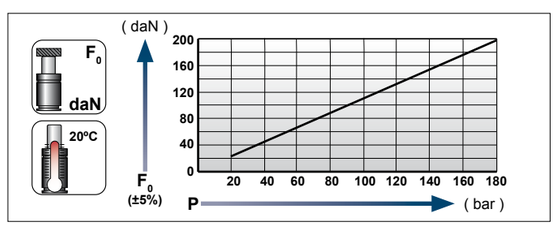


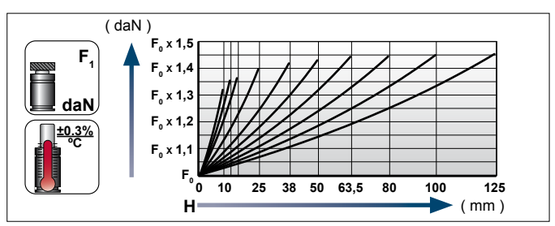


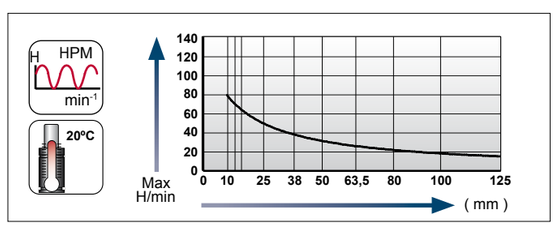
NC.060.20.00200.016

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.060.20.00050	Grün / Green	45	50	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.060.20.00100	Blau / Blue	90	100	
NC.060.20.00150	Rot / Red	135	150	
NC.060.20.00200	Gelb / Yellow	180	200	

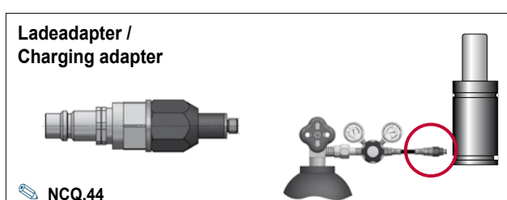
Hub / Stroke	L ±0,25	LG
010	62	52
012,7	67,4	54,7
016	74	58
025	92	67
038	118	80
050	142	92
063,5	169	105,5
080	202	122
100	242	142
125	292	167







Ladeadapter / Charging adapter

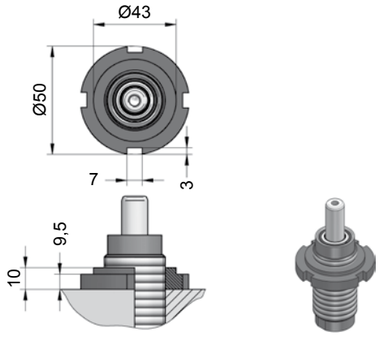


NCQ.44

[14.02.2020]

GDF, mit Körpergewinde
GS, threaded springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.060.20.00050, ...00100, ...00150, ...00200**



NC.88.00.028.0558

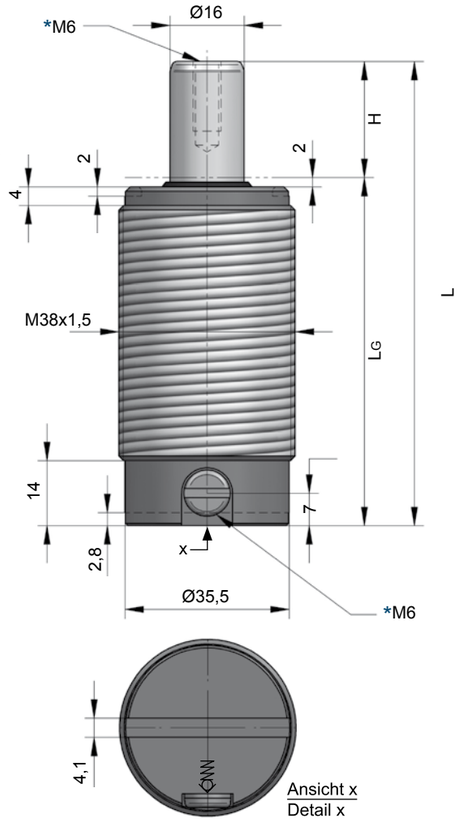
NC.060.20.00300

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s



ZUGELASSEN PED 2014/68/EU

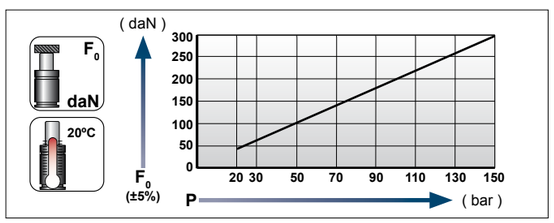
> Vmax

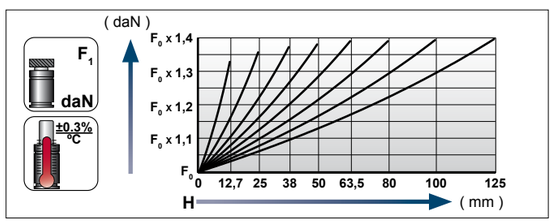
* INFO [NC.21]

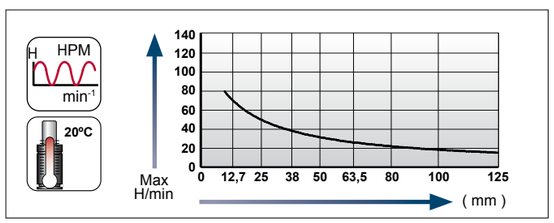
NC.060.20.00300.025

MAIL

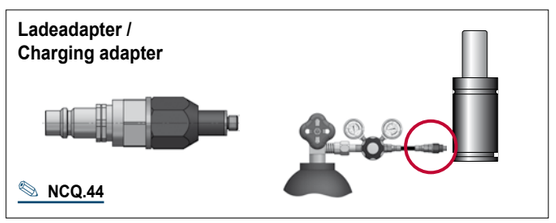
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
012,7	75,4	62,7	300	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	100	75	300	
038	126	88	300	
050	150	100	300	
063,5	177	113,5	300	
080	210	130	300	
100	250	150	300	
125	300	175	300	







Ladeadapter / Charging adapter

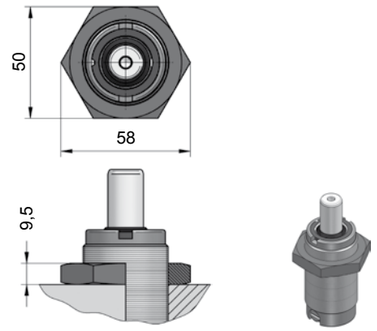


NCQ.44

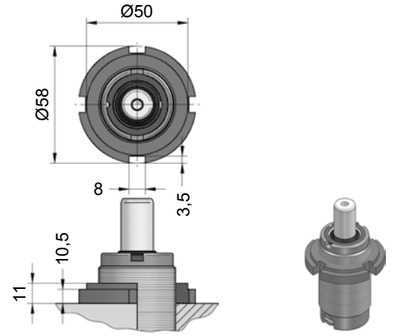
[14.02.2020]

[14.02.2020]

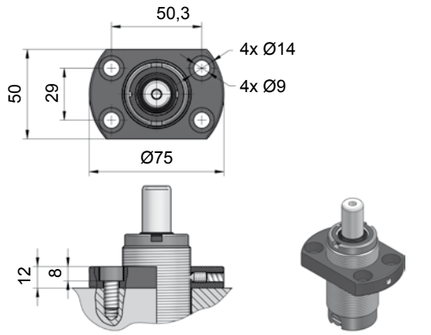
Flansche für / Flanges for **NC.060.20.00300**



NC.88.00.038.0523



NC.88.00.038.0558

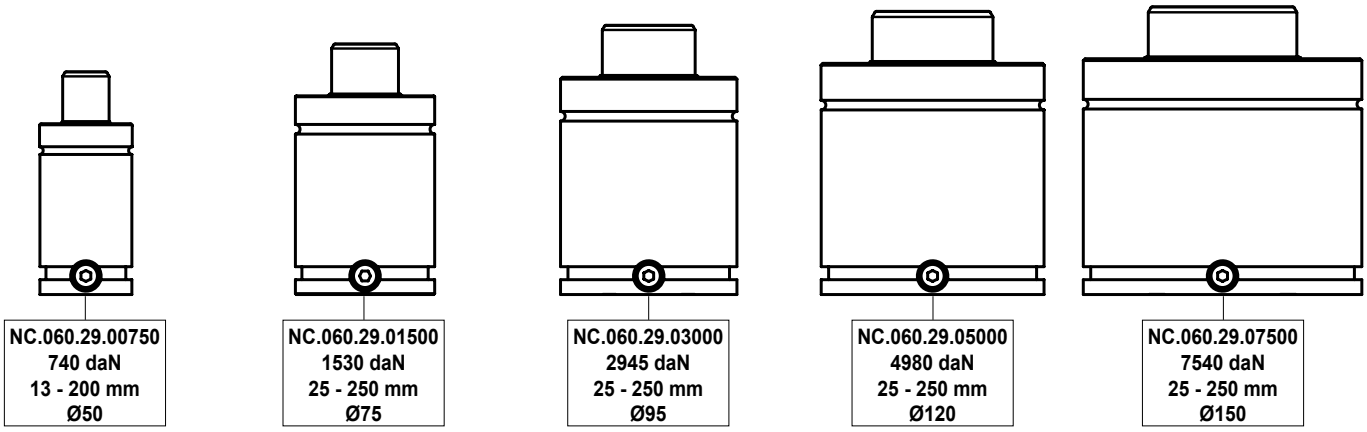


NC.88.00.038.0568

[NC]

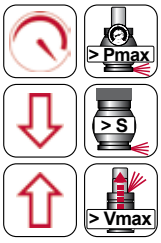
Größenübersicht Serie NC.060.29

Gas spring index 060.29 series



NC.060.29.00750	NC.060.29.01500	NC.060.29.03000	NC.060.29.05000	NC.060.29.07500
740 daN	1530 daN	2945 daN	4980 daN	7540 daN
13 - 200 mm	25 - 250 mm	25 - 250 mm	25 - 250 mm	25 - 250 mm
Ø50	Ø75	Ø95	Ø120	Ø150

SICHERHEITSSYSTEME



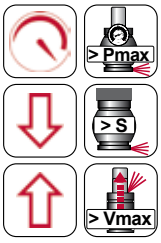
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

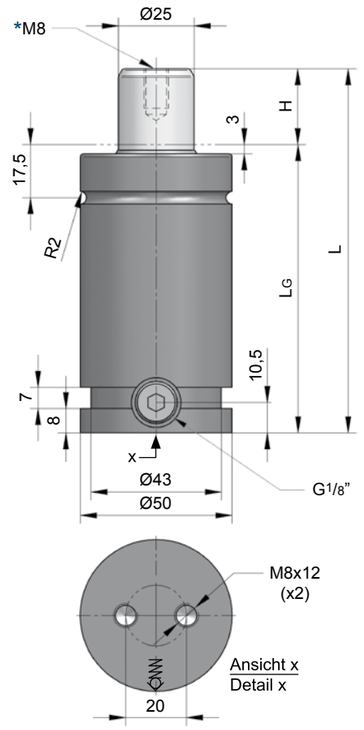
NC.060.29.00750

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

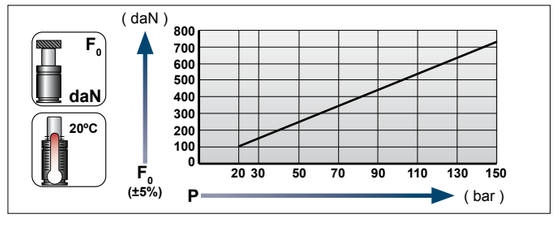
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

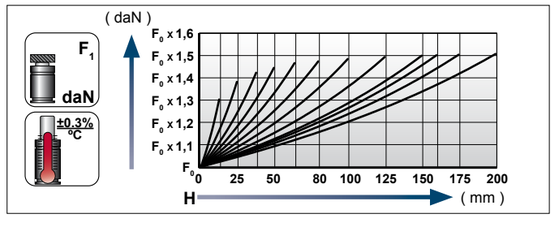


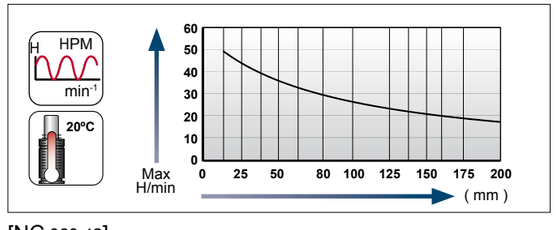
INFO [NC.21]

NC.060.29.00750.025

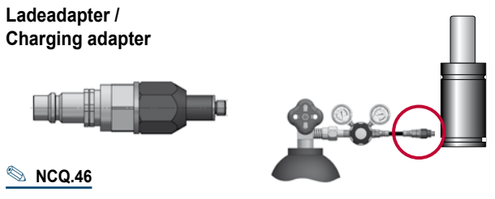
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
013	96	83	740	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	120	95	740	
038	146	108	740	
050	170	120	740	
063,5	197	133,5	740	
080	230	150	740	
100	270	170	740	
125	320	195	740	
137,5	345	207,5	740	
150	370	220	740	
160	390	230	740	
175	420	245	740	
200	470	270	740	







Ladeadapter / Charging adapter



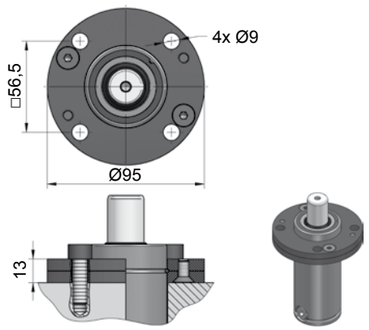
NCQ.46

[19.02.2020]

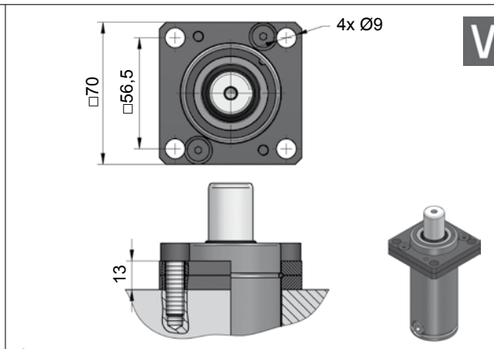
[19.02.2020]

GDF, Standard, mittlere Größe
GS, Standard, medium size
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

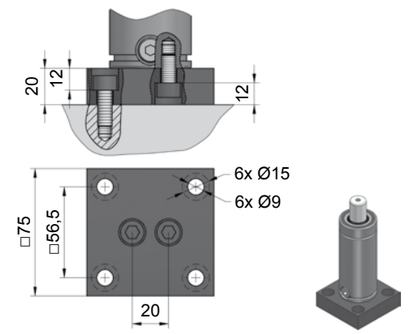
Flansche für / Flanges for **NC.060.29.00750**



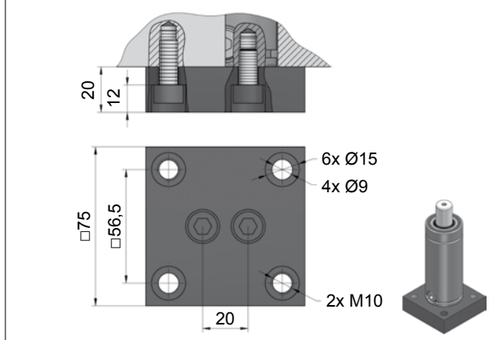
NC.88.00.050.0114



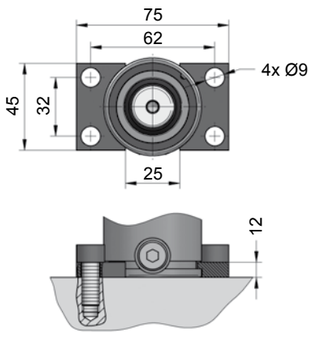
NC.88.00.050.0134



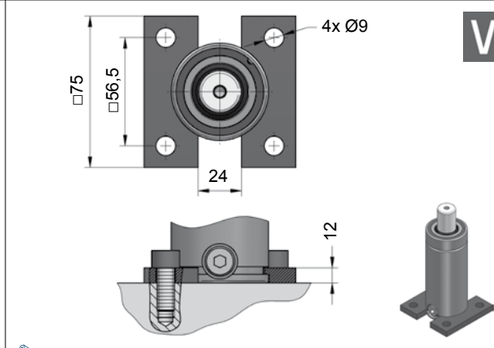
NC.88.00.050.0221



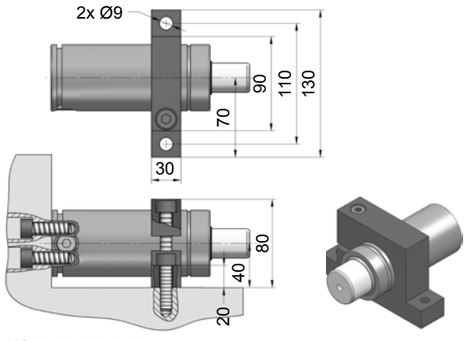
NC.88.00.050.0276



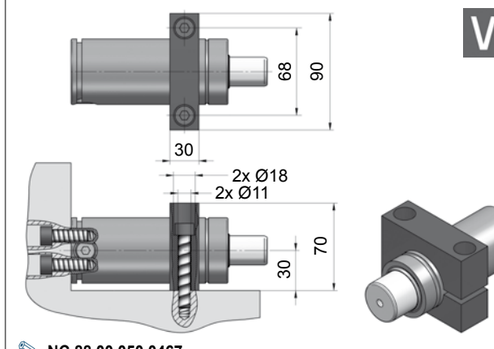
NC.88.00.050.0305



NC.88.00.050.0320

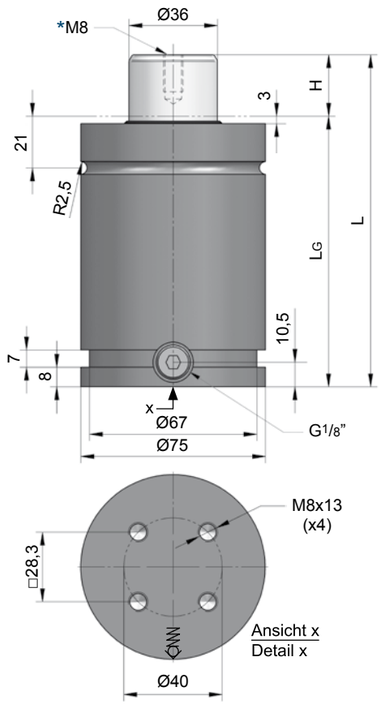


NC.88.00.050.0402



NC.88.00.050.0467

NC.060.29.01500



Technische Daten:

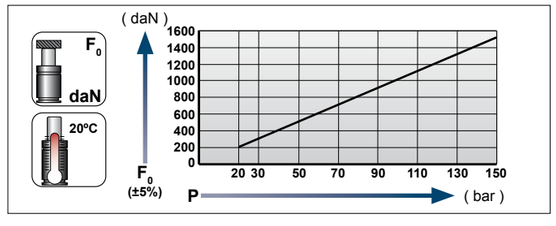
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

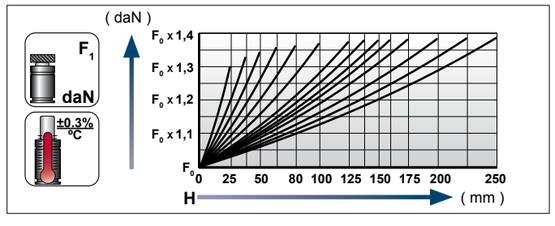
Specifications:

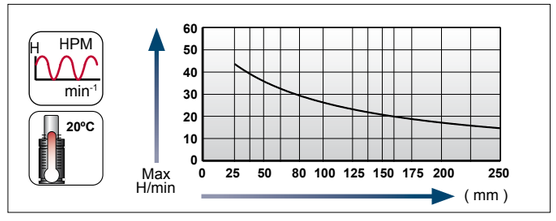
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.060.29.
01500.025

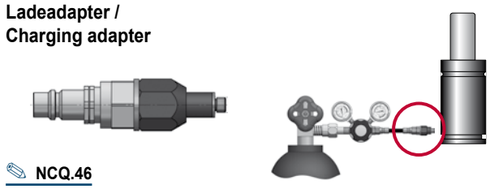
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	135	110	1530	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	161	123	1530	
050	185	135	1530	
063,5	212	148,5	1530	
080	245	165	1530	
100	285	185	1530	
125	335	210	1530	
137,5	360	222,5	1530	
150	385	235	1530	
160	405	245	1530	
175	435	260	1530	
200	485	285	1530	
225	535	310	1530	
250	585	335	1530	







Ladeadapter / Charging adapter



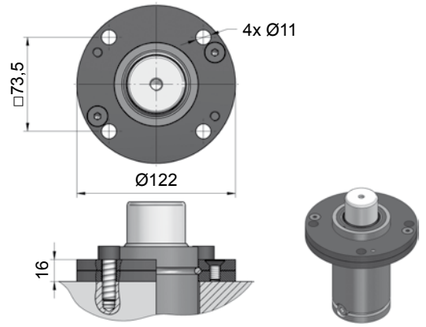
NCQ.46

[19.02.2020]

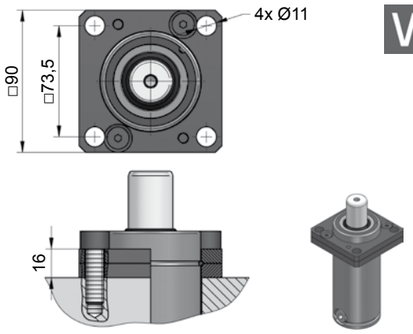
[19.02.2020]

GDF, Standard, mittlere Größe
GS, Standard, medium size
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.060.29.01500**



NC.88.00.075.0114



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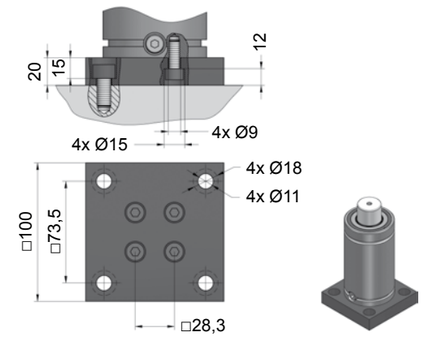
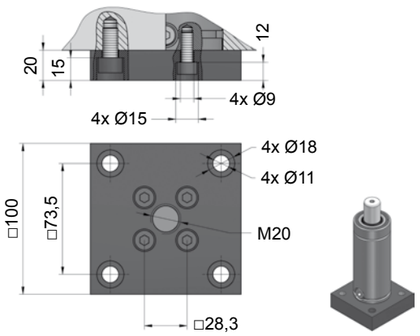
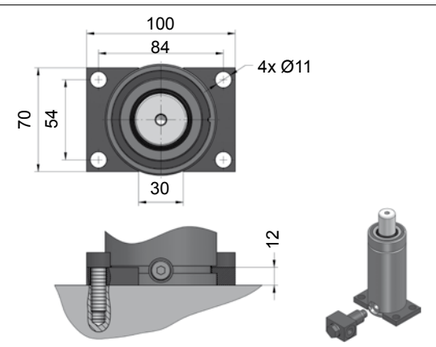


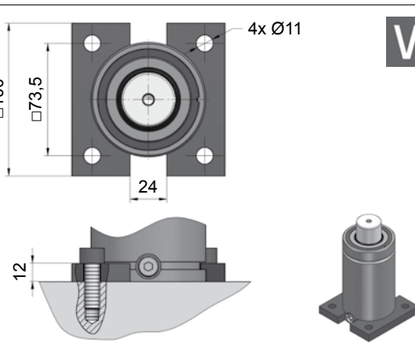
NC.88.00.075.0221



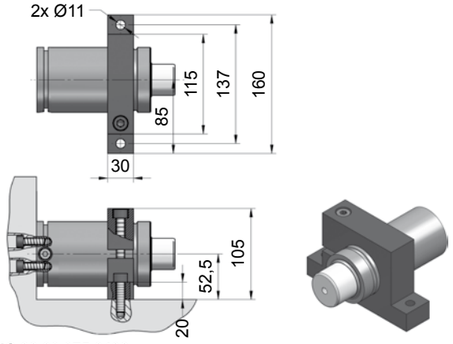
NC.88.00.075.0276



NC.88.00.075.0305



NC.88.00.075.0320



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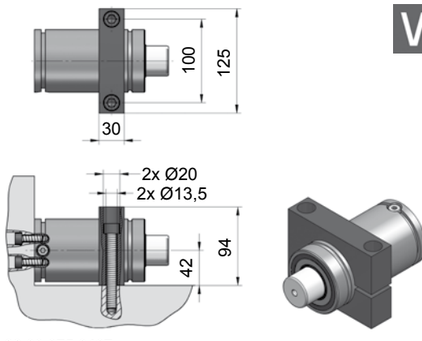
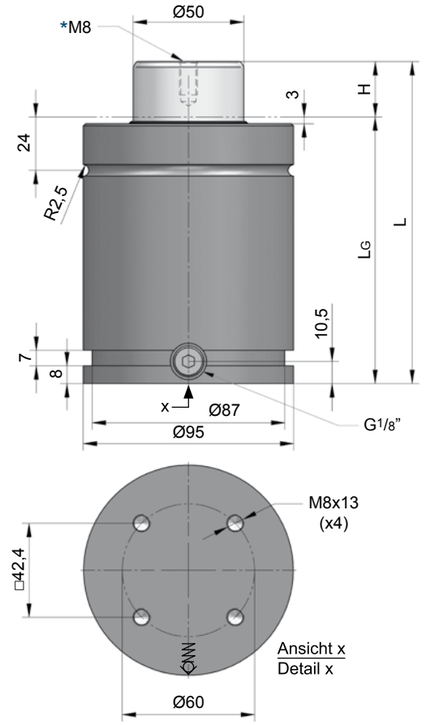


NC.88.00.075.0467

NC.060.29.03000



Technische Daten:

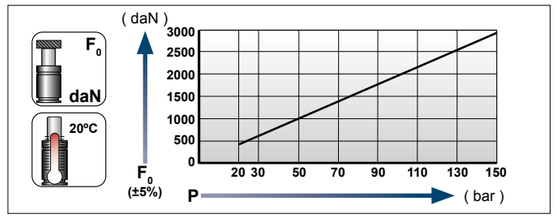
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

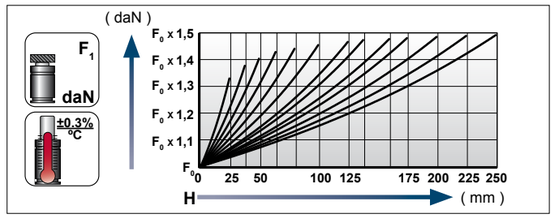
Specifications:

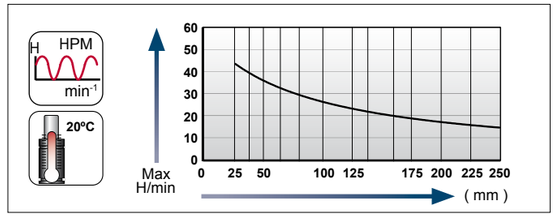
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.060.29.03000.050

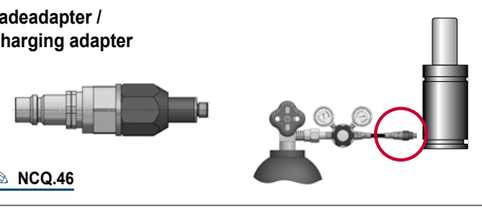
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	145	120	2945	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	171	133	2945	
050	195	145	2945	
063,5	222	158,5	2945	
080	255	175	2945	
100	295	195	2945	
125	345	220	2945	
137,5	370	232,5	2945	
160	415	255	2945	
175	445	270	2945	
200	495	295	2945	
225	545	320	2945	
250	595	345	2945	







Ladeadapter / Charging adapter



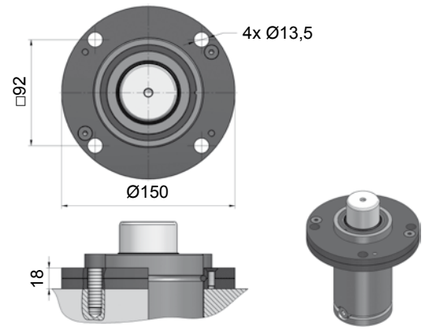
NCQ.46

[19.02.2020]

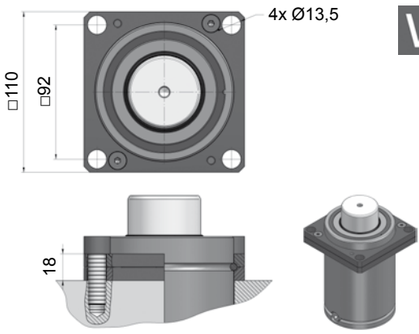
[19.02.2020]

GDF, Standard, mittlere Größe
GS, Standard, medium size
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.060.29.03000**



NC.88.00.095.0114



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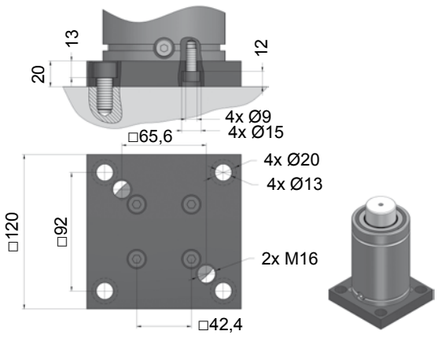
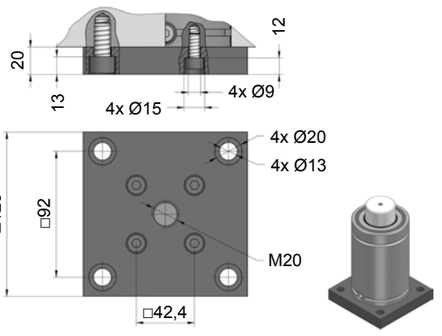
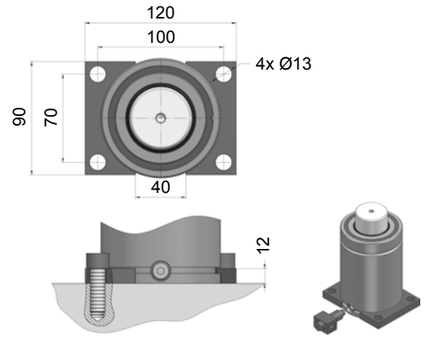


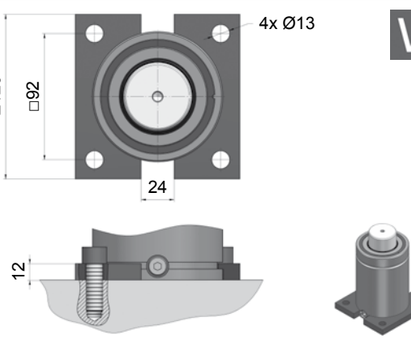
NC.88.00.095.0221



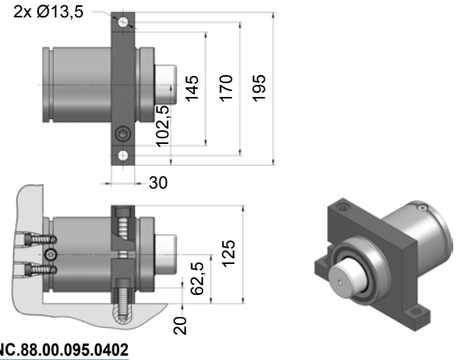
NC.88.00.095.0276



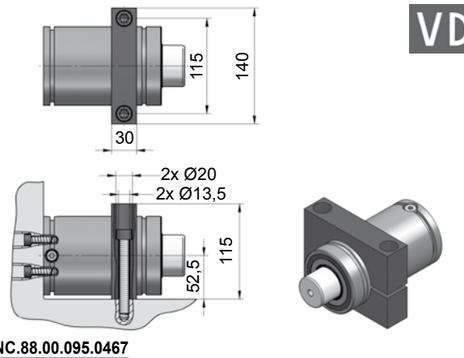
NC.88.00.095.0305



NC.88.00.095.0320

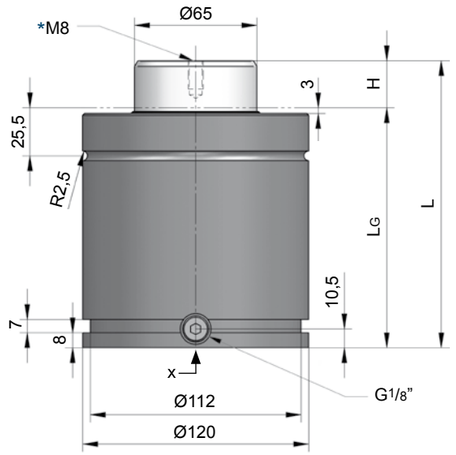


NC.88.00.095.0402



NC.88.00.095.0467

NC.060.29.05000

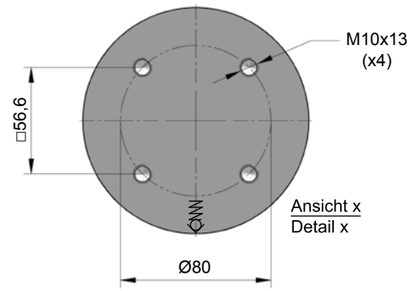


Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

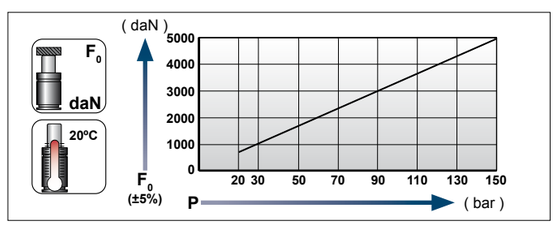
Specifications:

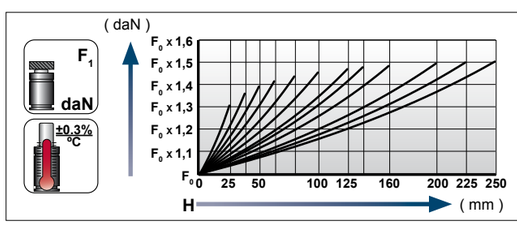
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

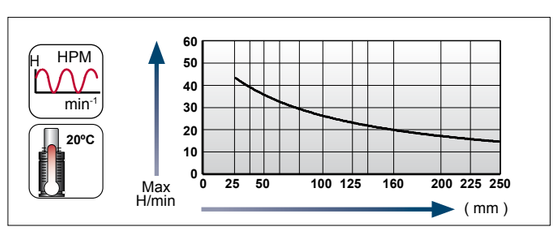


NC.060.29.
05000.025

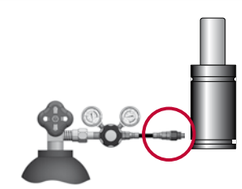
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	152,5	127,5	4980	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	178,5	140,5	4980	
050	202,5	152,5	4980	
063	228,5	165,5	4980	
080	262,5	182,5	4980	
100	302,5	202,5	4980	
125	352,5	227,5	4980	
137,5	377,5	240	4980	
160	422,5	262,5	4980	
200	502,5	302,5	4980	
225	552,5	327,5	4980	
250	602,5	352,5	4980	







Ladeadapter / Charging adapter

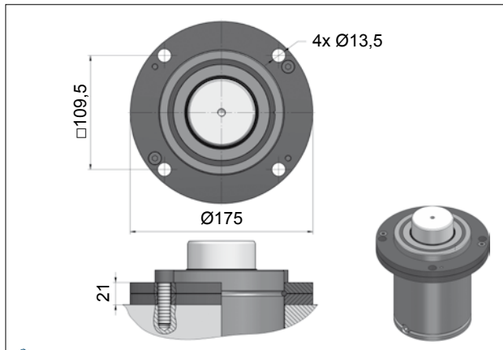


NCQ.46

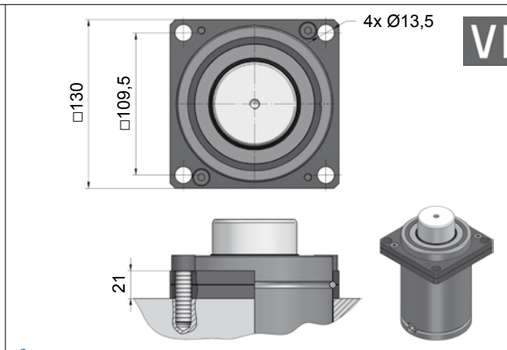
[19.02.2020]

GDF, Standard, mittlere Größe
GS, Standard, medium size
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

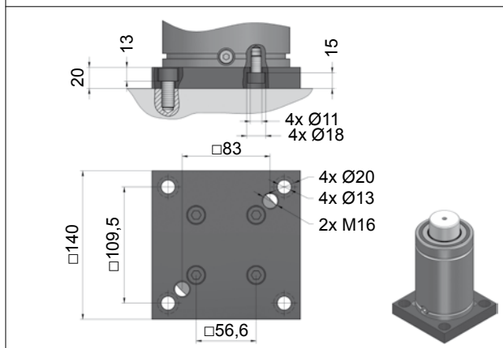
Flansche für / Flanges for **NC.060.29.05000**



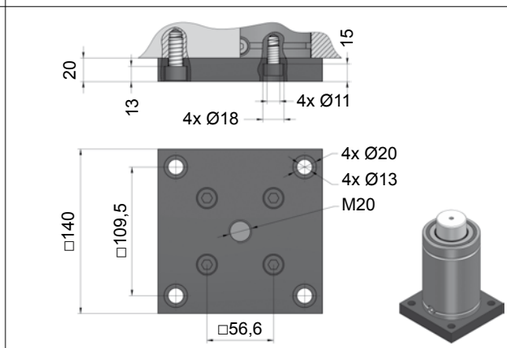
NC.88.00.120.0114



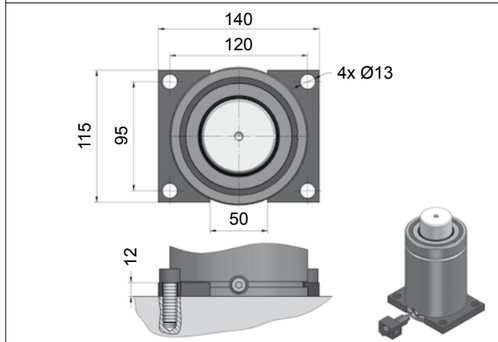
NC.88.00.120.0134



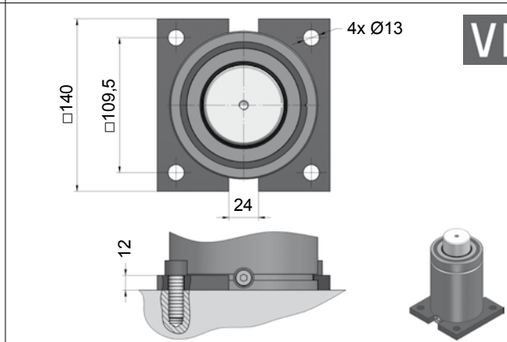
NC.88.00.120.0221



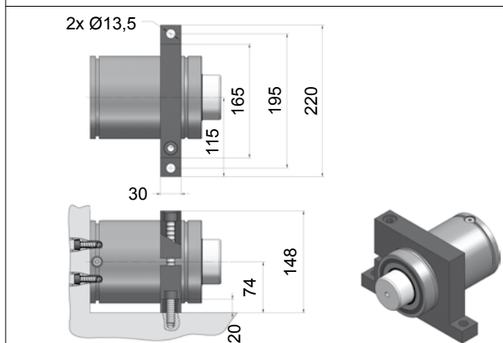
NC.88.00.120.0276



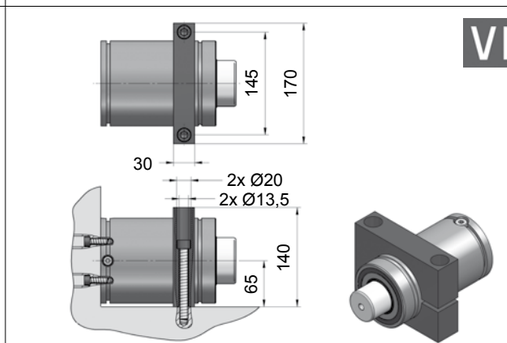
NC.88.00.120.0305



NC.88.00.120.0320



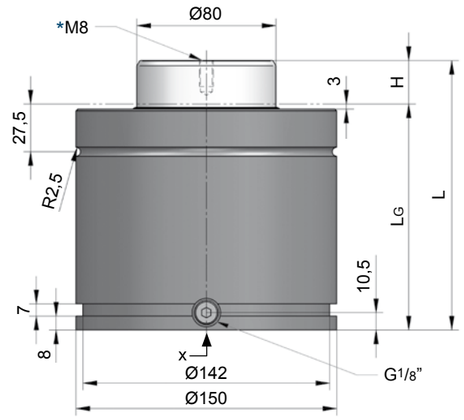
NC.88.00.120.0402



NC.88.00.120.0467

[19.02.2020]

NC.060.29.07500

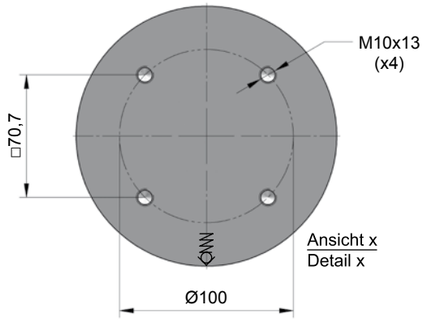


Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

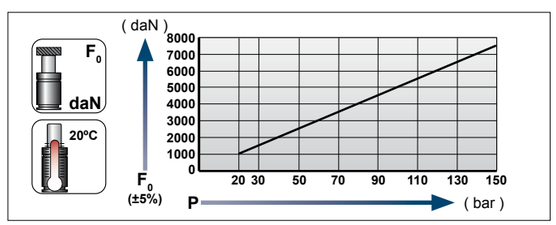
Specifications:

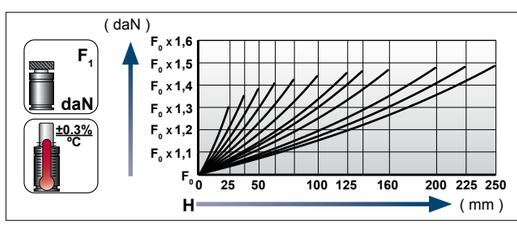
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

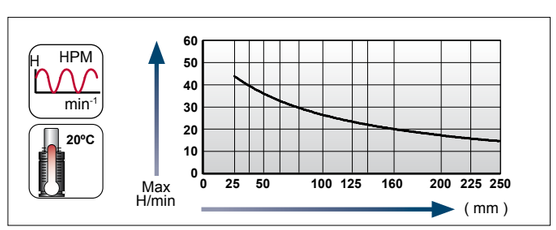


NC.060.29.07500.125

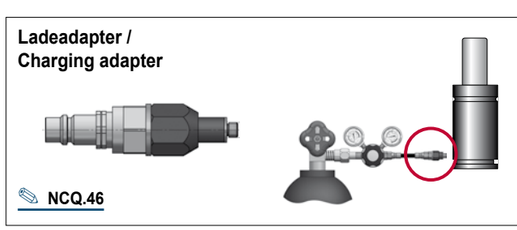
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	155	130	7540	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	181	143	7540	
050	205	155	7540	
063,5	232	168,5	7540	
080	265	185	7540	
100	305	205	7540	
125	355	230	7540	
137,5	380	242,5	7540	
160	425	265	7540	
200	505	305	7540	
225	555	330	7540	
250	605	355	7540	







Ladeadapter / Charging adapter

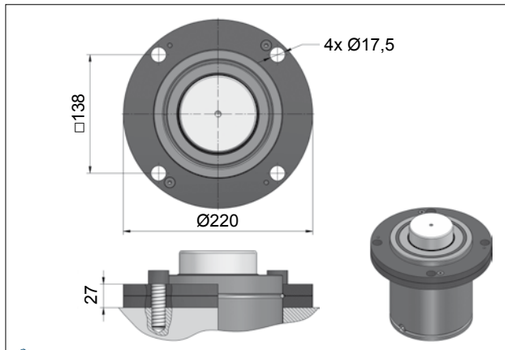


NCQ.46

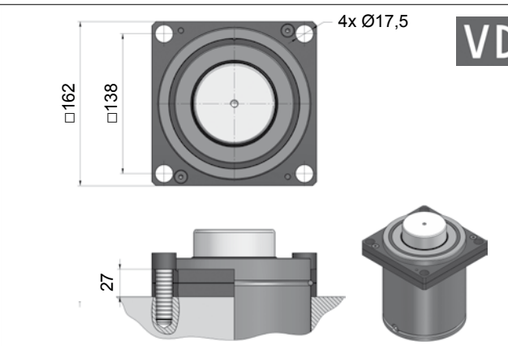
[19.02.2020]

GDF, Standard, mittlere Größe
GS, Standard, medium size
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.060.29.07500**



NC.88.00.150.0114



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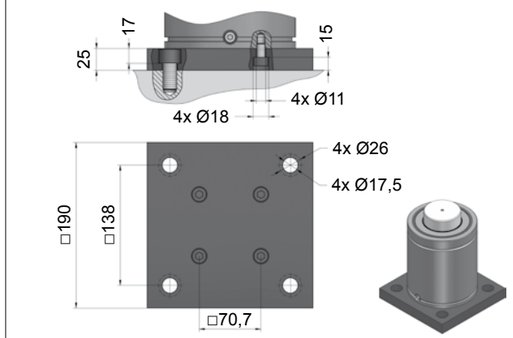

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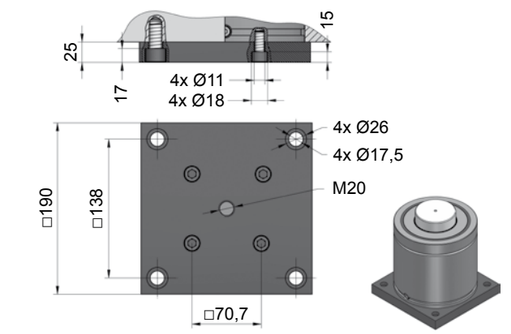

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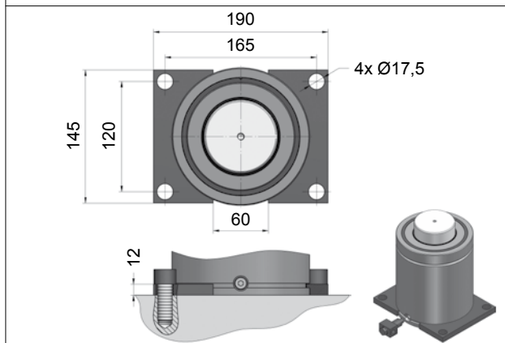

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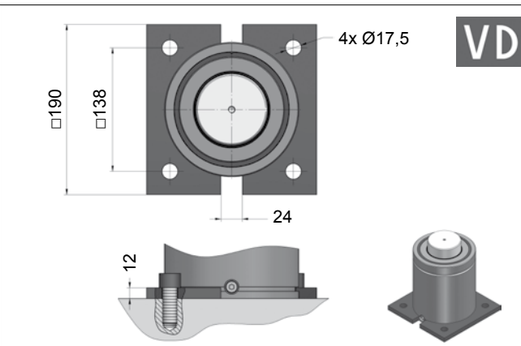
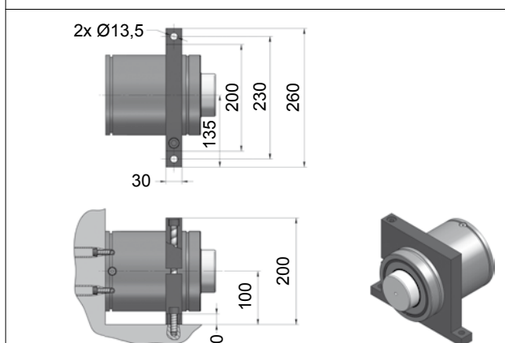
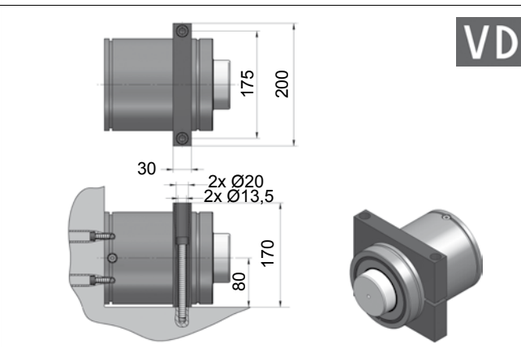


NC.88.00.150.0320



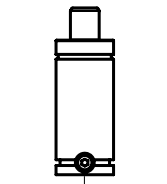
NC.88.00.150.0402



NC.88.00.150.0467

[19.02.2020]

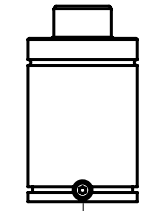
Größenübersicht Serie NC.061.10



NC.061.10.00300...1
300 daN
25 - 100 mm
Ø45

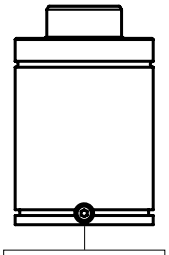


NC.061.10.00750
760 daN
25 - 125 mm
Ø75

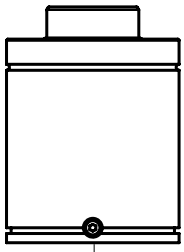


NC.061.10.01500
1470 daN
25 - 125 mm
Ø95

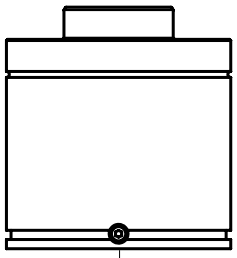
Gas spring index 061.10 series



NC.061.10.03000
2985 daN
25 - 125 mm
Ø120



NC.061.10.05000
5025 daN
25 - 125 mm
Ø150



NC.061.10.07500
7440 daN
25- 125 mm
Ø195

Technische Informationen Serie NC.061.10

Die Gasdruckfedern **NC.061.10** wurden für einen verzögerten Rückhub konstruiert. Dabei fährt die Kolbenstange langsamer zurück als das Werkzeugoberteil.

Ablauf: Die Gasdruckfedern **NC.061.10** werden wie herkömmliche Federn unter Last zusammengefahren, wobei die Kolbenstange beim Rückhub auf den ersten ca. 5 mm „normal“, dann verzögert zurückfährt. Um die Gasdruckfedern den jeweiligen, spezifischen Kundenanforderungen entsprechend konzipieren zu können, nutzen Sie bitte das Anforderunsformular auf Seite **NC.061.14**.

Anwendungsfälle: Überall, wo ein gleichzeitiger Rückhub von Pressenoberteil und Gasdruckfeder(n) **NC.061.10** möglicherweise zur Blechteil-Beschädigung führen könnte.

Vorteile im Vergleich zu anderen Verzögerungssystemen:
- Autonome Zylinder ohne Verschlauchung, u.ä.
- Einfacher Einbau.
- Gesteigerte Produktivität.
- Kosteneinsparung, da keine komplexen Systeme (Peripherie).

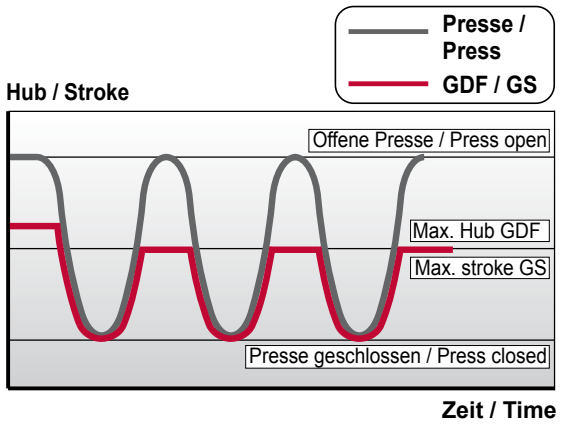
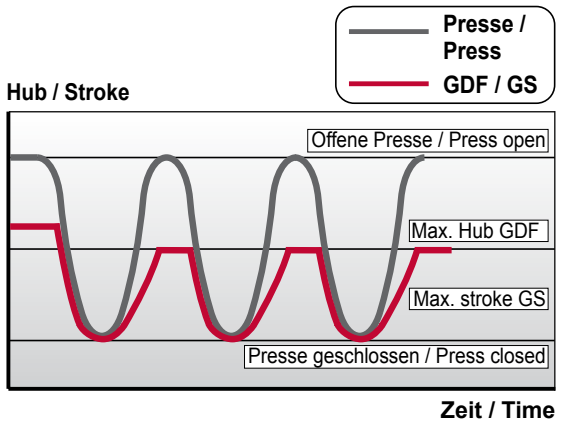
Technical information 061.10 series

NC.061.10 gas springs are designed to achieve a delayed effect. The piston-rod-return is slower than the return of the upper half of the die.

Performance: Gas springs of the **NC.061.10**-family are compressed like regular ones, but their rod-return tuwards the extended 0-position happens delayed, meaning: the rod-return is slower (but the first 5 mm), than usually.
In order to design the custom-specific internal layout of these delayed gas springs, please use the request form on page **NC.061.15**.

Applications: NC.061.10 gas springs satisfy customer needs in applications, that require a slow(er) return of the gas spring piston rods in order to avoid damage of the final sheet-metal products.

Advantages: NC.061.10 gas springs represent a very interesting alternative in comparison to other complex time-delayed systems:
- Self contained gas springs with higher reliability.
- Easy implementation.
- Increases productivity.
- Cost savings to alternatives.

Standard-Gasdruckfeder / Standard gas spring	NC.061.10
	

SICHERHEITSSYSTEME



Überdruck
Überhub
Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

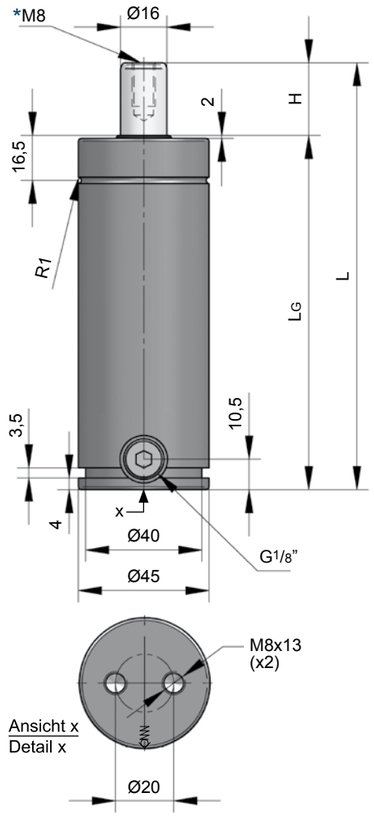
SAFETY SYSTEMS



Over-Pressure
Over-Stroke
Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

NC.061.10.00300...1



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Gasdruckfedern mit verzögertem Rückhub. Die Verzögerungszeit ist abhängig vom benötigten Arbeitshub. Die Berechnung der maximalen Verzögerungszeit (**K**) erfolgt nach der Formel:
K = 0,015 x Arbeitshub in (mm)
Verzögerungszeit bei Bestellung bitte angeben.

Erforderliche Angaben siehe Seite **NC.061.14**!

Specifications:

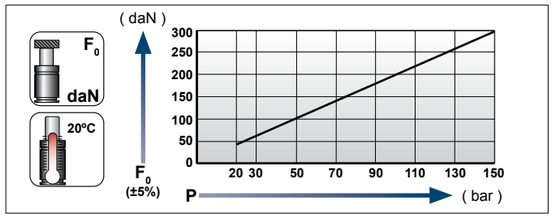
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

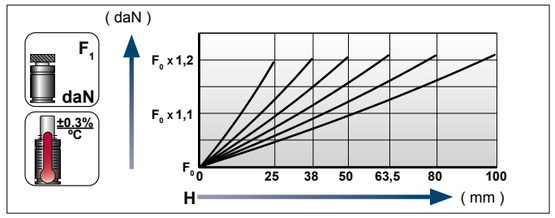
Gas springs with delayed return stroke, depending in part on the working stroke.
The maximum time for the return-stroke (**K**) is calculated by:
K = 0,015 x working stroke (mm)
When ordering please specify the real working stroke and the desired time of delay.

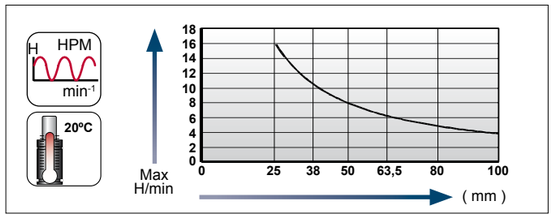
Required data see page **NC.061.15**!

NC.061.10.00300.050.1

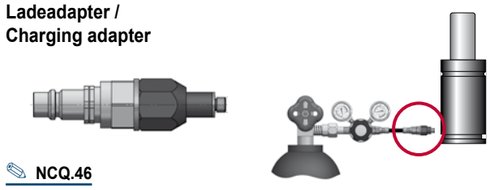
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	135	110	300	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	161	123	300	
050	185	135	300	
063,5	212	148,5	300	
080	245	165	300	
100	285	185	300	







Ladeadapter / Charging adapter

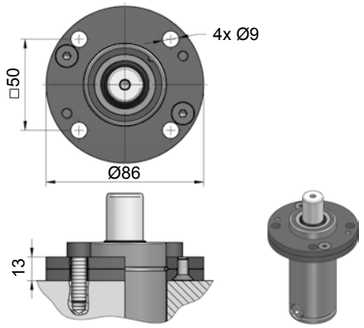


NCQ.46

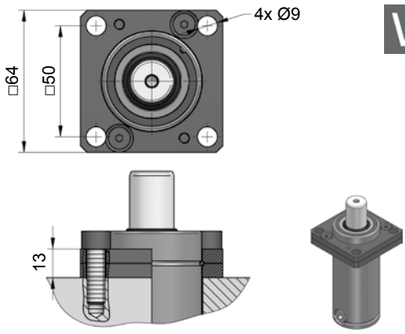
[27.02.2020]

[27.02.2020]

Flansche für / Flanges for **NC.061.10.00300...1**



NC.88.00.045.0114



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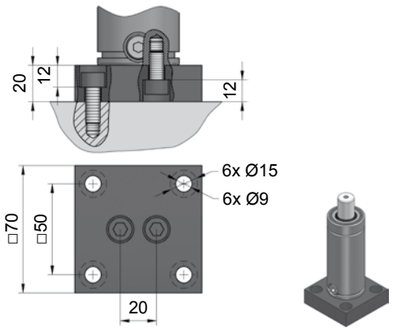
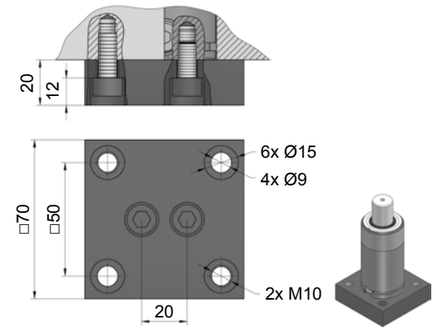


NC.88.00.045.0221



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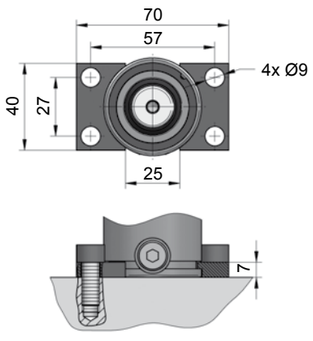
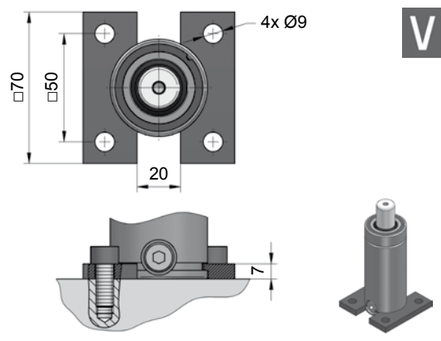
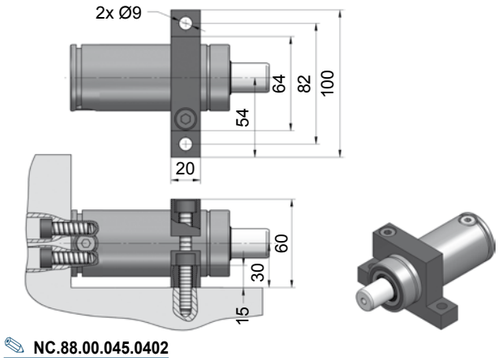


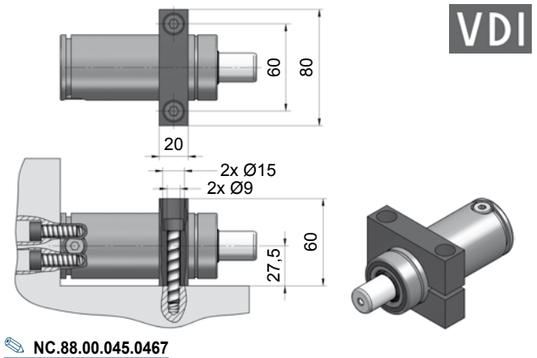
NC.88.00.045.0305



NC.88.00.045.0320



NC.88.00.045.0402



NC.88.00.045.0467

NC.061.10.00750

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	75 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Gasdruckfedern mit verzögertem Rückhub. Die Verzögerungszeit ist abhängig vom benötigten Arbeitshub. Die Berechnung der maximalen Verzögerungszeit (**K**) erfolgt nach der Formel:
K = 0,062 x Arbeitshub in (mm)
Verzögerungszeit bei Bestellung bitte angeben.

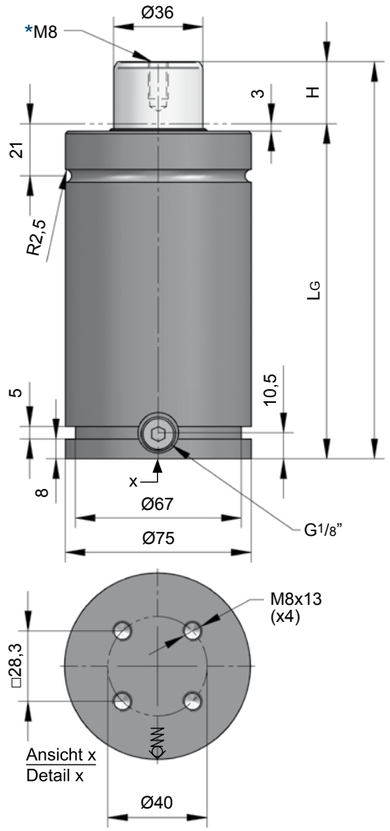
Erforderliche Angaben siehe Seite **NC.061.14**!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	75 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Gas springs with delayed return stroke, depending in part on the working stroke.
The maximum time for the return-stroke (**K**) is calculated by:
K = 0,062 x working stroke (mm)
When ordering please specify the real working stroke and the desired time of delay.

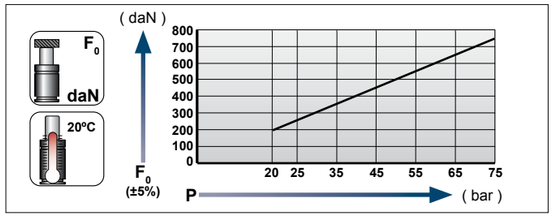
Required data see page **NC.061.15**!

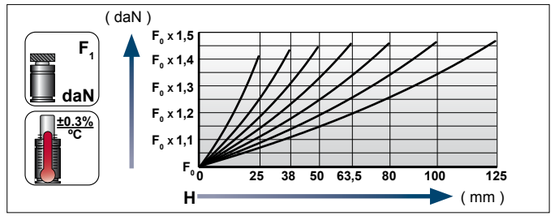


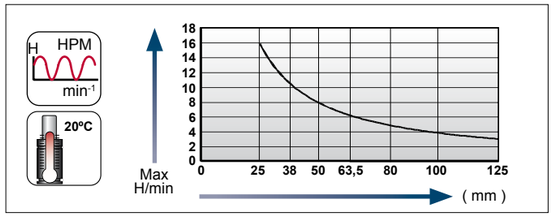
INFO [NC.21]

NC.061.10.00750.050

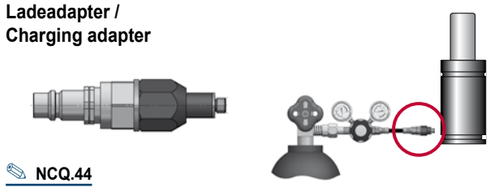
H Hub / Stroke	L ±0,25	LG	Kraft / Force (75 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	160	135	760	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	186	148	760	
050	210	160	760	
063,5	237	173,5	760	
080	270	190	760	
100	310	210	760	
125	360	235	760	







Ladeadapter / Charging adapter



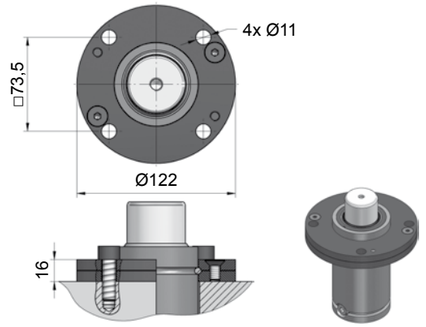
NCQ.44

[27.02.2020]

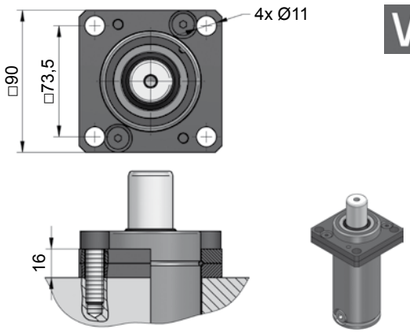
[27.02.2020]

GDF, Verzögerungszylinder
GS, Delayed gas springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

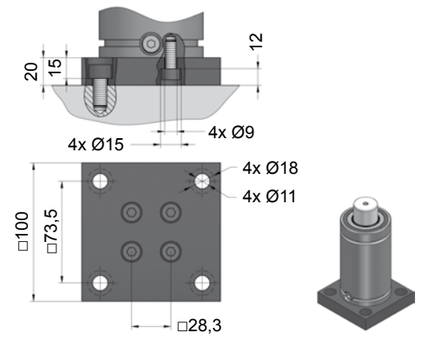
Flansche für / Flanges for **NC.061.10.00750**



NC.88.00.075.0114



NC.88.00.075.0134



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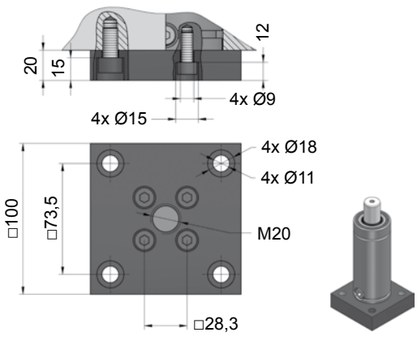

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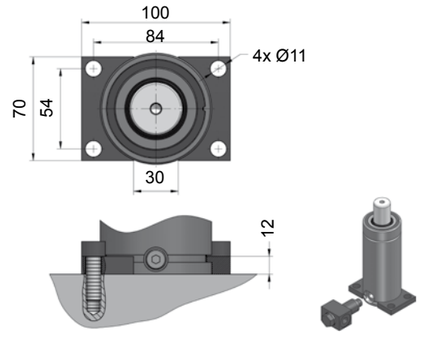
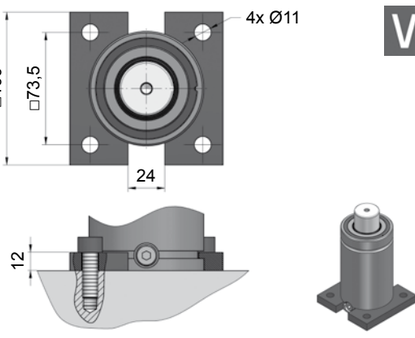
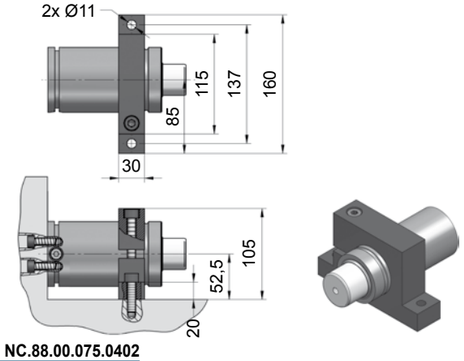


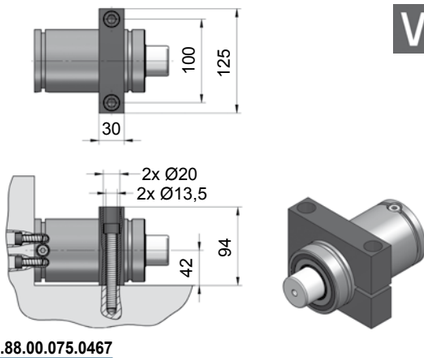
NC.88.00.075.0305



NC.88.00.075.0320



NC.88.00.075.0402



NC.88.00.075.0467

NC.061.10.01500

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	75 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Gasdruckfedern mit verzögertem Rückhub. Die Verzögerungszeit ist abhängig vom benötigten Arbeitshub. Die Berechnung der maximalen Verzögerungszeit (**K**) erfolgt nach der Formel:
K = 0,09 x Arbeitshub in (mm)
Verzögerungszeit bei Bestellung bitte angeben.

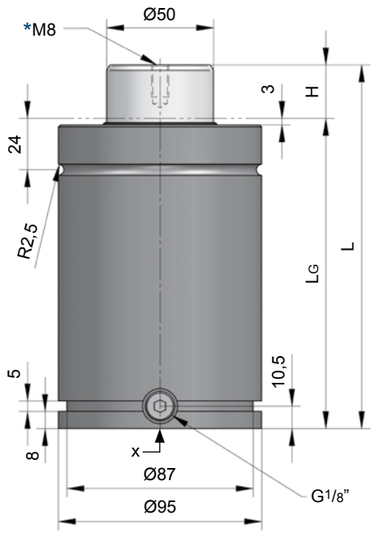
Erforderliche Angaben siehe Seite **NC.061.14**!

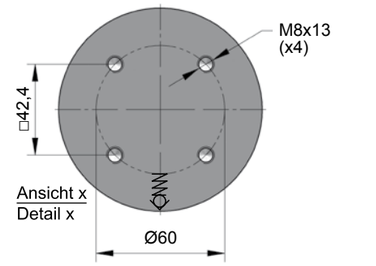
Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	75 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Gas springs with delayed return stroke, depending in part on the working stroke.
The maximum time for the return-stroke (**K**) is calculated by:
K = 0,09 x working stroke (mm)
When ordering please specify the real working stroke and the desired time of delay.

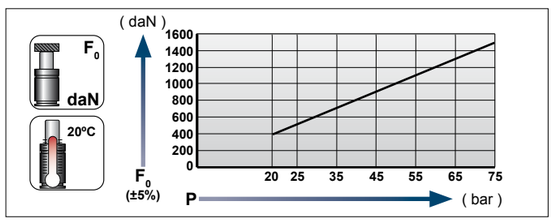
Required data see page **NC.061.15**!

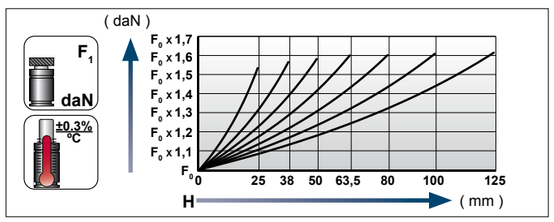


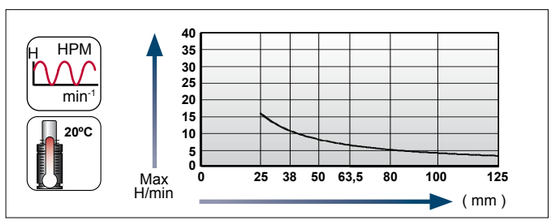


NC.061.10.01500.080

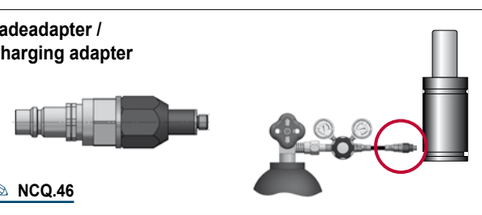
H Hub / Stroke	L ±0,25	LG	Kraft / Force (75 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	170	145	1470	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	196	158	1470	
050	220	170	1470	
063,5	247	183,5	1470	
080	280	200	1470	
100	320	220	1470	
125	370	245	1470	







Ladeadapter / Charging adapter



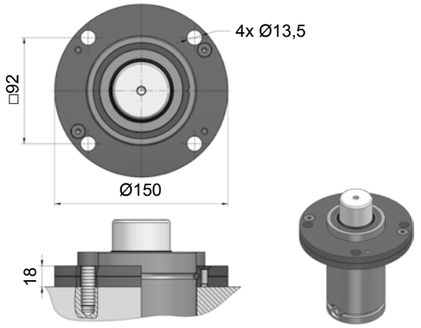
NCQ.46

[27.02.2020]

[27.02.2020]

GDF, Verzögerungszylinder
GS, Delayed gas springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.061.10.01500**



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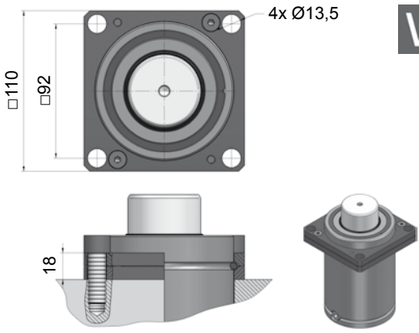

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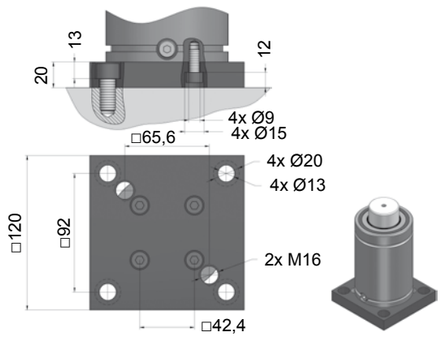

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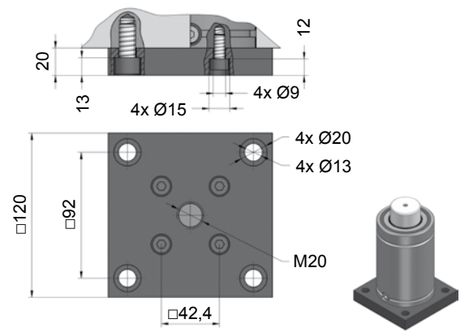

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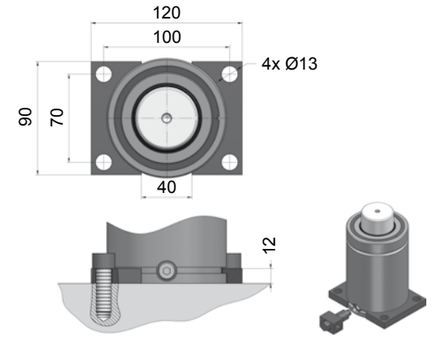

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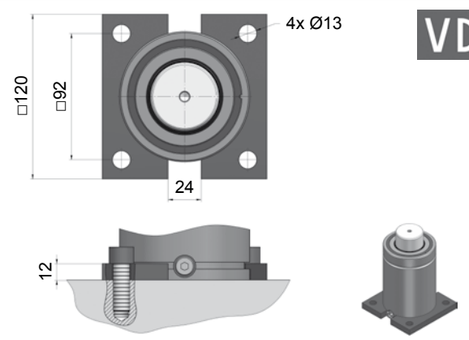
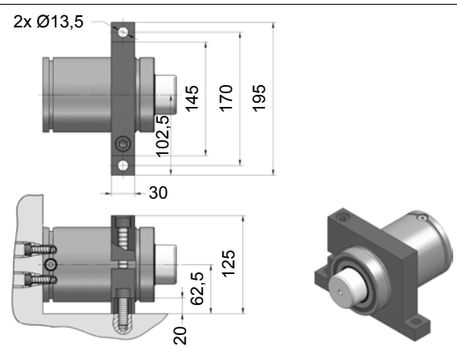
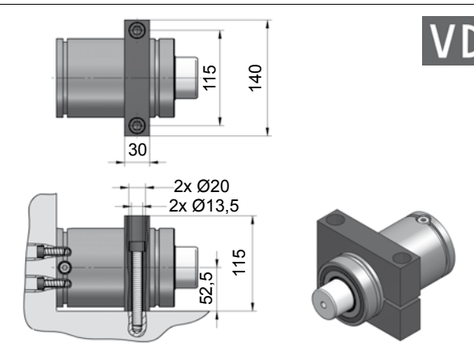


NC.88.00.095.0320



NC.88.00.095.0402



NC.88.00.095.0467

[NC]

NC.061.10.03000

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	90 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Gasdruckfedern mit verzögertem Rückhub. Die Verzögerungszeit ist abhängig vom benötigten Arbeitshub. Die Berechnung der maximalen Verzögerungszeit (**K**) erfolgt nach der Formel:
K = 0,131 x Arbeitshub in (mm)
Verzögerungszeit bei Bestellung bitte angeben.

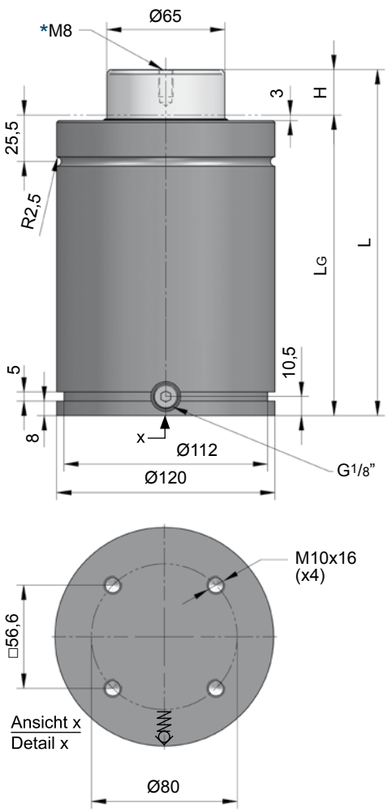
Erforderliche Angaben siehe Seite **NC.061.14**!

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	90 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Gas springs with delayed return stroke, depending in part on the working stroke.
The maximum time for the return-stroke (**K**) is calculated by:
K = 0,131 x working stroke (mm)
When ordering please specify the real working stroke and the desired time of delay.

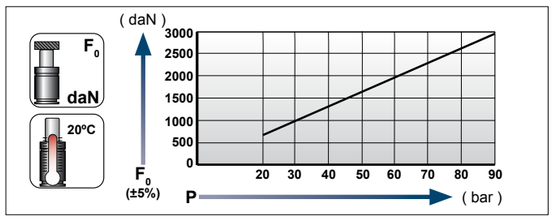
Required data see page **NC.061.15**!

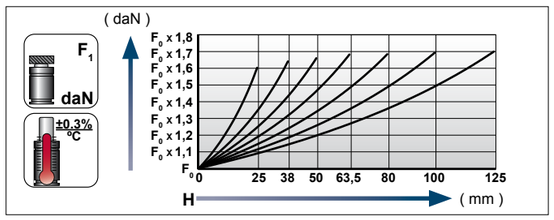


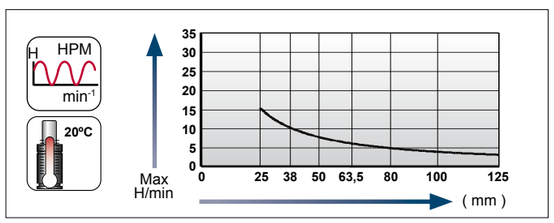
INFO [NC.21]

NC.061.10.03000.080

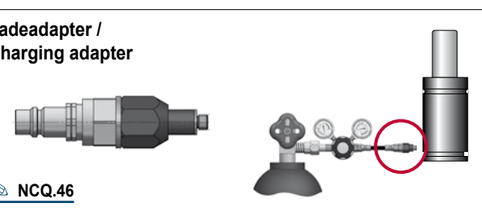
H Hub / Stroke	L ±0,25	LG	Kraft / Force (90 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	190	165	2985	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	216	178	2985	
050	240	190	2985	
063,5	267	203,5	2985	
080	300	220	2985	
100	340	240	2985	
125	390	265	2985	







Ladeadapter / Charging adapter

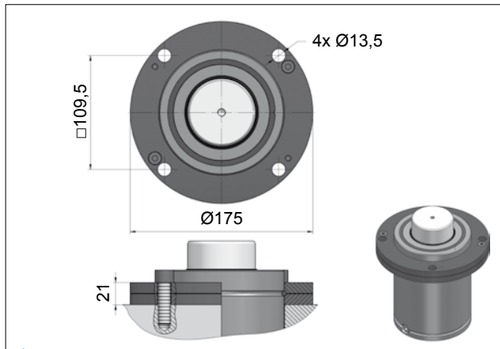


NCQ.46

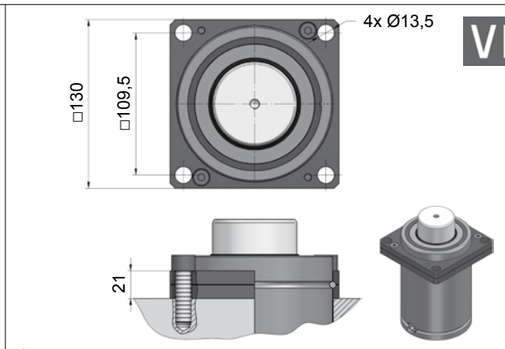
[27.02.2020]

GDF, Verzögerungszylinder
GS, Delayed gas springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

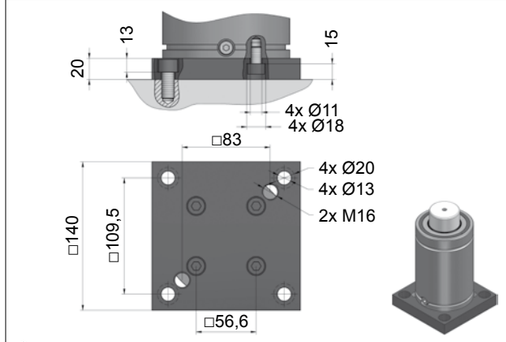
Flansche für / Flanges for **NC.061.10.03000**



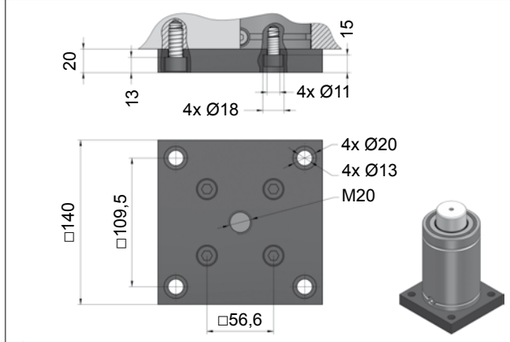
NC.88.00.120.0114



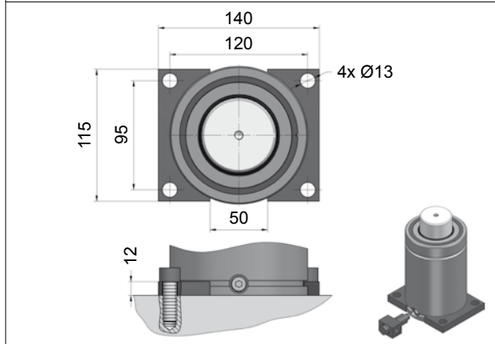
NC.88.00.120.0134



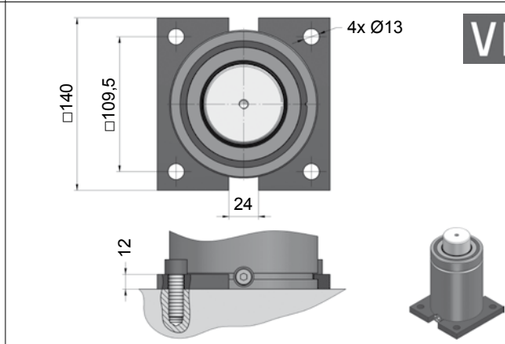
NC.88.00.120.0221



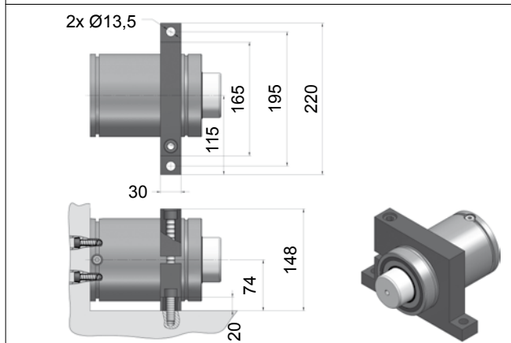
NC.88.00.120.0276



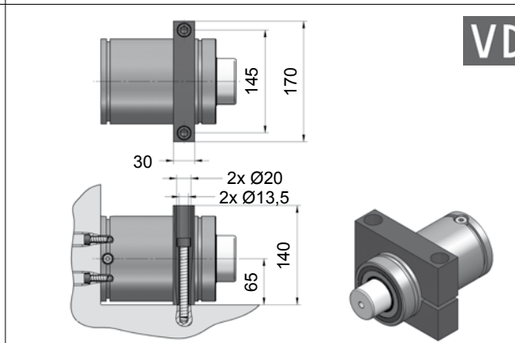
NC.88.00.120.0305



NC.88.00.120.0320



NC.88.00.120.0402



NC.88.00.120.0467

[NC]

NC.061.10.05000

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	100 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Gasdruckfedern mit verzögertem Rückhub. Die Verzögerungszeit ist abhängig vom benötigten Arbeitshub. Die Berechnung der maximalen Verzögerungszeit (**K**) erfolgt nach der Formel:
K = 0,214 x Arbeitshub in (mm)
Verzögerungszeit bei Bestellung bitte angeben.

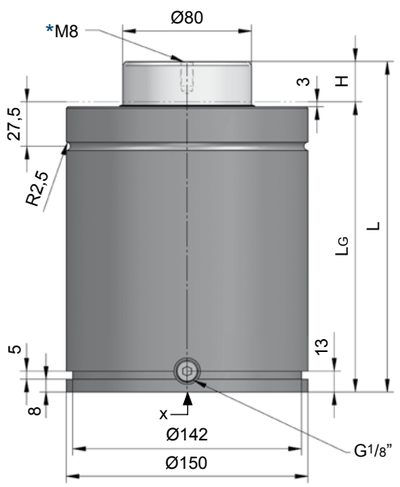
Erforderliche Angaben siehe Seite **NC.061.14**!

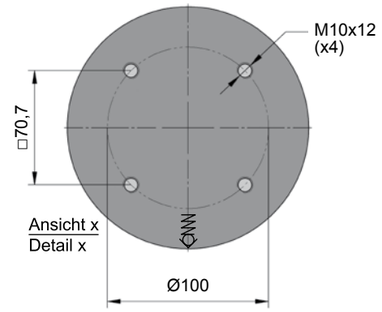
Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	100 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Gas springs with delayed return stroke, depending in part on the working stroke.
The maximum time for the return-stroke (**K**) is calculated by:
K = 0,214 x working stroke (mm)
When ordering please specify the real working stroke and the desired time of delay.

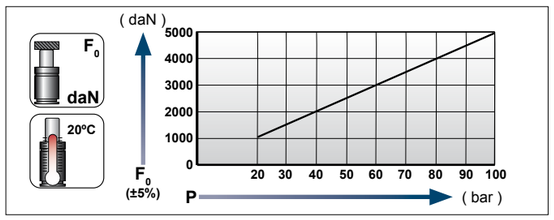
Required data see page **NC.061.15**!

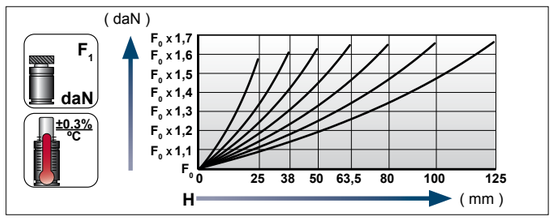


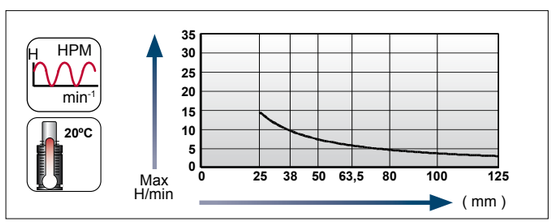


NC.061.10.05000.100

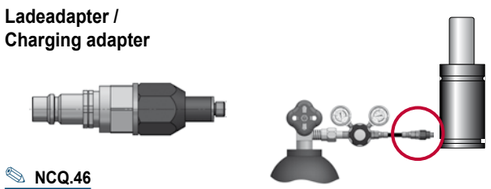
H Hub / Stroke	L ±0,25	LG	Kraft / Force (100 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	205	180	5025	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	231	193	5025	
050	255	205	5025	
063,5	282	218,5	5025	
080	315	235	5025	
100	355	255	5025	
125	405	280	5025	







Ladeadapter / Charging adapter



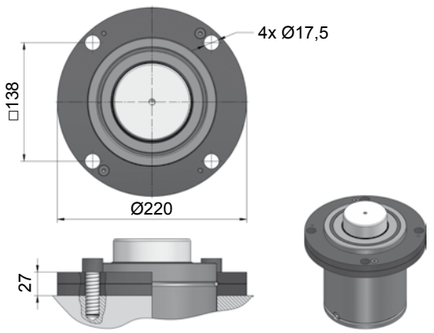
NCQ.46

[27.02.2020]

[27.02.2020]

GDF, Verzögerungszylinder
GS, Delayed gas springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.061.10.05000**



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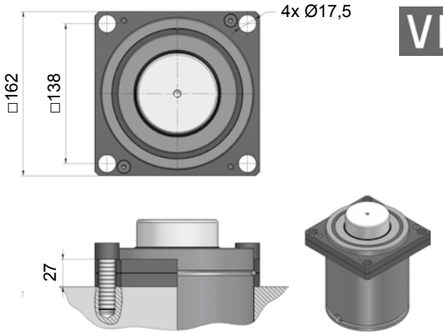

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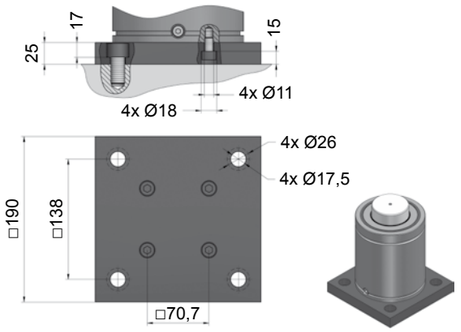
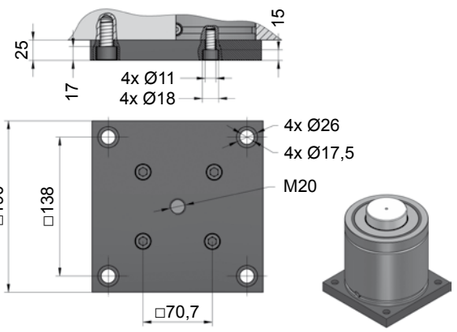


NC.88.00.150.0221



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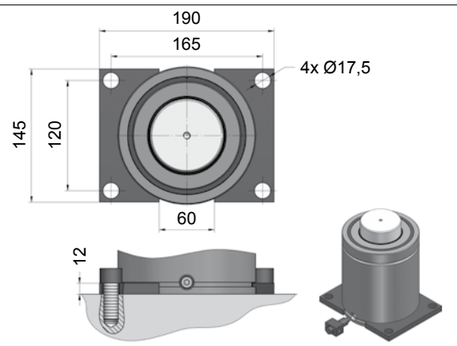

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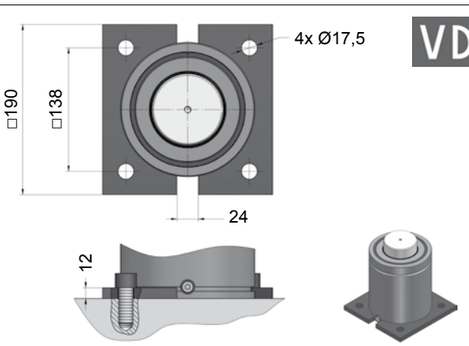

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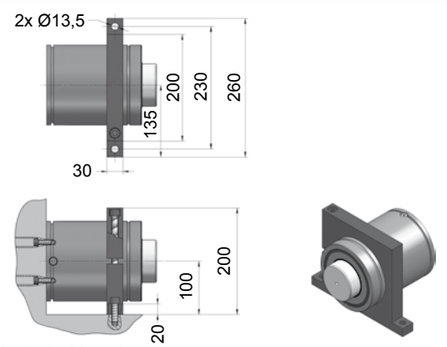

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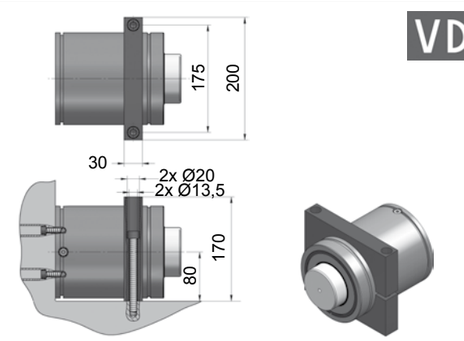


NC.88.00.150.0467

NC.061.10.07500

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	105 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

Gasdruckfedern mit verzögertem Rückhub. Die Verzögerungszeit ist abhängig vom benötigten Arbeitshub. Die Berechnung der maximalen Verzögerungszeit (**K**) erfolgt nach der Formel:
K = 0,289 x Arbeitshub in (mm)
Verzögerungszeit bei Bestellung bitte angeben.

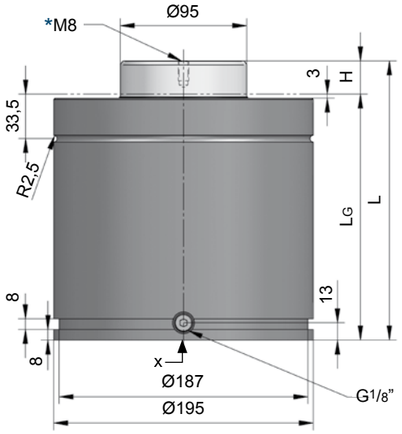
Erforderliche Angaben siehe Seite **NC.061.14**!

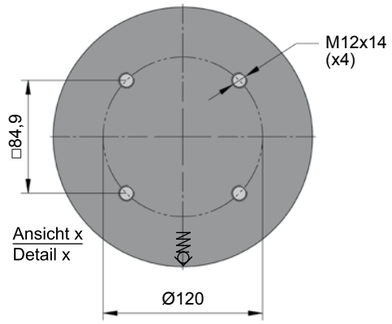
Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	105 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

Gas springs with delayed return stroke, depending in part on the working stroke.
The maximum time for the return-stroke (**K**) is calculated by:
K = 0,289 x working stroke (mm)
When ordering please specify the real working stroke and the desired time of delay.

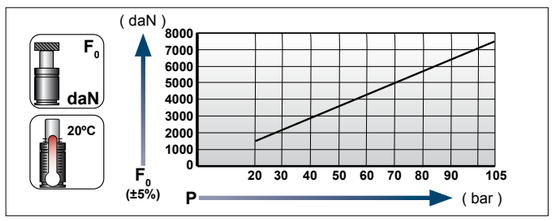
Required data see page **NC.061.15**!

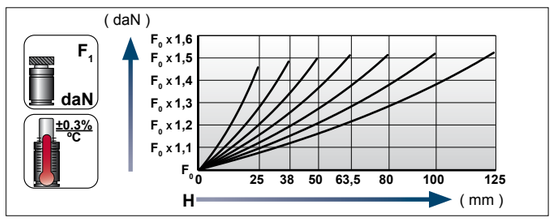


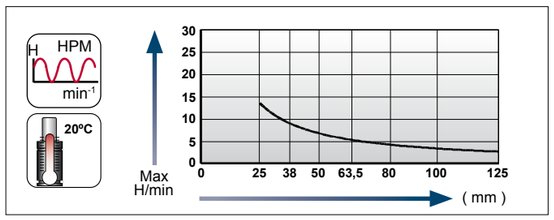


NC.061.10.07500.125

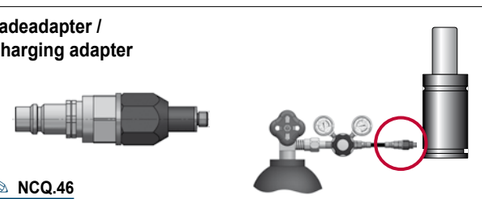
H Hub / Stroke	L ±0,25	LG	Kraft / Force (105 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	210	185	7440	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	236	198	7440	
050	260	210	7440	
063,5	287	223,5	7440	
080	320	240	7440	
100	360	260	7440	
125	410	285	7440	







Ladeadapter / Charging adapter

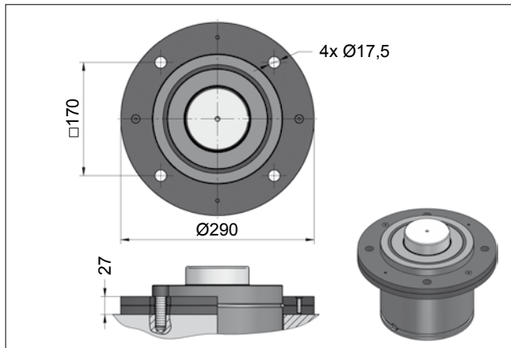


NCQ.46

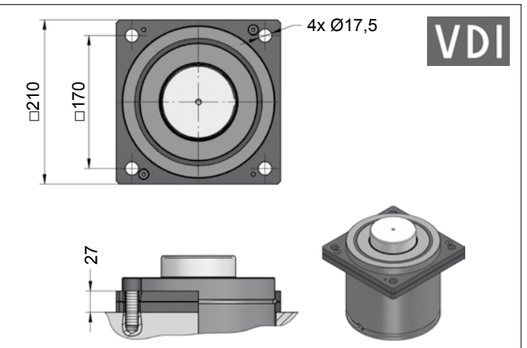
[27.02.2020]

[27.02.2020]

Flansche für / Flanges for **NC.061.10.07500**



NC.88.00.195.0114



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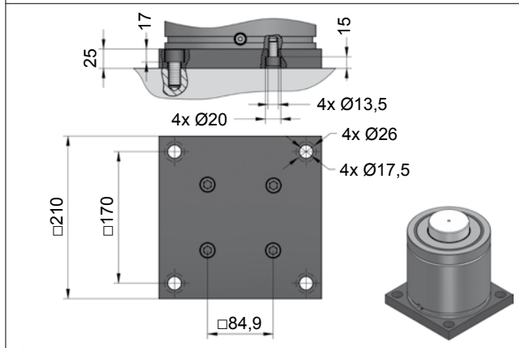

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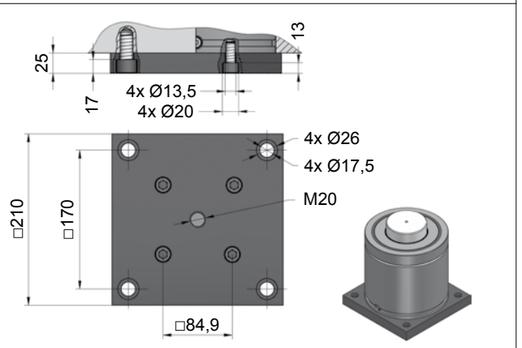

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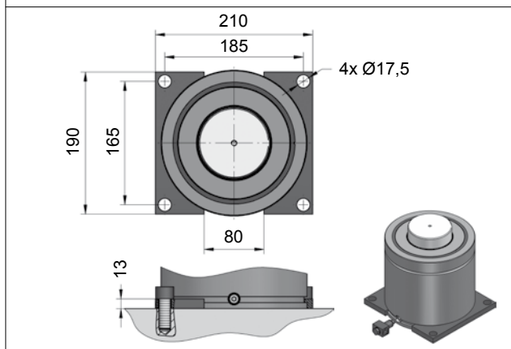

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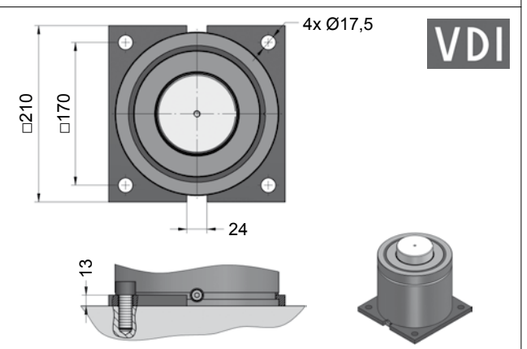

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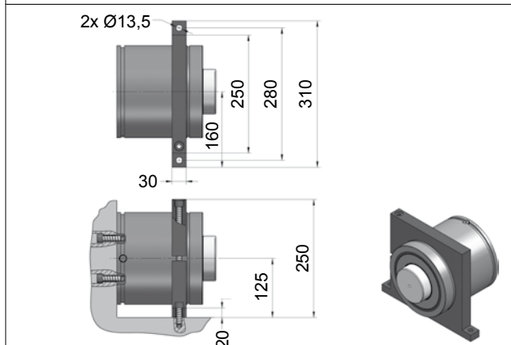
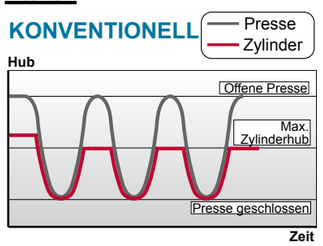
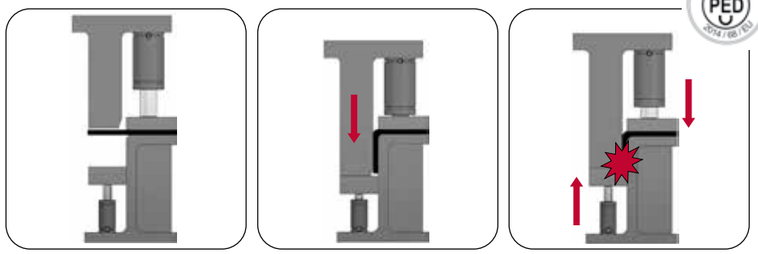


NC.88.00.195.0402

ZIEL

KONVENTIONELL

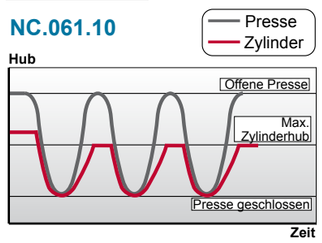


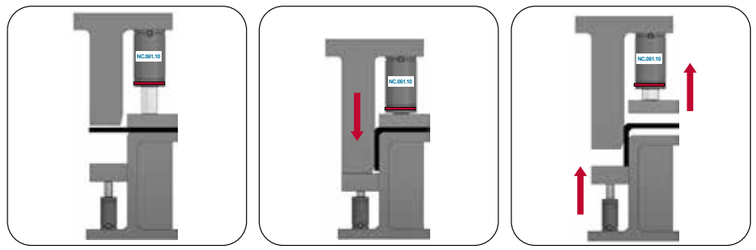


Einige Arbeitsvorgänge beinhalten, dass die Kolbenstange zu arbeiten beginnt, wenn der Niederhalter das Bauteil unten hält. Der Einsatz herkömmlicher Gasdruckfedern in diesen Situationen führt zu Verformungen im Bauteil.

LÖSUNG

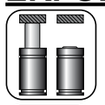
NC.061.10





Wenn sich die **NC.061.10** Verzögerungszylinder in ihre Ausgangsposition zurückbewegen, arbeiten diese auf den ersten Millimetern wie eine konventionelle Feder und verlangsamen darauffolgend. Dies ermöglicht, das Bauteil ohne Verformungen zu entnehmen.

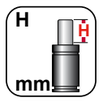
ERFORDERLICHE ANGABEN



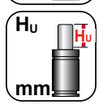
- Soll die Kolbenstange im Zylinder zurückgehalten werden? **(ja / nein)**



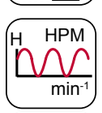
- Gewünschte Kraft **(daN)**.....



- Nennhub **(mm)**.....



- Nutzhub **(mm)**.....



- Zu leistende Hübe pro Minute.....



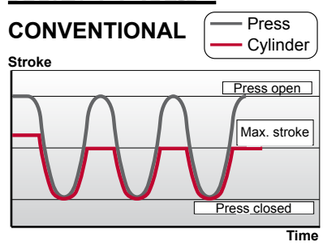
- Gewünschte Verzögerungszeit **(Bsp.: 1 Sekunde)**.....

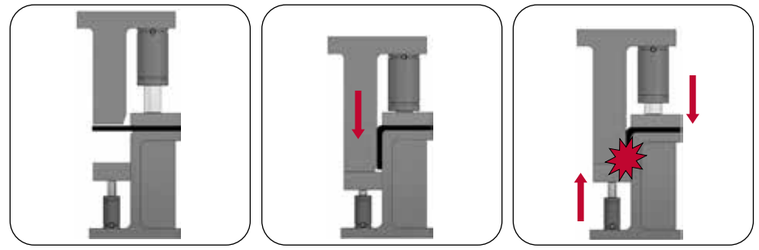
- Presswerk.....

ABSCHICKEN

CHALLENGE

CONVENTIONAL

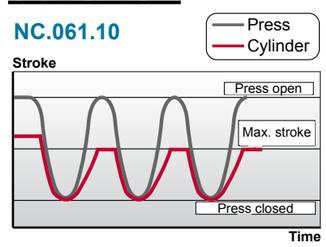


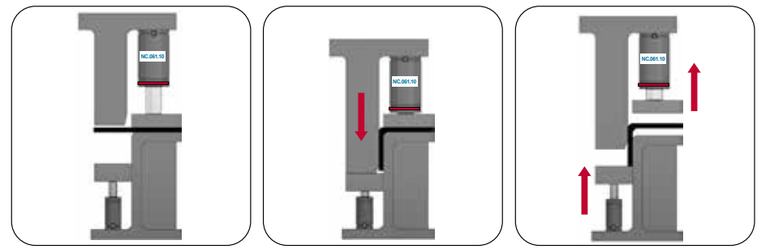


Some operations involve the ejector starting to work when the hold-down device holds down. The use of conventional gas pressure springs in these situations leads to deformations in the component.

SOLUTION

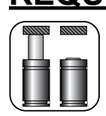
NC.061.10





When the NC.061.10 deceleration cylinders move back to their starting position, they work like a conventional spring for the first millimeters and then slow down. This enables the component to be removed without deformation.

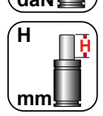
REQUIRED DATA



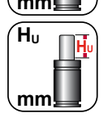
- Do piston rod have to keep locked down? **(yes / no)**.....



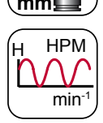
- Desired force **(daN)**.....



- Total stroke **(mm)**.....



- Stroke used **(mm)**.....



- Number of cycles per minute.....



- Desired slowed return **(eg. 1 second)**.....

- Presswerk.....

SEND OFF

Technische Information Serie NC.064.10

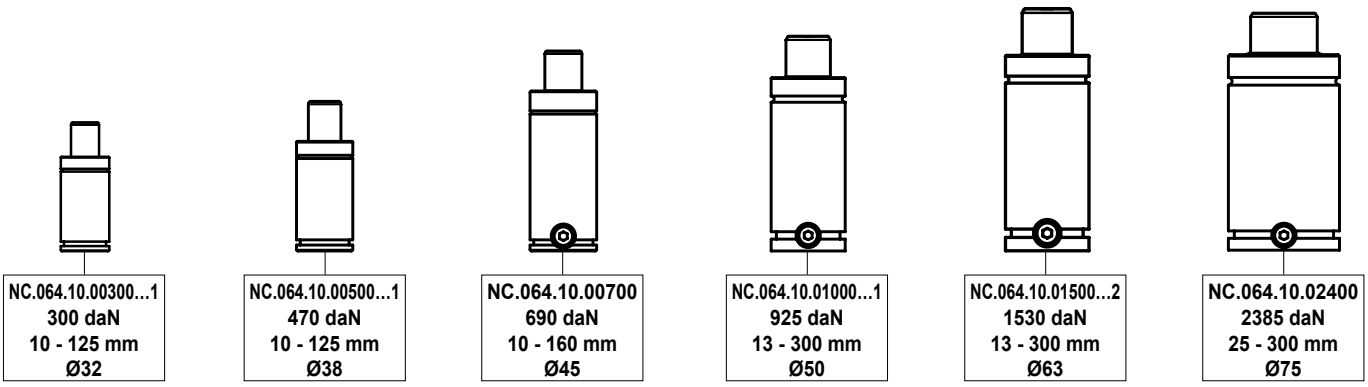
Bei der Serie **NC.064.10** handelt es sich um kompakte Gasdruckfedern, die nach VDI 3003 gefertigt werden. Sie sind von der Körpergröße her baugleich mit der Serie **NC.060.10**, werden aber mit Kolbenstangen ausgestattet, die einen größeren Durchmesser aufweisen.
Dadurch wird erreicht, dass sie bei gleichen Abmessungen über höhere Kräfte verfügen.
Letztendlich können auf diese Weise im Werkzeugbau Gasdruckfedern eingespart werden, was zu erheblicher Kostenersparnis führt.
Die Serie **NC.064.10** verfügt über acht Größen von 300 daN bis 18500 daN Anfangskraft. Bei einer maximalen Arbeitstemperatur von 80 °C und einer maximalen Kolbengeschwindigkeit von 1,6 m/s sind diese Zylinder universell einsetzbar.

Technical information NC.064.10 series

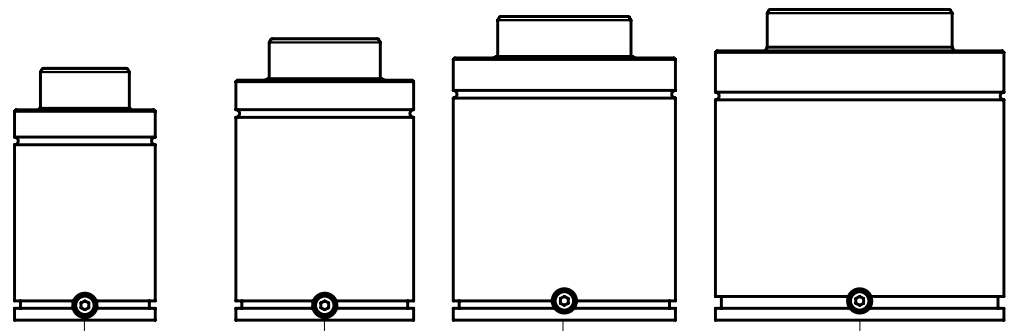
NC.064.10 are compact gas springs according to VDI 3003.
Body size is identical to **NC.060.10**, but the rod diameters are larger. This results in higher forces, even if the required space is the same.
By using these springs their quantity can be reduced, bottom line are cost savings.
The **NC.064.10**-series is available in 8 sizes between 300 daN and 18500 daN initial nominal force.
At a maximum working temperature of 80 degrees C and max. rod speed of 1,6 m/s they are universally useable.

Größenübersicht Serie NC.064.10

Gas spring index 064.10 series

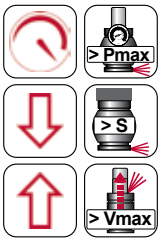


NC.064.10.00300...1	NC.064.10.00500...1	NC.064.10.00700	NC.064.10.01000...1	NC.064.10.01500...2	NC.064.10.02400
300 daN	470 daN	690 daN	925 daN	1530 daN	2385 daN
10 - 125 mm	10 - 125 mm	10 - 160 mm	13 - 300 mm	13 - 300 mm	25 - 300 mm
Ø32	Ø38	Ø45	Ø50	Ø63	Ø75



NC.064.10.04200	NC.064.10.06600	NC.064.10.09600	NC.064.10.18500
4240 daN	6630 daN	9540 daN	18410 daN
25 - 300 mm	25 - 300 mm	25 - 300 mm	25 - 300 mm
Ø95	Ø120	Ø150	Ø195

SICHERHEITSSYSTEME



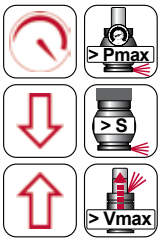
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



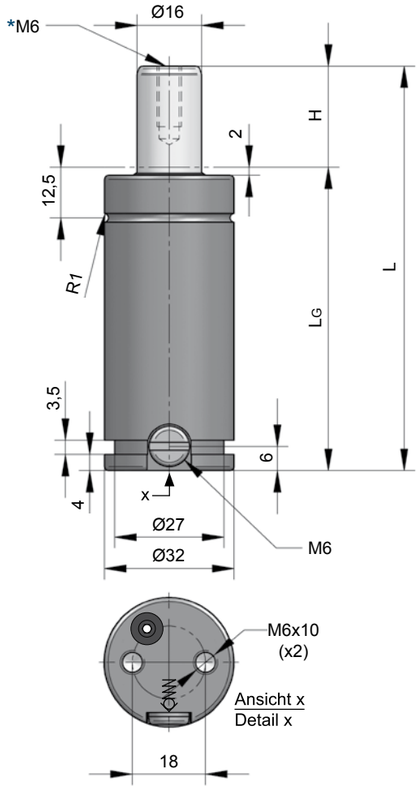
Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

NC.064.10.00300...1



Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

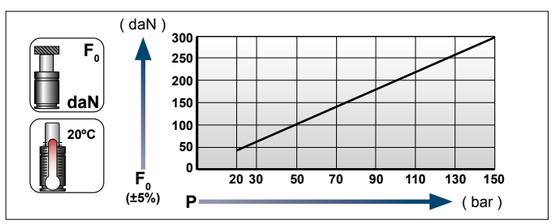
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

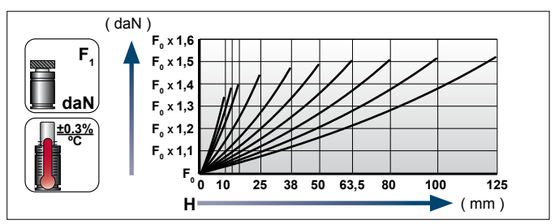
> Pmax
> S
> Vmax
INFO [NC.21]

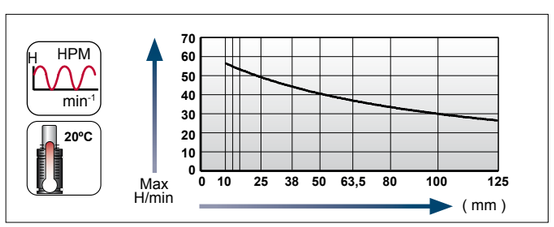
NC.064.10.
00300.010.1

MAIL

H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	70	60	300	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
012,7	75,4	62,7	300	
016	82	66	300	
025	100	75	300	
038	126	88	300	
050	150	100	300	
063,5	177	113,5	300	
080	210	130	300	
100	250	150	300	
125	300	175	300	







Ladeadapter / Charging adapter



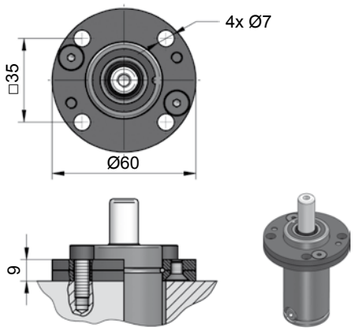
NCQ.44

[NC.064.2]

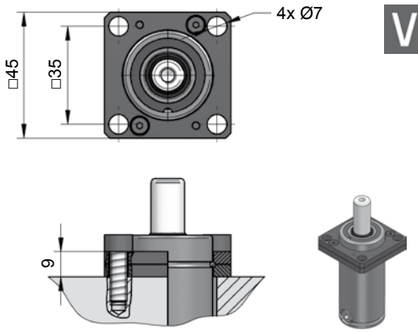
[02.03.2020]

GDF, kompakt, erhöhte Kraft
GS, compact, height force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

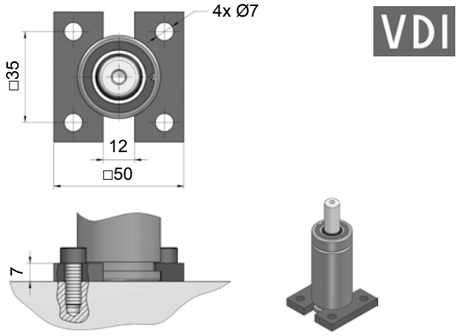
Flansche für / Flanges for **NC.064.10.00300…1**



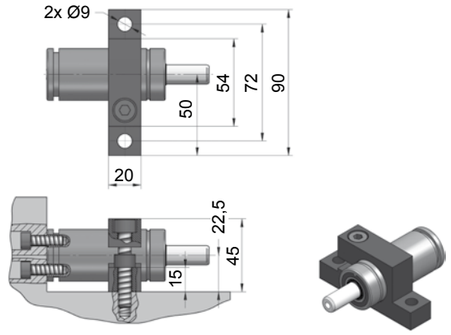
NC.88.00.032.0114



NC.88.00.032.0134



NC.88.00.032.0320



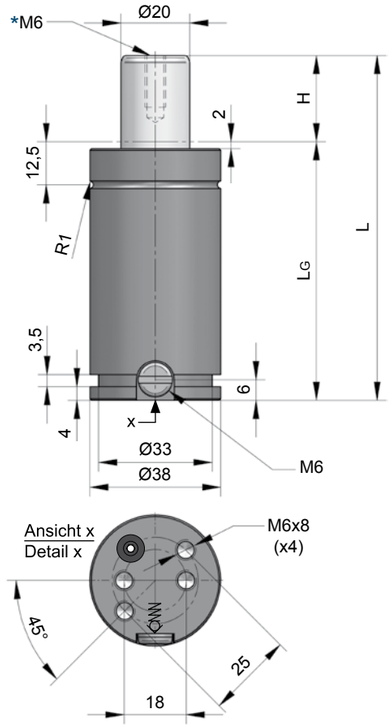
NC.88.00.032.0402

[NC.064.3]

[02.03.2020]

[NC]

NC.064.10.00500...1



Technische Daten:

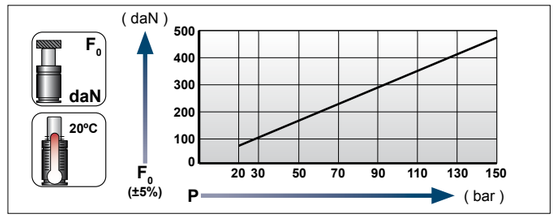
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

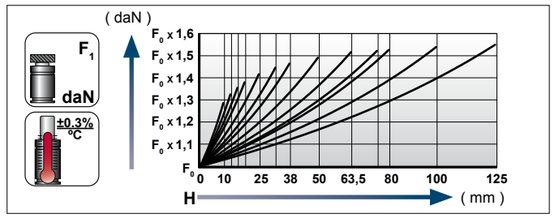
Specifications:

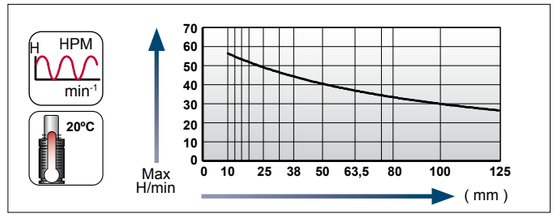
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.064.10.
00500.010.1

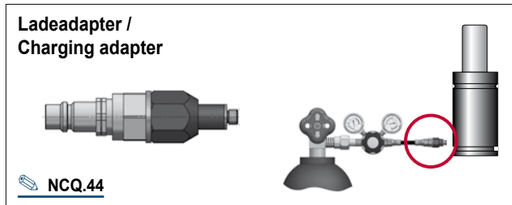
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	70	60	470	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	76	63	470	
016	82	66	470	
019	88	69	470	
025	100	75	470	
032	114	82	470	
038	126	88	470	
050	150	100	470	
063,5	177	113,5	470	
075	200	125	470	
080	210	130	470	
100	250	150	470	
125	300	175	470	







Ladeadapter /
Charging adapter

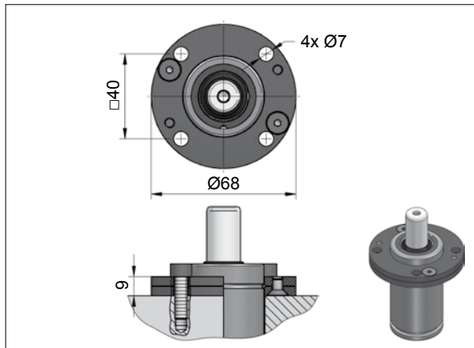


NCQ.44

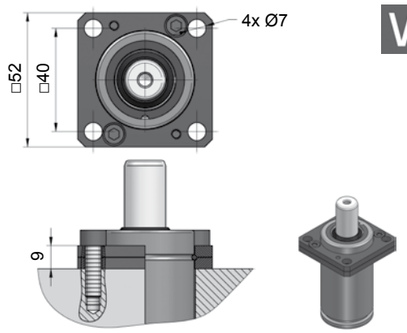
[02.03.2020]

GDF, kompakt, erhöhte Kraft
GS, compact, height force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

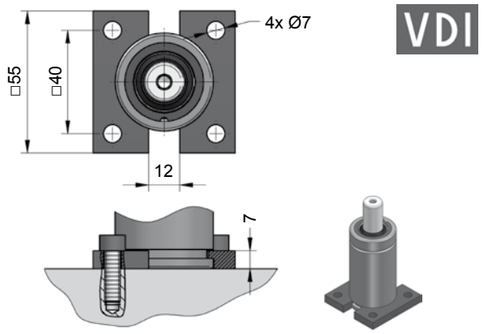
Flansche für / Flanges for **NC.064.10.00500…1**



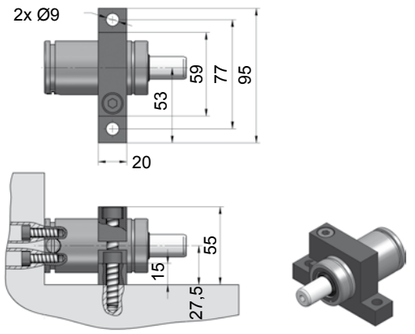
NC.88.00.038.0114



NC.88.00.038.0134



NC.88.00.038.0320



NC.88.00.038.0402

[02.03.2020]

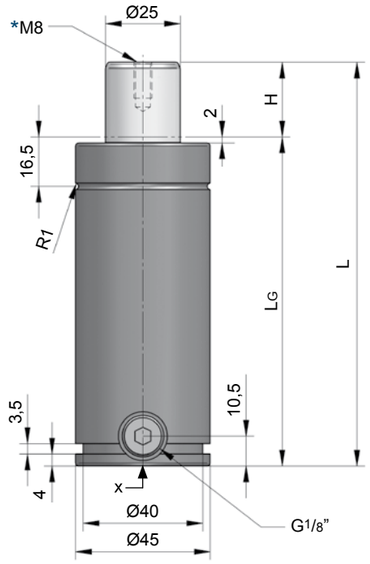
NC.064.10.00700

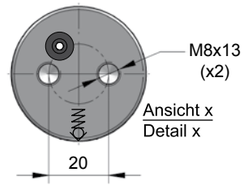
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

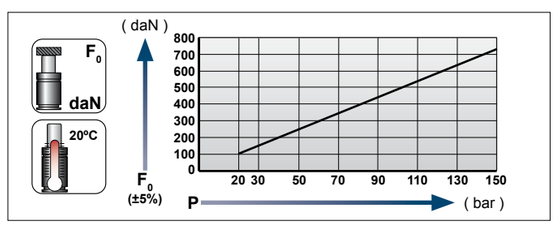


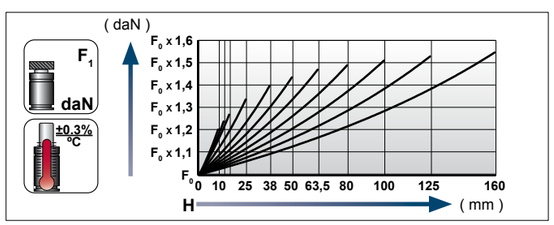


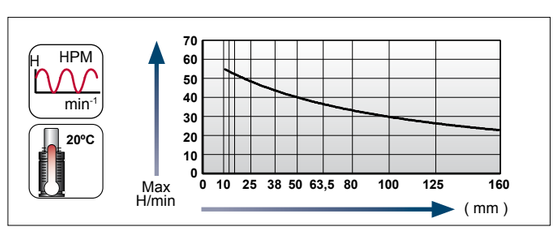
INFO [NC.21]

NC.064.10.00700.016

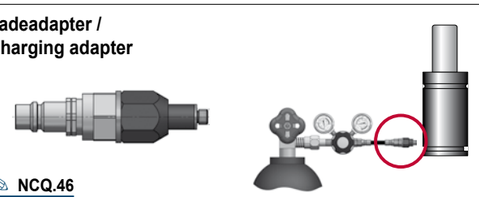
H Hub / Stroke	L ±0,25	LG	Kraft / Force (140 bar) Anfang / Initial [daN]	Ende / Final [daN]
010	105	95	690	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
013	111	98	690	
016	117	101	690	
025	135	110	690	
038	161	123	690	
050	185	135	690	
063,5	212	148,5	690	
080	245	165	690	
100	285	185	690	
125	335	210	690	
160	405	245	690	







Ladeadapter / Charging adapter



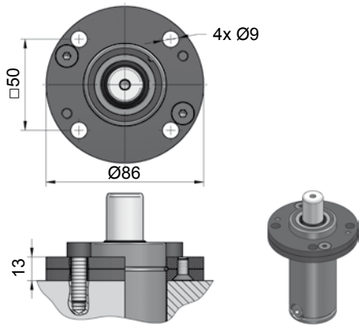
NCQ.46

[02.03.2020]

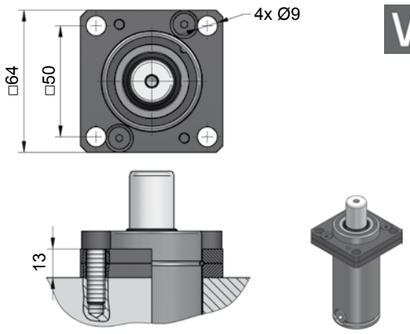
[02.03.2020]

GDF, kompakt, erhöhte Kraft
GS, compact, height force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

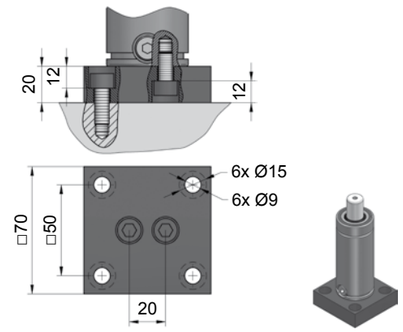
Flansche für / Flanges for **NC.064.10.00700**



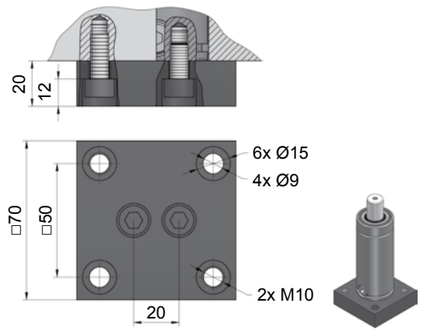
NC.88.00.045.0114



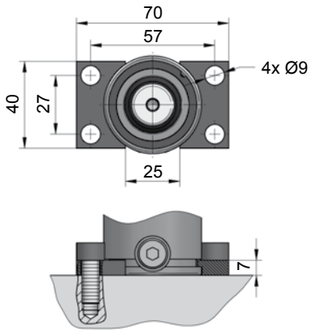
NC.88.00.045.0134



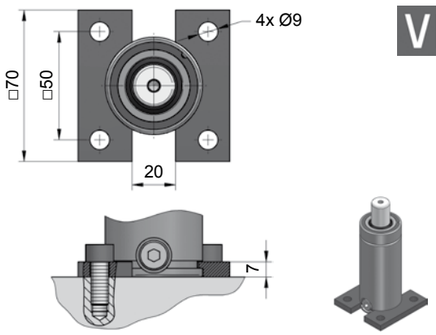
NC.88.00.045.0221



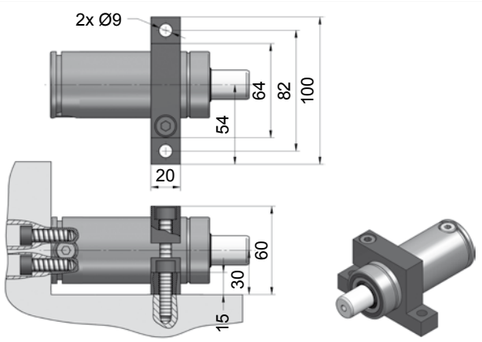
NC.88.00.045.0276



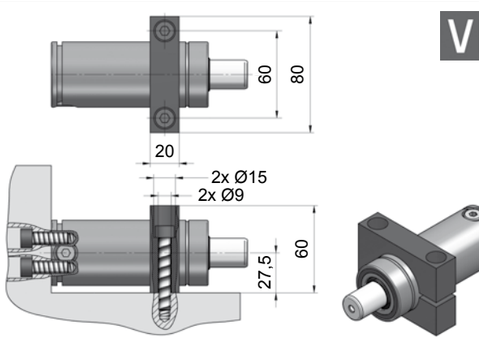
NC.88.00.045.0305



NC.88.00.045.0320

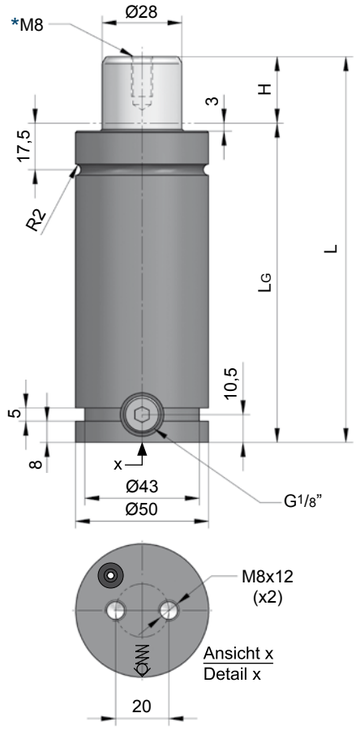


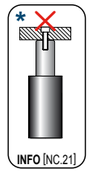
NC.88.00.045.0402



NC.88.00.045.0467

NC.064.10.01000...1





ZUGELASSEN PED 2014/68/EU

VDI 3003

> Pmax

> S

> Vmax

Flex Rod

MAIL

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.064.10.01000.038.1

H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
013	121	108	925	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	145	120	925	
038	171	133	925	
050	195	145	925	
063,5	222	158,5	925	
080	255	175	925	
100	295	195	925	
125	345	220	925	
160	415	255	925	
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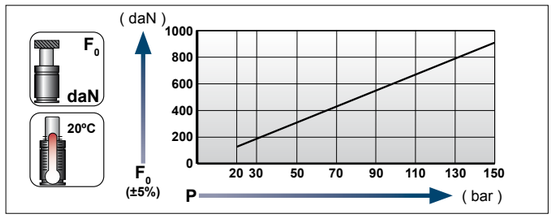
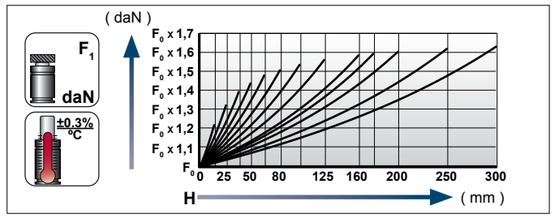
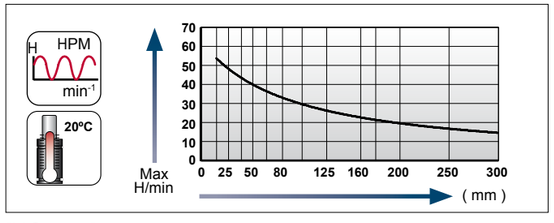
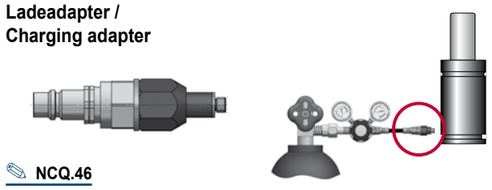






Ladeadapter / Charging adapter



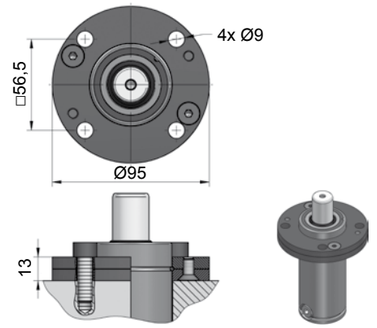
NCQ.46

[02.03.2020]

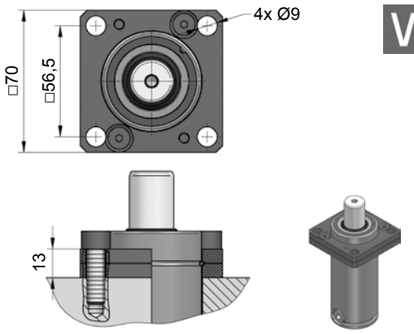
[02.03.2020]

GDF, kompakt, erhöhte Kraft
GS, compact, height force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

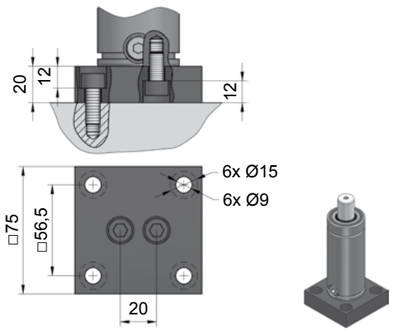
Flansche für / Flanges for **NC.064.10.01000...1**



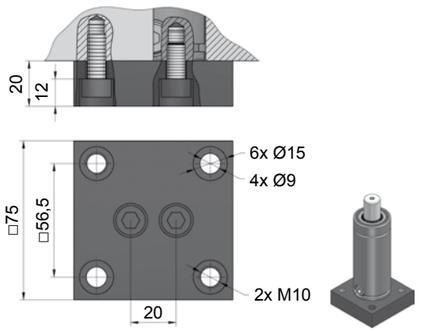
NC.88.00.050.0114



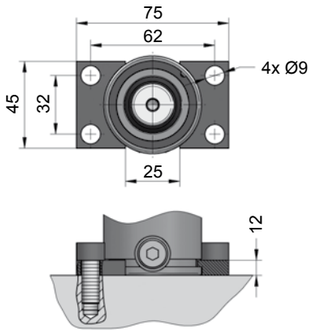
NC.88.00.050.0134



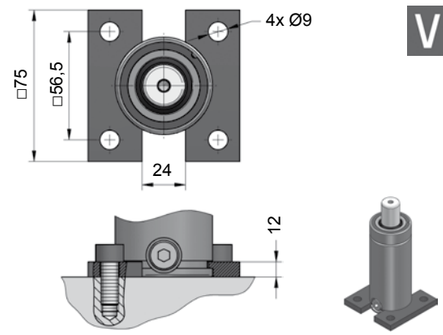
NC.88.00.050.0221



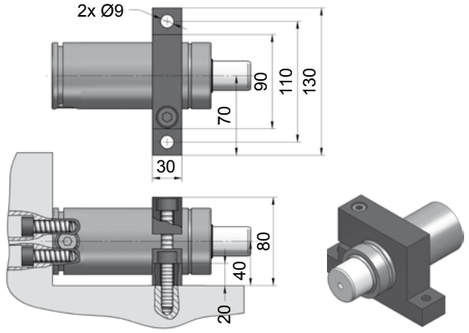
NC.88.00.050.0276



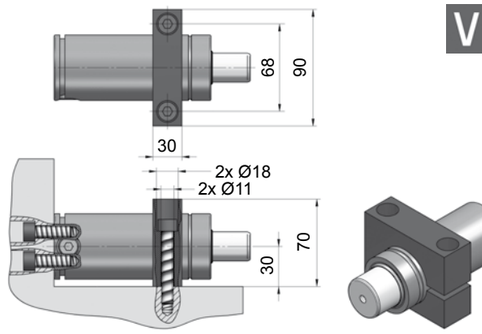
NC.88.00.050.0305



NC.88.00.050.0320

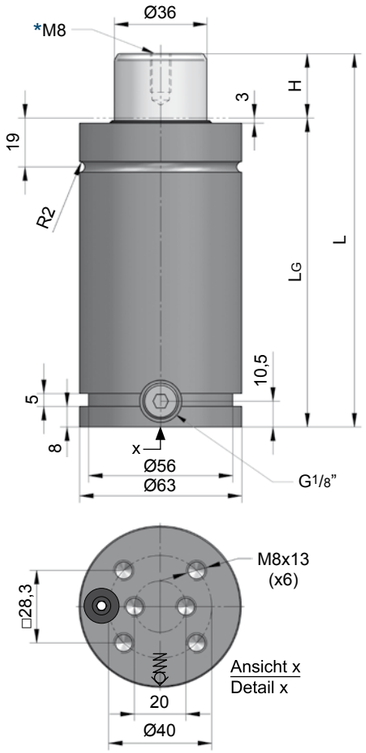


NC.88.00.050.0402



NC.88.00.050.0467

NC.064.10.01500...2



Technische Daten:

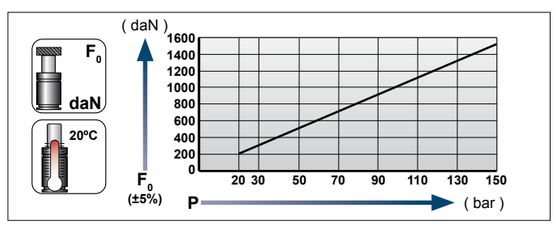
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

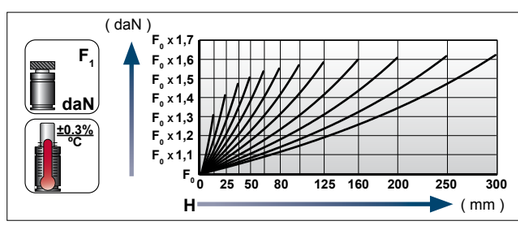
Specifications:

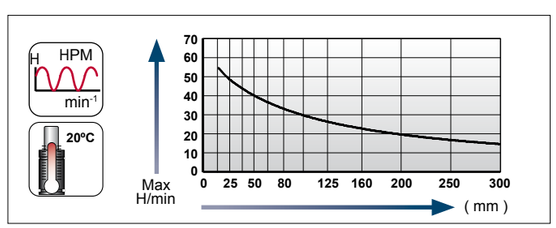
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.064.10.
01500.038.2

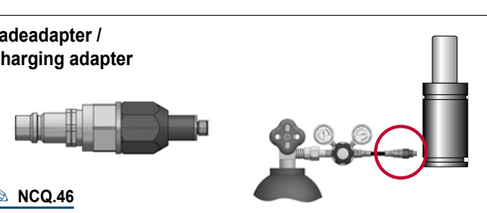
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
013	121	108	1530	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	145	120	1530	
038	171	133	1530	
050	195	145	1530	
063,5	222	158,5	1530	
080	255	175	1530	
100	295	195	1530	
125	345	220	1530	
160	415	255	1530	
200	495	295	1530	
250	595	345	1530	
300	695	395	1530	







Ladeadapter / Charging adapter

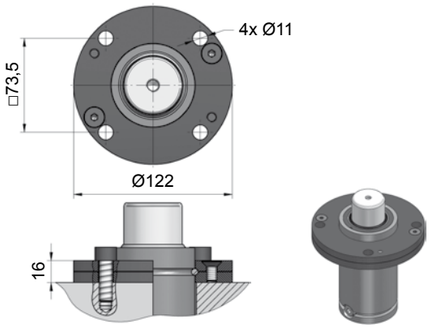


NCQ.46

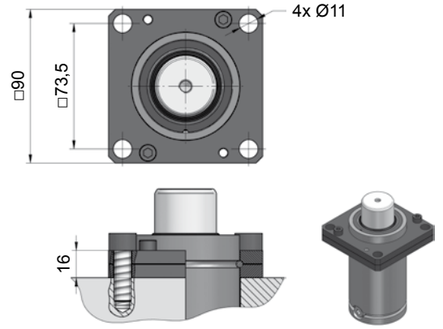
[02.03.2020]

[02.03.2020]

Flansche für / Flanges for **NC.064.10.01500…2**



NC.88.00.063.0114



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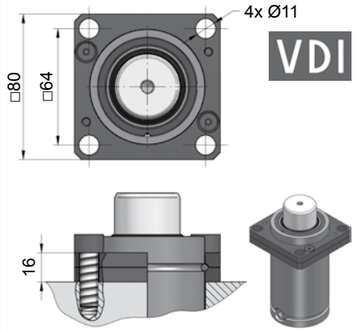

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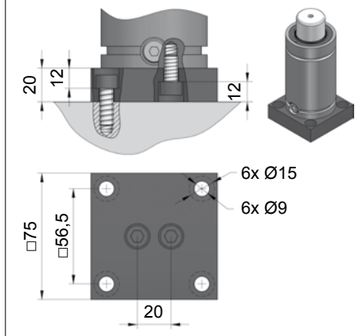

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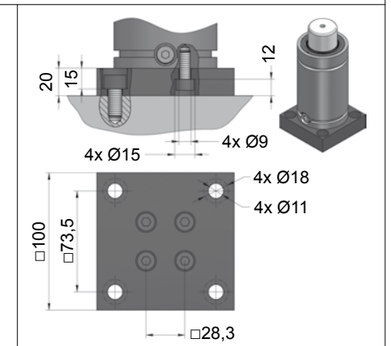

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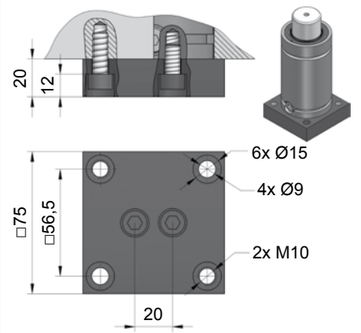

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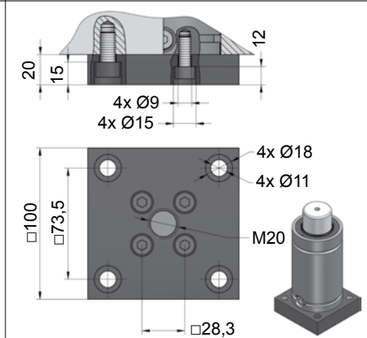

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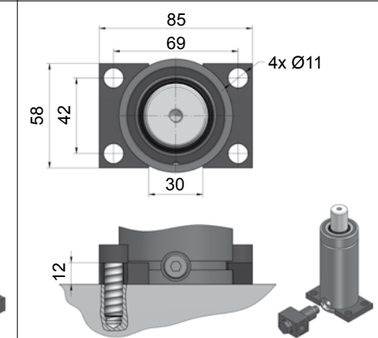
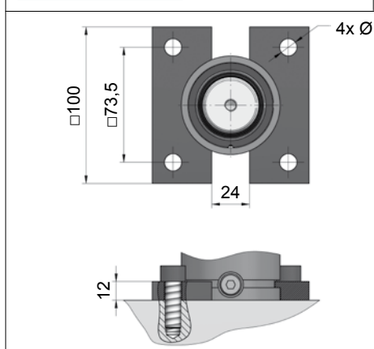


NC.88.00.063.0305



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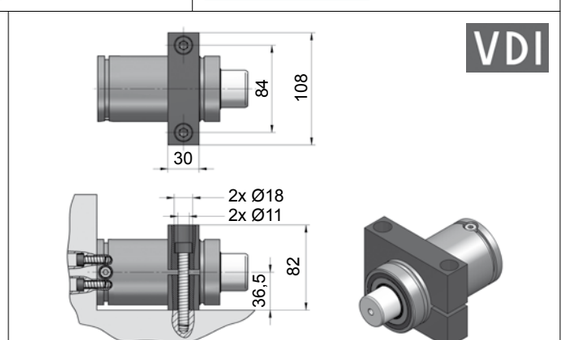
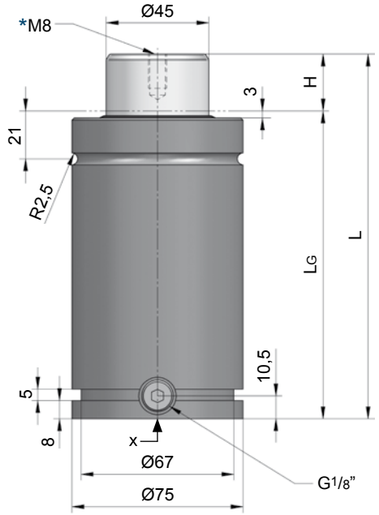
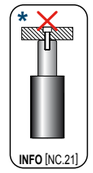
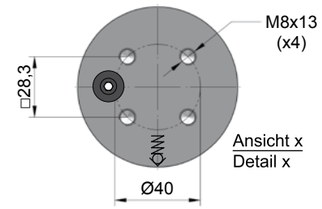


NC.88.00.063.0467

NC.064.10.02400







Technische Daten:

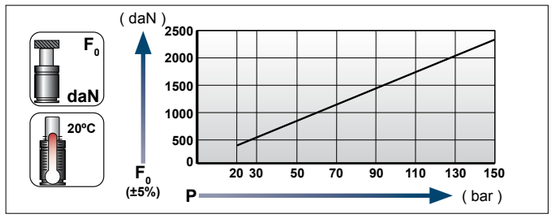
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

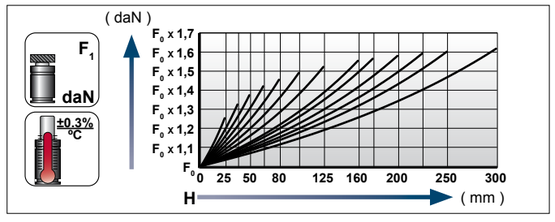
Specifications:

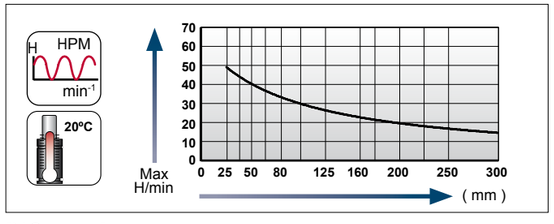
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.064.10.02400.050

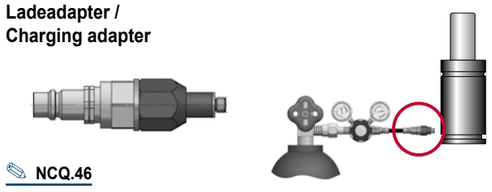
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	160	135	2385	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	186	148	2385	
050	210	160	2385	
063,5	237	173,5	2385	
080	270	190	2385	
100	310	210	2385	
125	360	235	2385	
160	430	270	2385	
175	460	285	2385	
200	510	310	2385	
225	560	335	2385	
250	610	360	2385	
300	710	410	2385	







Ladeadapter / Charging adapter



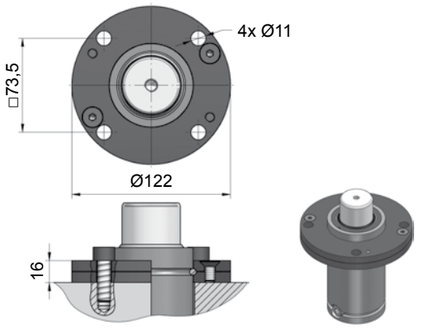
NCQ.46

[02.03.2020]

[02.03.2020]

GDF, kompakt, erhöhte Kraft
GS, compact, height force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.064.10.02400**



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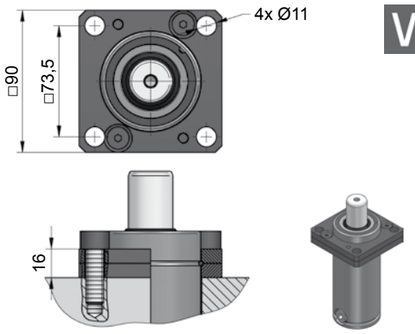

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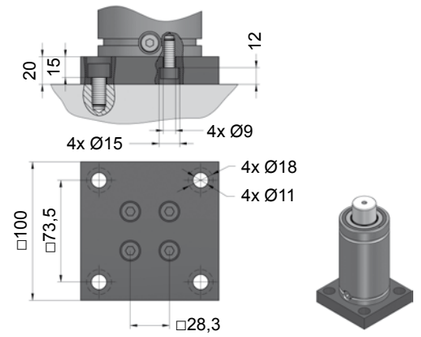

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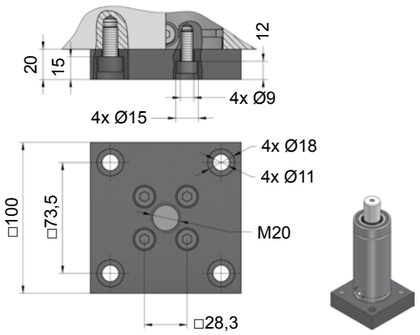

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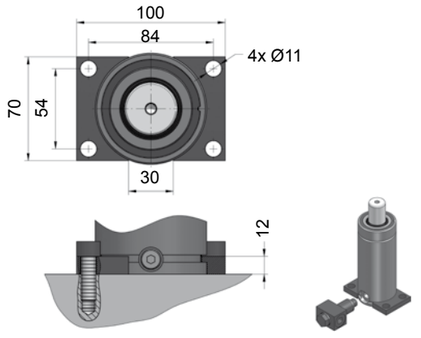
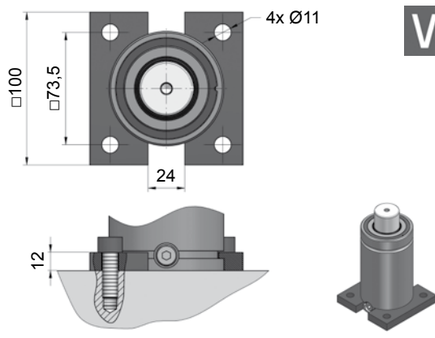
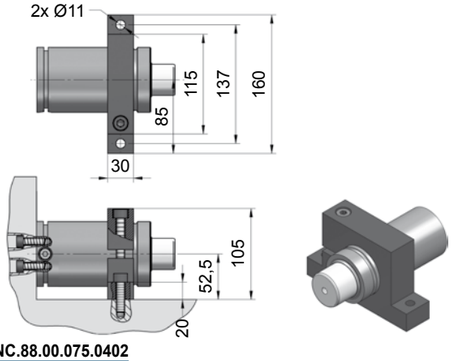


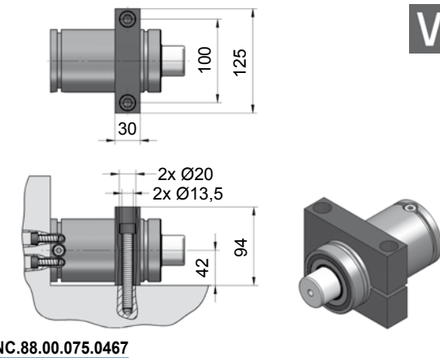
NC.88.00.075.0305



NC.88.00.075.0320

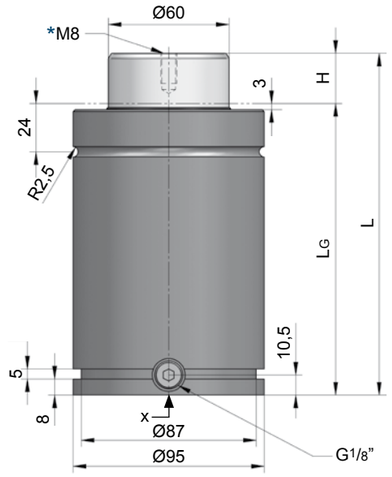


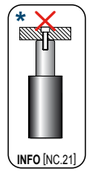
NC.88.00.075.0402



NC.88.00.075.0467

NC.064.10.04200





ZUGELASSEN PED 2014/68/EU

VDI 3003









Technische Daten:

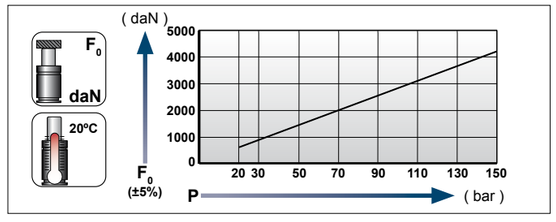
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

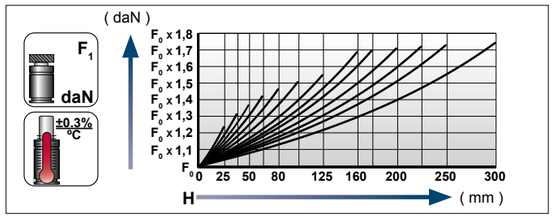
Specifications:

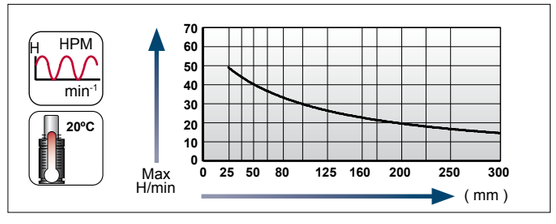
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.064.10.04200.063,5

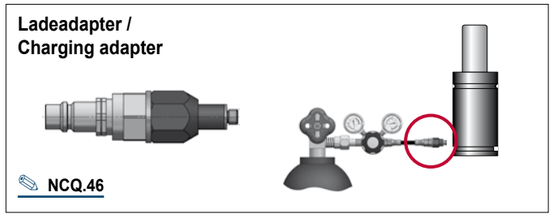
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Kraft / Force (150 bar) Ende / Final [daN]
025	170	145	4240	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	196	158	4240	
050	220	170	4240	
063,5	247	183,5	4240	
080	280	200	4240	
100	320	220	4240	
125	370	245	4240	
160	440	280	4240	
175	470	295	4240	
200	520	320	4240	
225	570	345	4240	
250	620	370	4240	
300	720	420	4240	







Ladeadapter / Charging adapter



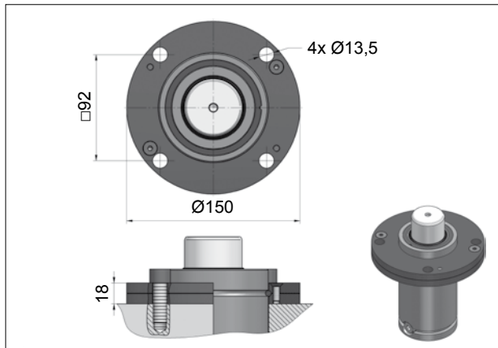
NCQ.46

[02.03.2020]

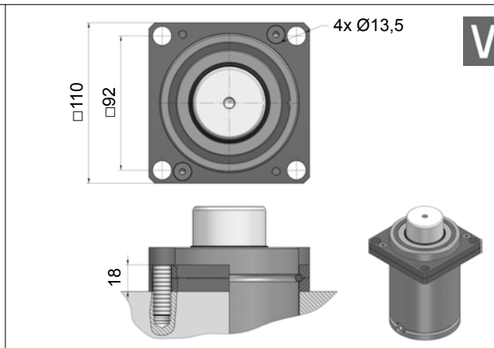
[02.03.2020]

GDF, kompakt, erhöhte Kraft
GS, compact, height force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.064.10.04200**



NC.88.00.095.0114



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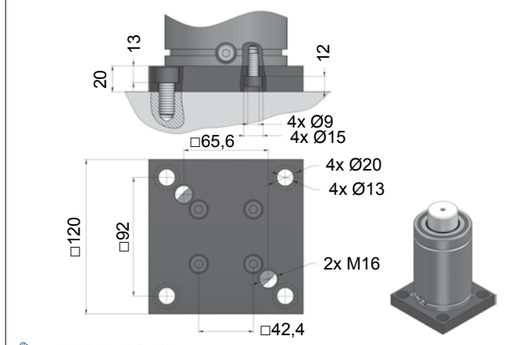
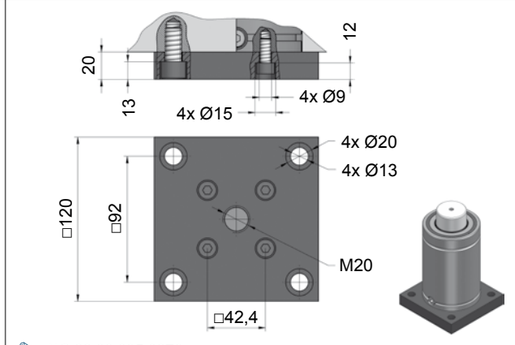
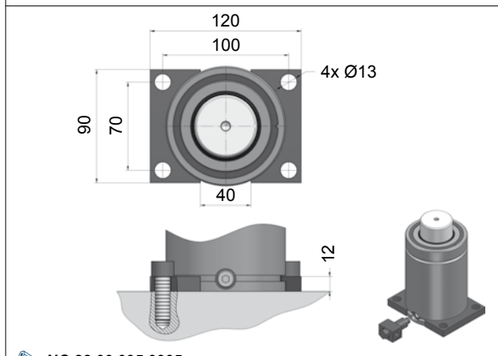


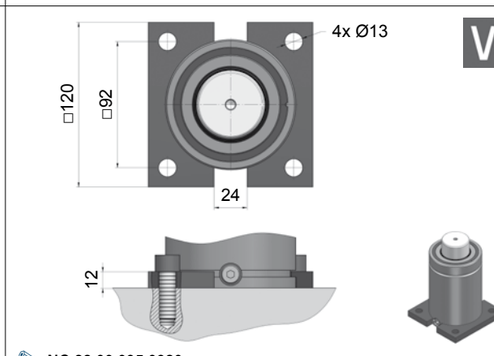
NC.88.00.095.0221



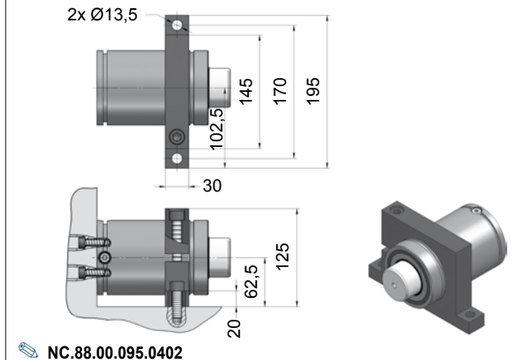
NC.88.00.095.0276



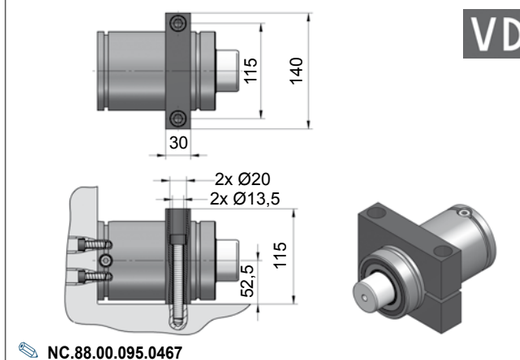
NC.88.00.095.0305



NC.88.00.095.0320



NC.88.00.095.0402



NC.88.00.095.0467

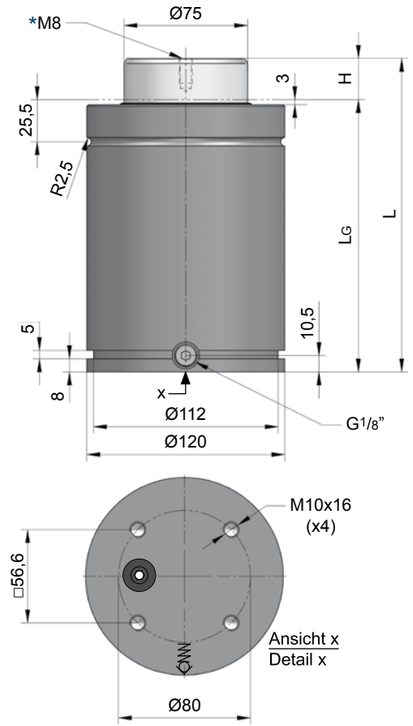
NC.064.10.06600

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s



INFO [NC.21]

VDI 3003

> Pmax

> S

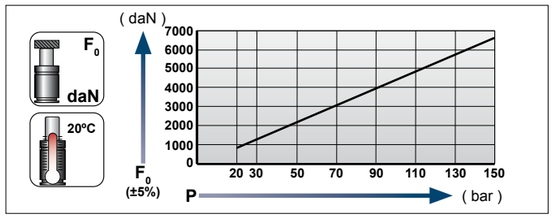
> Vmax

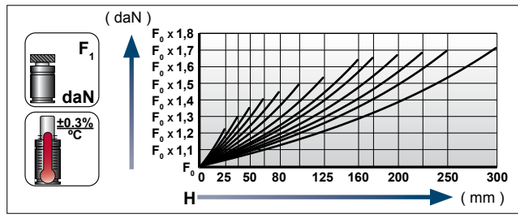
Flex Rod

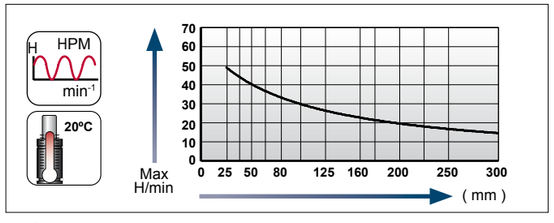
MAIL

NC.064.10.
06600.200

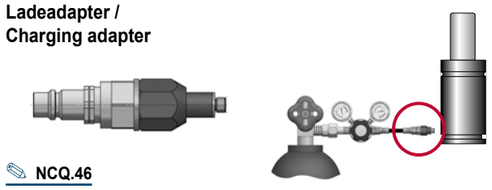
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	190	165	6630	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	216	178	6630	
050	240	190	6630	
063,5	267	203,5	6630	
080	300	220	6630	
100	340	240	6630	
125	390	265	6630	
160	460	300	6630	
175	490	315	6630	
200	540	340	6630	
225	590	365	6630	
250	640	390	6630	
300	740	440	6630	







Ladeadapter / Charging adapter



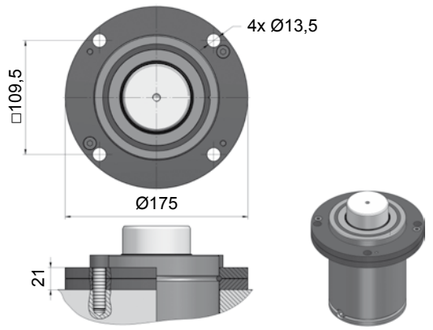
NCQ.46

[02.03.2020]

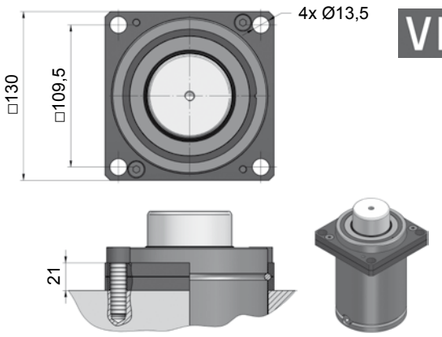
[02.03.2020]

GDF, kompakt, erhöhte Kraft
GS, compact, height force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

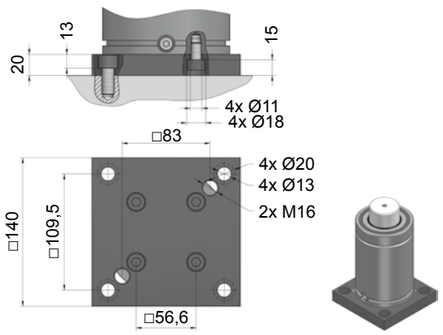
Flansche für / Flanges for **NC.064.10.06600**



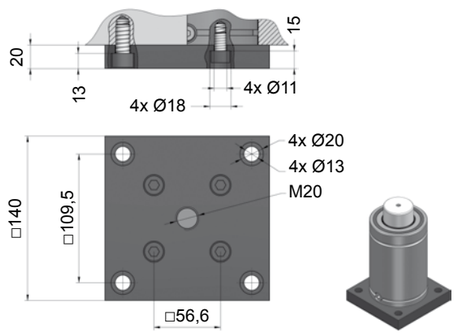
NC.88.00.120.0114



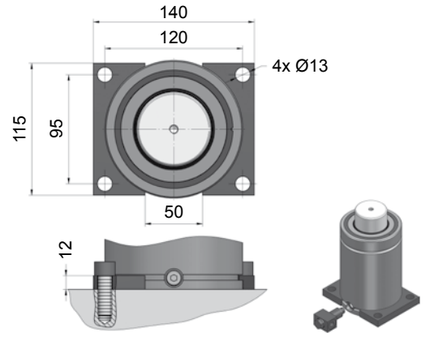
NC.88.00.120.0134



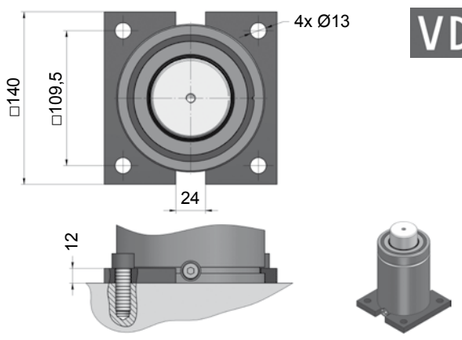
NC.88.00.120.0221



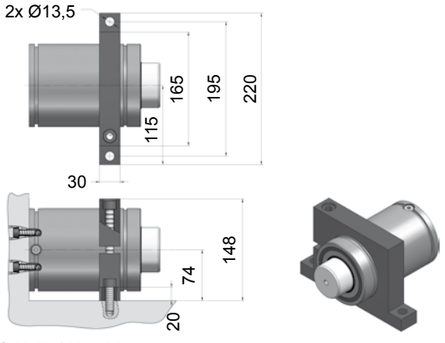
NC.88.00.120.0276



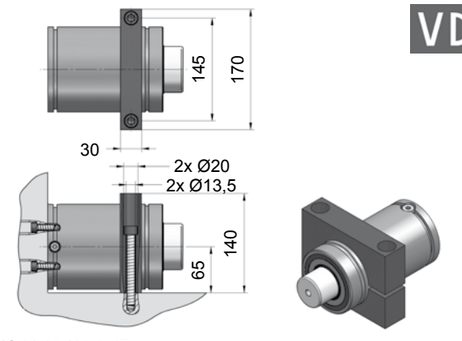
NC.88.00.120.0305



NC.88.00.120.0320

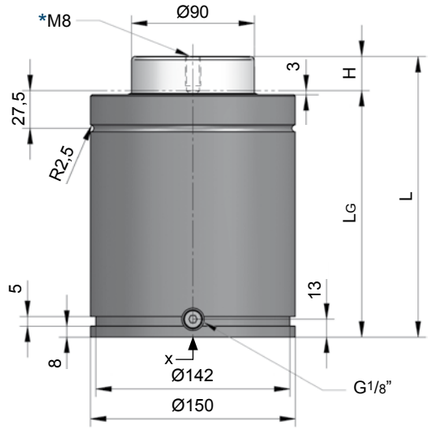


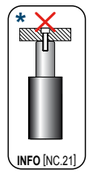
NC.88.00.120.0402



NC.88.00.120.0467

NC.064.10.09600





ZUGELASSEN PED 2014/68/EU

VDI 3003

> Pmax

> S

> Vmax

Flex Rod

Technische Daten:

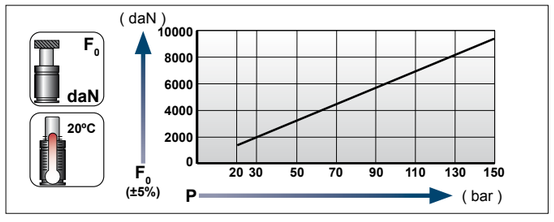
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

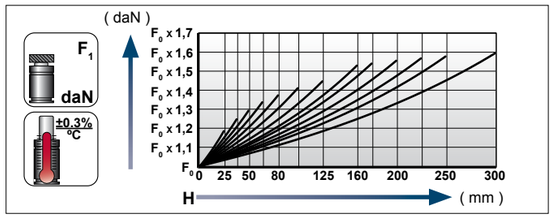
Specifications:

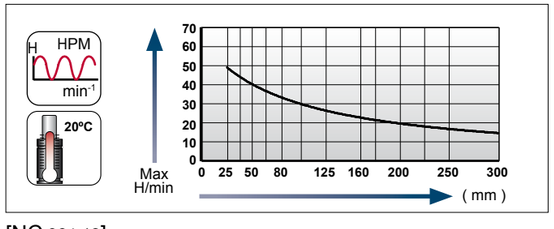
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NC.064.10.09600.125

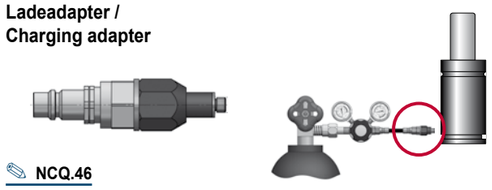
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
025	205	180	9540	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	231	193	9540	
050	255	205	9540	
063,5	282	218,5	9540	
080	315	235	9540	
100	355	255	9540	
125	405	280	9540	
160	475	315	9540	
175	505	330	9540	
200	555	355	9540	
225	605	380	9540	
250	655	405	9540	
300	755	455	9540	







Ladeadapter / Charging adapter



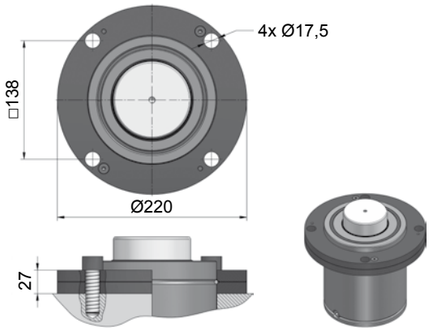
NCQ.46

[02.03.2020]

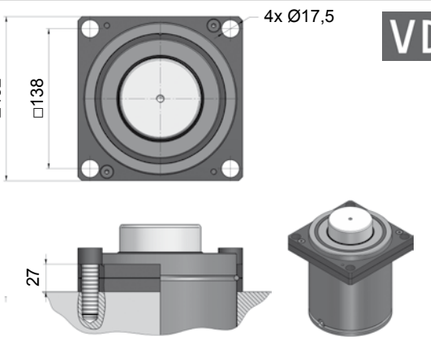
[02.03.2020]

GDF, kompakt, erhöhte Kraft
GS, compact, height force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

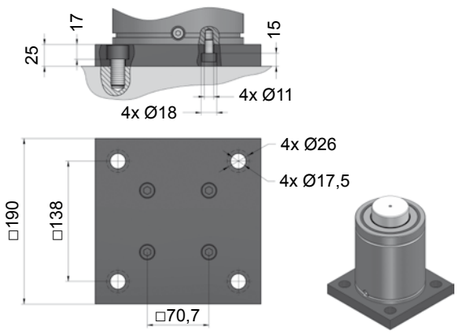
Flansche für / Flanges for **NC.064.10.09600**



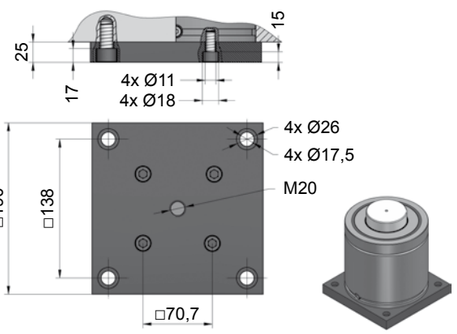
NC.88.00.150.0114



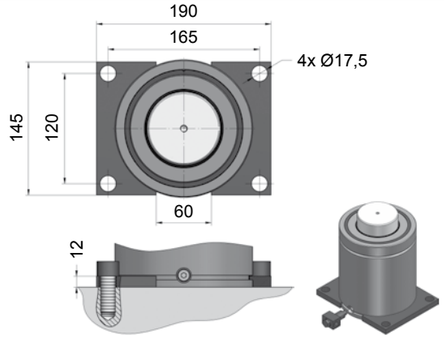
NC.88.00.150.0134



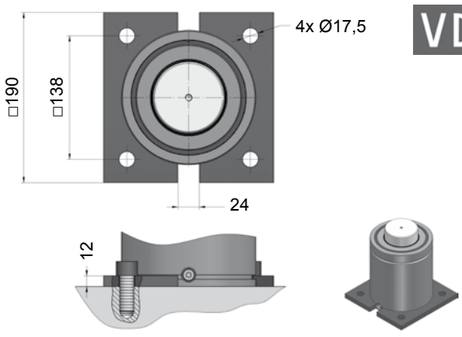
NC.88.00.150.0221



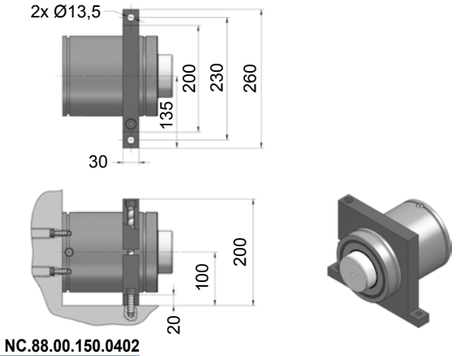
NC.88.00.150.0276



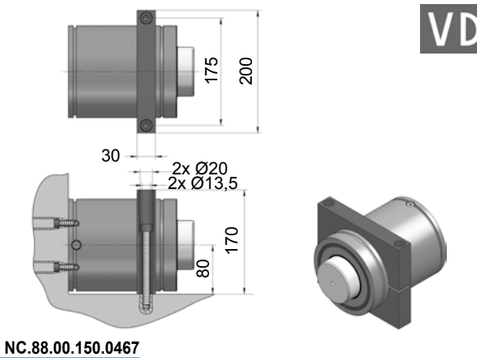
NC.88.00.150.0305



NC.88.00.150.0320



NC.88.00.150.0402



NC.88.00.150.0467

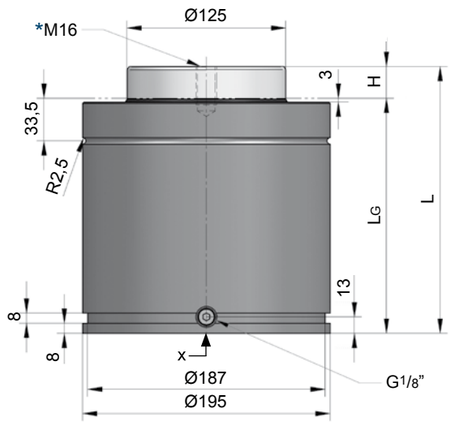
NC.064.10.18500

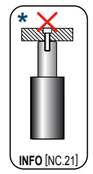
Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

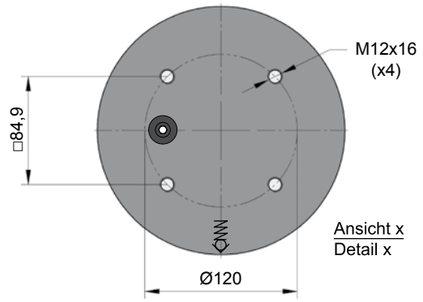
Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s





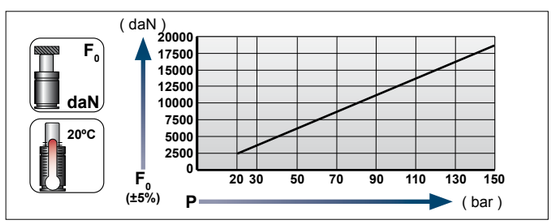


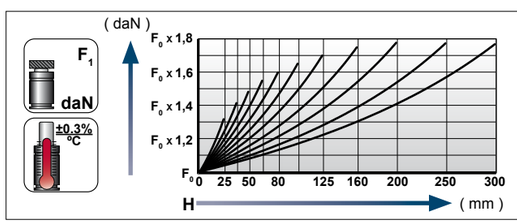


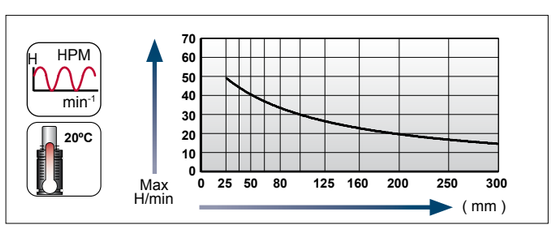
NC.064.10.18500.160

MAIL

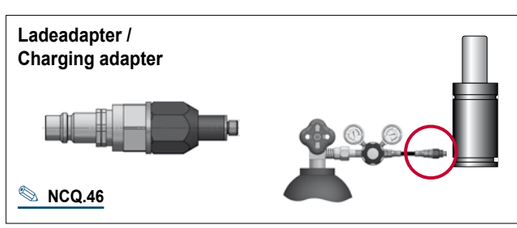
H Hub / Stroke	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	Ende / Final [daN]
025	210	185	18410	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
038	236	198	18410	
050	260	210	18410	
063,5	287	223,5	18410	
080	320	240	18410	
100	360	260	18410	
125	410	285	18410	
160	480	320	18410	
200	560	360	18410	
250	660	410	18410	
300	760	460	18410	







Ladeadapter / Charging adapter



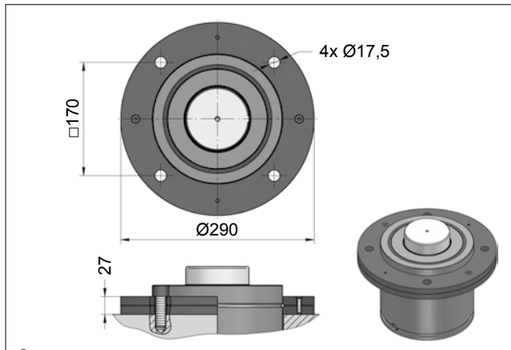
NCQ.46

[02.03.2020]

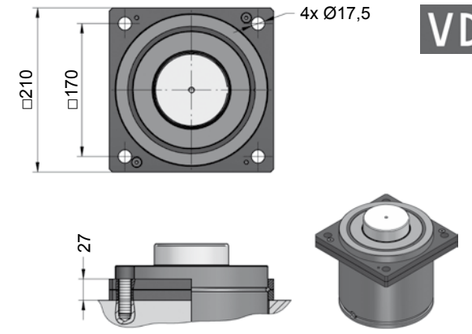
[02.03.2020]

GDF, kompakt, erhöhte Kraft
GS, compact, height force
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

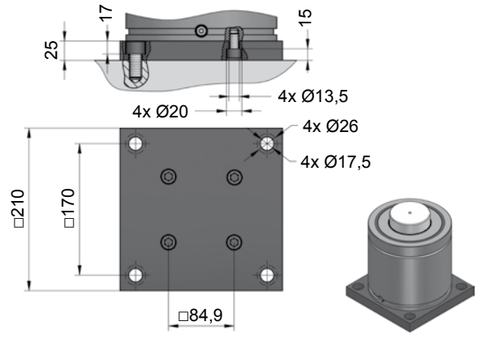
Flansche für / Flanges for **NC.064.10.18500**



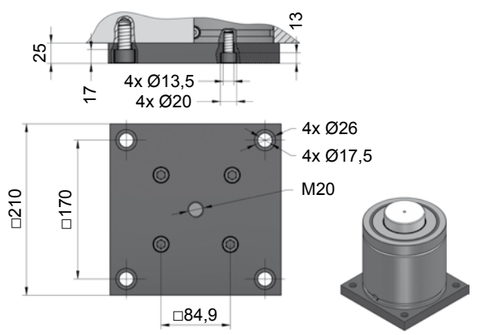
NC.88.00.195.0114



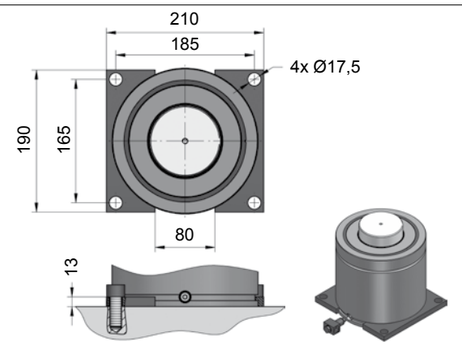
NC.88.00.195.0134



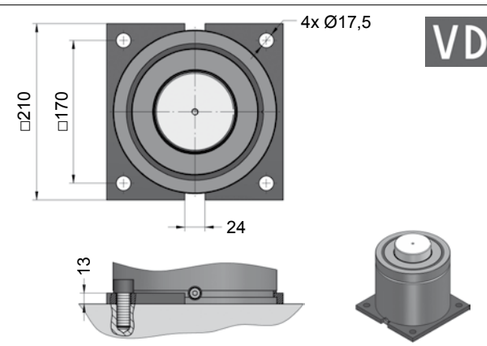
NC.88.00.195.0221



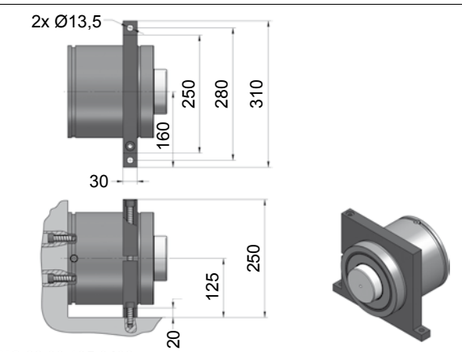
NC.88.00.195.0276



NC.88.00.195.0305



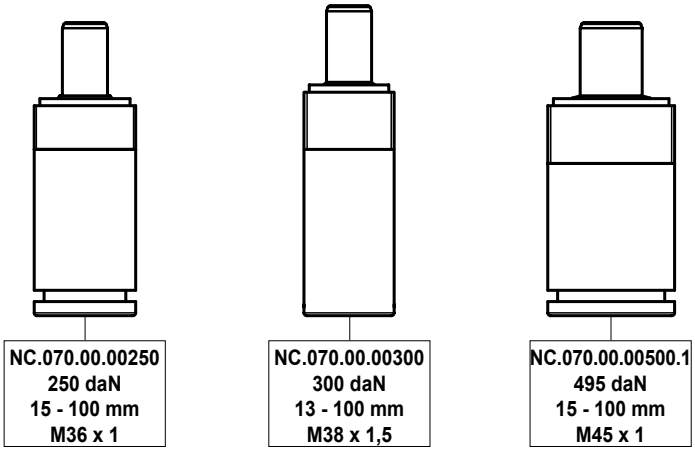
NC.88.00.195.0320



NC.88.00.195.0402

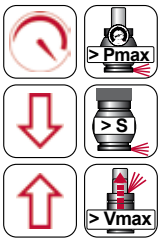
Größenübersicht Serie NC.070.00

Gas spring index 070.00 series



NC.070.00.00250	NC.070.00.00300	NC.070.00.00500.1
250 daN	300 daN	495 daN
15 - 100 mm	13 - 100 mm	15 - 100 mm
M36 x 1	M38 x 1,5	M45 x 1

SICHERHEITSSYSTEME



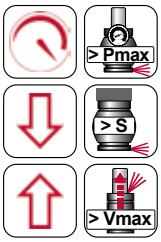
Überdruck

Überhub

Freier Rückhub

Information über die Sicherheitssysteme (Überdruck, Überhub, Freier Rückhub) erhalten Sie im Vorspann auf der Seite NC.24.

SAFETY SYSTEMS



Over-Pressure

Over-Stroke

Over-Speed

Information about the safety systems (over-pressure, over-stroke, over-speed) can be found in the introductory part on page NC.24.

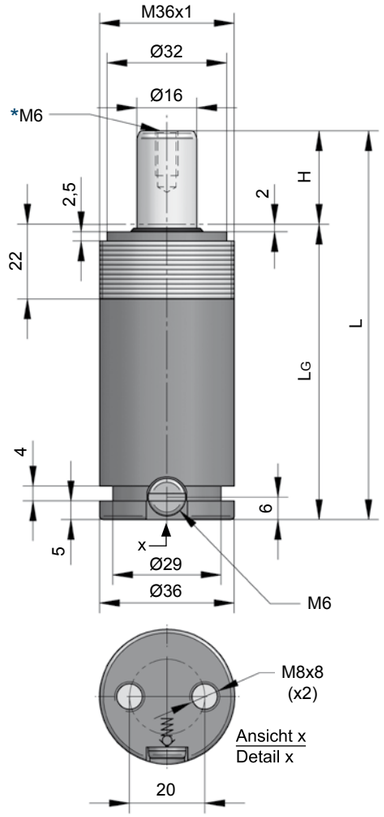
NC.070.00.00250

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

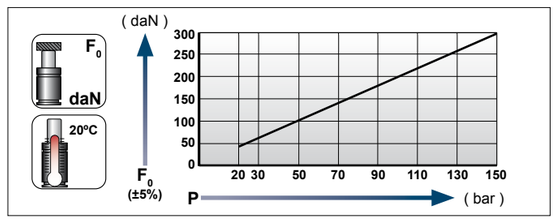
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

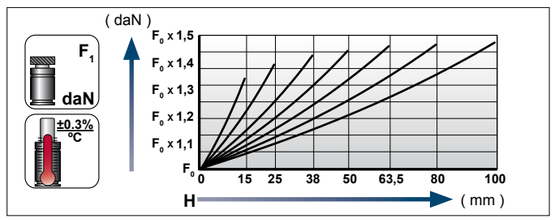


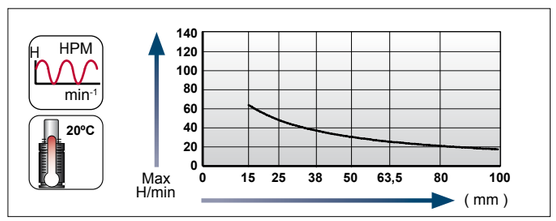
INFO [NC.21]

NC.070.00.00250.015

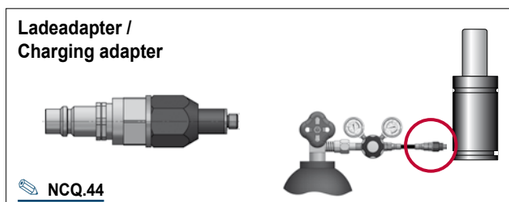
H Hub / Stroke	L ±0,25	LG	Kraft / Force (125 bar) Anfang / Initial [daN]	Ende / Final [daN]
015	84	69	250	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	104	79	250	
038	130	92	250	
050	154	104	250	
063,5	181	117,5	250	
080	214	134	250	
100	254	154	250	







Ladeadapter / Charging adapter

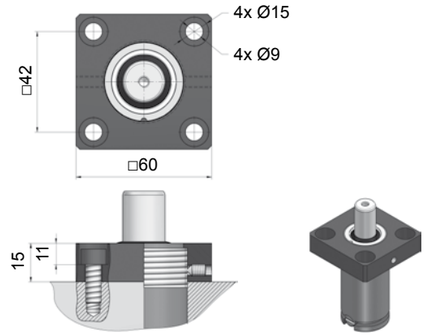


NCQ.44

[03.03.2020]

GDF, Standard mit Kopfgewinde
GS, Threaded springs
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.070.00.00250**



NC.88.00.036.0503

[03.03.2020]

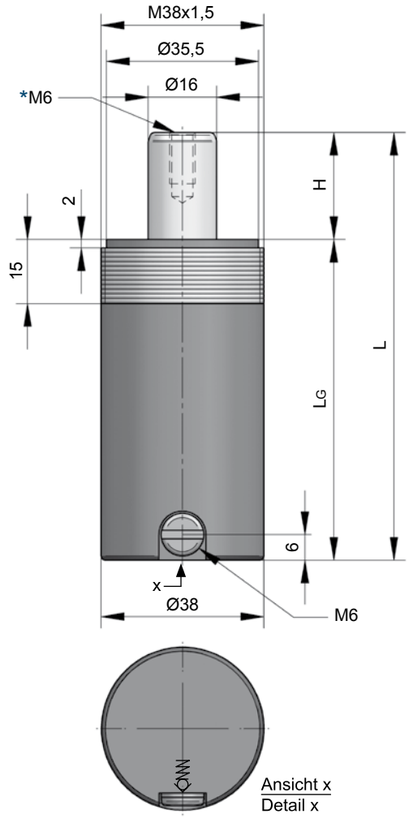
NC.070.00.00300

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

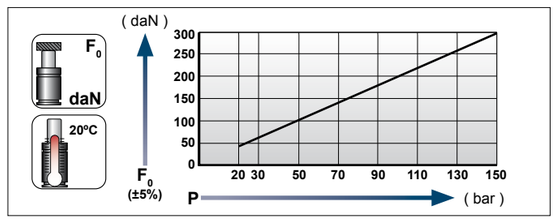
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

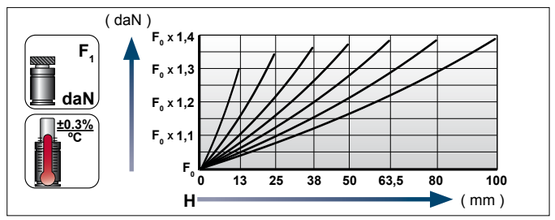


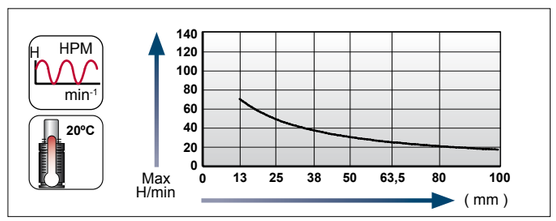
Ansicht x
Detail x

NC.070.00.00300.038

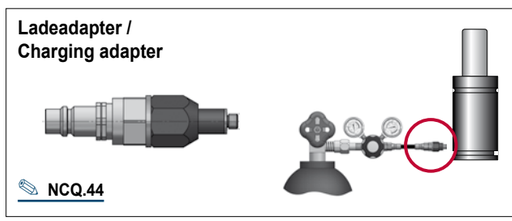
H **Hub / Stroke**	L ±0,25	LG	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
013	76	63	300	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	100	75	300	
038	126	88	300	
050	150	100	300	
063,5	177	113,5	300	
080	210	130	300	
100	250	150	300	







Ladeadapter / Charging adapter

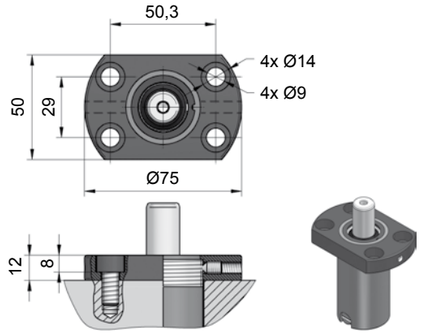


NCQ.44

[03.03.2020]

[03.03.2020]

Flansche für / Flanges for **NC.070.00.00300**



NC.88.00.038.0508

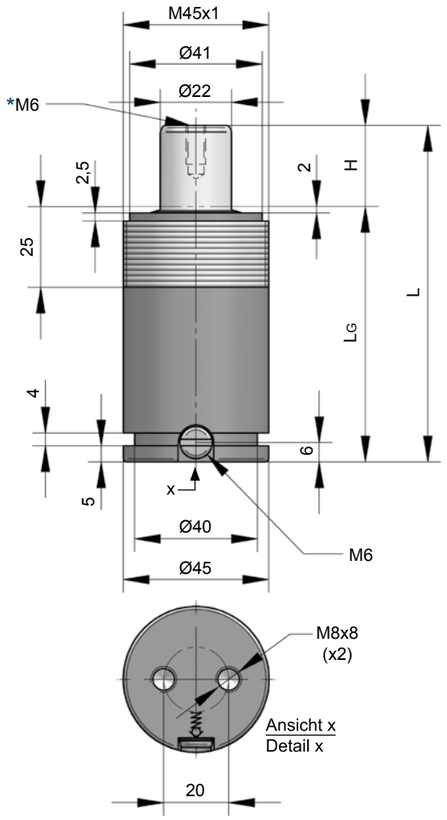
NC.070.00.00500…1

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Specifications:

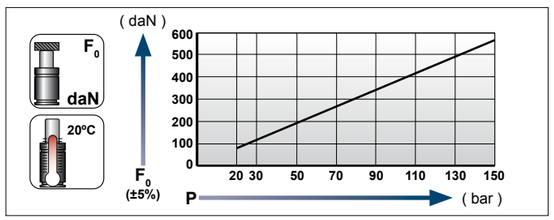
Pressure medium:	N2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

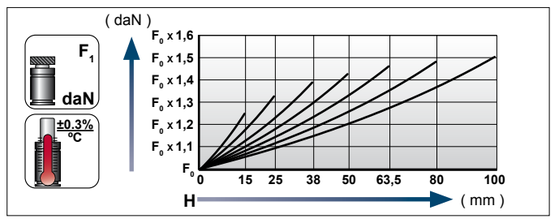


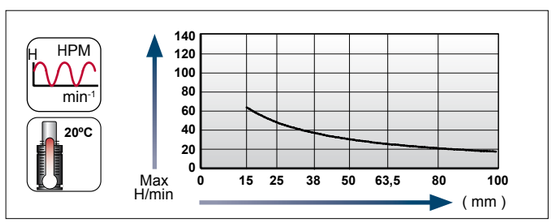
INFO [NC.21]

NC.070.00.00500.050.1

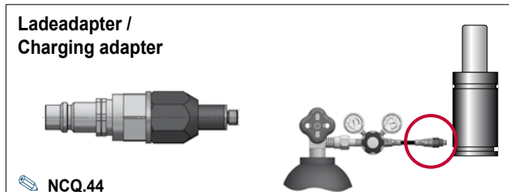
H Hub / Stroke	L ±0,25	LG	Kraft / Force (130 bar) Anfang / Initial [daN]	Ende / Final [daN]
015	84	69	495	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
025	104	79	495	
038	130	92	495	
050	154	104	495	
063,5	181	117,5	495	
080	214	134	495	
100	254	154	495	







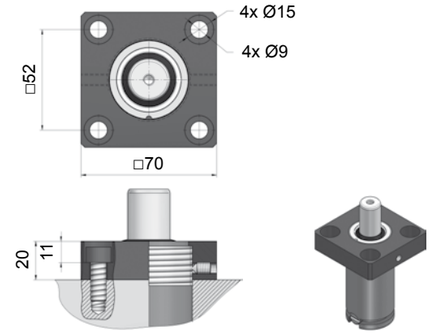
Ladeadapter / Charging adapter



NCQ.44

[03.03.2020]

Flansche für / Flanges for **NC.070.00.00500…1**



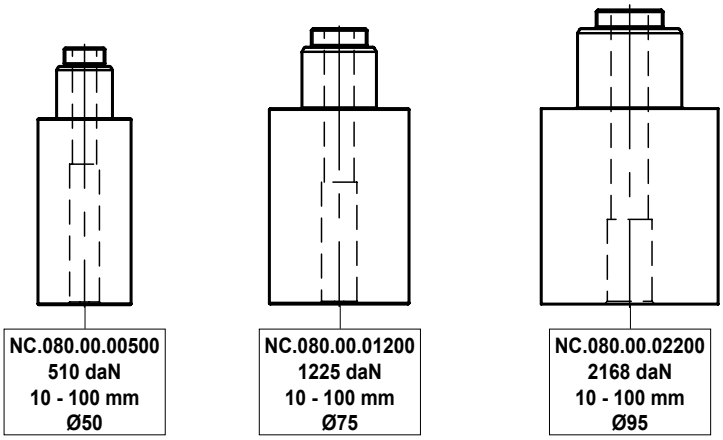
NC.88.00.045.0503

[03.03.2020]

[NC]

Größenübersicht Serie NC.080.00

Gas spring index 080.00 series



NC.080.00.00500	NC.080.00.01200	NC.080.00.02200
510 daN	1225 daN	2168 daN
10 - 100 mm	10 - 100 mm	10 - 100 mm
Ø50	Ø75	Ø95

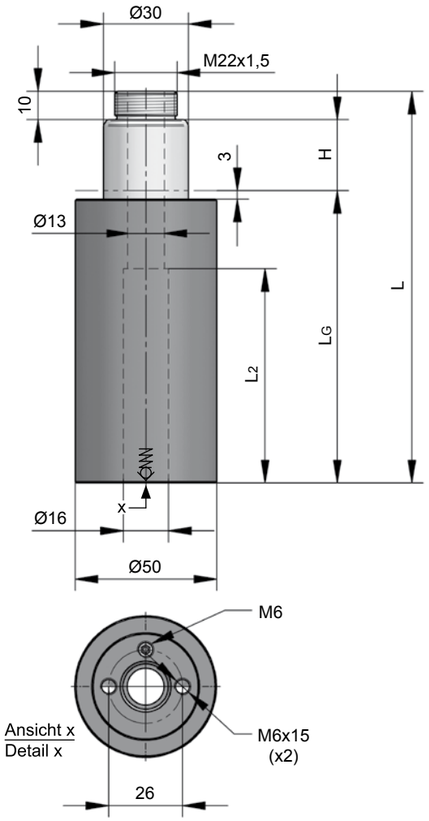
NC.080.00.00500

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

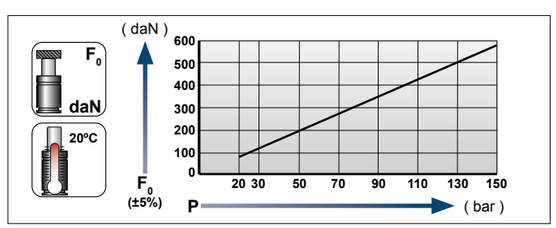
Specifications:

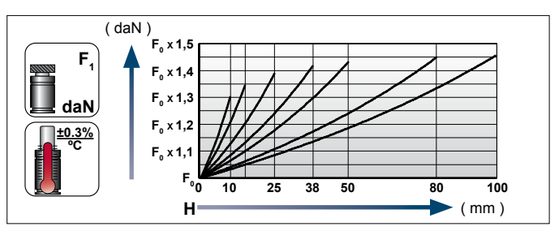
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

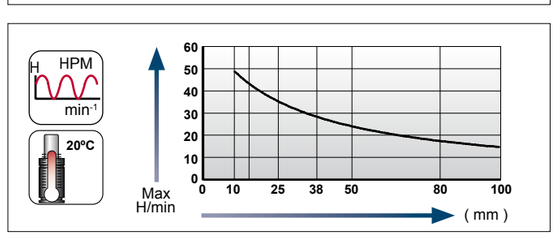


NC.080.00.00500.100

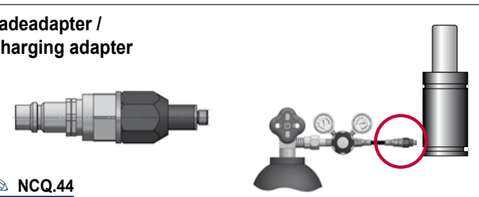
H Hub / Stroke	L ±0,25	LG	L2 ±0,1	Kraft / Force (130 bar) Anfang / Initial [daN]	Kraft / Force (130 bar) Ende / Final [daN]
010	108	88	45,5	510	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	118	93	55,5	510	
025	138	103	75,5	510	
038	164	116	85,5	510	
050	188	128	97,5	510	
080	248	158	127,5	510	
100	288	178	147,5	510	







Ladeadapter / Charging adapter

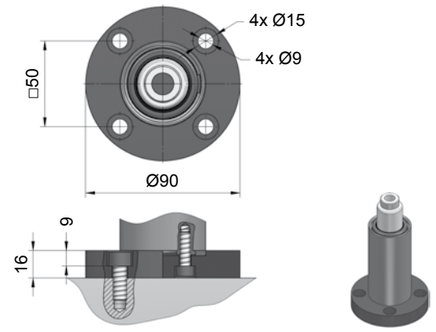


NCQ.44

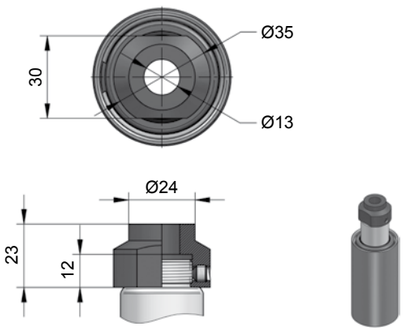
[03.03.2020]

GDF, Standard mit Durchgangsbohrung
GS, Hollowsprings
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.080.00.00500**



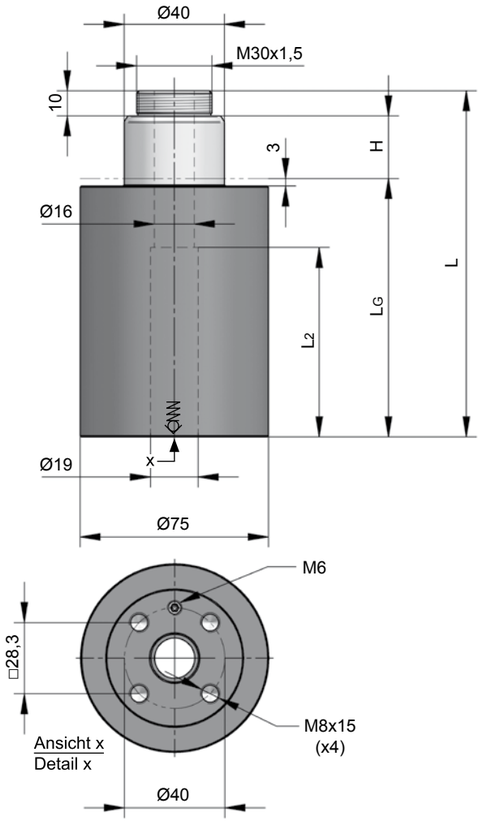
NC.88.00.050.0231



NC.88.00.050.0533

[03.03.2020]

NC.080.00.01200



Technische Daten:

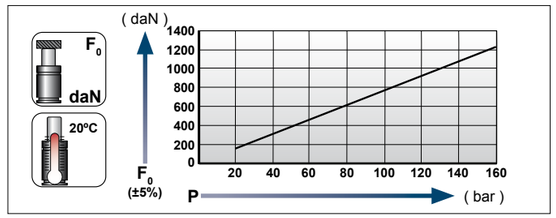
Medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

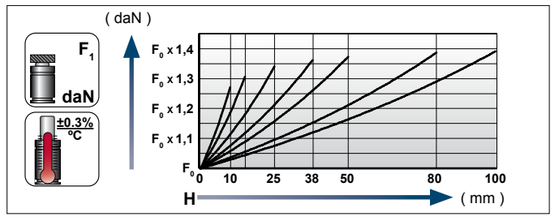
Specifications:

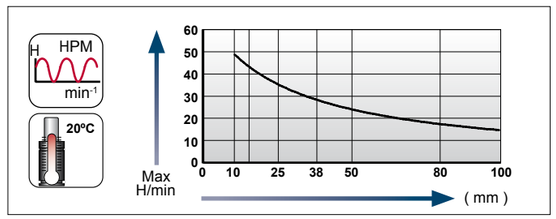
Pressure medium:	N_2
$P_{max.}$ (20 °C):	160 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

NC.080.00.01200.100

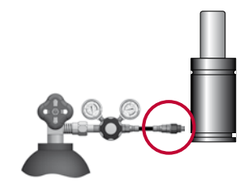
H Hub / Stroke	L ±0,25	LG	L2 ±0,1	Kraft / Force (160 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	108	88	45,5	1225	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	118	93	55,5	1225	
025	138	103	75,5	1225	
038	164	116	85,5	1225	
050	188	128	97,5	1225	
080	248	158	127,5	1225	
100	288	178	147,5	1225	







Ladeadapter / Charging adapter

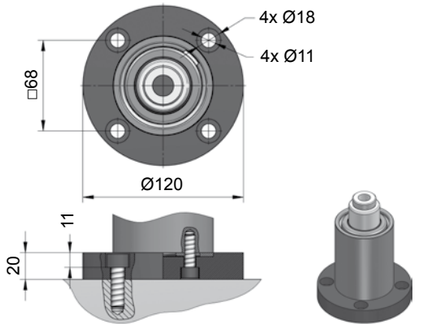


NCQ.44

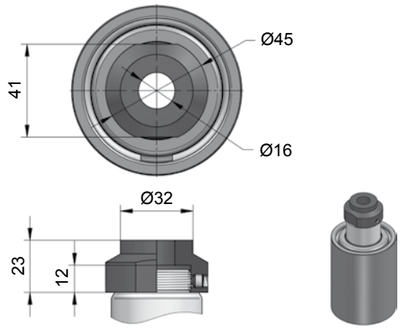
[03.03.2020]

GDF, Standard mit Durchgangsbohrung
GS, Hollowsprings
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Flansche für / Flanges for **NC.080.00.01200**



NC.88.00.075.0231

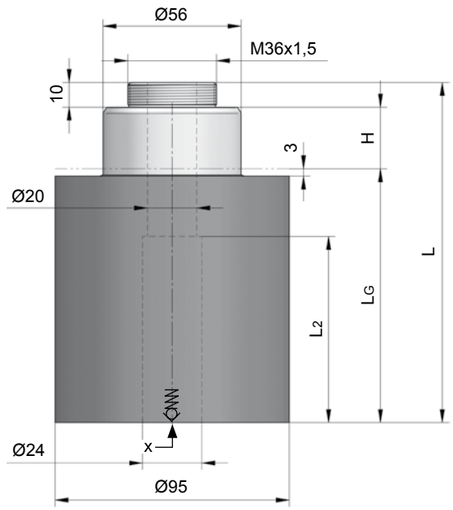


NC.88.00.075.0533

[03.03.2020]

[NC]

NC.080.00.02200



Technische Daten:

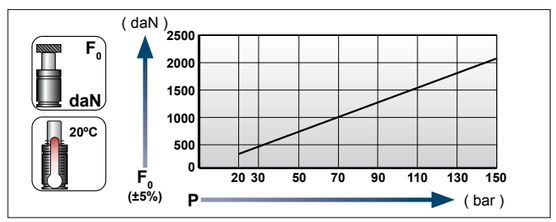
Medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,5 m/s

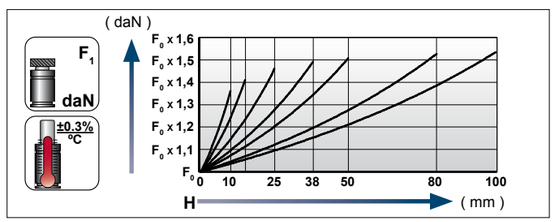
Specifications:

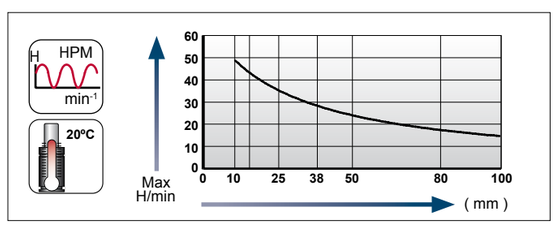
Pressure medium:	N_2
$P_{max.}$ (20 °C):	150 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,5 m/s

NC.080.00.02200.025

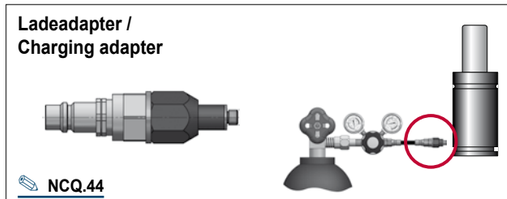
H Hub / Stroke	L ±0,25	LG	L2 ±0,1	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
010	108	88	45,5	2168	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
015	118	93	55,5	2168	
025	138	103	75,5	2168	
038	164	116	85,5	2168	
050	188	128	97,5	2168	
080	248	158	127,5	2168	
100	288	178	147,5	2168	





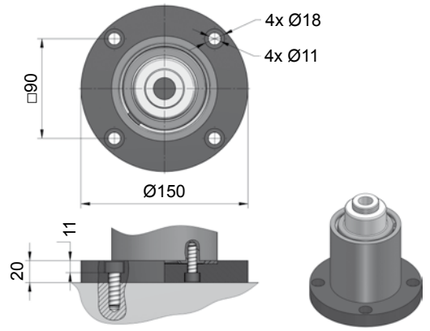


Ladeadapter / Charging adapter

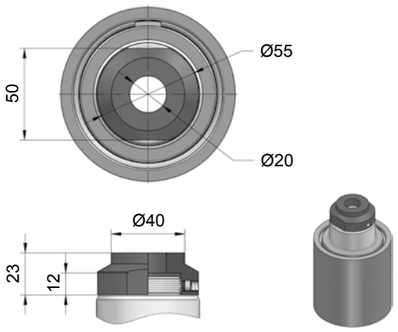


NCQ.44

Flansche für / Flanges for **NC.080.00.02200**



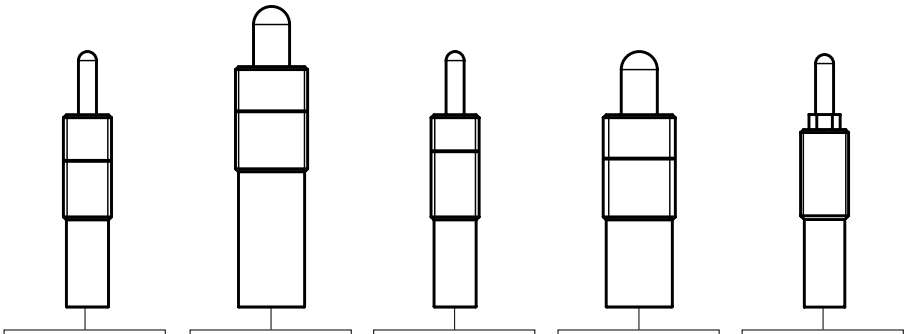
NC.88.00.095.0231



NC.88.00.095.0533

Größenübersicht Serie NC.09X

Gas spring index 09X series



NC.091.16	NC.091.24	NC.091.16.C	NC.091.24.C	NC.094.16.15
6 - 50 daN	23 - 200 daN	6 - 50 daN	23 - 200 daN	9 - 35 N
10 - 100 mm	10 - 100 mm	10 - 125 mm	10 - 125 mm	20 - 50 mm
M16x1,5	M24x1,5	M16x1,5	M24x1,5	M16x1,5

NC.091.16

Innensechskant

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

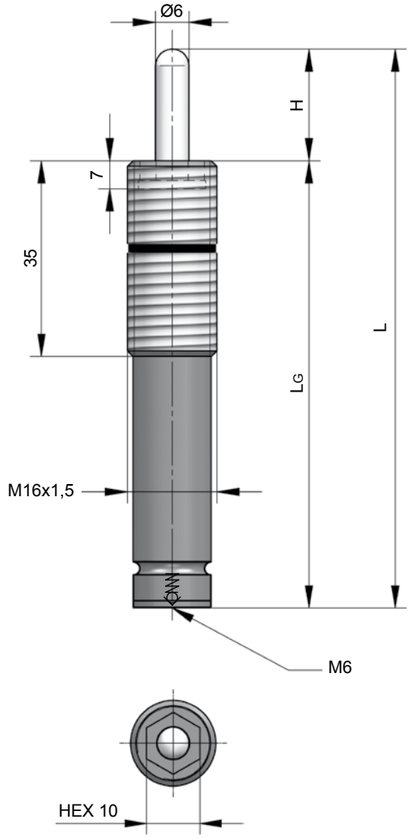
Einwegfeder ist nicht reparierbar!

Hexagon socket

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

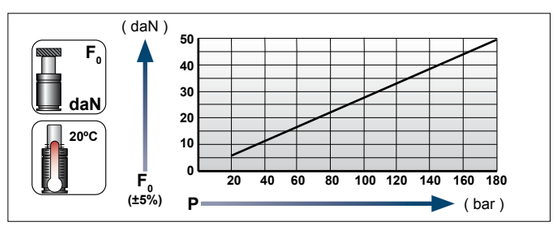
One-way spring is irreparable!

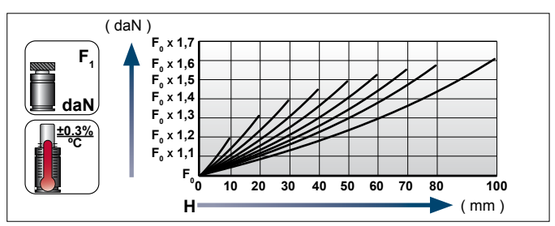


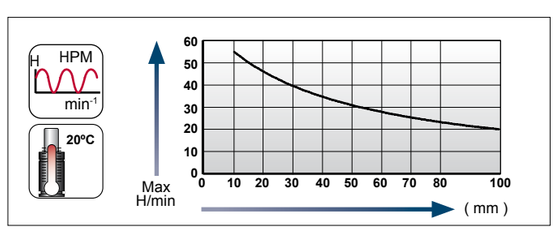
NC.091.16.
00011.200.070

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.091.16.00006	Grün / Green	20	6	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.091.16.00011	Blau / Blue	40	11	
NC.091.16.00021	Rot / Red	75	21	
NC.091.16.00042	Gelb / Yellow	150	42	
NC.091.16.000XX	Schwarz / Black	20 - 180	6 - 50	

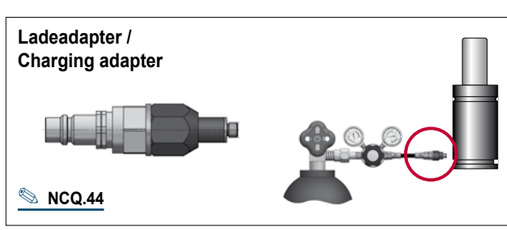
Hub / Stroke	L ±0,25	LG
010	080	70
020	100	80
030	120	90
040	140	100
050	160	110
060	180	120
070	200	130
080	220	140
100	260	160







Ladeadapter / Charging adapter

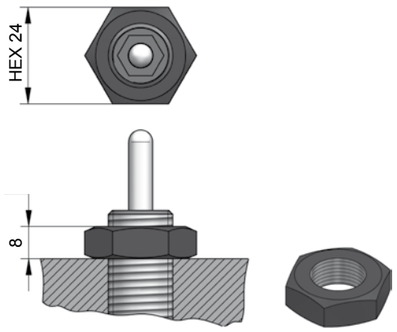


NCQ.44

[16.03.2020]

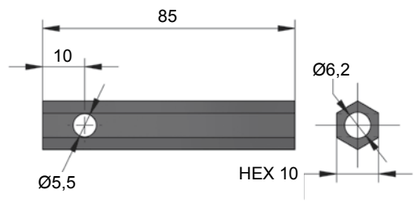
GDF, Abdrückstifte nach VDI 3004
GS, Plungers acc. to VDI 3004
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Kontermutter für / Locknut for **NC.091.16**



NC.88.00.016.0523

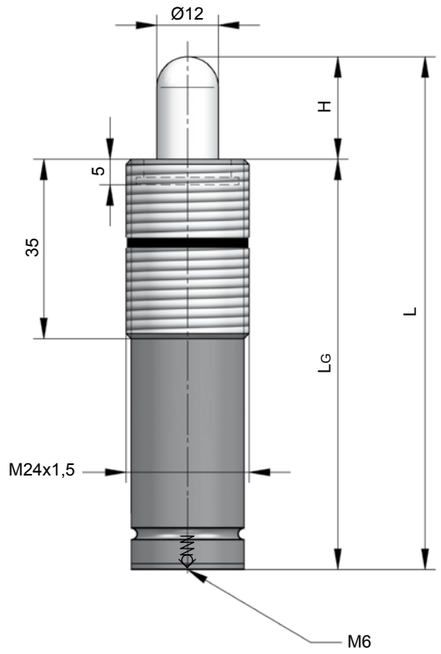
Montageschlüssel / Key



NCTU.LPT.10

[16.03.2020]

NC.091.24



ZUGELASSEN PED 2014/68/EU

VDI 3004

Innensechskant

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

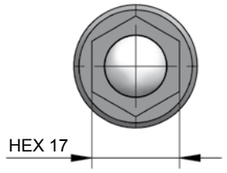
Einwegfeder ist nicht reparierbar!

Hexagon socket

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

One-way spring is irreparable!

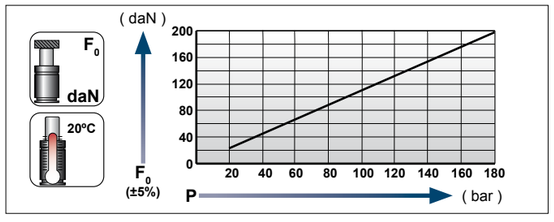


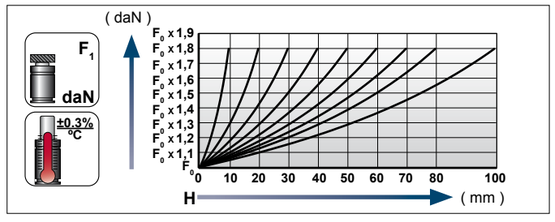
NC.091.24.
00045.160.050

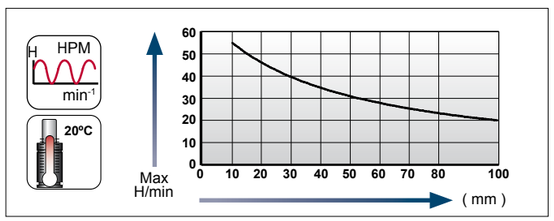
MAIL

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.091.24.00023	Grün / Green	20	23	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.091.24.00045	Blau / Blue	40	45	
NC.091.24.00085	Rot / Red	75	85	
NC.091.24.00170	Gelb / Yellow	150	170	
NC.091.24.00XXX	Schwarz / Black	20 - 180	23 - 200	

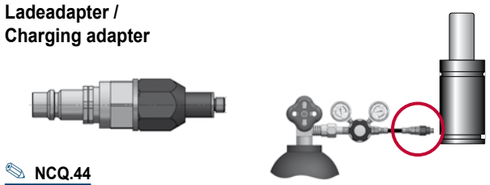
Hub / Stroke	L ±0,25	LG
010	**080**	70
020	**100**	80
030	**120**	90
040	**140**	100
050	**160**	110
060	**180**	120
070	**200**	130
080	**220**	140
100	**260**	160







Ladeadapter /
Charging adapter

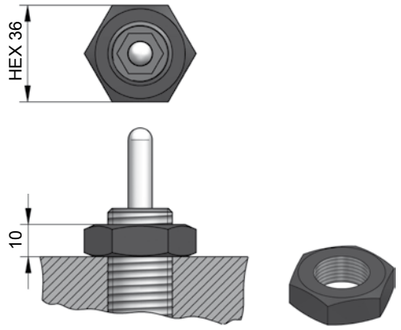


NCQ.44

[16.03.2020]

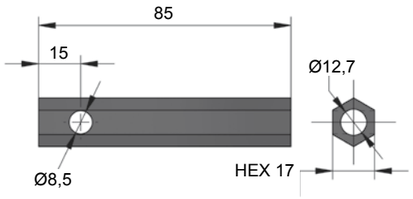
GDF, Abdrückstifte nach VDI 3004
GS, Plungers acc. to VDI 3004
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Kontermutter für / Locknut for **NC.091.24**



NC.88.00.016.0523

Montageschlüssel / Key



NCTU.LPT.17

[16.03.2020]

[NC]

NC.091.16.C

Innensechskant

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

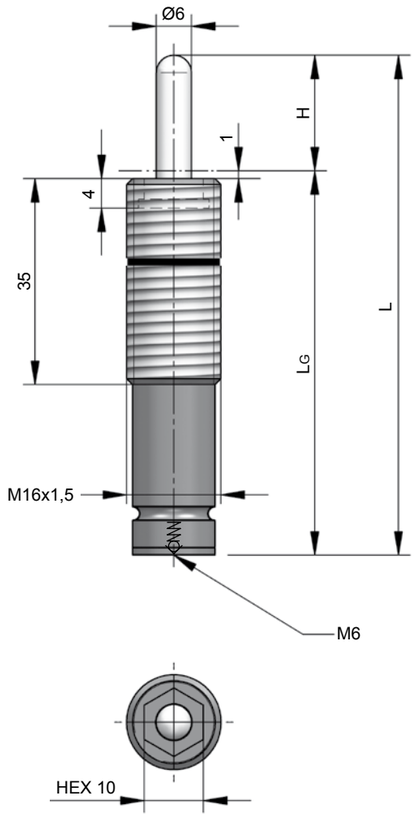
Einwegfeder ist nicht reparierbar!

Hexagon socket

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

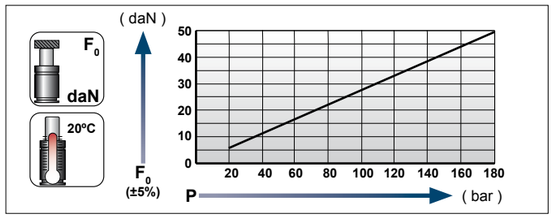
One-way spring is irreparable!

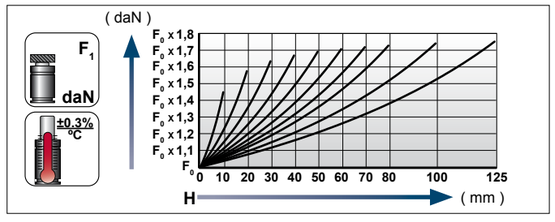


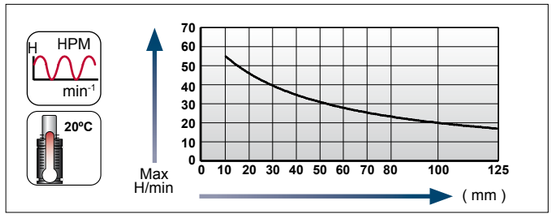
NC.091.16.C.
00011.105.030

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.091.16.C.00006	Grün / Green	20	6	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.091.16.C.00011	Blau / Blue	40	11	
NC.091.16.C.00021	Rot / Red	75	21	
NC.091.16.C.00042	Gelb / Yellow	150	42	
NC.091.16.C.000XX	Schwarz / Black	20 - 180	6 - 50	

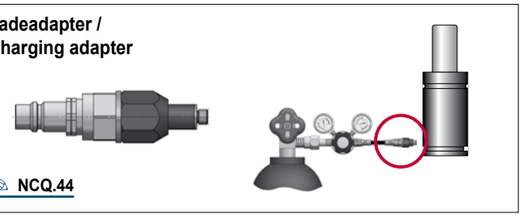
Hub / Stroke	L ±0,25	LG
010	**065**	55
020	**085**	65
030	**105**	75
040	**125**	85
050	**145**	95
060	**165**	105
070	**185**	115
080	**205**	125
100	**245**	145
125	**295**	170







Ladeadapter /
Charging adapter

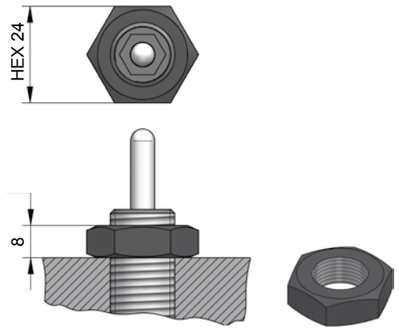


NCQ.44

[16.03.2020]

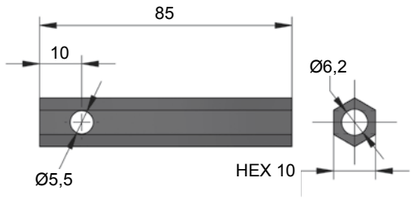
GDF, Abdrückstifte, System F, nach VDI 3004
GS, Plungers. F series, acc. to VDI 3004
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Kontermutter für / Locknut for **NC.091.16.C**



NC.88.00.016.0523

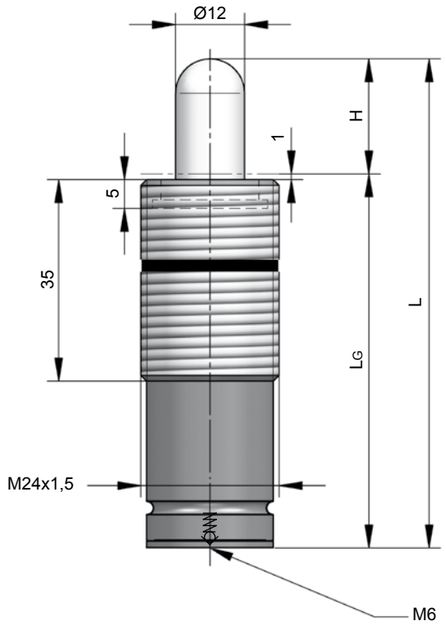
Montageschlüssel / Key

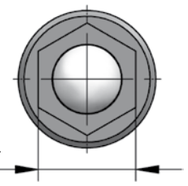


NCTU.LPT.10

[16.03.2020]

NC.091.24.C





Innensechskant

Technische Daten:

Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Einwegfeder ist nicht reparierbar!

Hexagon socket

Specifications:

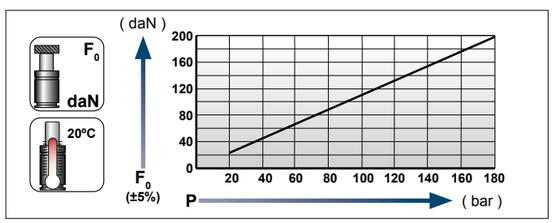
Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

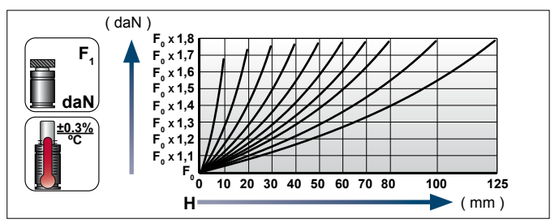
One-way spring is irreparable!

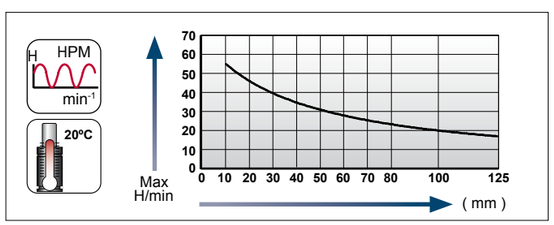
NC.091.24.C.
00045.145.050

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Kraft / Force Ende / Final [daN]
NC.091.24.C.00023	Grün / Green	20	23	Druckanstiegsfaktor (siehe Diagramm unten) / Pressure rising factor (see diagram below)
NC.091.24.C.00045	Blau / Blue	40	45	
NC.091.24.C.00085	Rot / Red	75	85	
NC.091.24.C.00170	Gelb / Yellow	150	170	
NC.091.24.C.00XXX	Schwarz / Black	20 - 180	23 - 200	

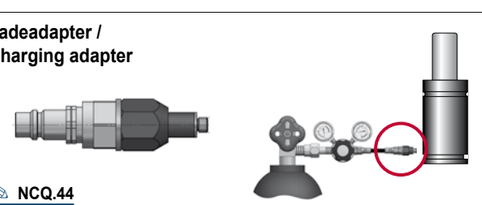
Hub / Stroke	L ±0,25	LG
010	**065**	55
020	**085**	65
030	**105**	75
040	**125**	85
050	**145**	95
060	**165**	105
070	**185**	115
080	**205**	125
100	**245**	145
125	**295**	170







Ladeadapter /
Charging adapter



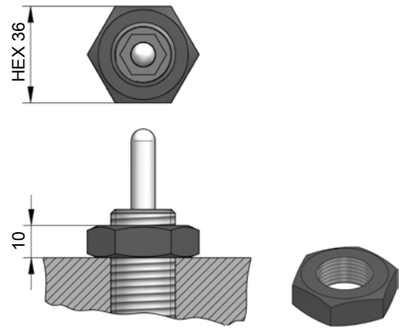
NCQ.44

[16.03.2020]

[16.03.2020]

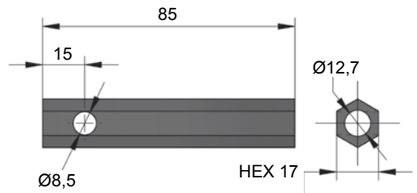
GDF, Abdrückstifte, System F, nach VDI 3004
GS, Plungers, F series, acc. to VDI 3004
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Kontermutter für / Locknut for **NC.091.24.C**



NC.88.00.016.0523

Montageschlüssel / Key

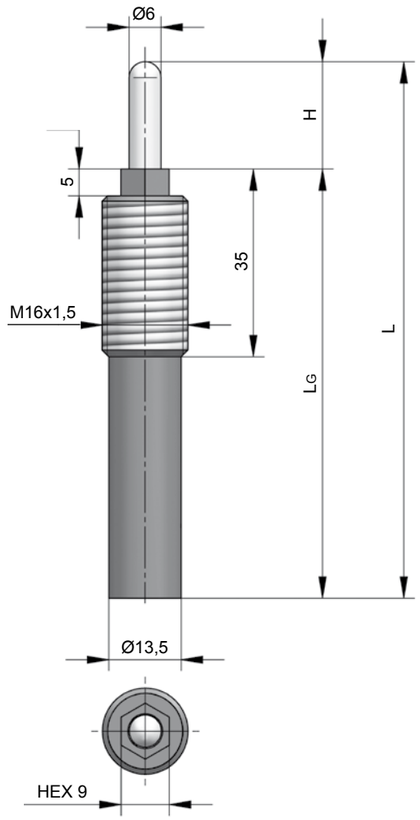


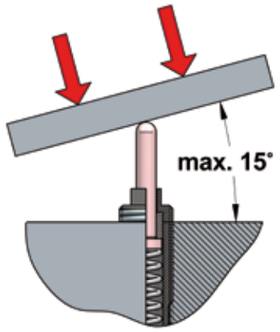
NCTU.LPT.17

NC.094.16.15

Abdrückstift mit Stahlfeder
für den Einsatz bis max. 15°

Plungers with steel spring
for use up to max. 15°





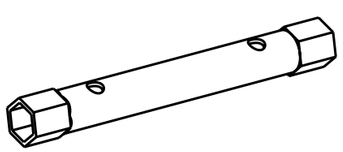
NC.094.16.15.
100.020

H Hub / Stroke	L ±0,25	LG	Kraft / Force min. [N]	 max. [N]
020	**100**	80	35	89
030	**120**	90	2	27
050	**200**	150	9	34

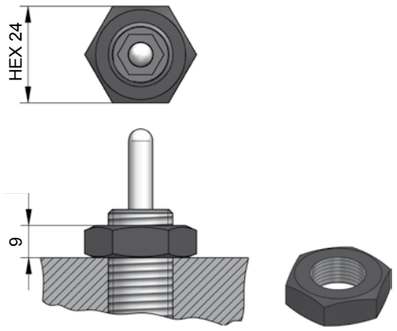
NCTU.LPV.8-9

Montageschlüssel **Key**

NCTU.LPV.8-9



Kontermutter für / Locknut for **NC.094.16.15**



NC.88.00.016.0523

NCF.1

Teileheber mit Gasdruckfedern (NC.054.01 oder NC.056) für vertikalen Einbau

Technische Daten:

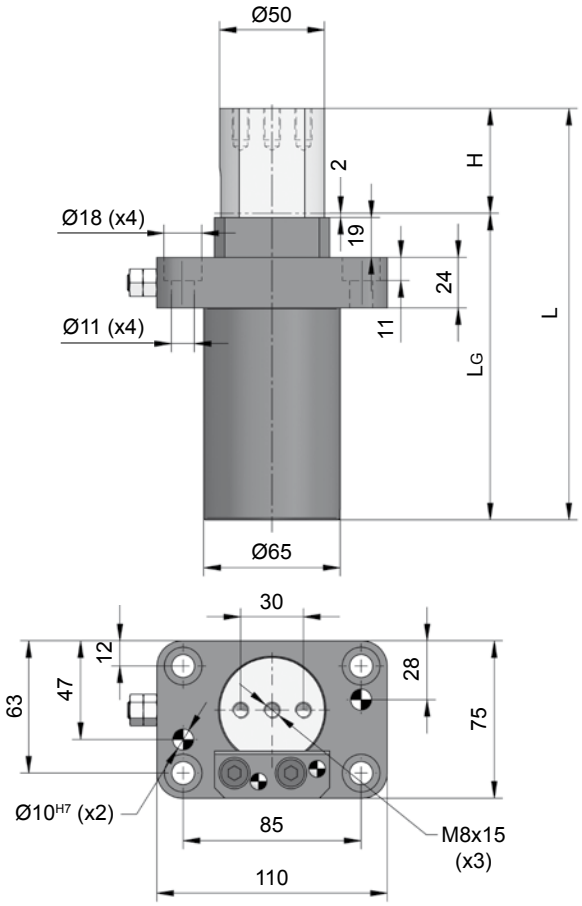
Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Lifter with gas springs (NC.054.01 or NC.056) for vertical mounting

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NCF.1.00050.050



CAD MAIL

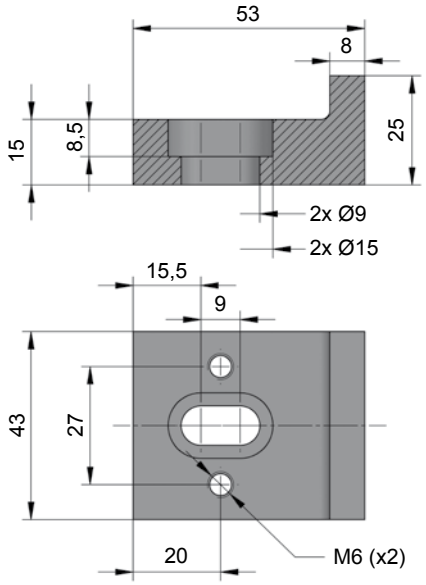
Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Ende / Final [daN] bei Hub / at stroke 050	080	100
NCF.1.00050	Grün / Green	45	50	75	84	93
NCF.1.00100	Blau / Blue	90	100	155	167	178
NCF.1.00150	Rot / Red	135	150	230	241	252
NCF.1.00200	Gelb / Yellow	180	200	305	318	327

Hub / Stroke	L ±0,25	LG
050	196	146
080	256	176
100	296	196

NC.UEX

Hebeplatte **Liftingplate**

NC.UEX



CAD MAIL

[NC]

NCF.3

Teileheber mit Gasdruckfeder (NC.054.01 oder NC.056) für vertikalen und horizontalen Einbau

Technische Daten:

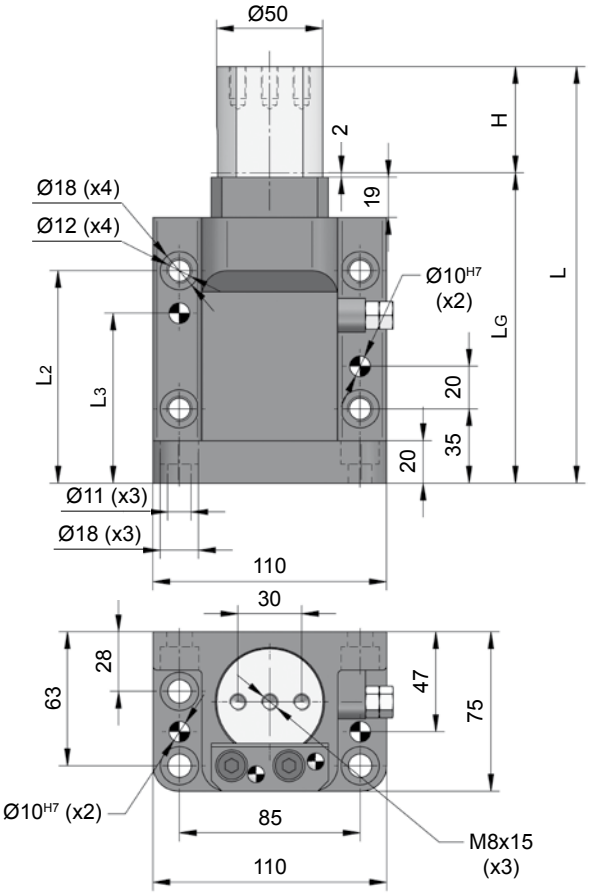
Medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s

Lifter with gas springs (NC.054.01 or NC.056) for vertical and horizontal mounting

Specifications:

Pressure medium:	N_2
$P_{max.}$ (20 °C):	180 bar
$P_{min.}$ (20 °C):	20 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s

NCF.3.00100.080



CAD MAIL

Typ / Type	Farbe / Color	Fülldruck Loading pressure [bar]	Kraft / Force Anfang / Initial [daN]	Ende / Final [daN] bei Hub / at stroke 050	080	100
NCF.3.00050	Grün / Green	45	50	75	84	93
NCF.3.00100	Blau / Blue	90	100	155	167	178
NCF.3.00150	Rot / Red	135	150	230	241	252
NCF.3.00200	Gelb / Yellow	180	200	305	318	327

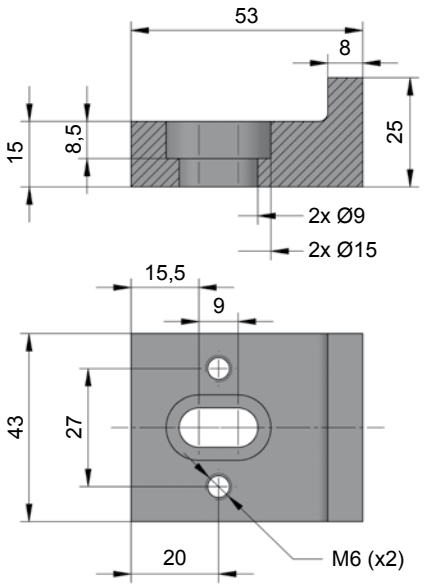
Hub / Stroke	L ±0,25	LG	L2	L3
050	196	146	100	80
080	256	176	130	110
100	296	196	150	130

NC.UEX

Hebeplatte

Liftingplate

NC.UEX



CAD MAIL

NCP.SPVD

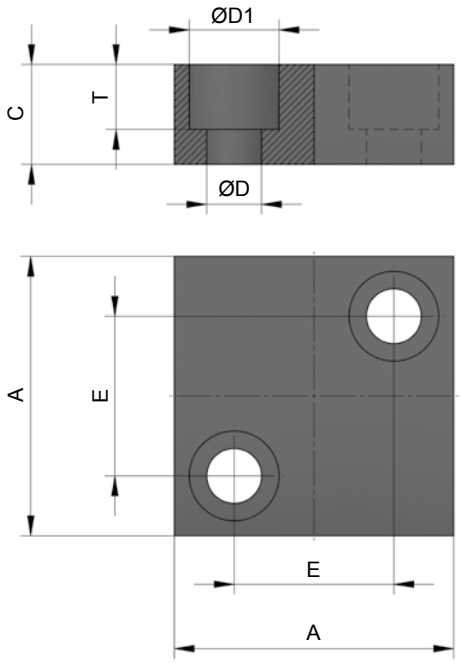
Druckplatten, VDI 3003

Mat.: F 125 / gehärtet

Thrust plates, VDI 3003

Mat.: F 125 / hardened

NCP.SPVD.002



Typ Type	max. Kolbenstangen-Ø max. piston rod-Ø	A	E	C	D	D1	T
NCP.SPVD.001	15	40	24	15	7	11	7
NCP.SPVD.002	50	70	50	15	9	15	9
NCP.SPVD.003	80	90	70	15	9	15	9

NCP.SPFI
NCP.SPPS

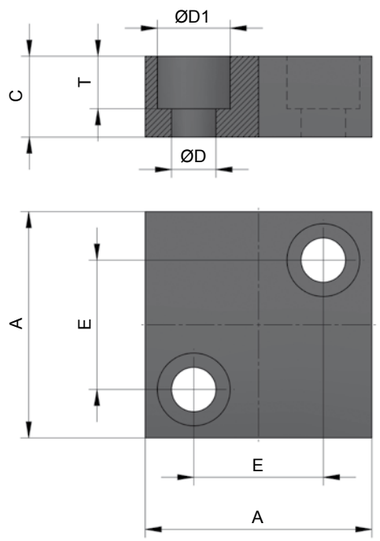
Druckplatten

Mat.: F 125 / gehärtet

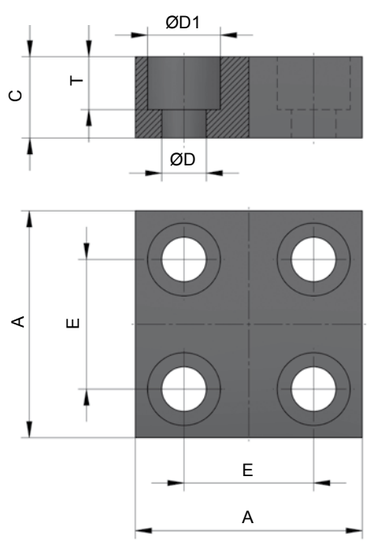
Thrust plates

Mat.: F 125 / hardened

NCP.SPPS.003



NCP SPFI



NCP SPPS

CAD MAIL

Typ Type	max. Kolbenstangen-Ø max. piston rod-Ø	A	E	C	D	D1	T
NCP.SPFI.001	15	40	21	15	9	15	10
NCP.SPFI.002	25	56	32	20	11	18	13
NCP.SPFI.003	50	71	48	20	11	18	13
NCP.SPFI.004	65	90	67	20	11	18	13
NCP.SPFI.005	95	140	110	20	11	18	13

Typ Type	max. Kolbenstangen-Ø max. piston rod-Ø	A	E	C	D	D1	T
NCP.SPPS.001	15	40	21	15	9	15	10
NCP.SPPS.002	25	56	32	20	11	18	13
NCP.SPPS.003	65	90	67	20	11	18	13
NCP.SPPS.004	95	140	110	20	11	18	13
NCP.SPPS.005	130	155	125	20	11	18	13

[18.05.2020]

[18.05.2020]

GDF, Zubehör
GS, Accessories
AUTONOME GASDRUCKFEDERN / STAND ALONE GAS SPRINGS

Das Verbinden der Gasdruckfedern (GDF) mit Schläuchen zu einem oder mehreren Federsystemen bietet dem Anwender den Vorteil, dass der benötigte Stickstoffdruck im System über außerhalb am Werkzeug oder an der Maschine angebrachte Kontrollarmaturen überwacht werden kann. Im Bedarfsfall kann der Systemdruck durch Befüllen oder Ablassen den Bedürfnissen des Anwenders angepasst werden.

Hinweis: Bei GDF, die im Verbund eingesetzt werden, ist darauf zu achten, dass die Ventile aus den Gasdruckfedern entfernt werden müssen.

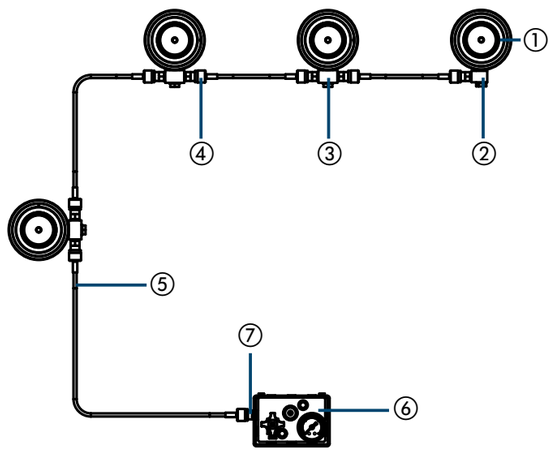
Für die Verschlauchung der GDF-Systeme stehen zwei unterschiedliche Varianten zur Verfügung:
1. Konus-System 24°
   (Seite NC.130.23 - 24)
2. Messschlauch-System

The hosing of gas springs gives the operator the advantage and the possibility to easily monitor the pressure by externally - to the die or the press - mounted control units.
By simply loading or discharging nitrogen the pressure can be changed to meet the requirements.

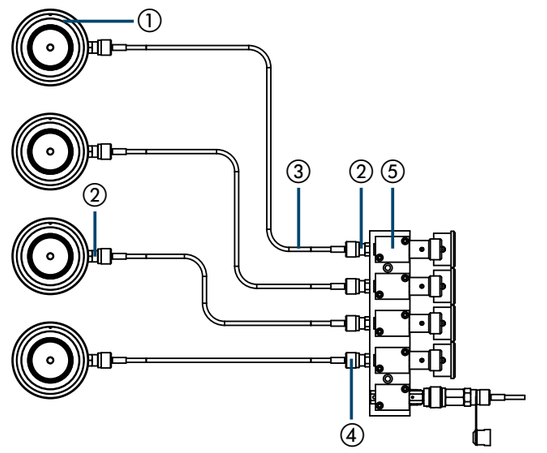
Attention: At hosed gas springs the valves have to be taken out first!

For hosing gas springs, we offer two different systems:
1. System 24° tapered
   (please see pages NC.130.23-24)
2. „Measuring hoses“-system

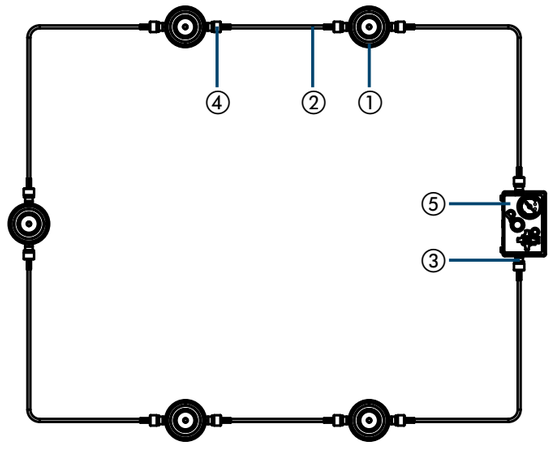
Vorschläge / Proposals:



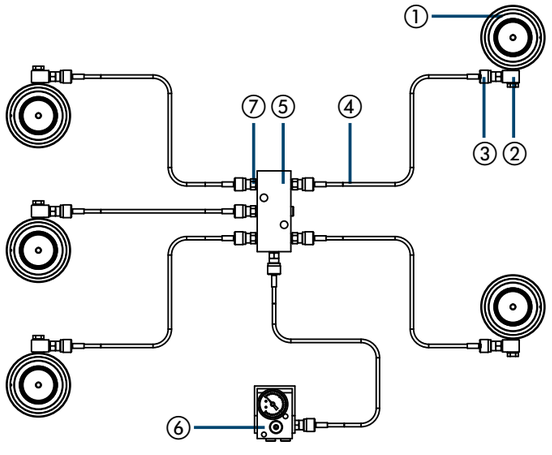
① NC.060.10.01500.050
② HS NF 2001-4-G1/8“
③ HS NF 3001-4-G1/8“
④ HS NHP 2
⑤ HS NH 220
⑥ NCCP.600.CPLC.01.1
⑦ HS NF 1001-4-G1/8“



① NC.060.10.01500.050
② HS NF 1001-4-G1/8“
③ HS NH 220
④ HS NHP 2
⑤ NCCP.400.CPFG.4.01



① NC.060.10.01500.050
② HS NH 220
③ HS NF 1001-4-G1/8“
④ HS NHP 5
⑤ NCCP.600.CPLC.01.1

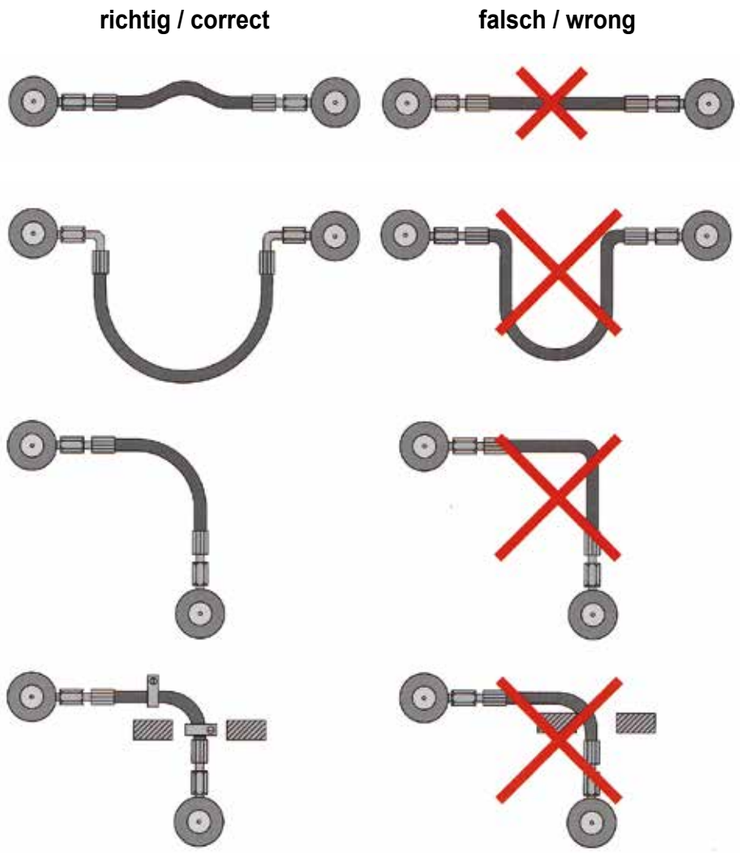


① NC.060.10.01500.050
② HS NF 2001-4-G1/8“
③ HS NHP 5
④ HS NH 220
⑤ NCCC.1.4
⑥ NCCP.600.CPLC.01.1
⑦ HS NF 1001-4-G1/8“

[NC]

Die Installation der Schlauchleitungen und die Umgebung in der sie benutzt werden beeinflussen die Lebensdauer einer Schlauchleitung. Die Länge der Schläuche muss so bestimmt werden, dass die Komponenten ohne Spannung verbunden werden können.
Ein wichtiger Faktor für die Lebensdauer des Schlauches ist die Berücksichtigung des Mindestbiegeradius (Biegeradius siehe Schlauchtabelle). Um Beschädigungen zu vermeiden, sollten die Schläuche zwischen den zu verbindenden Elementen auch mit Schlauchschellen befestigt werden. **Achtung:** Schläuche bei der Montage nicht verdrehen.

The proper hosing and mounting of hosed systems as well as the (clean) environment and surrounding they are being run in, do affect their lifetime significantly.
By calculating the hose lengths, please make sure, the hoses are long enough, that no component has to work under tension.
Another important factor is the minimal bending radius (please see hose-table).
To avoid damaging, please fix hoses with hose clips between gas springs. Do not twist hoses!



[18.05.2020]

NCCP.600.CPLC.01.1
NCCP.600.CPLC.02.1
NCCP.600.CPLC.03.1

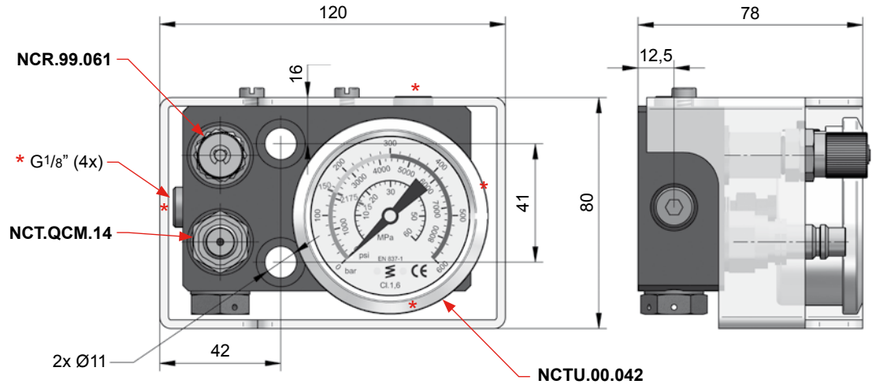
Kontrollarmaturen

NCCP.600.CPLC.01.1 = ohne Berstscheibe
NCCP.600.CPLC.02.1 = mit Berstscheibe **NCR.99.140.1** (517 bar)
NCCP.600.CPLC.03.1 = mit Berstscheibe **NCR.99.139.1** (360 bar)

Control-panels

NCCP.600.CPLC.01.1 = without rupture disc
NCCP.600.CPLC.02.1 = with rupture disc **NCR.99.140.1** (517 bar)
NCCP.600.CPLC.03.1 = with rupture disc **NCR.99.139.1** (360 bar)

NCCP.600. CPLC.01.1



MAIL

NCCP.600.CPGM.03.1
NCCP.600.CPGM.04.1

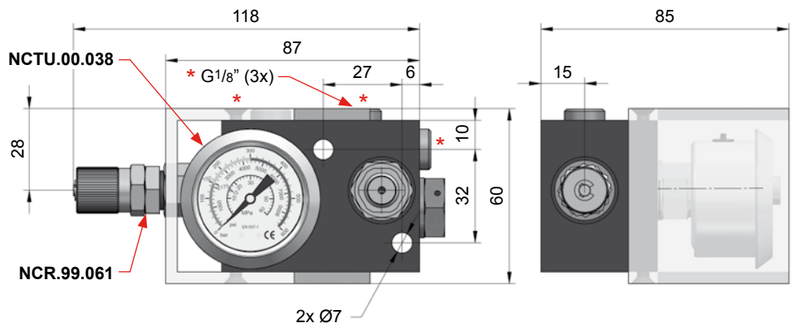
Kontrollarmaturen

NCCP.600.CPGM.03.1 = ohne Berstscheibe
NCCP.600.CPGM.04.1 = mit Berstscheibe **NCR.99.139.1** (360 bar)

Control-panels

NCCP.600.CPGM.03.1 = without rupture disc
NCCP.600.CPGM.04.1 = with rupture disc **NCR.99.139.1** (360 bar)

NCCP.600. CPGM.03.1



MAIL

NCCP.400.CPFG...01

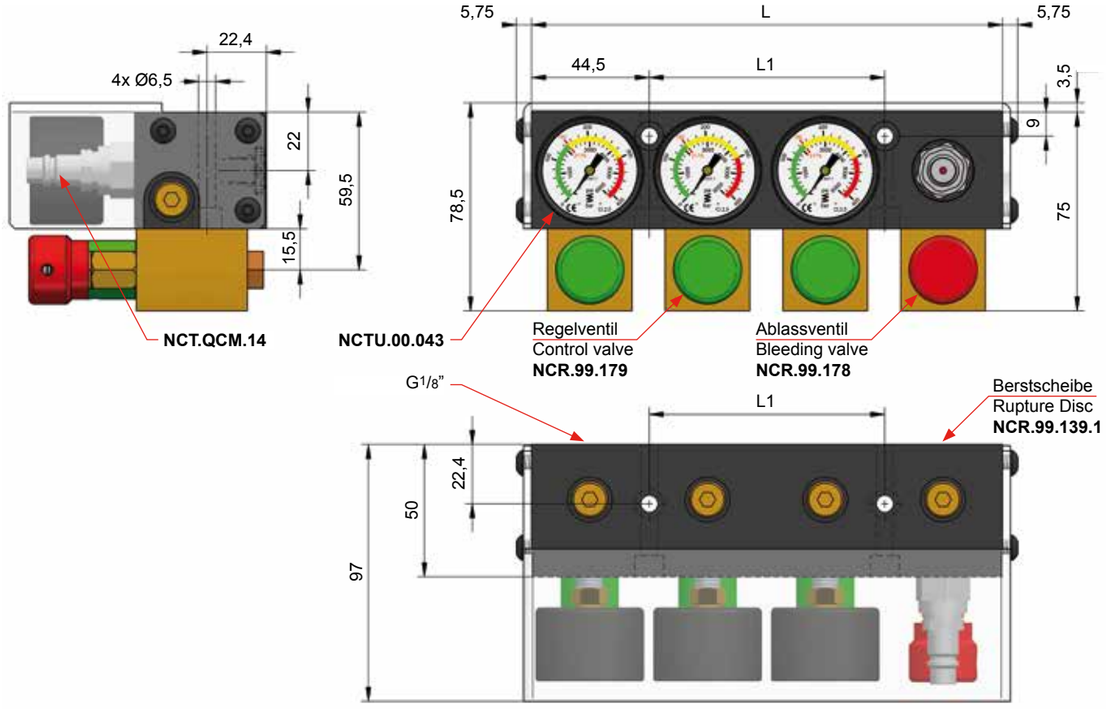
Multi-Kontrollarmaturen

Hinweis:
Die Multi-Kontrollarmatur kommt zum Einsatz, wenn GDF oder GDF-Gruppen mit unterschiedlichen Fülldrücken benötigt werden.
Über das Einlassventil/Stecknippel können die Federn/Gruppen mit Stickstoff befüllt werden.

Multi-control-units

Note:
In case gas springs or - groups need to show different pressures, this multi-control-unit is used.
The springs and systems are charged through the filling valves.

NCCP.400.CPFG.2.01



Typ Type	L	L1	Anschlüsse Connections
NCCP.400.CPFG.2.01	133,5	44,5	2
NCCP.400.CPFG.3.01	178	89	3
NCCP.400.CPFG.4.01	222,5	133,5	4
NCCP.400.CPFG.5.01	267	178	5
NCCP.400.CPFG.6.01	311,5	222,5	6
NCCP.400.CPFG.8.01	400,5	311,5	8
NCCP.400.CPFG.10.01	489,5	400,5	10

HS Z 20

Information:
Wird der Druckwächter direkt in eine Kontrollarmatur eingeschraubt benötigten Sie den Adapter **NCQ.11**.

Druckwächter werden im Druckbereich von 40 - 240 bar zur Überwachung des Systemdrucks eingesetzt. Bei Druckabfall wird bei Elektroanschluss die Maschine gestoppt. Bei Stickstoffverlust kann auch über optische oder akustische Signale gewarnt werden.

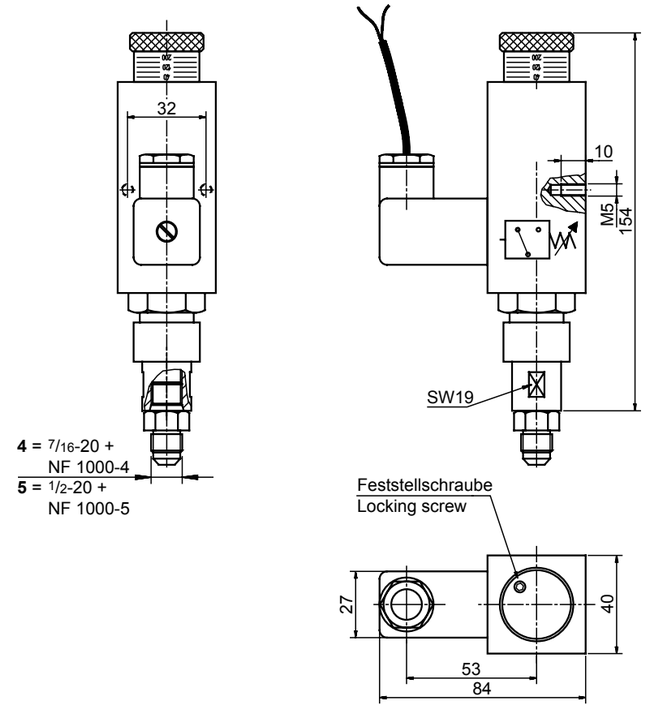
Bei der Bestellnummer ergänzen:
4 = Anschluss 7/16 - 20 + NF 1000-4
5 = Anschluss 1/2 - 20 + NF 1000-5

Information:
In case the pressure monitor is used in connection with a control panel, the Adapter **HS Z20-5-NCQ.11** is needed.

These units are being used to monitor the system-pressure (between 40 and 240 bars). In cases of a pressure decrease optical / accustical warnings can be initiated or the press can even be stopped.

HS Z 20 - 4

When ordering, please specify:
4 = Connection-thread 7/16 - 20 + NF 1000-4
5 = Connection-thread 1/2 - 20 + NF 1000-5



NCCC.1.2

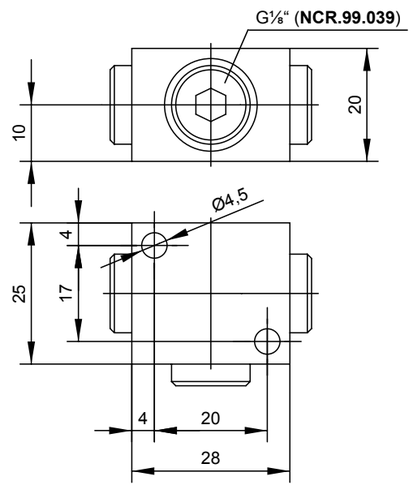
Verteilerblocks

Achtung:
Benötigte Anschlussstücke siehe Seite NC.130.23.

Distribution blocks

Attention:
For fitting connectors please see page NC.130.23.

NCCC.1.2



CAD MAIL

NCCC.1.4

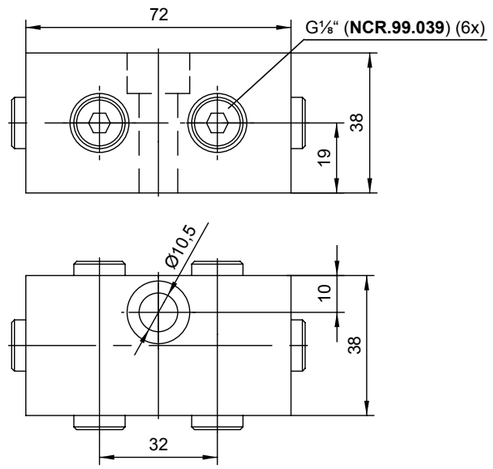
Verteilerblocks

Achtung:
Benötigte Anschlussstücke siehe Seite NC.130.23.

Distribution blocks

Attention:
For fitting connectors please see page NC.130.23.

NCCC.1.4



CAD MAIL

[18.05.2020]

[18.05.2020]

NCCC.6.6

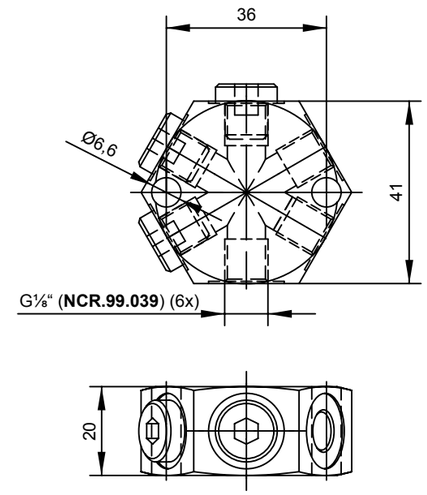
Verteilerblocks

Achtung:
Benötigte Anschlussstücke siehe Seite NC.130.23.

Distribution blocks

Attention:
For fitting connectors please see page NC.130.23.

NCCC.6.6



CAD MAIL

NCCC.1.7

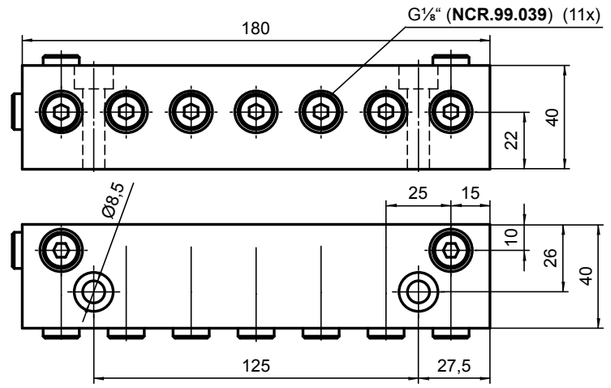
Verteilerleisten

Achtung:
Benötigte Anschlussstücke siehe Seite NC.130.23.

Distribution blocks

Attention:
For fitting connectors please see page NC.130.23.

NCCC.1.7



MAIL

NCCC.1.10.01

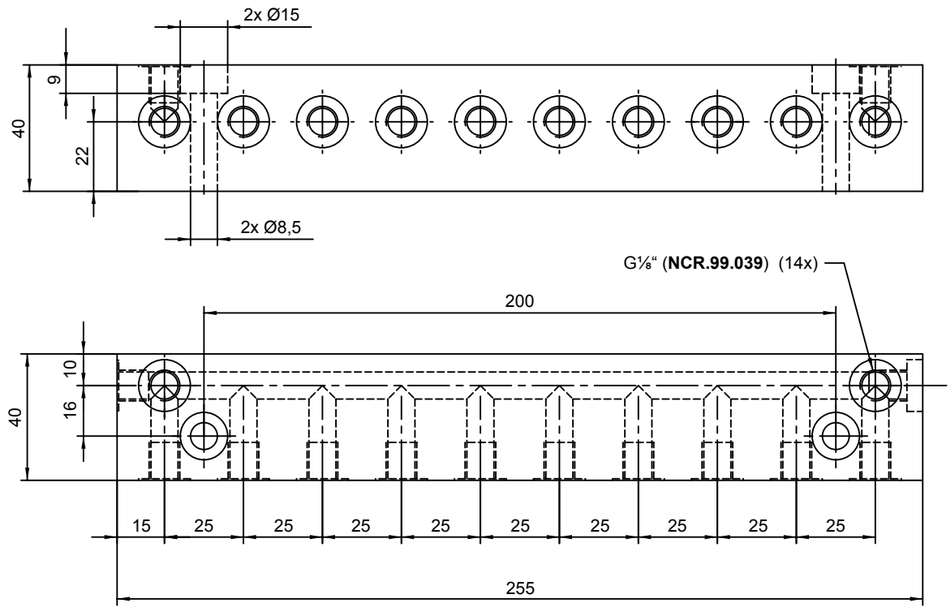
Verteilerleisten

Achtung:
Benötigte Anschlussstücke siehe Seite NC.130.23.

Distribution blocks

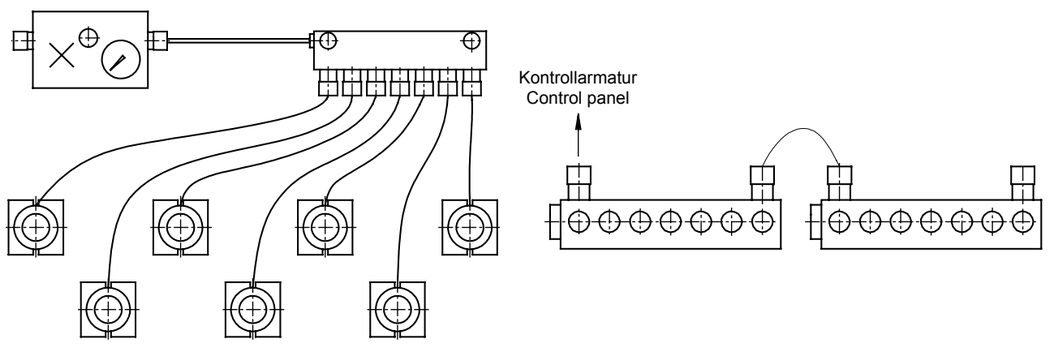
Attention:
For fitting connectors please see page NC.130.23.

NCCC.1.10.01



CAD MAIL

Beispiel / Example



[18.05.2020]

NCQ

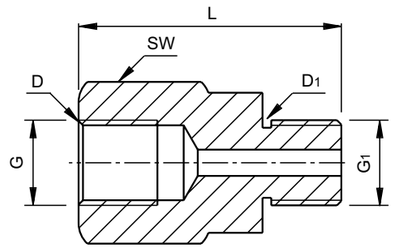
Ladeadapter

Dichtung Typ P: flach
Dichtung Typ T: O-Ring

Charging adapters

Seal Type P: flat
Seal Type T: O-ring

NCQ.11



MAIL

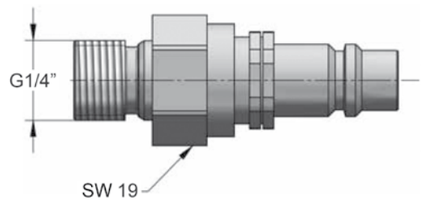
Typ Type	D	G	G1	D1	SW	L
11	T	1/2“-20	G1/8“	P	16	30
19	T	7/16“-20	M6-lang / long	T-T	19	34
20	P	G1/8“	G1/8“	P	16	25
26	P	G1/8“	G1/8“	P	17	20
32	P	G1/8“	M6-lang / long	P	13	28
34	P	1/2“-20	M6-lang / long	T-T	19	34
35	P	1/2“-20	G1/8“	P	19	30

NCT.QCM.14

Stecknippel

Male quick release couplings

NCT.QCM.14



MAIL

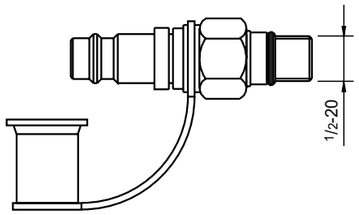
[NC]

HS 11-700-8555

Stecknippel (HS NDZ-22)

Male quick release couplings (HS NDZ-22)

HS 11-700-8555



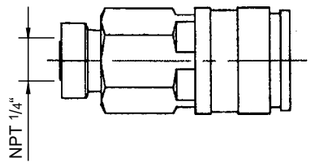
MAIL

HS 11-770-2700

Steckkupplungen (HS NDZ-21A)

Female quick release couplings (HS NDZ-21A)

HS 11-770-2700



MAIL

[18.05.2020]

[18.05.2020]

Speichertanks können den Druckanstiegs-Faktor signifikant reduzieren und damit unter anderem auch die Wärmeentwicklung, was zusätzlich zu längeren Standzeiten der Gasdruckfedern führt.

Aufgrund der von Fall zu Fall stark voneinander abweichenden Anforderungen sind diese Tanks in unterschiedlichsten Ausführungen und Größen erhältlich. Bei der entsprechenden Auswahl und Spezifikation helfen wir gerne.

Bitte nennen Sie uns in diesem Fall
- die gewünschte Kraft
- die benötigte Hublänge
- die ungefähre Anzahl und maximale Größe der Gasdruckfedern
- den angestrebten Druckanstieg (empfohlen zwischen 5 % und 20 %)

Sollten Sie sich bereits für ein Gasdruckfeder-Modell bzw. eine Abmessung entschieden haben, teilen Sie uns auch dies gerne mit.

Compression tanks can significantly reduce the pressure rise factor and thereby the temperature increase, which additionally results in longer service lives of the gas springs.

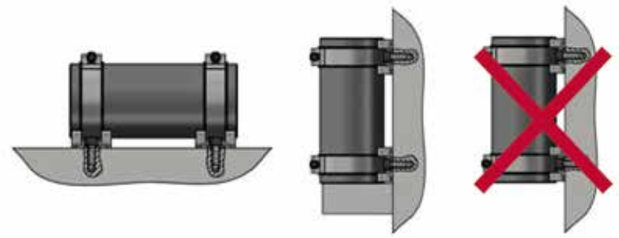
Due to the widely spread requirements in regards to volumes, sizes etc., these tanks are available in different designs, forms and shapes.
We will gladly help you with the appropriate selection and specification.

In that case, please specify
- the desired force
- the required stroke length
- the approximate number and maximum size of the gas springs, and
- the target pressure rise factor (recommended between 5% and 20%)

If you have already decided on a gas spring model or dimension, please let us know as well.

Speichertanks und Ausführungen auf Anfrage!

Compression tanks and designs on demand!



MAIL

NC Hinweisschild

NC Hinweisschild / D

Märkische Stanz-Partner Normalien GmbH
Jüngerstraße 17 • D-58515 Lüdenscheid
Tel. +49 (0) 23 51 / 6 61 07-0 • Fax +49 (0) 23 51 / 6 61 07-77

ACHTUNG

Werkzeug/Presse ist mit Gasdruckfedern bestückt.

Fülldruck max. 150 bar - 180 bar - 200 bar

Achtung:
Arbeiten am System nur im drucklosen Zustand.
Bitte Wartungsanleitung lesen.

Druck max. ..... bar Arbeitsdruck ..... bar

Märkische Stanz-Partner Normalien GmbH
Jüngerstraße 17 • D-58515 Lüdenscheid
Tel. +49 (0) 23 51 / 6 61 07-0 • Fax +49 (0) 23 51 / 6 61 07-77

Attention

This die / this press utilizes nitrogen gas springs with high pressure (150 bar - 180 bar - 200 bar) and the resulting very high forces.

Repair and maintenance must only take place after the unit(s) have been unloaded and unpressured!

Pressure max. ..... bar Working pressure ..... bar

HS NCA 3000

Abfüllarmaturen

Charging assemblies

HS NCA 3000

HS NCCS

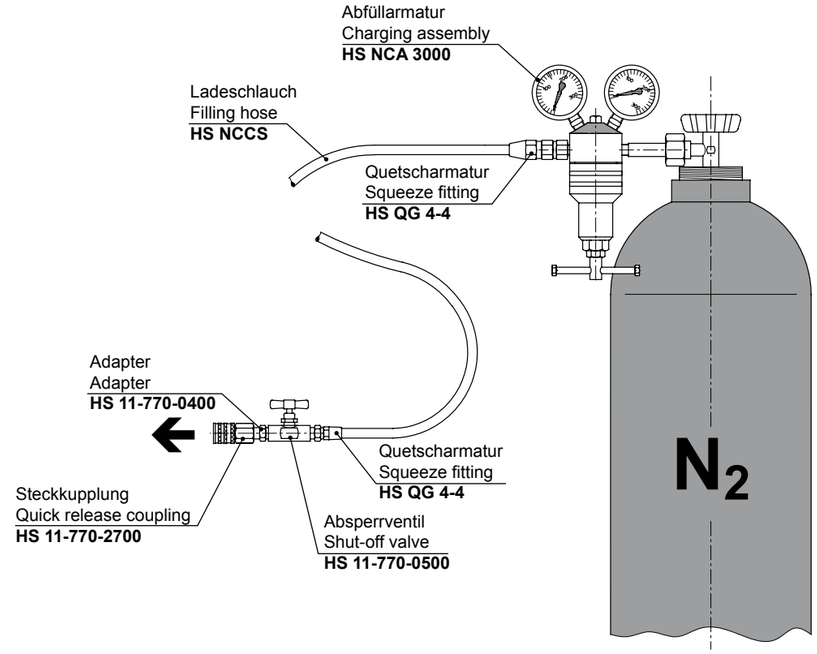
Ladeschläuche

Standardlänge: 3000 mm

Filling hoses

Standard length: 3000 mm

HS NCCS



NCCA.1.1

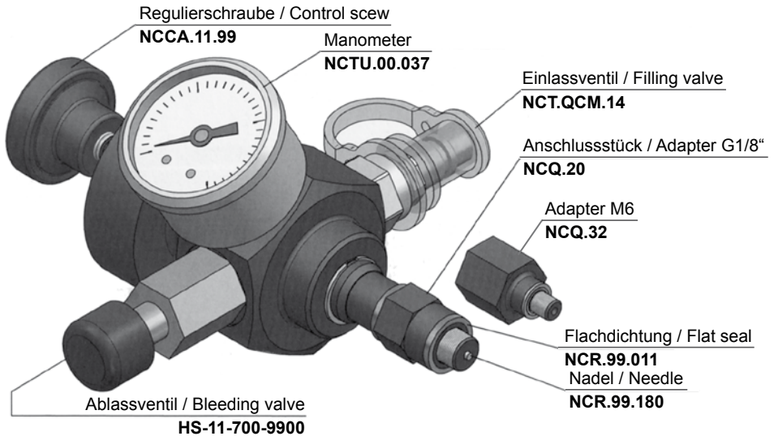
Kontroll- und Ladearmatur zur Druckkontrolle von Stickstoff-Zylindern.
Über das Einlassventil der Armatur kann der Druck erhöht werden.
Über das Ablassventil kann der Druck reduziert oder der Zylinder in einen drucklosen Zustand versetzt werden.

Lieferumfang:
1 x Kontroll-Ladearmatur **NCCA.1.1**
1 x Adapter **NCQ.32** M6
1 x Adapter **NCQ.20** G1/8

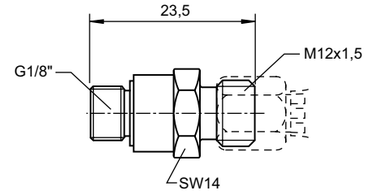
Pressure control unit for pressure monitoring of gas springs.
The filling valve is used to charging the spring and increasing its pressure, while the bleeding valve reduces the load, possibly even down to 1 bar only.

Included are
1 x pressure control unit **NCAA.1.1**
1 x adapter **NCQ.32** M6
1 x adapter **NCQ.20** G1/8

NCCA.1.1

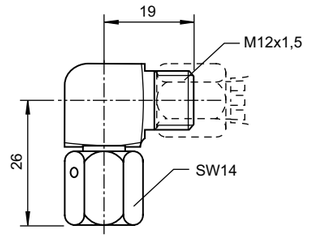


Anschlussstücke, gerade / Straight Fittings



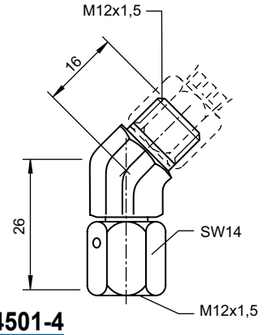
HS NF 1001-4-G1/8

Winkelstücke 90° / Threaded joints, 90°



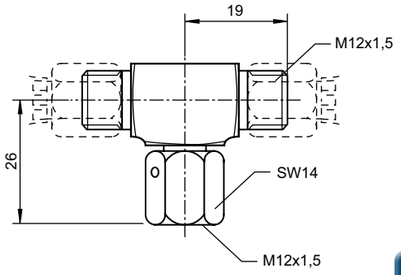
HS NF 2001-4

Winkelstücke 45° / Threaded joints, 45°



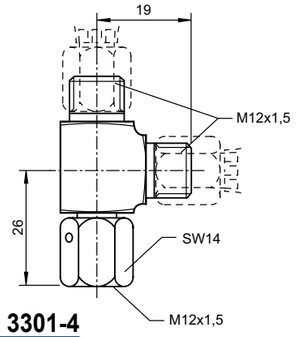
HS NF 4501-4

T-Anschlussstücke / T-Connectors



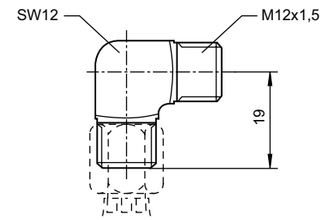
HS NF 3001-4

L-Anschlussstücke / L-Connectors



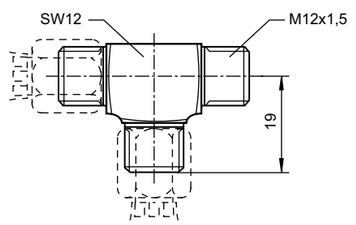
HS NF 3301-4

Winkelstücke 90° / Threaded joints, 90°



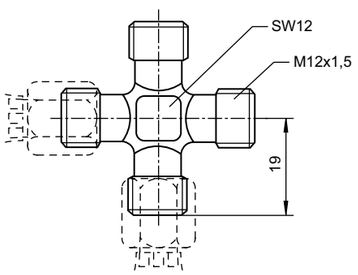
HS NF 2501-4

T-Anschlussstücke / T-Connectors



HS NF 3501-4

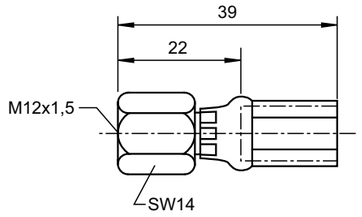
Anschlussstücke, Kreuz / Adapters cross



HS NF 5501-4

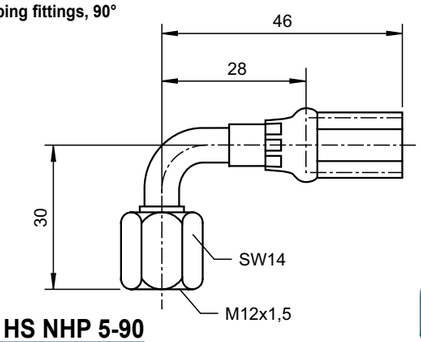
Hochdruckschläuche komplett mit Pressarmaturen nach Kundenangaben (HS NH 220) /
High pressure hoses, complete with pressed-on adapters as per customers' specifications (HS NH 220)

Pressarmaturen, gerade /
Crimping fittings, straight



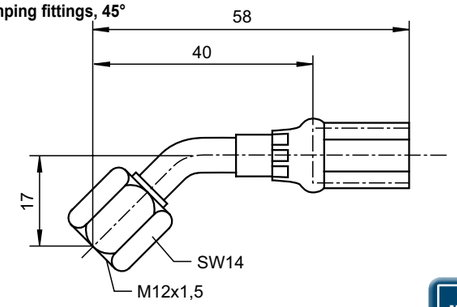
HS NHP 5

Pressarmaturen 90° /
Crimping fittings, 90°



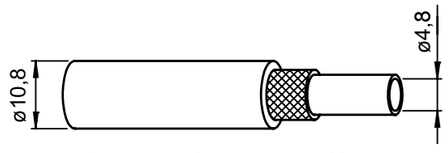
HS NHP 5-90

Pressarmaturen 45° /
Crimping fittings, 45°



HS NHP 5-45

Hochdruckschläuche (Pressschläuche) /
High pressure hoses, flexible



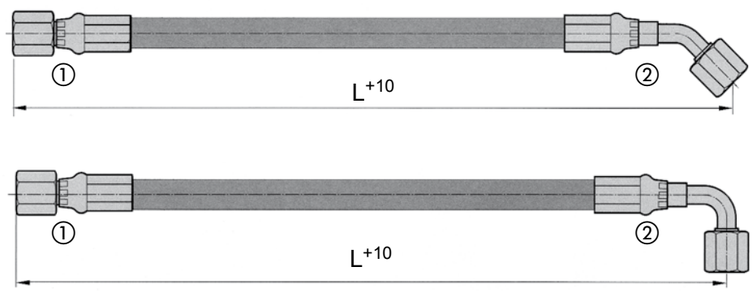
Biegeradius / Bending radius = 38 mm

HS NH 220

Bitte bei Bestellung angeben:

L = Gesamtlänge [mm]
L_{min} = 200 mm
① = Typ Armatur 1
② = Typ Armatur 2
α = Lage der Anschlüsse bei abgewinkelten Armaturen

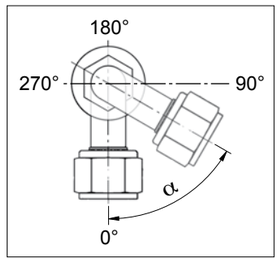
Hinweis:
Bei der Festlegung der Gesamtlänge müssen die Verlegehinweise von Seite NC.130.4 beachtet werden!



Please specify when ordering:

L = Total length [mm]
L_{min} = 200 mm
① = Type fitting 1
② = Type fitting 2
α = When using angled fittings: degrees of angle

In order to calculate the exact hose-lengths, please follow the instructions on page NC.130.4.

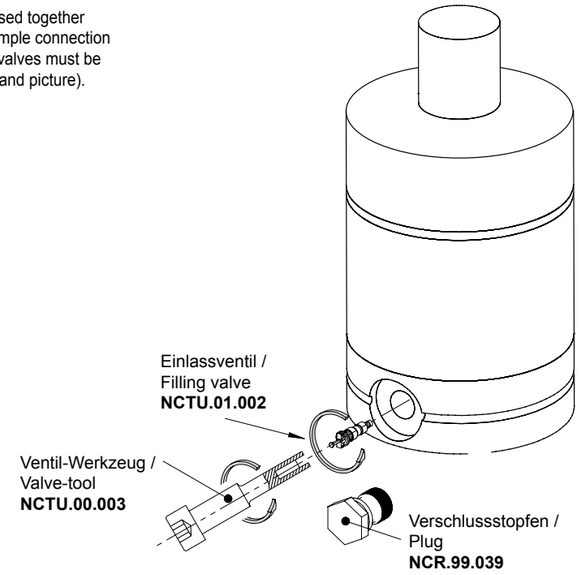


HS NH 220 / 380 / HS NHP 5-45 / HS NHP 5-90 / 60°

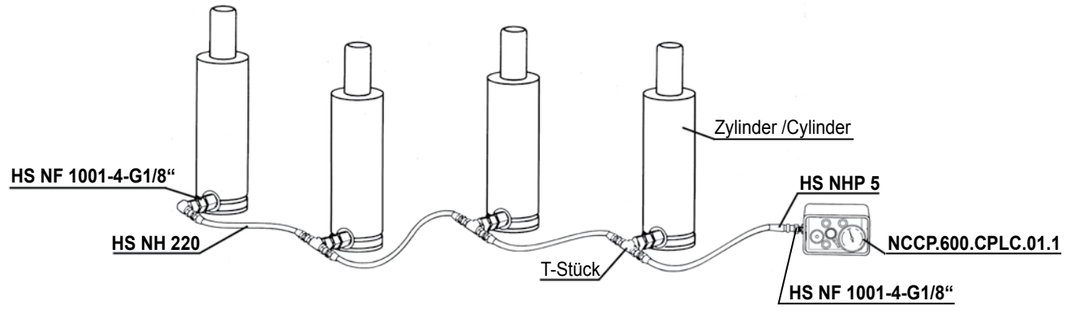
[18.05.2020]

Hinweis:
Bei NitroCyl-Gasdruckfedern, die im Verbund eingesetzt werden (siehe Anschlussschema), ist darauf zu achten, dass die Ventile aus den Gasdruckfedern entfernt werden müssen (siehe rechts).

Attention:
If gas-springs are hosed together (like shown in the sample connection diagram below), the valves must be removed (see right hand picture).



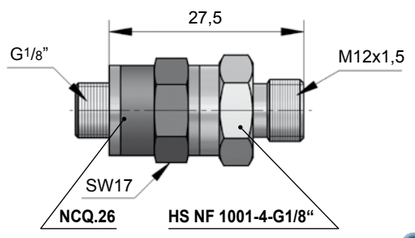
Anschlussschema / Connection diagram



[18.05.2020]

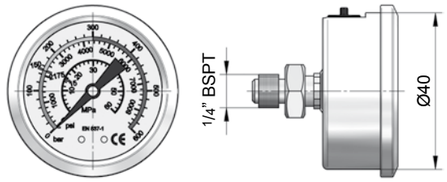
[NC]

Anschlussstücke HS NF 1001-4-G1/8“ mit Adapter NCQ.26 /
Straight fittings HS NF 1001-4-G1/8“ with adapter NCQ.26



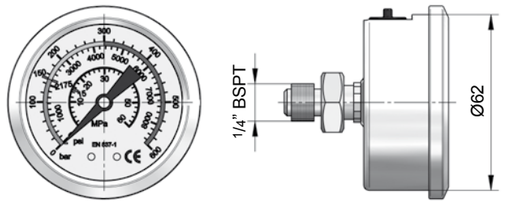
HS NF 1003-4-G1/8“

Kontrollarmaturen 600 bar / Control panels 600 bar



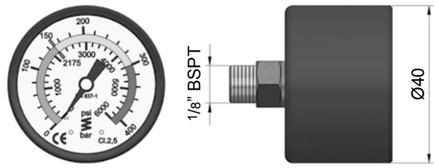
NCTU.00.038

Kontrollarmaturen 600 bar / Control panels 600 bar



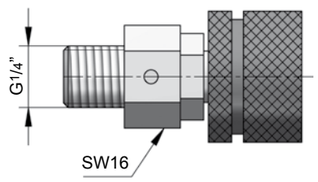
NCTU.00.042

Kontrollarmaturen 400 bar / Control panels 400 bar



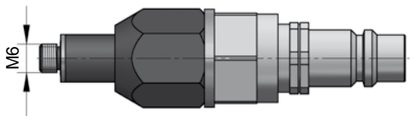
NCTU.00.043

Ablassventile / Bleeding valves



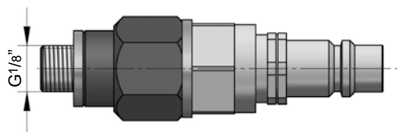
NCR.99.061

Ladeadapter / Charging adapters



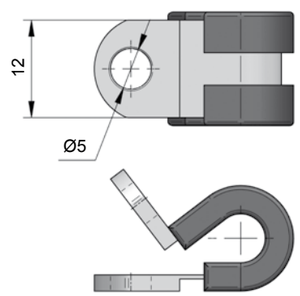
NCQ.44

Ladeadapter / Charging adapters



NCQ.46

Schlauchschellen / Hose clamps



NCR.99.176

[18.05.2020]

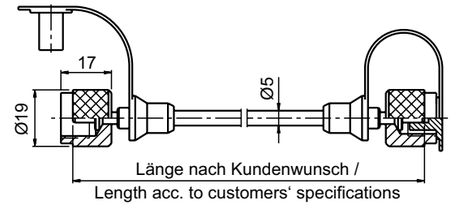
[18.05.2020]

Schlauchlängen nach Kundenwunsch! /
Hose length acc. to customer‘s specifications

Standardlängen / Standard lengths [mm]:

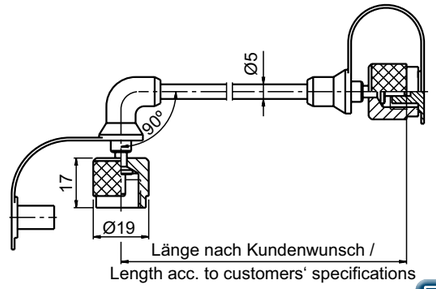
200	**700**	**2000**
300	**800**	**2500**
400	**900**	**3000**
500	**1000**	
600	**1500**	

Schläuche / Hoses NCX.12



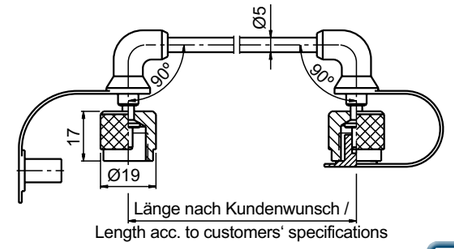
NCX.12.00200

Schläuche / Hoses NCX.13



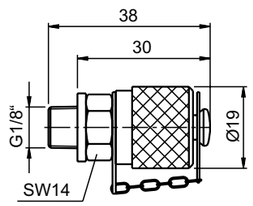
NCX.13.00300

Schläuche / Hoses NCX.15



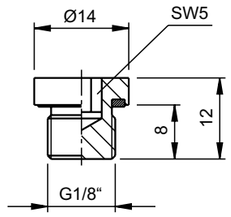
NCX.15.00400

Anschlussstücke mit Ventil und Schutzkappe NCI.00.12 /
Adapters with valve and cover NCI.00.12



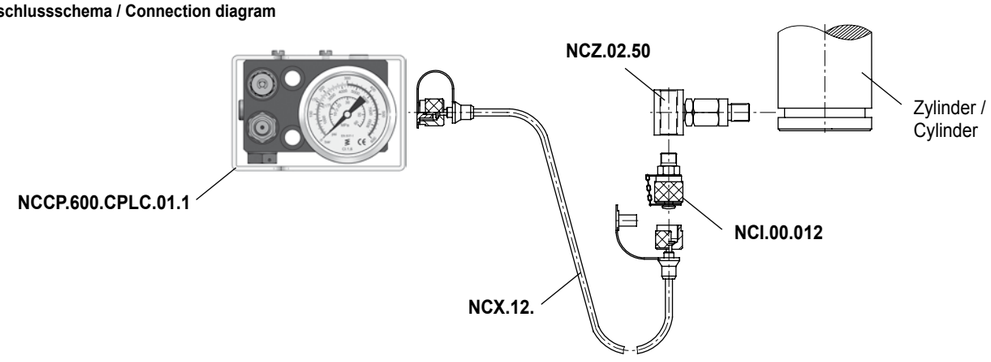
NCI.00.012

Verschlussstopfen / Plugs – NCR.99.039



NCR.99.039

Anschlussschema / Connection diagram



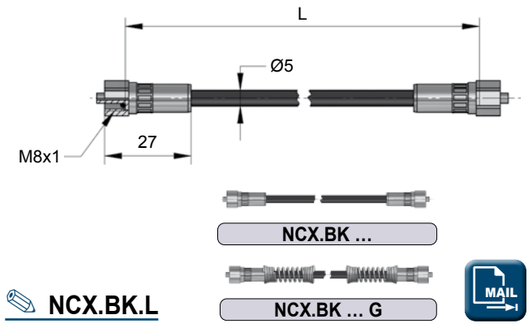
[NC]

Schlauchlängen nach Kundenwunsch! /
Hose length acc. to customer's specifications

Standardlängen / Standard lengths [mm]:

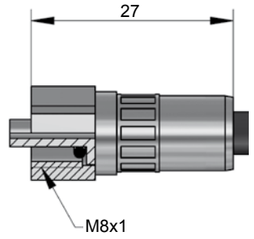
200	800	2000
300	1000	2500
400	1200	3000
500	1250	
630	1500	

Schläuche (inkl. Pressarmaturen NCT.BKRT) /
Hoses (incl. Crimping fittings NCT.BKRT)



NCX.BK.L

Pressarmaturen / Crimping fittings



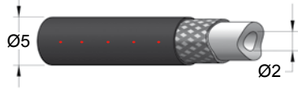
NCT.BKRT

Hochdruckschläuche / High pressure hoses

Pmax 400 bar

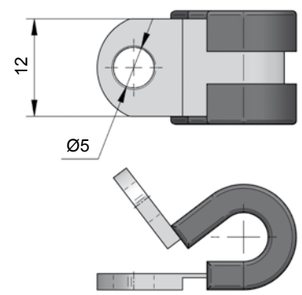
Tmax 100 °C

Rmin 20 mm



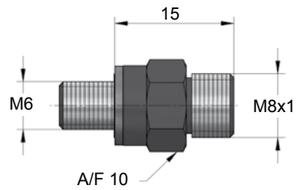
NCX.20.00.010.L

Schlauchschellen / Hose clamps



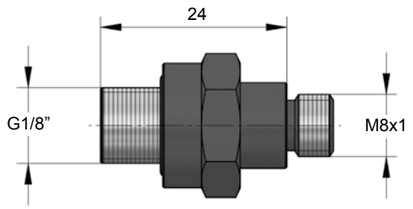
NCR.99.102

Anschlussstücke / Adapters



NCI.BK.KRM6

Anschlussstücke / Adapters

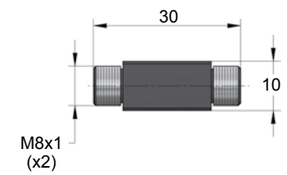


NCI.BK.KRM8

[18.05.2020]

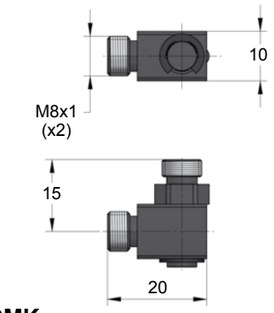
[18.05.2020]

Anschlussstücke / Adapters



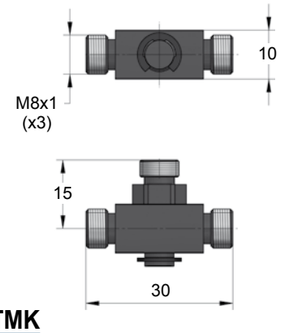
NCI.BK.KRMK

Anschlussstücke / Adapters



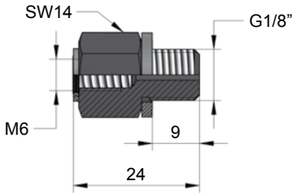
NCI.BK.KCMK

Anschlussstücke / Adapters



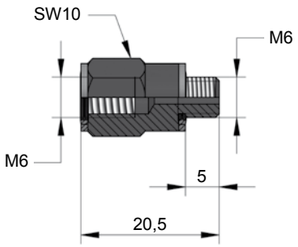
NCI.BK.KTMK

Anschlussstücke / Adapters



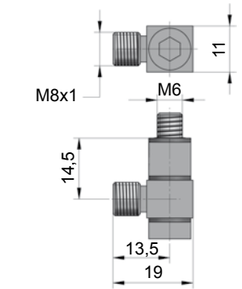
NCQ.37

Anschlussstücke / Adapters



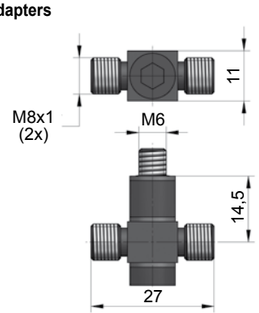
NCQ.33

Anschlussstücke / Adapters



NCI.BK.90BK.1

Anschlussstücke / Adapters



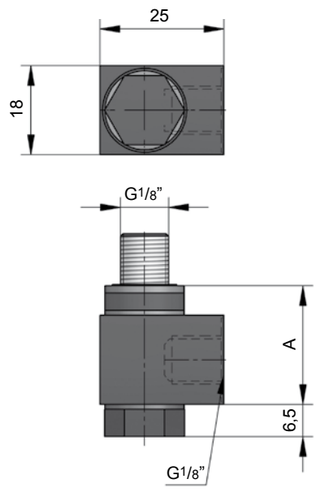
NCI.BK.TEBK.1

[NC]

NCZ.01

Anschlussstücke, 1-fach | One way adapters

NCZ.01.48



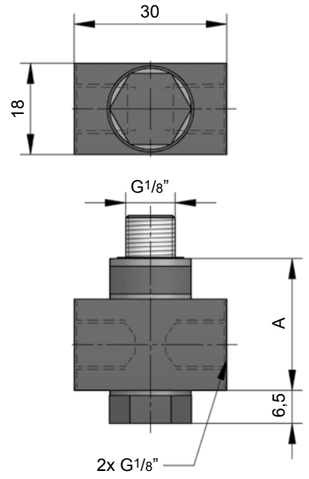
CAD MAIL

Typ / Type	A
NCZ.01.24	24
NCZ.01.38	38
NCZ.01.48	48

NCZ.02

Anschlussstücke, 2-fach | Two way adapters

NCZ.02.40



CAD MAIL

Typ / Type	A
NCZ.02.26	26
NCZ.02.40	40
NCZ.02.50	50

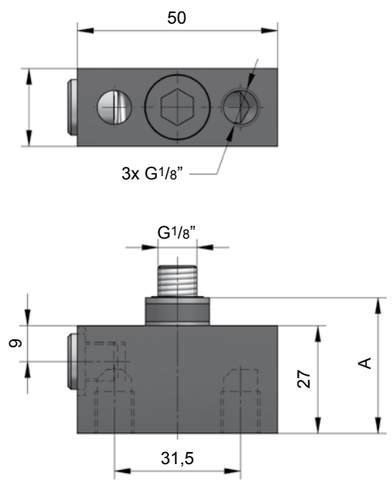
[18.05.2020]

[18.05.2020]

NCZ.03

Anschlussstücke, 3-fach | Three way adapters

NCZ.03.55



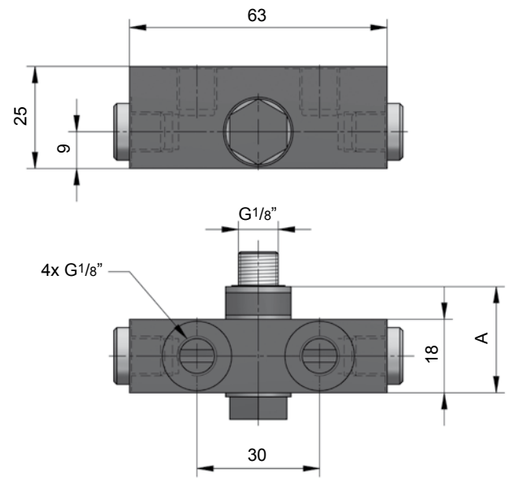
CAD MAIL

Typ / Type	A
NCZ.03.34	34
NCZ.03.48	48
NCZ.03.55	55

NCZ.04

Anschlussstücke, 4-fach | Four way adapters

NCZ.04.26



CAD MAIL

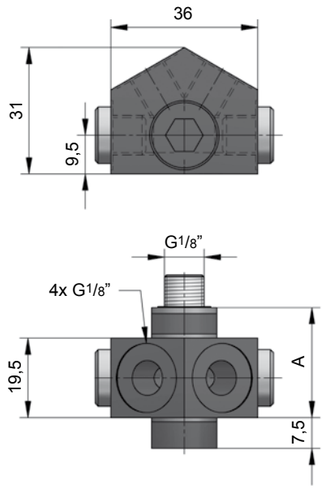
Typ / Type	A
NCZ.04.26	26
NCZ.04.40	40
NCZ.04.50	50

[NC]

NCZ.05

Anschlussstücke, 5-fach | Five way Adapters

NCZ.05.41



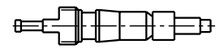
CAD MAIL

Typ / Type	A
NCZ.05.27	27
NCZ.05.41	41
NCZ.05.48	48

[18.05.2020]

[18.05.2020]

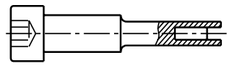
Ventile / Valves



Anzugskraft / Torque: 0,8 Nm

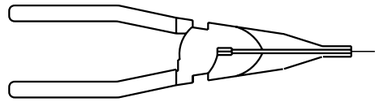
NCTU.01.002 MAIL

Ventil-Werkzeuge / Valve-tools



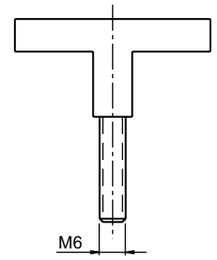
NCTU.00.003 MAIL

Ventil-Zangen / Valve-pliers



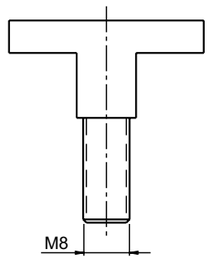
NCTU.00.001 MAIL

Montage-Werkzeuge (Kolbenstange) / Assembly tools (Piston rod)



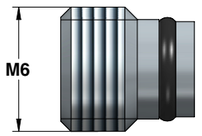
NCTU.00.006 MAIL

Montage-Werkzeuge (Kolbenstange) / Assembly tools (Piston rod)



NCTU.00.008 MAIL

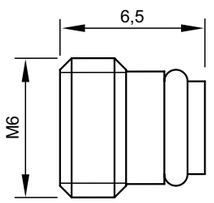
Ventile / Valves



wird für kleine Abmessungen benötigt / needed for small dimensions

NCR.99.147 MAIL

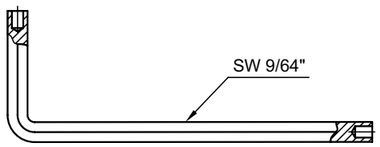
Ventile / Valves



Anzugskraft / Torque: 0,5 Nm

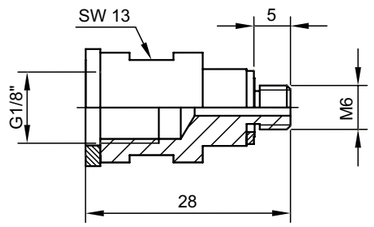
NCR.99.082 MAIL

Sechskantschlüssel / Hexagon socket head wrenches



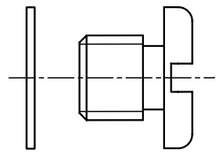
NCTU.00.030 MAIL

Ladeadapter / Filling adapters



NCQ.32

Stopfen / Plugs



NCR.99.008

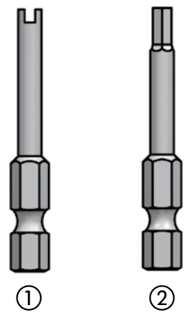
Entlüftungswerkzeug / Bleeding tools



NCTU.00.550

Drehmomentschlüssel / Torque wrenches





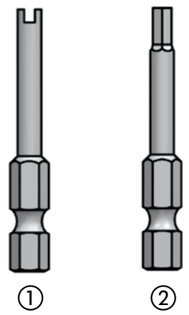
Lieferumfang:
1 x Drehmomentschlüssel **NCTU.00.009**
1 x Bit **NCTU.00.047** (①)
für Ventil NCTU.01.002
1 x Bit **NCTU.99.151** (②)
für Ventil NCR.99.022

Included are:
1 x Torque wrench **NCTU.00.009**
1 x Bit **NCTU.00.047** (①)
for valve NCTU.01.002
1 x Bit **NCTU.99.151** (②)
for valve NCR.99.022

NCTU.00.009

Bithalter / Bit holder





Lieferumfang:
1 x Bithalter **NCTU.00.041**
1 x Bit **NCTU.00.047** (①)
für Ventil NCTU.01.002
1 x Bit **NCTU.99.151** (②)
für Ventil NCR.99.022

Included are:
1 x Bit holder **NCTU.00.041**
1 x Bit **NCTU.00.047** (①)
for valve NCTU.01.002
1 x Bit **NCTU.99.151** (②)
for valve NCR.99.022

NCTU.00.041

[18.05.2020]

[18.05.2020]

NCTU.200

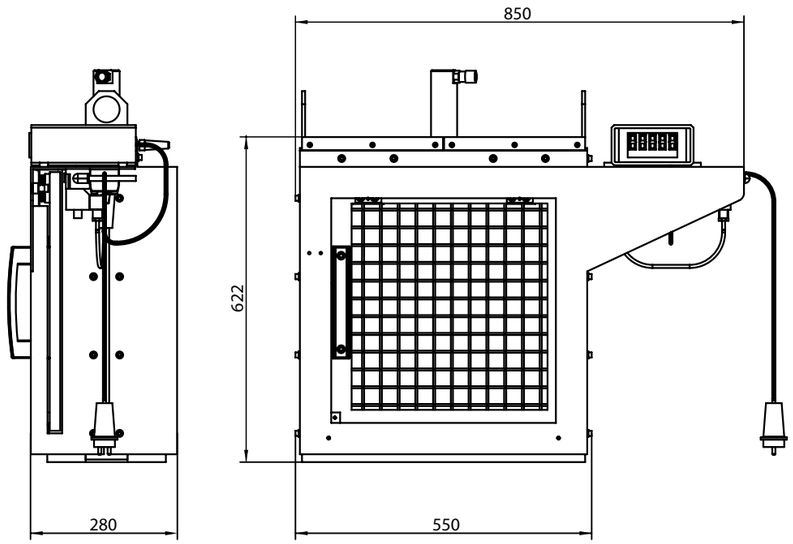
Kraftmessgerät mit digitaler Anzeige für Gasdruckfedern
Tischgerät mit Sicherungskäfig

Ausführung:
P = Pneumatik (Luftanschluss)
M = manuell (hydraulische Handpumpe, 150 mm Weg)

Gas-Spring - Dynamometer with digital display.
Table-mounted version with protective metal-housing

Options:
P = Pneumatic (compressed air required)
M = Manual style, hydraulic hand pump with a 150 mm stroke-length

NCTU.200.05000.P



Das Modell NCTU.200 muss vor Inbetriebnahme auf einer stabilen Fläche befestigt werden.

ACHTUNG:
Kraftmessgeräte dürfen nur bei geschlossenem Sicherungskäfig in Betrieb genommen werden.

Before bringing into service, the NTCU.200 - unit must be mounted to a strong, flat surface.

IMPORTANT:
The Dynamometer must only be used with the protective metal-housing completely shut!

Typ / Type	Messbereich / Range [daN]
NCTU.200.05000.P	0 - 5000
NCTU.200.05000.M	0 - 5000

NCTU.300

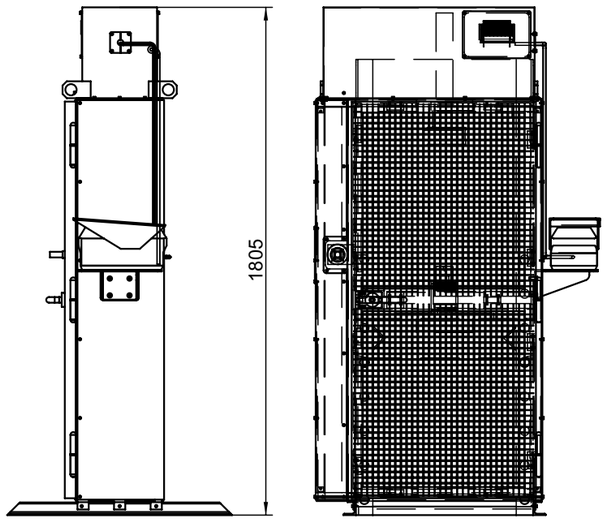
Kraftmessgerät mit digitaler Anzeige für Gasdruckfedern
Standgerät mit Sicherungskäfig

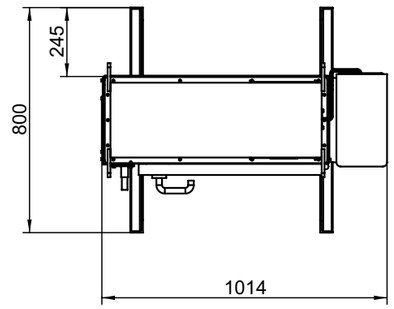
Ausführung:
P = Pneumatik (Luftanschluss)
Auf Wunsch auch manuelle Ausführung.

Gas-Spring - Dynamometer with digital display.
Floor-mounted version with protective metal-housing

Options:
P = Pneumatic
Manual style upon request

NCTU.300.07500.P





Das Modell NCTU.300 wenn möglich am Boden befestigen.

ACHTUNG:
Kraftmessgeräte dürfen nur bei geschlossenem Sicherungskäfig in Betrieb genommen werden.

Before bringing into service, the NTCU.300 - unit should be mounted to the floor, if possible.

IMPORTANT:
The Dynamometer must only be used with the protective metal-housing completely shut !

MAIL

Typ / Type	Messbereich / Range [daN]
NCTU.300.10000.P	0 - 10000

[18.05.2020]

NCTU.00.016

Die Druckeinheit **NCTU.00.016** wurde entwickelt um die Stickstoffflasche, welche zum Befüllen von Gasdruckfedern, Tanks und Tankerplatten benötigt wird, bis auf ein Minimum von ca. 20 bar entleeren zu können.

Bitte fordern Sie technische Unterlagen an!

At a point, where the pressure in the nitrogene bottle reaches values under desired levels (f.e. 120 bars), this accumulator pulls the nitrogene out of the bottle (down to a rest of around 20 bars) and compresses it to the needed higher pressure needed (f.e. 150 bars).

Please contact us for further information!

NCTU.00.016



MAIL

[18.05.2020]

[NC]

NCTU.00.099

NCTU.00.099

Werkzeugsatz bestehend aus:

NCCA.1.1	Kontroll-/Ladearmatur 7
NCTU.00.550	Ventil-Werkzeug R1/8“ / M6 6
NCTU.00.041	Bithalter 3
NCTU.00.047	Bit für Ventil **NCTU.01.002** 4
NCTU.99.151	Bit für Ventil **NCR.99.082** 5
NCTU.00.DALL3	Sechskantschlüssel 3 1
NCTU.00.DALL5	Sechskantschlüssel 5 2
NCTU.00.LRP1	Sicherheitsring-Werkzeug 15
NCTU.00.039	Kolbenstangen-Zieher M16 13
NCTU.00.040	Kolbenstangen-Zieher M3 10
NCTU.00.006	Kolbenstangen-Zieher M6 11
NCTU.00.008	Kolbenstangen-Zieher M8 12
NCR.99.034	Aluminium-Koffer
NCTU.00.001	Ventil-Zange 14
NCTU.00.116	Montagehülse Ø12-16 16
NCTU.00.122	Montagehülse Ø20-22 17
NCTU.00.125	Montagehülse Ø25 18
NCTU.00.128	Montagehülse Ø28 19
NCTU.00.136	Montagehülse Ø36 20
NCTU.00.145	Montagehülse Ø45 21
NCTU.00.150	Montagehülse Ø50 22
NCTU.00.160	Montagehülse Ø60 23

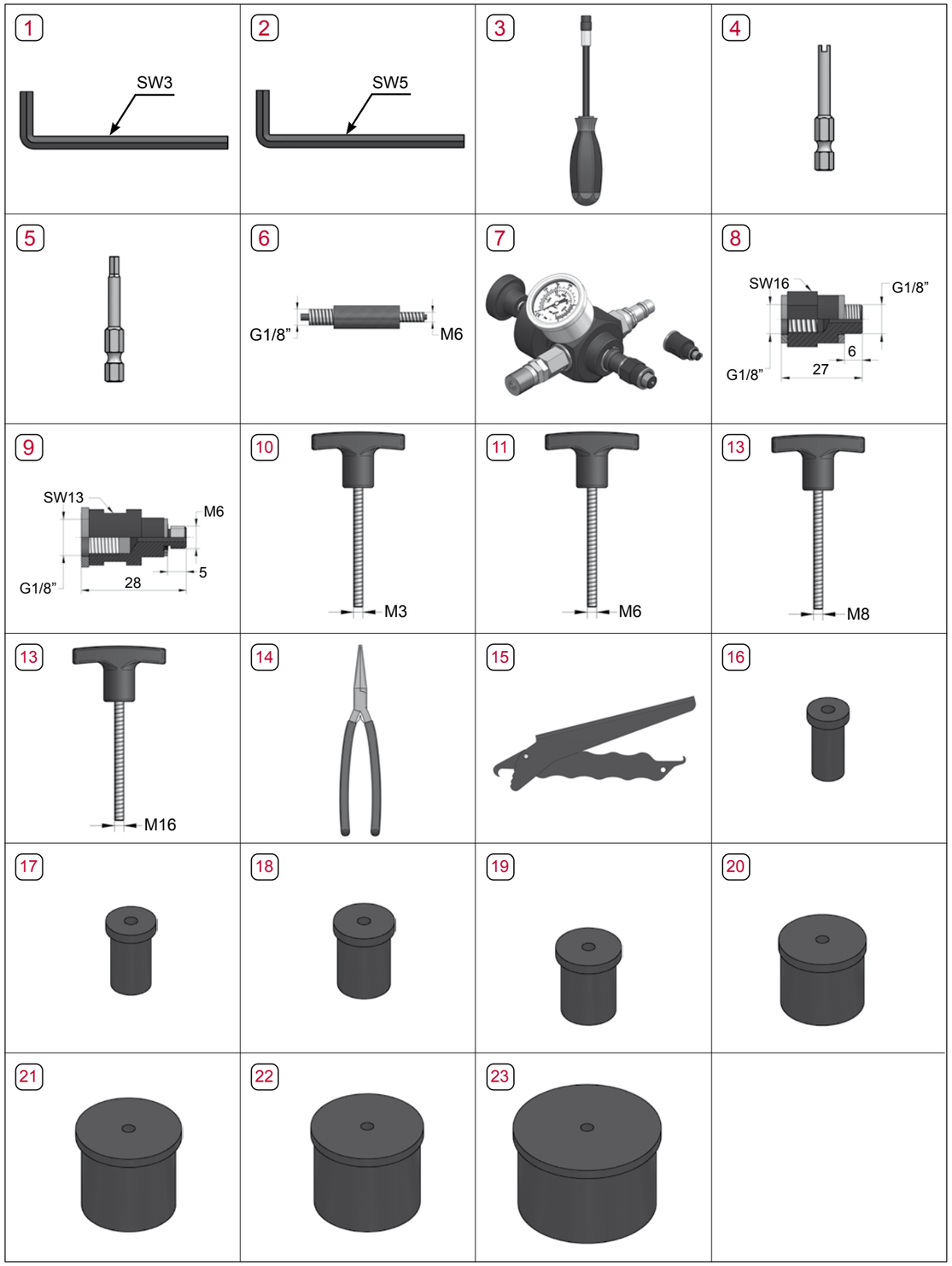
Toolkit consisting of:

NCCA.1.1	Pressure controller unit 7
NCTU.00.550	Valve-tool R1/8“ / M6 6
NCTU.00.041	Bit holder 3
NCTU.00.047	Bit for valve **NCTU.01.002** 4
NCTU.99.151	Bit for valve **NCR.99.082** 5
NCTU.00.DALL3	Hexagon socket head wrench 3 1
NCTU.00.DALL5	Hexagon socket head wrench 5 2
NCTU.00.LRP1	Locking ring tool 15
NCTU.00.039	Piston rod puller M16 13
NCTU.00.040	Piston rod puller M3 10
NCTU.00.006	Piston rod puller M6 11
NCTU.00.008	Piston rod puller M8 12
NCR.99.034	Aluminum suitcase
NCTU.00.001	Valve-pliers 14
NCTU.00.116	Assembly sleeve Ø12-16 16
NCTU.00.122	Assembly sleeve Ø20-22 17
NCTU.00.125	Assembly sleeve Ø25 18
NCTU.00.128	Assembly sleeve Ø28 19
NCTU.00.136	Assembly sleeve Ø36 20
NCTU.00.145	Assembly sleeve Ø45 21
NCTU.00.150	Assembly sleeve Ø50 22
NCTU.00.160	Assembly sleeve Ø60 23



MAIL

[18.05.2020]



HS KarryKrimp 1

Zum Verpressen von Hydraulikschläuchen mit ein oder zwei Stahldraht- oder Textilgeflechteinlagen im Größenbereich von 4 bis 20 (ID).

Zum Lieferumfang gehören die Presse mit Handpumpe, Schlauchleitung und zwei Pressringe.
Pressbacken müssen unter Angabe der Quetscharmaturtype gesondert bestellt werden.

Technische Daten
Maße (HxBxT): 686 x 380 x 305 mm
Gesamtgewicht: 23 kg

Bitte fordern Sie technische Unterlagen an!

Schlauchpresse mit Pneumatikantrieb auf Anfrage.

For crimping hydraulic 1- and 2-wire braid hoses in sizes from 4 to 20 mm ID.

Complete with hand pump, hose assembly and 2 die rings.
Dies (sizing based on the fittings to be crimped) need to be ordered separately.

Technical data:
Outside measurements (HxBxT):
686 x 380 x 305 mm
Weight: 23 kg

Please ask for further technical information.

Pneumatically operated press upon request.

HS KarryKrimp 1



MAIL

zertifiziert ISO 9001 for you Cert

MSP GMBH

Märkische Stanz-Partner



[**hyson**StickstoffSysteme]
[**hyson**NitrogenSystems]

Stand / Revision Status: 30.10.2020

Inhalt Katalog 1: Stanznormalien (D)
Content Catalogue 1: Standard die components (D)

STANZNORMALIEN / STANDARD DIE COMPONENTS

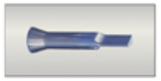
Artikel Article	Best.-Nr. Order no.	Seite Page
A		
Aufwerferstifte, gehärtet, DIN 1530 A – ISO 6750	TH 750	TH.9
Auswerferstifte, DIN 1530 Form D	TH 75	TH.10

Ein „Klick“ auf Artikelbezeichnung, Bestell-Nummer oder Seite im vorangestellten Inhaltsverzeichnis bringt Sie zum gewünschten Artikel.

„Clicking“ on the Article name, the Order- or Page-no. in the main table of contents opens the corresponding article-page.

Inhalt
Content

SCHNEIDELEMENTE / CUTTING ELEMENTS

	Schneidstempel	Punches	Best.-Nr. Order no.	Seite Page
	Schneidstempel DIN 9861, Form D, HSS	Punches DIN 9861, Form D, HSS	SE 375	SE.1 SE.2

Ein „Klick“ auf Foto, Artikelbezeichnung, Bestell-Nummer oder Seite im Inhaltsverzeichnis des Registers bringt Sie unmittelbar zum gewünschten Artikel im Katalog.

„Clicking“ on the Photo, the Article name, the Order- or Page-no. in any register‘s table of contents opens the corresponding article-page.

Ein „Klick“ auf das CAD-Logo bringt Sie zu den CAD-Daten des gewünschten Artikels im CADENAS-Downloadportal.

„Clicking“ on the CAD-logo leads you to the CAD-file(s) of the corresponding article within the Cadenas down-load-portal.

Ein „Klick“ auf das MAIL-Logo generiert eine an die Märkischen Stanz-Partner adressierte e-mail, mit der Normbezeichnung des gewünschten Artikels in der Betreffzeile.

„Clicking“ on the MAIL-logo generates an e-mail addres-sed to the Stanz-Partners, showing the requested article in the subject heading.

Ein „Klick“ auf das RETURN-Logo unten auf jeder Katalogseite bringt Sie zurück auf das Inhaltsverzeichnis des entsprechenden Registers.

„Clicking“ on the RETURN-logo at the bottom of each catalog-page opens that specific register‘s table of contents.

[11.03.2020]

	Tanker® Serie T Tanker® Serie S	TANKER® T Series TANKER® S Series	Best.-Nr. Order no.	Seite Page
	Technische Informationen	Introduction		HS.5
	Serie Tanker®T	Tanker®T Series	HS TNKT 1000	HS.6
	Serie Tanker®T	Tanker®T Series	HS TNKT 2400	HS.8
	Serie Tanker®T	Tanker®T Series	HS TNKT 4200	HS.10
	Serie Tanker®T	Tanker®T Series	HS TNKT 6600	HS.12
	Serie Tanker®T Kraft - Übersichtstabelle	Tanker®T Series Force Charts		HS.14
	Serie Tanker®T Zubehör	Tanker®T Series Accessories		HS.15
	Serie Tanker®S	Tanker®S Series	HS TNKS 1000	HS.16
	Serie Tanker®S	Tanker®S Series	HS TNKS 2400	HS.18
	Serie Tanker®S	Tanker®S Series	HS TNKS 4200	HS.20
	Serie Tanker®S	Tanker®S Series	HS TNKS 6600	HS.22
	Serie Tanker®S Kraft - Übersichtstabelle	Tanker®S Series Force Charts		HS.24
	Serie Tanker®S Zubehör	Tanker®S Series Accessories		HS.25

	Serie Tanker® 400 XP	Tanker® 400 XP Series	Best.-Nr. Order no.	Seite Page
	Tanker®400 XP	Tanker®400 XP	HS TNK 400	HS.27 - 30
	Tanker®400 XP HS	Tanker®400 XP HS	HS TNK 400 HS	HS.27 - 30

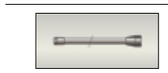
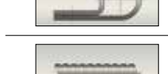
	Standard-Zylinder	Standard cylinders	Best.-Nr. Order no.	Seite Page
	Standard-Zylinder	Standard cylinders	HS MOR ... XP HS SB	HS.40 - 43 HS.48
	Standard-Zylinder, tiefbauend	Standard cylinders, smaller height	HS MOR-D . . XP HS TSB	HS.44 - 47

	Kontrollarmaturen	Conrol panels	Best.-Nr. Order no.	Seite Page
				
	Kontrollarmaturen	Control panels	HS CP 1555	HS.53
	Kontrollarmaturen	Control panels	HS CPM 1555-E	HS.54
	Kontrollarmaturen	Control panels	HS CPM 1555-M	HS.53
	Kontrollarmaturen für Hochdruck.Systeme	Control panels for high pressure systems	HS CP-N2	HS.55
	Kontrollarmaturen für Hochdruck.Systeme	Control panels for high pressure systems	HS CPM 2000-E	HS.56
	Kontrollarmaturen	Control panels	HS CPM	HS.55
	Kontrollarmaturen für Hochdruck.Systeme	Control panels for high pressure systems	HS CPM 2000-M	HS.55

[11.03.2020]

[11.03.2020]

Inhalt
Content
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

	Zubehör Gasdruckfedern	Gas spring accessories	Best.-Nr. Order no.	Seite Page
				
	Abfüllarmaturen	Charging assemblies	HS NCA 3000	HS.63
	Anschlussstücke, 45° mit Überwurfmutter	45° elbow swivel nuts	HS NF-4500	HS.65
	Anschlussstücke, 90° mit Überwurfmutter	90° elbow swivel nuts	HS NF-2000	HS.66
	Anschlussstücke, gerade	Straight fittings	HS NF-1000	HS.65
	Berstscheiben	Rupture discs	HS RD 2150	HS.52
	Druckwächter	Pressure monitors	HS Z 20	HS.61
	Hochdruckschläuche (Pressschläuche)	High pressure hoses, flexible	HS NP	HS.60
	Kompaktventile	Compact valves	HS Z	HS.58
	L-Stücke mit Überwurfmutter	Run tee swivel nuts	HS NF-3300	HS.67
	Ladeschläuche	Charging hoses	HS NCCS	HS.63
	Pressarmaturen 45°	Crimping fittings 45°	HS NHP X-45	HS.60
	Pressarmaturen 90°	Crimping fittings 90°	HS NHP X-90	HS.59
	Pressarmaturen, gerade	Crimping fittings, straight	HS NHP	HS.59
	Schlauchschellen aus Kunststoff	Hose clamps	HS HC	HS.64
	Schlauchschutzspiralen aus Metall	Hose guards	HS HG	HS.64
	Steckkupplungen	Female quick release couplings	HS 11-770-2700	HS.62
	Stecknippel	Male quick release couplings	HS 11-700-8555	HS.62
	T-Stücke mit Überwurfmutter	Branch tee swivel nuts	HS NF-3000	HS.66
	Verschlussstopfen mit Anschlussgewinde	Sealing plugs with internal ports	HS NF 771	HS.50 HS.51
	Verschlussstopfen mit Berstscheibe	Sealing plugs with rupture disc	HS NF 771 RD	HS.51

[11.03.2020]

Märkische Stanz-Partner

[technischeHinweise]

Hyson Gasdruckfedern

Gasdruckfedern sind eine sinnvolle Ergänzung zu den in der Praxis benutzten Schrauben, Teller- oder Urelastfedern. Allerdings sind die Vorteile der Gasdruckfedern beachtlich. So können auch in Werkzeuge und Pressen mit begrenztem Einbauraum hohe Kräfte und Hubwege eingebracht werden. Ein weiterer Vorteil ist der geringe Druckanstieg, wie auch die einfache Kraftveränderung gegenüber den Schrauben-, Teller- oder Urlastfedern. So können sich diese Vorteile positiv bei der Teilefertigung und bei den Werkzeugen und Pressen auswirken.
Die Gasdruckfedern werden mit dem umweltfreundlichen Medium “Stickstoff” gefüllt. Durch das variable Befüllen der Gasdruckfedern zwischen 20 bar min. und 110 bar (135 bar) max. ist es möglich, die exakte Kraft, die benötigt wird, zu erreichen. Es ist darauf zu achten, dass der max. Druck für die einzelnen Gasdruckfeder-Typen von max. 110 bar (135 bar) nicht überschritten wird. Hyson Gasdruckfedern können je nach Anforderung als Einzelelement oder auch im Verbund (Schlauchverbindungen) eingesetzt werden. Die Gasdruckfedern werden nach neuesten Technologien gefertigt und haben einen hohen Qualitäts-Standard. Sind Werkzeuge, Vorrichtungen oder Pressen mit Gasdruckfedern bestückt, so sollte mit einem Hinweis-Schild (welches gut sichtbar sein sollte) darauf hingewiesen werden.

Märkische Stanz-Partner Normalien GmbH
Jüngerstraße 17 • D-58515 Lüdenscheid
Tel. +49 (0) 23 51 / 6 61 07-0 • Fax +49 (0) 23 51 / 6 61 07-77

ACHTUNG

Werkzeug/Presse ist mit Gasdruckfedern bestückt.

Fülldruck max. 110 bar (135 bar)

Achtung:
Arbeiten am System nur im drucklosen Zustand.
Bitte Wartungsanleitung lesen.

Druck max. ..... bar Arbeitsdruck ..... bar

Achtung:
Wartungsarbeiten nur, wenn das Stickstoff-System drucklos ist. Lesen Sie die Wartungsanleitung. Wartungsarbeiten werden auch durch unser Fachpersonal ausgeführt. Bitte sprechen Sie uns an.

APPROVED PED 2014/68/EU
2 million

Hyson Gasdruckfedern werden entsprechend der Druckgeräte-Richtlinie PED2014/68/EU gefertigt.

Vom Europäischen Parlament und dem Europarat wurde im Mai 1997 die neue Druckgeräte-Richtlinie angenommen und seit dem 29. Mai 2002 in der gesamten EG zwingend vorgeschrieben. Gasdruckfedern sind per Definition “Druckbehälter”.

Märkische Stanz-Partner

[technicalinformation]

Hyson Gas Springs

Gas Springs are a perfect addition to the commonly used mechanical-, urelast- or disc-springs, offering quite some advantages. For example, even in dies and presses providing limited space, high forces and long strokes can be accomplished.

Another advantage is the slow pressure increase as well as the easy readjustment of forces when needed. Gas springs are filled with the environment-friendly „nitrogen“ - gas.

By charging the spring in between 20 and 110 (in some cases 135 max. !!) bar, the user has the possibility to obtain exactly the force needed for the specific application.

Hyson Gas Springs may be used as stand-alones, but can be hosed together as well.
They are manufactured using the latest production technologies and with high technical and safety standards.
In case dies or presses utilize gas springs, a big-enough sign should inform the user about them being built in.

Märkische Stanz-Partner Normalien GmbH
Jüngerstraße 17 • D-58515 Lüdenscheid
Tel. +49 (0) 23 51 / 6 61 07-0 • Fax +49 (0) 23 51 / 6 61 07-77

Attention

This die / this press utilizes nitrogen gas springs with high pressure
(110 bar - 135 bar) and the resulting very high forces.

Repair and maintenance must only take place after the unit(s)
have been unloaded and unpressured !

Pressure max. ..... bar Working pressure ..... bar

Attention:
Repair and Maintenance must onlytake place of after the unit(s) have been unloaded and unpressured !
Please read maintenance manual. If you require assistance, please contact us.

APPROVED PED 2014/68/EU
2 million

Hyson gas springs are manufactured in accordance with the PED-directive 2014/68/EU.

In May 1997 the European Parliament and the Council of Europe agreed on the new „Pressure Equipment Directive“, which in 2002 became law throughout the EC.

Informationen
Information
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

CERTIFICATE

TÜVRheinland® Precisely Right.

TUV Rheinland of North America, Inc.
295 Foster Street, Suite 100, Littleton, MA 01460

Hereby certifies that

HYSON Metal Forming Solutions™

10367 Brecksville Road
Brecksville, OH 44141
USA

has established and maintains a quality management system for the

Design, Manufacture and Service of Hydraulic & Nitrogen Gas Springs, Manifold Systems and Support Equipment.

The audit was performed in accordance with the requirements of SAE AS9104/1:2012-01 by an ANAB-accredited Certification Body under the Aerospace Registration Management Program administered by the Americas Aerospace Quality Group (AAQG) in accordance with the Aerospace Sector Scheme and documented in Report No. 3608.

Proof has been furnished that the requirements according to

AS9100D / ISO9001:2015

are fulfilled.
Further clarification regarding the scope of this certificate and the applicability of AS9100D / ISO 9001:2015 requirements may be obtained by contacting TRNA.

Certificate Registration No.

74 300 3608

Certificate Issue Date
February 25, 2019

Certificate Expiration Date
February 24, 2022

Site Structure: Single
Certificate Reissue Date: 02/25/2019

Certification of Management Systems

[11.03.2020]

Die neuen Tanker®T and Tanker®S verfügen über ausreichend Kraft, Ausdauer und Leistungsstärke, um so ziemlich jede Aufgabe im Stanz-Prozess erfolgreich zu unterstützen.

The new Tanker®T and Tanker®S have the strength, stamina and sheer capacity to get your stamping job done!

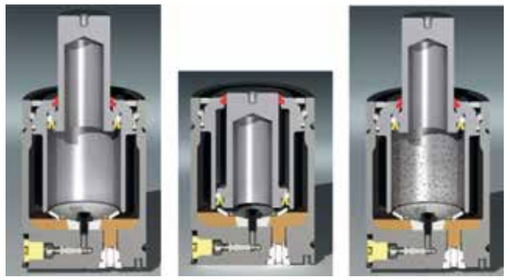
Eigenschaften
- Hohe Anfangskraft von 6.850 daN bei kleiner Bauhöhe.
- Hublängen bis 225 mm für **HS TNKx 4200** und **HS TNKx 6600**.
- Dynamische Schmierung verlängert die Standzeit.
- Zusätzliche Dichtung an der Kolbenstange reduziert Verschmutzung und Undichtigkeit, die aus Kolbenstangen-Beschädigung resultiert.
- Selbstausrichtende Kolbenstange gleicht normale Werkzeugbewegungen und kleinere Seitenkräfte aus.
- Nitrierte Kolbenstange gegen Korrosion.
- Getestet für Einsatzfälle > 1.000.000 Zyklen.

Features
- High force in short heights with contact forces to 15,400 lbs.
- Stroke lengths to 225 mm for **HS TNKx 4200** and **HS TNKx 6600**.
- Dynamic lubrication extends spring life.
- Bore seal resists contamination and leaking from rod damage.
- Self-aligning piston rod accepts normal die movement and a degree of sideload.
- Nitrided piston rod resists corrosion.
- Tested to over one million cycles.

Hohe Kraft bei kleiner Bauhöhe
Die neuen Tanker®T und Tanker®S bieten mit ihren jeweils 4 Größen Anfangskräfte von 1.200 daN bis 6.850 daN und Endkräfte von 1.735 daN bis 12.570 daN. Einige Modelle sind über 25 mm kürzer als ähnliche Produkte mit vergleichbaren Kräften.

High Force in Short Heights
The new Tanker®T and Tanker®S, each with four models from which to choose, offer contact forces from 2,700-15,400 lbs. and full stroke forces from 3,900-28,260 lbs. Some models are over an inch shorter than gas springs with comparable forces currently available.

Dynamische Schmierung verlängert die Standzeit
Die patentierte, dynamische Schmierung benetzt bei jedem Hub die Innenwand der Gasdruckfeder, die Kolbenstange und die Dichtung mit Öl, womit der Temperatursanstieg deutlich verringert wird, was wiederum die einzelnen Bauteile schont und die Standzeit verlängert.



Werkzeug offen / Die open | Presse schließt sich / Press closes | Presse öffnet sich / Press opens

Dynamic Lubrication Extends Gas Spring Life
The patented dynamic lubrication system coats the gas spring wall, piston and seal with oil with every stroke of the press to reduce heat build-up and lower operating temperature which in turn reduces wear on die components and extends performance life.

Zusätzliche Dichtung an der Kolbenstange reduziert Verschmutzung und Undichtigkeit, die aus Kolbenstangen-Beschädigung resultiert.
Sowohl der Tanker®T, als auch der Tanker®S, dichten am Innendurchmesser des Gasdruckfeder-Gehäuses, nicht, wie die meisten anderen GDF, an der Kolbenstange. Dadurch wird nicht nur einer Verschmutzung weitgehend entgegengewirkt, sondern die Gasdruckfeder kann trotz einer möglichen Beschädigung ihrer Kolbenstange weiterhin ihren Dienst tun.

Bore Seal Resists Contamination and Leaking from Rod Damage
Both the Tanker®T and Tanker®S seal inside, on the cylinder bore, not on the rod like most gas springs. This provides maximum contamination resistance and keeps the gas spring operating even if the piston rod is damaged.

Selbstausrichtende Kolbenstange gleicht normale Werkzeugbewegungen und kleinere Seitenkräfte aus
Die korrosionsbeständige, nitrierte Kolbenstange richtet sich selber aus und ist so konstruiert, dass dadurch normale Werkzeugbewegungen und kleinere Seitenkräfte ohne Beschädigung der Dichtung ausgeglichen werden können. Die Tanker®T und Tanker®S sind mit über 500.000 Hub „Seitenkraft-getestet".



Self-aligning Piston Rod Accepts Die Movement and a Degree of Sideload
The corrosion-resistant nitrided piston rod is selfaligning, designed to accept normal die movement and a degree of sideload without damaging the sealing surfaces. The Tanker®T and Tanker®S have been sideload-tested to over 500,000 strokes.

Hublängen bis 200 / 225 mm
Große Hublängen sind bei allen Modellen verfügbar.

Stroke Lengths to 200 / 225 mm
Long stroke lengths are available on all models.

Betrieb von autonomen oder schlauchverbundenen Gasdruckfedern
Beide Versionen, Tanker®T und Tanker®S, können sowohl autonom als auch in einem Schlauch-Verbundsystem betrieben werden.
Der Tanker®T (links) verfügt über einen SAE-4 - Gewindeanschluss (7/16-20) zur Verbindung mit einem normalgroßen Schlauch, während der Tanker®S (rechts) je nach Modell einen M6- oder G1/8-Anschluss besitzt, der die Verschlauchung mit dem Micro EZ® - Schlauchsystem erlaubt.



Self-contained or Hose System Operation
Both the Tanker®T and Tanker®S can be used as self-contained gas springs or in a hosed system.
The Tanker®T (at left) features an SAE-4 (7/16-20) port that uses standard full size hoses while the Tanker®S (at right) incorporates an M6 or G 1/8 port (depending on model) for use with the Micro EZ® Hose System.

Große Vielfalt an Befestigungs-Möglichkeiten
Die Tanker®T und Tanker®S bieten eine Vielzahl von Befestigungs-Optionen, die mit den derzeit gebräuchlichen Einbau-Möglichkeiten kompatibel sind.

Wide Range of Mounting Options
Both the Tanker®T and Tanker®S offer a variety of mounting options, interchangeable with standard mounts currently in use.

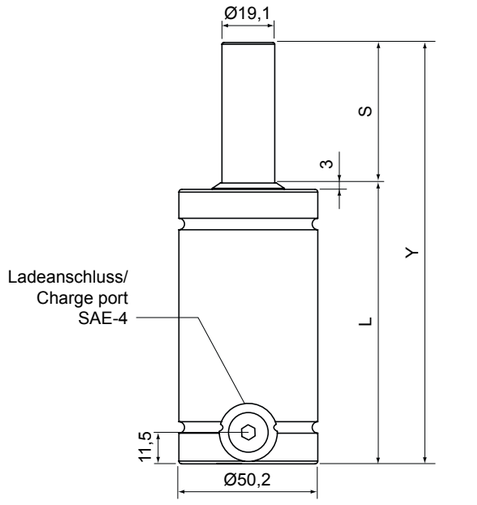
HS TNKT 1000

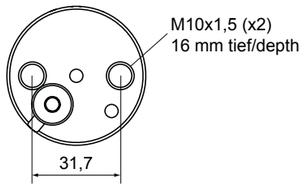
Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s
Max. Arbeitshub:	100 %
Max. Anzahl Hübe: (hublängenabhängig)	20 - 100 / min.
Dichtsatz:	HS 60-112-7000
Einlassventil:	HS 56-072-5500
Ladeadapter:	HS T2-770-4-7/16-20
Kontrollarmatur:	HS CP-XM

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s
Max. utilized stroke:	100 %
Max. strokes: (dependent on stroke)	20 - 100 / min.
Repair Kit:	HS 60-112-7000
Inlet Valve:	HS 56-072-5500
Charge Fitting:	HS T2-770-4-7/16-20
Control Panel:	HS CP-XM





HS TNKT 1000.016

Bitte bei der Bestellung den Fülldruck in „bar“ oder die Kraft in „daN“ angeben. Wenn nicht anders angegeben, werden alle Gasdruckfedern mit maximalem Fülldruck (150 bar) geliefert.

Please specify the charging pressure in „bar“ or the force in „daN“ when ordering. All gas springs shipped at maximum charge pressure (150 bar) unless otherwise specified.

MAIL

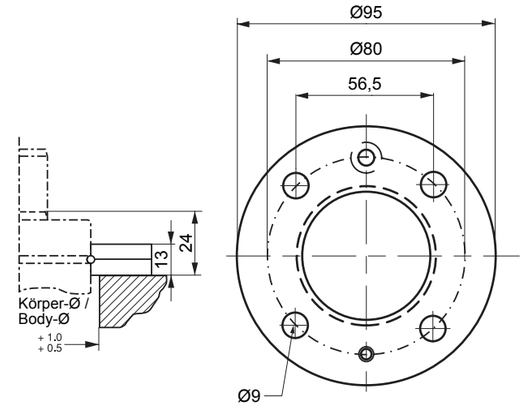
S Hub / Stroke	L ±0,25	Y	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
013	65	78	961	1.628
016	68	84	961	1.650
019	71	90	961	1.666
025	77	102	961	1.686
032	84	116	961	1.701
038	90	128	961	1.708
050	102	152	961	1.721
063	115	178	961	1.728
075	127	202	961	1.732
080	132	212	961	1.735
100	152	252	961	1.739
125	177	302	961	1.744
150	215	365	961	1.746
175	240	415	961	1.748
200	265	465	961	1.750

Technische Änderungen vorbehalten!

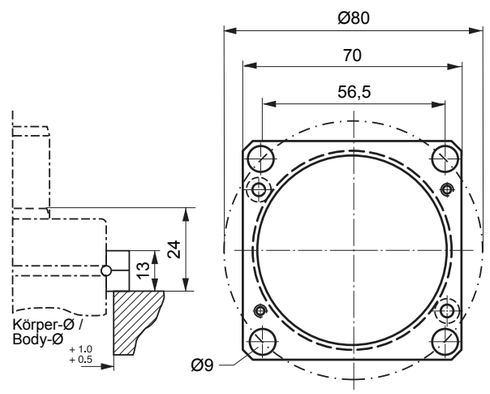
Technical changes without further notices reserved!

Serie Tanker®T
Tanker®T Series
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

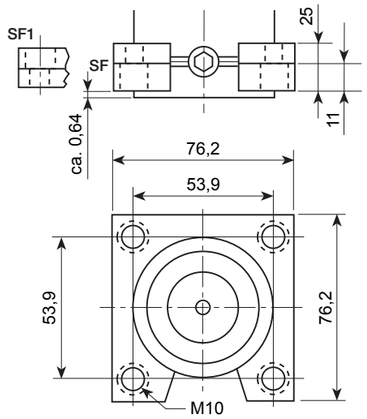
Flansche für / Flanges for **HS TNKT 1000**



HS T2-750-FC



HS T2-750-FCS



HS T2-750-SF

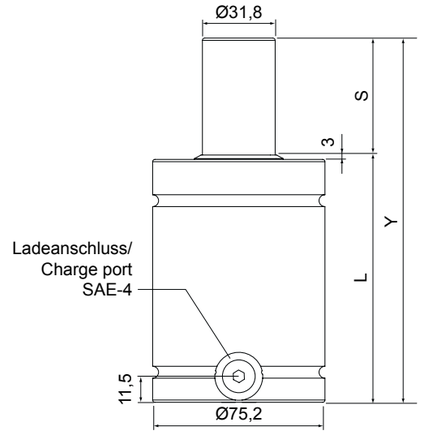
HS TNKT 2400

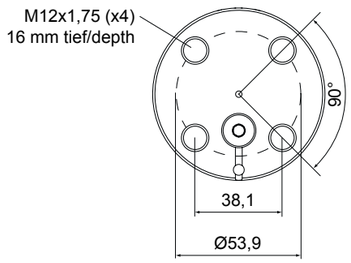
Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s
Max. Arbeitshub:	100 %
Max. Anzahl Hübe: (hublängenabhängig)	20 - 100 / min.
Dichtsatz:	HS 60-175-7000
Einlassventil:	HS 56-072-5500
Ladeadapter:	HS T2-770-4-7/16-20
Kontrollarmatur:	HS CP-XM

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s
Max. utilized stroke:	100 %
Max. strokes: (dependent on stroke)	20 - 100 / min.
Repair Kit:	HS 60-175-7000
Inlet Valve:	HS 56-072-5500
Charge Fitting:	HS T2-770-4-7/16-20
Control Panel:	HS CP-XM





HS TNKT 2400.075

Bitte bei der Bestellung den Fülldruck in „bar“ oder die Kraft in „daN“ angeben. Wenn nicht anders angegeben, werden alle Gasdruckfedern mit maximalem Fülldruck (150 bar) geliefert.

Please specify the charging pressure in „bar“ or the force in „daN“ when ordering. All gas springs shipped at maximum charge pressure (150 bar) unless otherwise specified.

MAIL

S Hub / Stroke	L ±0,25	Y	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
016	75	91	2.330	3.712
019	78	97	2.330	3.765
025	84	109	2.330	3.841
032	91	123	2.330	3.899
038	97	135	2.330	3.934
050	109	159	2.330	3.981
063	122	185	2.330	4.012
075	134	209	2.330	4.032
080	139	219	2.330	4.039
100	159	259	2.330	4.059
125	184	309	2.330	4.077
150	220	370	2.330	4.088
175	245	420	2.330	4.097
200	270	470	2.330	4.103

Technische Änderungen vorbehalten!

Technical changes without further notices reserved!

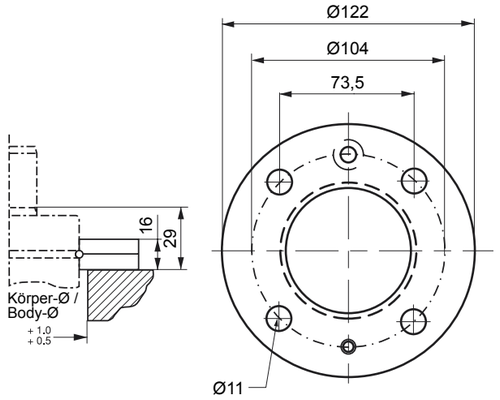
[HS]

[11.03.2020]

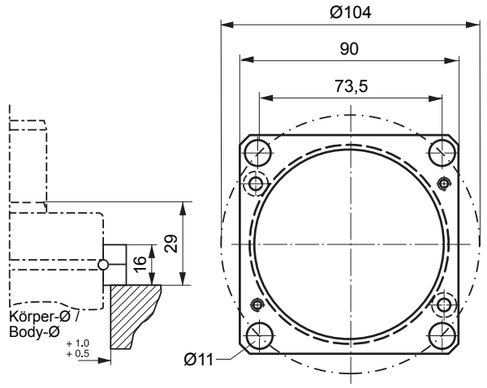
[11.03.2020]

Serie Tanker®T
Tanker®T Series
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

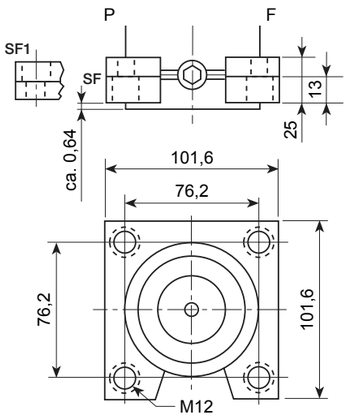
Flansche für / Flanges for **HS TNKT 2400**



HS T2-1500-FC



HS T2-1500-FCS



HS T2-1500-SF

[HS]

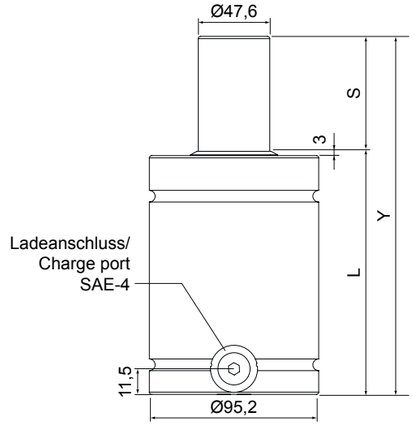
HS TNKT 4200

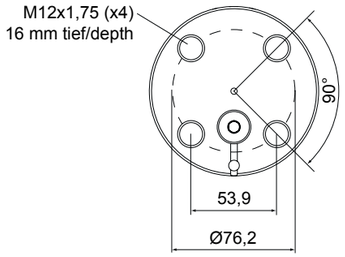
Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s
Max. Arbeitshub:	100 %
Max. Anzahl Hübe: (hublängenabhängig)	20 - 100 / min.
Dichtsatz:	HS 60-238-7000
Einlassventil:	HS 56-072-5500
Ladeadapter:	HS T2-770-4-7/16-20
Kontrollarmatur:	HS CP-XM

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s
Max. utilized stroke:	100 %
Max. strokes: (dependent on stroke)	20 - 100 / min.
Repair Kit:	HS 60-238-7000
Inlet Valve:	HS 56-072-5500
Charge Fitting:	HS T2-770-4-7/16-20
Control Panel:	HS CP-XM





HS TNKT 4200.150

Bitte bei der Bestellung den Fülldruck in „bar“ oder die Kraft in „daN“ angeben. Wenn nicht anders angegeben, werden alle Gasdruckfedern mit maximalem Fülldruck (150 bar) geliefert.

Please specify the charging pressure in „bar“ or the force in „daN“ when ordering. All gas springs shipped at maximum charge pressure (150 bar) unless otherwise specified.

MAIL

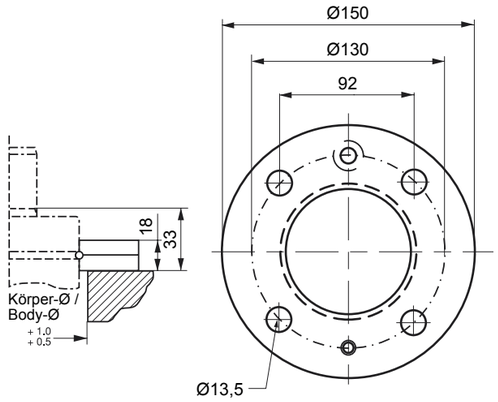
S **Hub / Stroke**	L ±0,25	Y	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
016	78	94	4.290	6.854
019	81	100	4.290	6.970
025	87	112	4.290	7.137
032	94	126	4.290	7.264
038	100	138	4.290	7.339
050	112	162	4.290	7.444
063	125	188	4.290	7.515
075	137	212	4.290	7.562
080	142	222	4.290	7.577
100	162	262	4.290	7.624
125	187	312	4.290	7.662
150	225	375	4.290	7.689
175	250	425	4.290	7.709
200	275	475	4.290	7.722
225	300	525	4.290	7.733

Technische Änderungen vorbehalten!

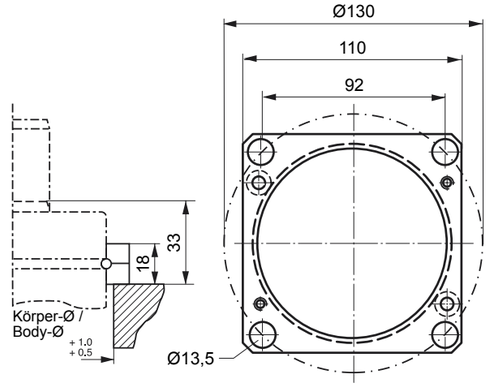
Technical changes without further notices reserved!

Serie Tanker®T
Tanker®T Series
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

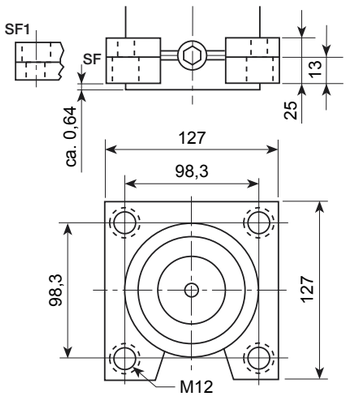
Flansche für / Flanges for **HS TNKT 4200**



HS T2-3000-FC



HS T2-3000-FCS



HS T2-3000-SF

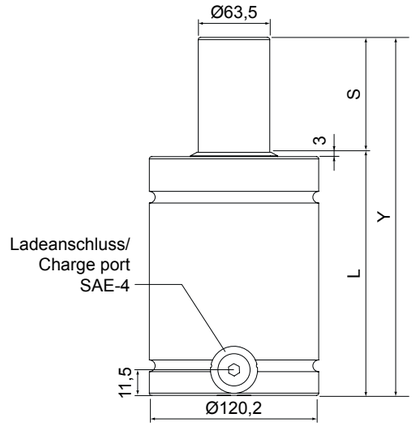
HS TNKT 6600

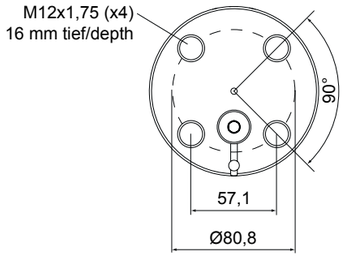
Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s
Max. Arbeitshub:	100 %
Max. Anzahl Hübe: (hublängenabhängig)	20 - 100 / min.
Dichtsatz:	HS 60-300-7000
Einlassventil:	HS 56-072-5500
Ladeadapter:	HS T2-770-4-7/16-20
Kontrollarmatur:	HS CP-XM

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s
Max. utilized stroke:	100 %
Max. strokes: (dependent on stroke)	20 - 100 / min.
Repair Kit:	HS 60-300-7000
Inlet Valve:	HS 56-072-5500
Charge Fitting:	HS T2-770-4-7/16-20
Control Panel:	HS CP-XM





HS TNKT 6600.080

Bitte bei der Bestellung den Fülldruck in „bar“ oder die Kraft in „daN“ angeben. Wenn nicht anders angegeben, werden alle Gasdruckfedern mit maximalem Fülldruck (150 bar) geliefert.

Please specify the charging pressure in „bar“ or the force in „daN“ when ordering. All gas springs shipped at maximum charge pressure (150 bar) unless otherwise specified.

MAIL

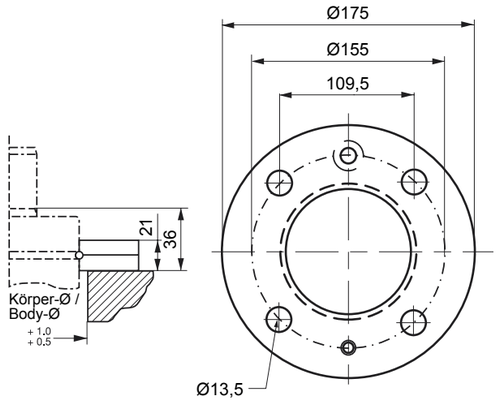
S **Hub / Stroke**	L ±0,25	Y	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
016	88	104	6.843	9.928
019	91	110	6.843	10.191
025	97	122	6.843	10.600
032	104	136	6.843	10.949
038	110	148	6.843	11.174
050	122	172	6.843	11.503
063	135	198	6.843	11.745
075	147	222	6.843	11.908
080	152	232	6.843	11.963
100	172	272	6.843	12.137
125	197	322	6.843	12.286
150	235	385	6.843	12.390
175	260	435	6.843	12.466
200	285	485	6.843	12.526
225	310	535	6.843	12.570

Technische Änderungen vorbehalten!

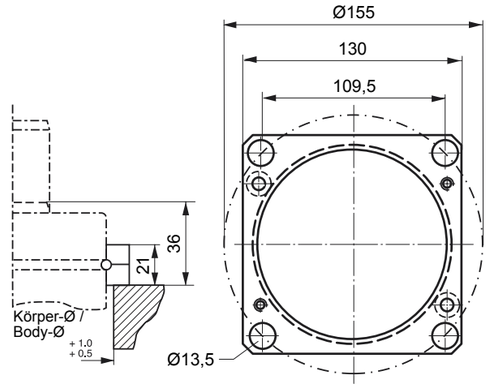
Technical changes without further notices reserved!

Serie Tanker®T
Tanker®T Series
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

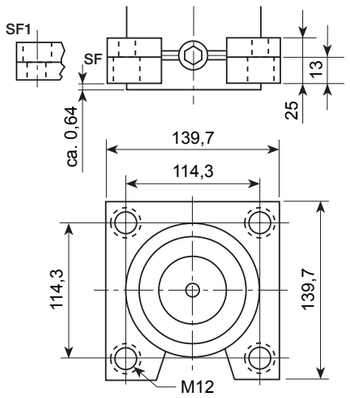
Flansche für / Flanges for **HS TNKT 6600**



HS T2-5000-FC



HS T2-5000-FCS



HS T2-5000-SF

HS TNKT 1000 Kraft-Tabelle [daN bei 150 bar] / Force Charts [daN at 150 bar]																
mm	**0**	**13**	**16**	**19**	**25**	**32**	**38**	**50**	**63**	**75**	**80**	**100**	**125**	**150**	**175**	**200**
13	961	1.628														
16	961	1.392	1.650													
19	961	1.279	1.452	1.666												
25	961	1.170	1.272	1.394	1.686											
32	961	1.110	1.179	1.259	1.446	1.701										
38	961	1.081	1.134	1.197	1.339	1.528	1.708									
50	961	1.048	1.085	1.128	1.223	1.348	1.466	1.721								
63	961	1.027	1.054	1.088	1.156	1.250	1.334	1.517	1.728							
75	961	1.014	1.039	1.063	1.121	1.194	1.261	1.408	1.575	1.732						
80	961	1.012	1.032	1.056	1.110	1.176	1.239	1.372	1.526	1.672	1.735					
100	961	1.001	1.016	1.034	1.076	1.128	1.176	1.277	1.392	1.503	1.550	1.739				
125	961	992	1.005	1.019	1.050	1.090	1.128	1.205	1.294	1.379	1.414	1.559	1.744			
150	961	987	996	1.010	1.034	1.068	1.096	1.161	1.232	1.301	1.330	1.446	1.595	1.746		
175	961	983	992	1.001	1.023	1.050	1.076	1.130	1.190	1.248	1.272	1.370	1.495	1.621	1.748	
200	961	981	987	996	1.014	1.039	1.061	1.108	1.159	1.208	1.230	1.314	1.421	1.530	1.639	1.750

HS TNKT 2400 Kraft-Tabelle [daN bei 150 bar] / Force Charts [daN at 150 bar]															
mm	**0**	**16**	**19**	**25**	**32**	**38**	**50**	**63**	**75**	**80**	**100**	**125**	**150**	**175**	**200**
16	2.330	3.712													
19	2.330	3.425	3.765												
25	2.330	3.102	3.336	3.841											
32	2.330	2.905	3.076	3.443	3.899										
38	2.330	2.802	2.940	3.238	3.605	3.934									
50	2.330	2.675	2.778	2.991	3.258	3.494	3.981								
63	2.330	2.598	2.675	2.842	3.047	3.227	3.601	4.012							
75	2.330	2.551	2.615	2.753	2.922	3.071	3.376	3.716	4.032						
80	2.330	2.538	2.598	2.724	2.882	3.020	3.305	3.621	3.916	4.039					
100	2.330	2.493	2.540	2.640	2.764	2.871	3.096	3.343	3.574	3.670	4.059				
125	2.330	2.458	2.495	2.575	2.671	2.758	2.933	3.127	3.309	3.385	3.692	4.077			
150	2.330	2.435	2.466	2.531	2.611	2.682	2.827	2.987	3.138	3.200	3.452	3.770	4.088		
175	2.330	2.420	2.446	2.502	2.569	2.629	2.753	2.889	3.016	3.069	3.285	3.554	3.825	4.097	
200	2.330	2.409	2.431	2.480	2.538	2.591	2.698	2.816	2.927	2.973	3.160	3.394	3.630	3.865	4.103

HS TNKT 4200 Kraft-Tabelle [daN bei 150 bar] / Force Charts [daN at 150 bar]																
mm	**0**	**16**	**19**	**25**	**32**	**38**	**50**	**63**	**75**	**80**	**100**	**125**	**150**	**175**	**200**	**225**
16	4.290	6.854														
19	4.290	6.378	6.970													
25	4.290	5.811	6.238	7.137												
32	4.290	5.447	5.767	6.441	7.264											
38	4.290	5.249	5.513	6.067	6.745	7.339										
50	4.290	5.004	5.200	5.609	6.109	6.547	7.444									
63	4.290	4.848	5.002	5.322	5.711	6.052	6.750	7.515								
75	4.290	4.755	4.882	5.149	5.471	5.756	6.334	6.970	7.562							
80	4.290	4.724	4.844	5.093	5.393	5.658	6.198	6.792	7.346	7.577						
100	4.290	4.635	4.728	4.926	5.164	5.373	5.800	6.269	6.708	6.890	7.624					
125	4.290	4.564	4.637	4.793	4.984	5.149	5.489	5.860	6.207	6.352	6.932	7.662				
150	4.290	4.515	4.577	4.708	4.864	5.002	5.282	5.591	5.878	5.998	6.479	7.083	7.689			
175	4.290	4.481	4.535	4.646	4.779	4.897	5.137	5.400	5.645	5.747	6.158	6.672	7.190	7.709		
200	4.290	4.457	4.504	4.599	4.717	4.819	5.028	5.258	5.471	5.560	5.918	6.367	6.819	7.270	7.722	
225	4.290	4.437	4.479	4.564	4.668	4.759	4.944	5.149	5.338	5.415	5.733	6.132	6.532	6.932	7.333	7.733

HS TNKT 6600 Kraft-Tabelle [daN bei 150 bar] / Force Charts [daN at 150 bar]																
mm	**0**	**16**	**19**	**25**	**32**	**38**	**50**	**63**	**75**	**80**	**100**	**125**	**150**	**175**	**200**	**225**
16	6.843	9.928														
19	6.843	9.399	10.191													
25	6.843	8.747	9.330	10.600												
32	6.843	8.309	8.756	9.728	10.949											
38	6.843	8.066	8.440	9.247	10.262	11.174										
50	6.843	7.764	8.044	8.647	9.405	10.086	11.503									
63	6.843	7.568	7.788	8.264	8.858	9.392	10.502	11.745								
75	6.843	7.448	7.633	8.031	8.527	8.972	9.897	10.933	11.908							
80	6.843	7.410	7.582	7.953	8.418	8.836	9.701	10.669	11.580	11.963						
100	6.843	7.295	7.430	7.726	8.095	8.427	9.114	9.883	10.606	10.911	12.137					
125	6.843	7.201	7.310	7.546	7.840	8.104	8.651	9.263	9.837	10.079	11.053	12.286				
150	6.843	7.141	7.232	7.426	7.671	7.891	8.344	8.852	9.330	9.530	10.339	11.360	12.390			
175	6.843	7.097	7.175	7.341	7.550	7.737	8.126	8.560	8.967	9.138	9.830	10.704	11.583	12.466		
200	6.843	7.066	7.132	7.279	7.462	7.624	7.964	8.342	8.698	8.847	9.452	10.215	10.982	11.752	12.526	
225	6.843	7.039	7.099	7.230	7.390	7.537	7.837	8.173	8.489	8.622	9.158	9.835	10.515	11.198	11.885	12.570

Kontroll- und Ladearmatur

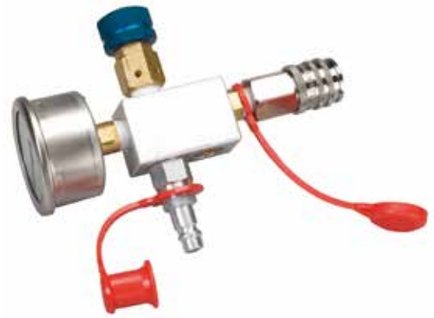
Mit Hilfe der Lade-/Kontrollarmatur **HS MGA-3000NH** läßt sich die autonom betriebene **HS TNKT** sehr einfach befüllen und entleeren.

Hinweis: Den Ladeadapter **HS T2-770-4-7/16-20** bitte separat bestellen.

Service Gauge Assembly

Charging and discharging the **HS TNKT** for use in the self-contained mode is simple, when the **HS MGA-3000NH** is used.

NOTE: Male quick disconnect charge fitting **HS T2-770-4-7/16-20** sold separately.



HS MGA-3000NH

Ladeadapter

Der Ladeadapter **HS T2-770-4-7/16-20** wird zusammen mit der Kontroll- / Ladearmatur **HS MGA-3000NH** zum Befüllen und Entleeren der **HS TNKT**-Gasdruckfedern im autonomen Betrieb benutzt.

Male Quick Disconnect (Charge Fitting)

The **HS T2-770-4-7/16-20** quick disconnect is used along with the **HS MGA-3000NH** service gauge assembly when charging and discharging **HS TNKT** Series gas springs in the self-contained mode.



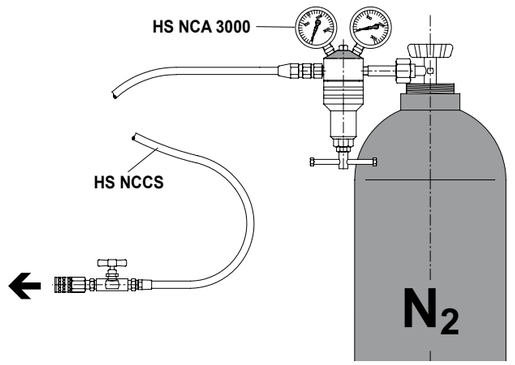
HS T2-770-4-7/16-20

Stickstoff-Ladeeinheit

Die Ladeeinheit wird zum Befüllen von **HS TNKT**-Gasdruckfedern aus einer handelsüblichen Stickstoff-Flasche benutzt.
Die Einheit besteht aus der Abfüllarmatur **HS NCA 3000** mit Flaschen-Anschluss, Regelventil mit Kontrollanzeigen des Flaschen- und Gasdruckfeder-Drucks, und der Ladeschlauch-Einheit **HS NCCS**, bestehend aus Absperrventil, 3 Meter Hochdruckschlauch mit Schnellverschluss-Anschluss für die Kontroll- / Ladearmatur **HS MGA-3000NH**.

Nitrogen Charging Assembly

The charging assembly is used to fill **HS TNKT** gas springs from a commercial nitrogen bottle.
The unit consists of the **HS NCA 3000** charging assembly with bottle fitting, regulator with bottle and system pressure gauges, and the **HS NCCS** filling hose unit, consisting of shut-off valve, 10 feet of high-pressure hose with quick-connect connection to the **HS MGA-3000NH** service gauge assembly.



Dichtungs- und Werkzeugsätze

HS TNKT-Gasdruckfedern können vor Ort vom Betreiber gewartet werden. Für jede Gasdruckfeder ist ein Dichtungssatz mit detaillierten Informationen erhältlich. Ebenso werden Werkzeugsätze angeboten.

Seal Kits and Tool Kits

HS TNKT gas springs are field repairable. There is a seal kit with detailed instructions for each size gas spring. Tool kits are also available.

Werkzeug zum Aus- und Einbau des Befüll-Ventils

Das Werkzeug **HS T2TK-IN** passt bei allen **HS TNKT**-Gasdruckfedern.

Valve Removal and Installation Tool

All **HS TNKT** gas springs use the **HS T2TK-IN**.

Gasdruckfeder Gas Spring	Dichtsatz Seal Kit	Werkzeugsatz Tool Kit
HS TNKT 1000	HS 60-112-7000	HS T2TK-250-750
HS TNKT 2400	HS 60-175-7000	HS T2TK
HS TNKT 4200	HS 60-238-7000	HS T2TK
HS TNKT 6600	HS 60-300-7000	HS T2TK

Kontrollarmatur

Alle **HS TNKT**-Gasdruckfedern arbeiten mit dem **HS CP-XM**.

Control Panel

All **HS TNKT** gas springs use the **HS CP-XM**.

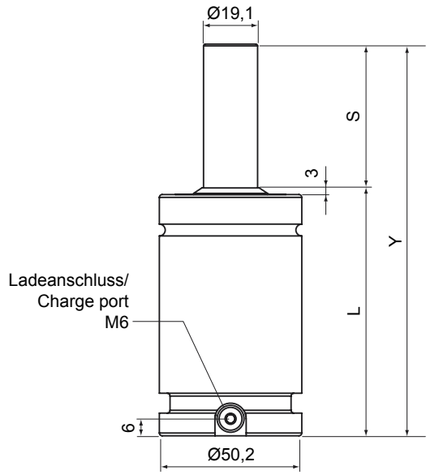
HS TNKS 1000

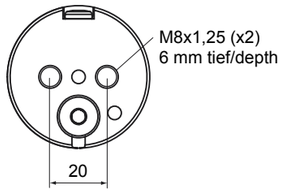
Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s
Max. Arbeitshub:	100 %
Max. Anzahl Hübe: (hublängenabhängig)	20 - 100 / min.
Dichtsatz:	HS 60-112-7000
Einlassventil:	HS 4018112
Ladeadapter:	HS T2-770-T3
Kontrollarmatur:	HS CP-XM

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s
Max. utilized stroke:	100 %
Max. strokes: (dependent on stroke)	20 - 100 / min.
Repair Kit:	HS 60-112-7000
Inlet Valve:	HS 4018112
Charge Fitting:	HS T2-770-T3
Control Panel:	HS CP-XM





HS TNKS 1000.016

Bitte bei der Bestellung den Fülldruck in „bar“ oder die Kraft in „daN“ angeben. Wenn nicht anders angegeben, werden alle Gasdruckfedern mit maximalem Fülldruck (150 bar) geliefert.

Please specify the charging pressure in „bar“ or the force in „daN“ when ordering. All gas springs shipped at maximum charge pressure (150 bar) unless otherwise specified.

MAIL

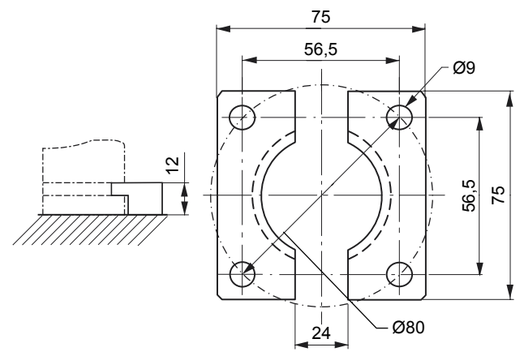
S Hub / Stroke	L ±0,25	Y	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
013	51	64	963	1.628
016	54	70	963	1.650
019	57	76	963	1.666
025	63	88	963	1.686
032	70	102	963	1.701
038	76	114	963	1.708
050	88	138	963	1.721
063	101	164	963	1.728
075	113	188	963	1.732
080	118	198	963	1.735
100	138	238	963	1.739
125	163	288	963	1.744
150	201	351	963	1.746
175	226	401	963	1.748
200	251	451	963	1.750

Technische Änderungen vorbehalten!

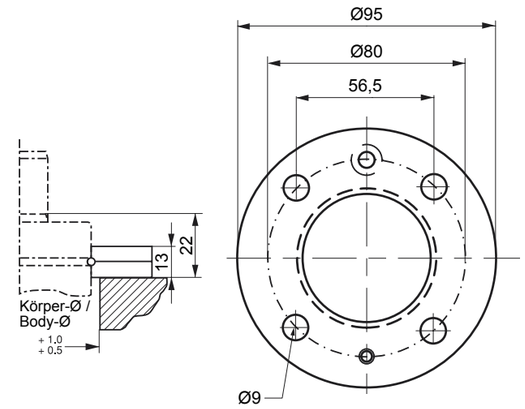
Technical changes without further notices reserved!

Serie Tanker®S
Tanker®S Series
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

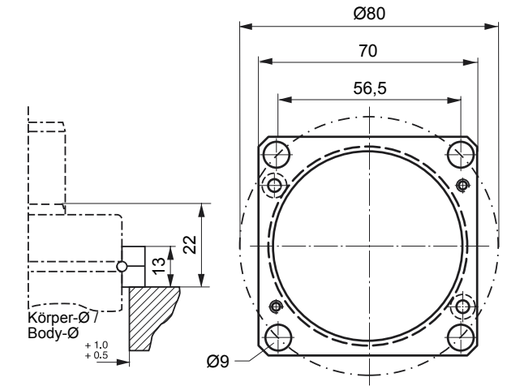
Flansche für / Flanges for **HS TNKS 1000**



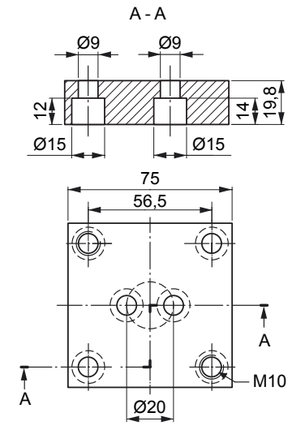
HS T2-750-FFC



HS T2-750-FC



HS T2-750-FCS



HS T2-750-MP

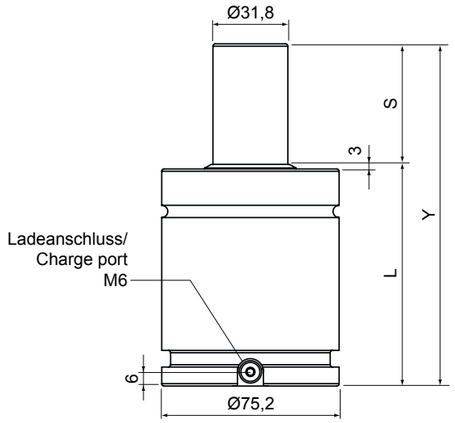
HS TNKS 2400

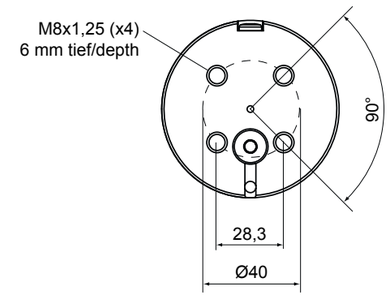
Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s
Max. Arbeitshub:	100 %
Max. Anzahl Hübe: (hublängenabhängig)	20 - 100 / min.
Dichtsatz:	HS 60-175-7000
Einlassventil:	HS 4018112
Ladeadapter:	HS T2-770-3
Kontrollarmatur:	HS CP-XM

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s
Max. utilized stroke:	100 %
Max. strokes: (dependent on stroke)	20 - 100 / min.
Repair Kit:	HS 60-175-7000
Inlet Valve:	HS 4018112
Charge Fitting:	HS T2-770-3
Control Panel:	HS CP-XM





HS TNKS 2400.038

Bitte bei der Bestellung den Fülldruck in „bar“ oder die Kraft in „daN“ angeben. Wenn nicht anders angegeben, werden alle Gasdruckfedern mit maximalem Fülldruck (150 bar) geliefert.

Please specify the charging pressure in „bar“ or the force in „daN“ when ordering. All gas springs shipped at maximum charge pressure (150 bar) unless otherwise specified.

MAIL

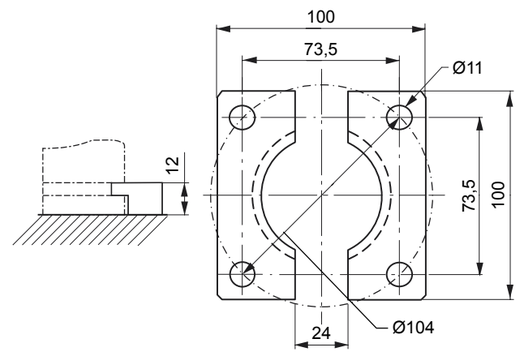
S Hub / Stroke	L ±0,25	Y	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
016	61	77	2.330	3.712
019	64	83	2.330	3.765
025	70	95	2.330	3.841
032	77	109	2.330	3.899
038	83	121	2.330	3.934
050	95	145	2.330	3.981
063	108	171	2.330	4.012
075	120	195	2.330	4.032
080	125	205	2.330	4.039
100	145	245	2.330	4.059
125	170	295	2.330	4.077
150	206	356	2.330	4.088
175	231	406	2.330	4.097
200	256	456	2.330	4.103

Technische Änderungen vorbehalten!

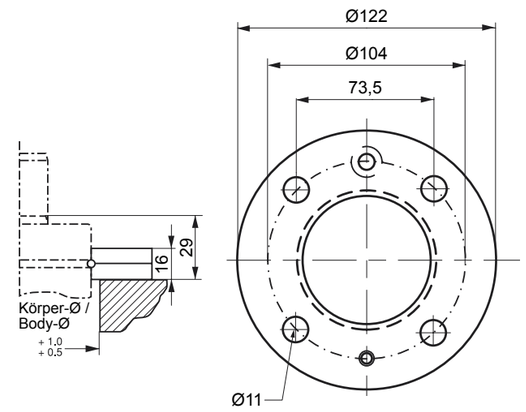
Technical changes without further notices reserved!

Serie Tanker®S
Tanker®S Series
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

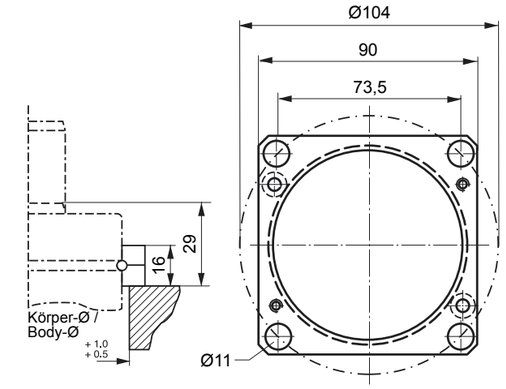
Flansche für / Flanges for **HS TNKS 2400**



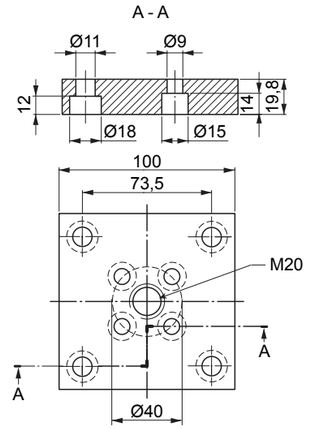
HS T2-1500-FFC



HS T2-1500-FC



HS T2-1500-FCS



HS T2-1500-MP

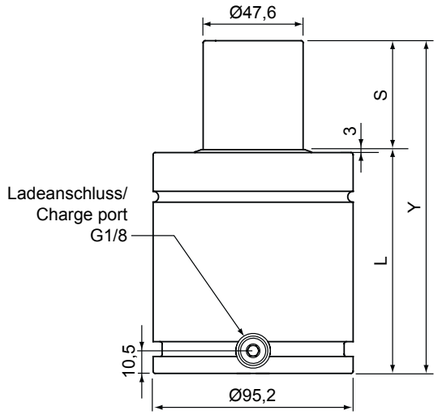
HS TNKS 4200

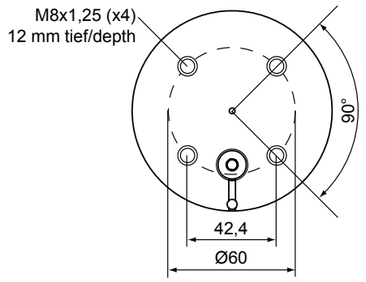
Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s
Max. Arbeitshub:	100 %
Max. Anzahl Hübe: (hublängenabhängig)	20 - 100 / min.
Dichtsatz:	HS 60-238-7000
Einlassventil:	HS 56-072-5500
Ladeadapter:	HS T2-770-G1/8-P
Kontrollarmatur:	HS CP-XM

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s
Max. utilized stroke:	100 %
Max. strokes: (dependent on stroke)	20 - 100 / min.
Repair Kit:	HS 60-238-7000
Inlet Valve:	HS 56-072-5500
Charge Fitting:	HS T2-770-G1/8-P
Control Panel:	HS CP-XM





HS TNKS 4200.050

Bitte bei der Bestellung den Fülldruck in „bar“ oder die Kraft in „daN“ angeben. Wenn nicht anders angegeben, werden alle Gasdruckfedern mit maximalem Fülldruck (150 bar) geliefert.

Please specify the charging pressure in „bar“ or the force in „daN“ when ordering. All gas springs shipped at maximum charge pressure (150 bar) unless otherwise specified.

MAIL

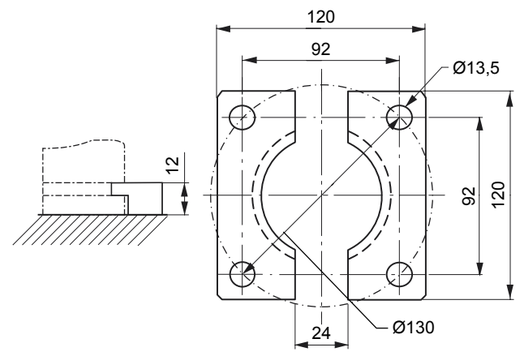
S Hub / Stroke	L ±0,25	Y	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
016	74	90	4.290	6.854
019	77	96	4.290	6.970
025	83	108	4.290	7.137
032	90	122	4.290	7.264
038	96	134	4.290	7.339
050	108	158	4.290	7.444
063	121	184	4.290	7.515
075	133	208	4.290	7.562
080	138	218	4.290	7.577
100	158	258	4.290	7.624
125	183	308	4.290	7.662
150	221	371	4.290	7.689
175	246	421	4.290	7.709
200	271	471	4.290	7.722
225	296	521	4.290	7.733

Technische Änderungen vorbehalten!

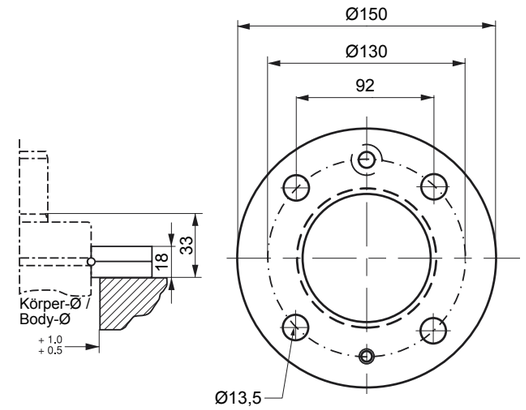
Technical changes without further notices reserved!

Serie Tanker®S
Tanker®S Series
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

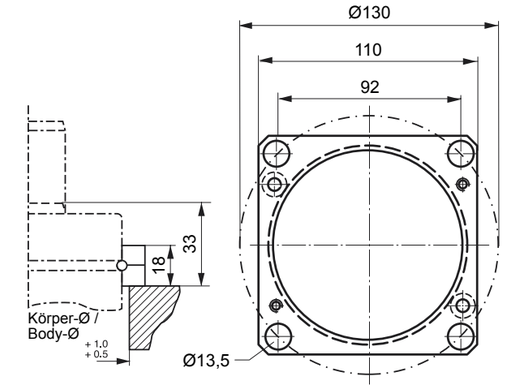
Flansche für / Flanges for **HS TNKS 4200**



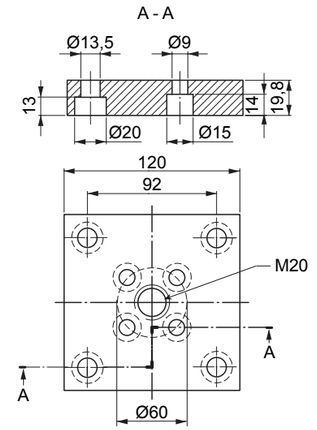
HS T2-3000-FFC



HS T2-3000-FC



HS T2-3000-FCS



HS T2-3000-MP

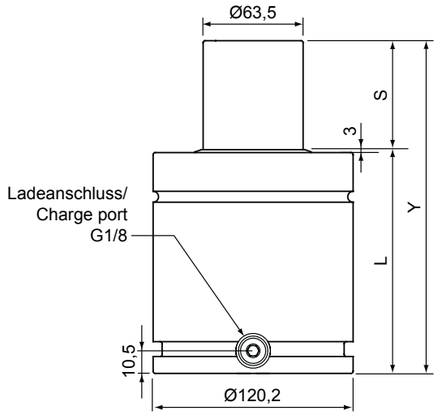
HS TNKS 6600

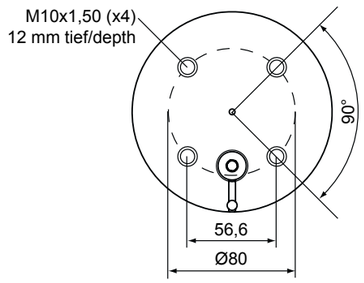
Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	1,6 m/s
Max. Arbeitshub:	100 %
Max. Anzahl Hübe: (hublängenabhängig)	20 - 100 / min.
Dichtsatz:	HS 60-300-7000
Einlassventil:	HS 56-072-5500
Ladeadapter:	HS T2-770-G1/8-P
Kontrollarmatur:	HS CP-XM

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	1,6 m/s
Max. utilized stroke:	100 %
Max. strokes: (dependent on stroke)	20 - 100 / min.
Repair Kit:	HS 60-300-7000
Inlet Valve:	HS 56-072-5500
Charge Fitting:	HS T2-770-G1/8-P
Control Panel:	HS CP-XM





HS TNKS 6600.175

Bitte bei der Bestellung den Fülldruck in „bar“ oder die Kraft in „daN“ angeben. Wenn nicht anders angegeben, werden alle Gasdruckfedern mit maximalem Fülldruck (150 bar) geliefert.

Please specify the charging pressure in „bar“ or the force in „daN“ when ordering. All gas springs shipped at maximum charge pressure (150 bar) unless otherwise specified.

MAIL

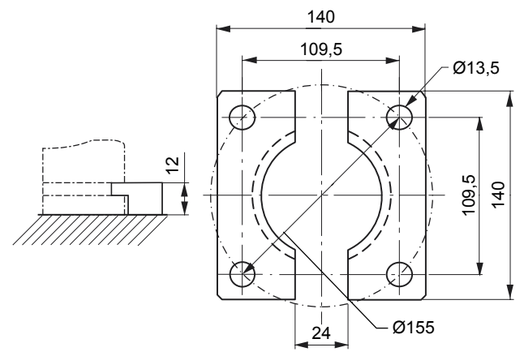
S Hub / Stroke	L ±0,25	Y	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
016	84	100	6.844	9.928
019	87	106	6.844	10.191
025	93	118	6.844	10.600
032	100	132	6.844	10.949
038	106	144	6.844	11.174
050	118	168	6.844	11.503
063	131	194	6.844	11.745
075	143	218	6.844	11.908
080	148	228	6.844	11.963
100	168	268	6.844	12.137
125	193	318	6.844	12.286
150	231	381	6.844	12.390
175	256	431	6.844	12.466
200	281	481	6.844	12.526
225	306	531	6.844	12.570

Technische Änderungen vorbehalten!

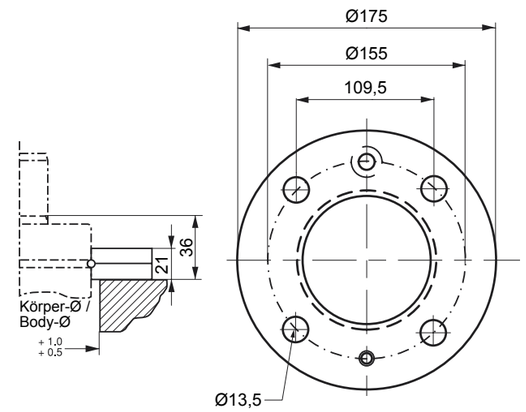
Technical changes without further notices reserved!

Serie Tanker®S
Tanker®S Series
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

Flansche für / Flanges for **HS TNKS 6600**



HS T2-5000-FFC



HS T2-5000-FC

HS T2-5000-FCS

HS T2-5000-MP

HS TNKS 1000 Kraft-Tabelle [daN bei 150 bar] / Force Charts [daN at 150 bar]																
mm	**0**	**13**	**16**	**19**	**25**	**32**	**38**	**50**	**63**	**75**	**80**	**100**	**125**	**150**	**175**	**200**
13	963	1.628														
16	963	1.392	1.650													
19	963	1.279	1.452	1.666												
25	963	1.170	1.272	1.394	1.686											
32	963	1.110	1.179	1.259	1.446	1.701										
38	963	1.081	1.134	1.197	1.339	1.528	1.708									
50	963	1.048	1.085	1.128	1.223	1.348	1.466	1.721								
63	963	1.027	1.054	1.088	1.156	1.250	1.334	1.517	1.728							
75	963	1.014	1.039	1.063	1.121	1.194	1.261	1.408	1.575	1.732						
80	963	1.012	1.032	1.056	1.110	1.176	1.239	1.372	1.526	1.672	1.735					
100	963	1.001	1.016	1.034	1.076	1.128	1.176	1.277	1.392	1.503	1.550	1.739				
125	963	992	1.005	1.019	1.050	1.090	1.128	1.205	1.294	1.379	1.414	1.559	1.744			
150	963	987	996	1.010	1.034	1.068	1.096	1.161	1.232	1.301	1.330	1.446	1.595	1.746		
175	963	983	992	1.001	1.023	1.050	1.076	1.130	1.190	1.248	1.272	1.370	1.495	1.621	1.748	
200	963	981	987	996	1.014	1.039	1.061	1.108	1.159	1.208	1.230	1.314	1.421	1.530	1.639	1.750

HS TNKS 2400 Kraft-Tabelle [daN bei 150 bar] / Force Charts [daN at 150 bar]															
mm	**0**	**16**	**19**	**25**	**32**	**38**	**50**	**63**	**75**	**80**	**100**	**125**	**150**	**175**	**200**
16	2.330	3.712													
19	2.330	3.425	3.765												
25	2.330	3.102	3.336	3.841											
32	2.330	2.905	3.076	3.443	3.899										
38	2.330	2.802	2.940	3.238	3.605	3.934									
50	2.330	2.675	2.778	2.991	3.258	3.494	3.981								
63	2.330	2.598	2.675	2.842	3.047	3.227	3.601	4.012							
75	2.330	2.551	2.615	2.753	2.922	3.071	3.376	3.716	4.032						
80	2.330	2.538	2.598	2.724	2.882	3.020	3.305	3.621	3.916	4.039					
100	2.330	2.493	2.540	2.640	2.764	2.871	3.096	3.343	3.574	3.670	4.059				
125	2.330	2.458	2.495	2.575	2.671	2.758	2.933	3.127	3.309	3.385	3.692	4.077			
150	2.330	2.435	2.466	2.531	2.611	2.682	2.827	2.987	3.138	3.200	3.452	3.770	4.088		
175	2.330	2.420	2.446	2.502	2.569	2.629	2.753	2.889	3.016	3.069	3.285	3.554	3.825	4.097	
200	2.330	2.409	2.431	2.480	2.538	2.591	2.698	2.816	2.927	2.973	3.160	3.394	3.630	3.865	4.103

HS TNKS 4200 Kraft-Tabelle [daN bei 150 bar] / Force Charts [daN at 150 bar]																
mm	**0**	**16**	**19**	**25**	**32**	**38**	**50**	**63**	**75**	**80**	**100**	**125**	**150**	**175**	**200**	**225**
16	4.290	6.854														
19	4.290	6.378	6.970													
25	4.290	5.811	6.238	7.137												
32	4.290	5.447	5.767	6.441	7.264											
38	4.290	5.249	5.513	6.067	6.745	7.339										
50	4.290	5.004	5.200	5.609	6.109	6.547	7.444									
63	4.290	4.848	5.002	5.322	5.711	6.052	6.750	7.515								
75	4.290	4.755	4.882	5.149	5.471	5.756	6.334	6.970	7.562							
80	4.290	4.724	4.844	5.093	5.393	5.658	6.198	6.792	7.346	7.577						
100	4.290	4.635	4.728	4.926	5.164	5.373	5.800	6.269	6.708	6.890	7.624					
125	4.290	4.564	4.637	4.793	4.984	5.149	5.489	5.860	6.207	6.352	6.932	7.662				
150	4.290	4.515	4.577	4.708	4.864	5.002	5.282	5.591	5.878	5.998	6.479	7.083	7.689			
175	4.290	4.481	4.535	4.646	4.779	4.897	5.137	5.400	5.645	5.747	6.158	6.672	7.190	7.709		
200	4.290	4.457	4.504	4.599	4.717	4.819	5.028	5.258	5.471	5.560	5.918	6.367	6.819	7.270	7.722	
225	4.290	4.437	4.479	4.564	4.668	4.759	4.944	5.149	5.338	5.415	5.733	6.132	6.532	6.932	7.333	7.733

HS TNKS 6600 Kraft-Tabelle [daN bei 150 bar] / Force Charts [daN at 150 bar]																
mm	**0**	**16**	**19**	**25**	**32**	**38**	**50**	**63**	**75**	**80**	**100**	**125**	**150**	**175**	**200**	**225**
16	6.844	9.928														
19	6.844	9.399	10.191													
25	6.844	8.747	9.330	10.600												
32	6.844	8.309	8.756	9.728	10.949											
38	6.844	8.066	8.440	9.247	10.262	11.174										
50	6.844	7.764	8.044	8.647	9.405	10.086	11.503									
63	6.844	7.568	7.788	8.264	8.858	9.392	10.502	11.745								
75	6.844	7.448	7.633	8.031	8.527	8.972	9.897	10.933	11.908							
80	6.844	7.410	7.582	7.953	8.418	8.836	9.701	10.669	11.580	11.963						
100	6.844	7.295	7.430	7.726	8.095	8.427	9.114	9.883	10.606	10.911	12.137					
125	6.844	7.201	7.310	7.546	7.840	8.104	8.651	9.263	9.837	10.079	11.053	12.286				
150	6.844	7.141	7.232	7.426	7.671	7.891	8.344	8.852	9.330	9.530	10.339	11.360	12.390			
175	6.844	7.097	7.175	7.341	7.550	7.737	8.126	8.560	8.967	9.138	9.830	10.704	11.583	12.466		
200	6.844	7.066	7.132	7.279	7.462	7.624	7.964	8.342	8.698	8.847	9.452	10.215	10.982	11.752	12.526	
225	6.844	7.039	7.099	7.230	7.390	7.537	7.837	8.173	8.489	8.622	9.158	9.835	10.515	11.198	11.885	12.570

Kontroll- und Ladearmatur

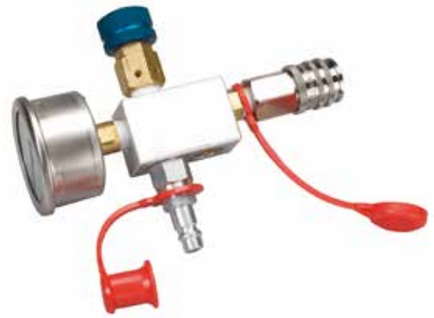
Mit Hilfe der Lade-/Kontrollarmatur **HS MGA-3000NH** läßt sich die autonom betriebene **HS TNKS** sehr einfach befüllen und entleeren.

Hinweis: Die Ladeadapter **HS T2-770-T3** oder **HS T2-770-G1/8-P** bitte separat bestellen.

Service Gauge Assembly

Charging and discharging the **HS TNKS** for use in the self-contained mode is simple, when the **HS MGA-3000NH** is used.

NOTE: Male quick disconnect charge fittings **HS T2-770-T3** or **HS T2-770-G1/8-P** sold separately.



✎ **HS MGA-3000NH**

Ladeadapter

Der Ladeadapter **HS T2-770-T3** wird genutzt, um die Modelle **HS TNKS 1000** und **2400** zu befüllen, für die Familien **HS TNKS 4200** und **6600** nutzt man **HS T2-770-G1/8-P**.

Male Quick Disconnect (Charge Fitting)

The **HS T2-770-T3** is used to charge **HS TNKS 1000** and **2400** models, while **HS TNKS 4200** and **6600** use the **HS T2-770-G1/8-P**.



✎ **HS T2-770-T3**

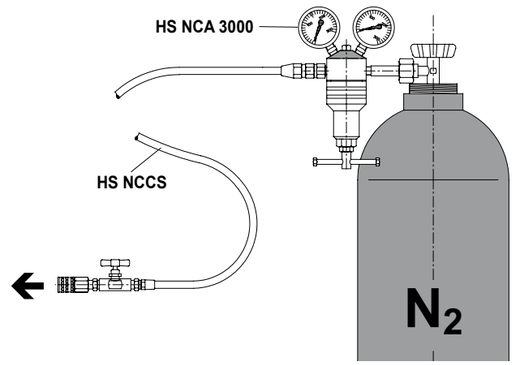
✎ **HS T2-770-G1/8-P**

Stickstoff - Ladeeinheit

Die Ladeeinheit wird zum Befüllen von **HS TNKS**-Gasdruckfedern aus einer handelsüblichen Stickstoff-Flasche benutzt.
Die Einheit besteht aus der Abfüllarmatur **HS NCA 3000** mit Flaschen-Anschluss, Regelventil mit Kontrollanzeigen des Flaschen- und Gasdruckfeder-Drucks, und der Ladeschlauch-Einheit **HS NCCS**, bestehend aus Absperrventil, 3 Meter Hochdruckschlauch mit Schnellverschluss-Anschluss für die Kontroll- / Ladearmatur **HS MGA-3000NH**.

Nitrogen Charging Assembly

The charging assembly is used to fill **HS TNKS** gas springs from a commercial nitrogen bottle.
The unit consists of the **HS NCA 3000** charging assembly with bottle fitting, regulator with bottle and system pressure gauges, and the **HS NCCS** filling hose unit, consisting of shut-off valve, 10 feet of high-pressure hose with quick-connect connection to the **HS MGA-3000NH** service gauge assembly.



Dichtungs- und Werkzeugsätze

HS TNKS-Gasdruckfedern können vor Ort vom Betreiber gewartet werden. Für jede Gasdruckfeder ist ein Dichtungssatz mit detaillierten Informationen erhältlich. Ebenso werden Werkzeugsätze angeboten.

Seal Kits and Tool Kits

HS TNKS gas springs are field repairable. There is a seal kit with detailed instructions for each size gas spring. Tool kits are also available.

Gasdruckfeder Gas Spring	Dichtsatz Seal Kit	Werkzeugsatz Tool Kit
HS TNKS 1000	HS 60-112-7000	HS T2TK-250-750
HS TNKS 2400	HS 60-175-7000	HS T2TK
HS TNKS 4200	HS 60-238-7000	HS T2TK
HS TNKS 6600	HS 60-300-7000	HS T2TK

Werkzeug zum Aus- und Einbau des Befüll-Ventils

Valve Removal and Installation Tool

Gasdruckfeder Gas Spring	Werkzeug Tool
HS TNKS 1000	HS T2TK-IN-M6
HS TNKS 2400	HS T2TK-IN-M6
HS TNKS 4200	HS T2TK-IN-G1/8
HS TNKS 6600	HS T2TK-IN-G1/8

Kontrollarmatur

Alle **HS TNKS**-Gasdruckfedern arbeiten mit dem **HS CP-XM**.

Control Panel

All **HS TNKS** gas springs use the **HS CP-XM**.

Wenn es um die sichere und qualitativ hochwertige Kontrolle von Kraft - u.a. durch Gasdruckfedern in Schneid- und Umformwerkzeugen - geht, bietet Hyson mit seiner Zentrale in Brecksville, Ohio, USA, weltweit Lösungen für eine breite Palette an Anwendungsmöglichkeiten, wie auch für unterschiedlichste Betreiber-Segmente. Dazu gehören u.a. die Bereiche Automotive, Luftfahrt, Weiße Ware, Medizin und Klimatechnik. Als Partner seiner Kunden analysiert Hyson die Applikation und Aufgabenstellung und bietet eine zugeschnittene Lösung an, unabhängig davon, ob es sich um Maschinen, Fahrzeuge oder die Metallverarbeitung handelt. Basierend auf der Aufgabenstellung kann Hyson aus seiner breiten Produktpalette Gasdruckfedern, Schieber-Systeme, Tankplatten oder Auswerfer-Systeme anbieten.

Hyson erklärt seinen Erfolg mit dem Bestreben, immer noch etwas besser werden zu wollen; nicht nur als handelnde Mitarbeiter, sondern letztendlich auch auf Produkt- und Prozess-Ebene. So sollen die Kundenwünsche nicht nur erfüllt, sondern bestenfalls übertroffen werden. Die Zertifikate ISO-9001, AS-9100 und der PED attestieren Hyson dieses fortlaufende Streben nach höchsten Qualitätsstandards.

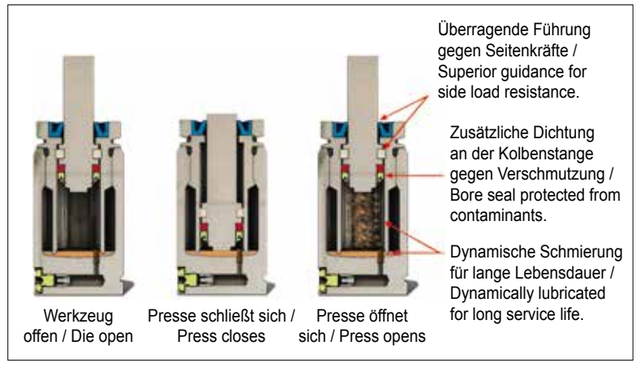
Hyson, headquartered in Brecksville, Ohio, is a world class engineering and manufacturing company that provides high-quality, safety-engineered force control solutions for a wide range of applications and industries, including automotive, aerospace, appliance, medical and HVAC. Hyson partners with our customers to understand applications and provide the best solutions for each one. We are a full service force control provider for critical machine, vehicle and precision metal processing applications, meaning we can supply dependent upon each customer's needs, including: gas springs, cam systems, cushions, manifolds and knockout systems.

Our success lies with our commitment to continually improve ourselves, our processes and our products to ensure we meet or exceed our customers' expectations. Our ISO-9001, AS-9100 and PED certifications attest to our ongoing commitment to the highest standards of quality.

Vorteile dieser Gasdruckfedern
Die speziell für eine besonders lange Lebensdauer entwickelte Gasdruckfeder-Serie **HS TNK 400 XP** bietet eine überragende Führung gegen Seitenkräfte, eine zusätzliche Dichtung an der Kolbenstange gege Verschmutzung und eine dynamische Schmierung. Die **HS TNK 400 HS** verfügt darüber hinaus über ein spezielles Design, dass den Betrieb in einer Hochgeschwindigkeits-Umgebung zuläßt.

Product Value
The ideal gas spring for maximum life, the **HS TNK 400 XP** Series is designed for use in applications where long service life is important. The **HS TNK 400** offers superior guidance for side load resistance, a bore seal for contamination resistance, and dynamic lubrication for long service life. The **HS TNK 400 HS** has all the features of the **HS TNK 400** with the added benefit of being designed for high speed production environments.

Die dynamische Schmierung verlängert die Standzeit der Gasdruckfeder
Die patentierte, dynamische Schmierung benetzt bei jedem Hub die Innenwand der Gasdruckfeder, die Kolbenstange und die Dichtung mit Öl, womit der Temperatursanstieg deutlich verringert wird, was wiederum die einzelnen Bauteile schont und die Standzeit verlängert.



Dynamic Lubrication Extends Gas Spring Life

The patented dynamic lubrication system coats the gas spring wall, piston and seal with oil on every stroke of the press to reduce heat buildup and lower operating temperature, which in turn, reduces wear on die components and extends performance life.

Eigenschaften
- Konstruiert für besonders lange Lebensdauer.
- Die dynamische Schmierung benetzt bei jedem Hub die Dichtung mit Öl.
- Längere Lebensdauer als Spiralfedern.
- Überragender Schutz gegen Verschmutzung durch zusätzliche Dichtung an der Kolbenstange.
- Vorspannung durch Gas-Druck. Benötigt keine Verdichtung in der Presse um Druck aufzubauen.
- Verfügbar als autonome oder im Verbund geschaltete Gasdruckfeder.
- Eine Vielzahl an Befestigungsmöglichkeiten schafft eine große Flexibilität in der Konstruktion.

Product Features
- Engineered for high performance, long service life.
- Dynamic lubrication circulates oil onto seal surfaces with every stroke.
- Improved service life compared to coil springs.
- Bore seal design for superior contamination resistance.
- Preloaded by gas pressure. Does not require compression in the die to preload.
- Available as self-contained or in a hosed system.
- Variety of mounting options provides flexibility in die design.

Sicherheits-Features
Überdruck-Schutz: Gas wird sicher abgeblasen, sobald innerhalb der Gasdruckfeder ein Überdruck entsteht, z.B. herbeigeführt durch zu hohen Ladedruck oder eine Verminderung des Gasvolumens durch Eindringen von Ziehöl oder Kühlflüssigkeit.

Advanced Safety Features
Over-Pressure Protection: Designed to safely vent excessive gas pressure in the event of an over-pressure situation such as over-charged gas springs or the ingestion of large amounts of drawing or cooling fluids.

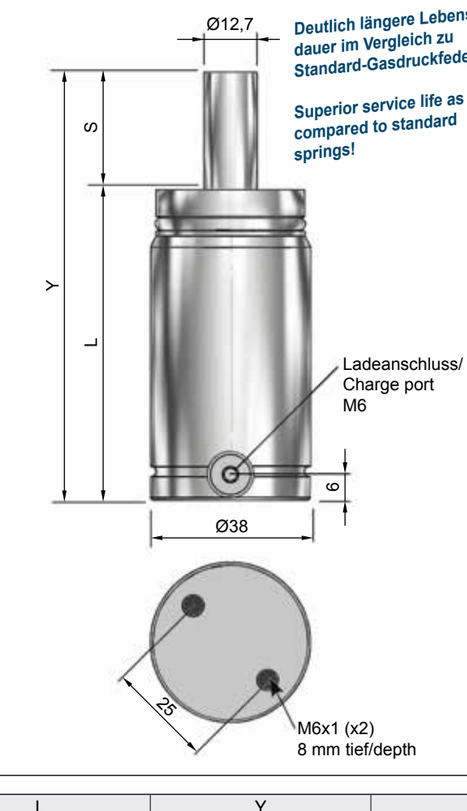
HS TNK 400

Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,6 m/s
Max. Arbeitshub:	100 %
Dichtsatz:	HS 56-072-7000
Ladeadapter:	HS T2-770-T3

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,6 m/s
Max. utilized stroke:	100 %
Repair Kit:	HS 56-072-7000
Charge Fitting:	HS T2-770-T3



Deutlich längere Lebensdauer im Vergleich zu Standard-Gasdruckfedern!

Superior service life as compared to standard springs!

HS TNK 400.019

Hinweis: Untere Befestigungsgewinde verfügbar.

Note: Bottom mounting threads available.

MAIL

S Hub / Stroke	L	Y ±0,25	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
006	57,2	63,5	394	665
013	63,5	76,2	394	670
019	69,9	88,9	394	671
025	76,2	101,6	394	672
038	88,9	127,0	394	673
051	101,6	152,4	394	673
063	114,3	177,8	394	673
076	127,0	203,2	394	673

Technische Änderungen vorbehalten!

Technical changes without further notices reserved!

[11.03.2020]

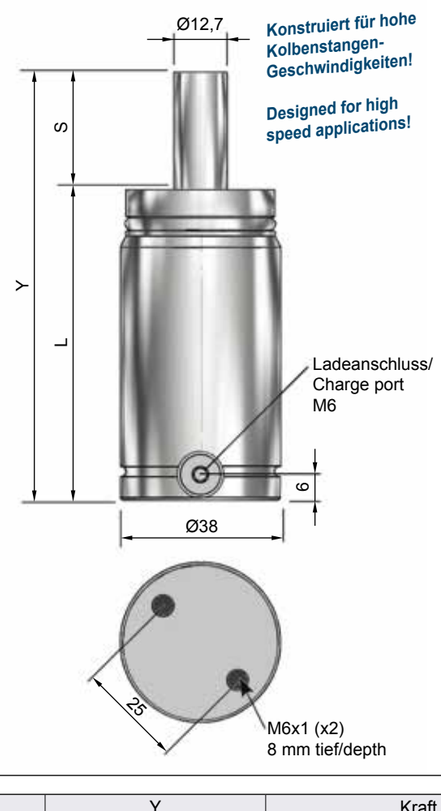
HS TNK 400 HS

Technische Daten:

Medium:	N2
Max. Fülldruck:	150 bar
Min. Fülldruck:	25 bar
Arbeitstemperatur:	0 - 80 °C
Max. Kolbengeschw.:	0,6 m/s
Max. Arbeitshub:	100 %
Dichtsatz:	HS 56-072-7000-HS
Ladeadapter:	HS T2-770-T3

Specifications:

Medium:	N2
Max. charging pressure:	150 bar
Min. charging pressure:	25 bar
Operating temperature:	0 - 80 °C
Max. piston rod speed:	0,6 m/s
Max. utilized stroke:	100 %
Repair Kit:	HS 56-072-7000-HS
Charge Fitting:	HS T2-770-T3



Konstruiert für hohe Kolbenstangen-Geschwindigkeiten!

Designed for high speed applications!

HS TNK 400.019 HS

Hinweis: Untere Befestigungsgewinde verfügbar.

Note: Bottom mounting threads available.

MAIL

S Hub / Stroke	L	Y ±0,25	Kraft / Force (150 bar) Anfang / Initial [daN]	 Ende / Final [daN]
006	76,2	82,5	394	516
013	101,6	114,3	394	544
019	127,0	146,1	394	560
025	127,0	152,0	394	568

Technische Änderungen vorbehalten!

Technical changes without further notices reserved!

Befestigungs-Möglichkeiten:
HS TNK 400 mit Flanschbefestigung

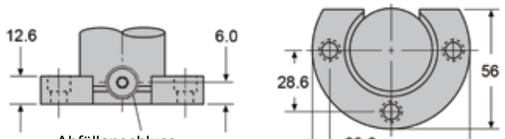
- Um Gasdruckfedern mit Flanschbefestigung zu bestellen, spezifizieren Sie „**-FI**“ (für die Schraubenkopfsenkung von oben) oder „**-FH**“ (für die Schraubenkopfsenkung von unten) hinter der Bestellnummer.
  Beispiel: HS TNK 400.025-FH
- Um nur den Flansch zu bestellen:
  HS 56-072-2002
- Um nur den Sicherungsring zu bestellen: **HS 56-072-2004**

Hinweis:
- Zusammengebaut ragt der Gasdruckfeder-Boden etwas aus dem Flansch heraus.
- Nach der Montage am Werkzeug sitzen diese beiden Teile bündig zueinander.
- Gasdruckfedern dürfen nicht mechanisch oder spanabhebend bearbeitet werden!

Mounting Options:
HS TNK 400 Flange Mount

- To order cylinder with flange, specify “**-FI**” (for top counterbore) or “**-FH**” (for bottom counterbore) after the Order Number.
  Example: HS TNK 400.025-FH
- To order flanges only:
  HS 56-072-2002
- To order locking wire only:
  HS 56-072-2004

Note:
- The base of the spring extends past the bottom of the flange when assembled.
- The gas spring will sit flush once it is bolted down.
- Do not grind the gas spring!



Schraubenkopfsenkung von oben / Counterbore Top





Schraubenkopfsenkung von unten / Counterbore Bottom

Befestigungs-Möglichkeiten:
HS TNK 400 mit Außengewinde

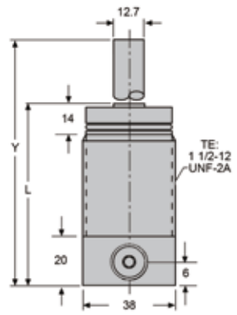
- Um Gasdruckfedern mit Kontermutter zu bestellen, spezifizieren Sie „**-TE**“ hinter der Bestellnummer.
  Beispiel: HS TNK 400.025-TE
- Um nur die Kontermutter zu bestellen: **HS 56-072-2013**

Hinweis:
- Zu jeder Gasdruckfeder mit Außengewinde wird eine Kontermutter mitgeliefert.
- Die **HS TNK 400-TE** kann nur von der Kolbenstangenseite ins Werkzeug-Gewinde geschraubt werden.
- Gasdruckfeder mit metrischem Gewinde auf Anfrage!

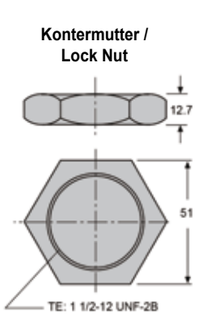
Mounting Options:
HS TNK 400 Threaded Body

- To order cylinder with lock nut, specify “**-TE**” after the Order Number.
  Example: HS TNK 400.025-TE
- To order lock nut only:
  HS 56-072-2013

Note:
- One lock nut is included with each threaded body spring.
- The **HS TNK 400-TE** can be threaded into the die gas spring port from the piston rod end only.
- Gas spring with metric thread on request!



Kontermutter / Lock Nut



HS TNK 400 Kraft-Tabelle [daN bei 150 bar] / **Force Charts** [daN at 150 bar]									
mm	**0**	**6**	**13**	**19**	**25**	**38**	**51**	**63**	**76**
6	394	665							
13	394	532	670						
19	394	486	578	671					
25	394	463	533	602	672				
38	394	449	505	561	617	673			
51	394	440	487	533	580	626	673		
63	394	434	473	513	553	593	633	673	
76	394	429	464	498	533	568	603	638	673

HS TNK 400 HS Kraft-Tabelle [daN bei 150 bar] / **Force Charts** [daN at 150 bar]					
mm	**0**	**6**	**13**	**19**	**25**
6	394	516			
13	394	454	544		
19	394	437	491	560	
25	394	427	465	516	568

Tankplatten-Aufbau

Zur Herstellung einer Tankplatte werden folgende Teile benötigt:
Eine Platte (1), aus Stahl oder Aluminium (ultraschallgeprüft) zur Aufnahme der Stickstoff-Zylinder (2) und der Speicherbohrungen (3). Die Speicherbohrungen verbinden die Zylinder und nehmen das Stickstoff-Volumen auf (keine Sackbohrungen, da sich Ablagerungen ansammeln könnten). Die Kontrollarmatur (4), die direkt an der Tankplatte oder in Verbindung mit einem Hochdruckschlauch zum Beispiel am Pressenkörper montiert werden kann, wird zur Befüllung benötigt oder um das System drucklos zu machen. Über das Manometer kann der aktuelle Systemdruck abgelesen werden.

Bei Interesse an einem Hyson Stickstoff-System bieten wir Ihnen eine Systemkonzeption nach Kundenangaben an.

Dazu benötigen wir folgende System-Parameter:
- den verfügbaren Platz: Länge, Breite, Höhe (bei ausgefahrener Zylinder-Kolbenstange)
- Nominalhub des Zylinders und den Arbeitshub
- benötigte Kraft
- maximale Anzahl der Zylinder
- erlaubter Druckanstieg innerhalb des Arbeitshubs
- Position der Kontrollarmatur (integriert/extern)
- Zusatzbearbeitung: Taschen, Durchbrüche, Bohrungen, Gewinde, etc.
- Pressengeschwindigkeit (Hub pro min)
- Einsatz von Ziehölen (Einbringen von Drainagebohrungen)
- jährliche Hub-Gesamtleistung
- CAD (soweit verfügbar)

Für den Fall, dass unsere Kunden das System selber konfigurieren möchten, sind auf den nachfolgenden Seiten einige Anleitungen für das Standard-System bis 103 bar sowie für das Hochdruck-System bis 138 bar zu finden.

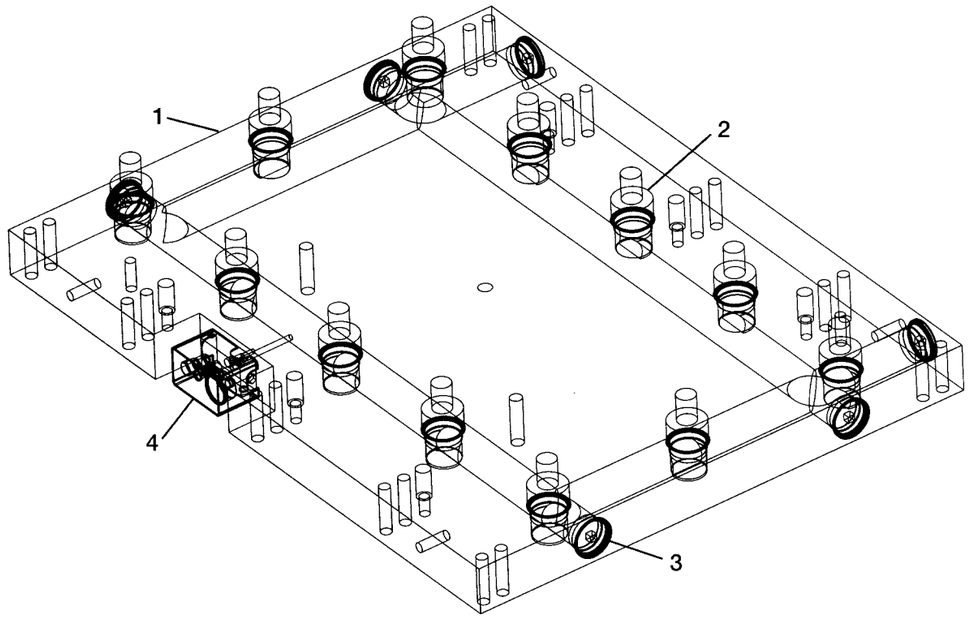
Manifold System Design

The typical manifold incorporates a metal plate, cylinders and control panel. The manifold plate (1) is machined to hold cylinders in place and act as a reservoir for nitrogen gas. Cylinders (2) are located wherever force is needed, threaded into the plate and sealed by an O-ring. The cylinders are connected by passages through which the nitrogen gas travels (3). A control panel (4) is mounted to the manifold plate or attached with a hose for remote operation. Reading the pressure within the system as well as charging and exhausting the system are accomplished through the control panel.

Save time and money and let our Engineered Products group design the most cost effective and efficient manifold system for you. We can turn around a quote quickly, often within 24 hours.

Here is the information we need to expedite your quotation:
- Maximum area available: length, width, thickness, overall height with cylinders fully extended
- Cylinder working stroke and preferred usable stroke
- Tonnage required
- Maximum number of cylinders
- Allowable pressure rise from initial contact to end of work stroke
- Special features: mounting holes, dowel holes, key ways, pockets, scrap chutes, etc.
- Location of control panel: recessed in plate or remote-hosed to plate
- Press speed (Strokes Per Minute-SPM)
- Use of drawing lubricants, i.e. can die be flooded with lubricants?
- Annual production levels
- CAD drawing or hand-drawn sketch with data points

If you choose to design the system yourself, step-by-step guides follow for designing both standard 1500 psi and high pressure 2000 psi systems.



Berechnung eines Standard-Tankplatten-Systems mit 103 bar

Schritt 1: Kraft

Ermitteln Sie die erforderliche Kraft zur Umformung, zum Halten oder Abstreifen des Blechteils.
Beispiel: Zur Umformung eines Blechteils wird die Kraft von 15.000 daN benötigt.

Schritt 2: Anzahl der Zylinder HS MOR-XP

Legen Sie die Anzahl der benötigten Druckpunkte fest, um die Kraft gleichmäßig über den gesamten Niederhalter zu verteilen. Um Abweichungen in Bezug auf Blechstärken, Zugfestigkeiten und allgemeine Abnutzung zu berücksichtigen, wählen Sie mehr Kraft als eigentlich rechnerisch erforderlich.
Beispiel: Wenn das gewünschte System nun über 20.000 daN (mehr als die zuvor kalkulierten 15.000 daN) verfügen soll, bestehen in Bezug auf die Zylinder-Auswahl folgende Optionen:

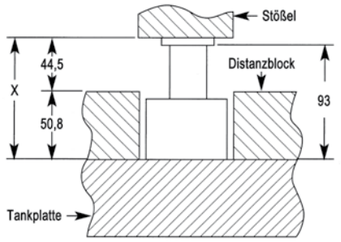
40	Zylinder mit jeweils	500 daN
20	Zylinder mit jeweils	1.000 daN
8	Zylinder mit jeweils	2.500 daN
5	Zylinder mit jeweils	4.000 daN
4	Zylinder mit jeweils	6.000 daN

Ausgewählt werden **8** Zylinder mit je **2.500 daN**, die eine gute Kraftverteilung sicher stellen.

Schritt 3: Hub

Die Arbeitshublänge des Niederhalters bestimmt die Hublänge der Gasdruckfedern, wobei die Standardhübe der meisten Zylinder in etwa in 12,7 mm-Schritten ansteigen. Wählen Sie eine Hublänge, die sicher zu jeder Zeit größer ist als der Arbeitshub.
Beispiel: Da der Arbeitshub des Niederhalters 44,45 mm betragen soll, wählen Sie einen Zylinder mit 50 mm Hublänge.

Schritt 4: Zylinder-Auswahl



Ermitteln Sie das X-Maß bei geöffnetem Werkzeug und wählen Sie einen Zylinder, der in seiner Gesamtbauhöhe möglichst nah an diesem Wert liegt. Berücksichtigen Sie dabei, dass eine Gasdruckfeder niemals „auf Block“ gefahren werden darf.
Beispiel: Der nun ermittelte, passende Zylinder ist ein
HS MOR-D 2.5-2,00 XP

Schritt 5: Druckanstieg / Bohrungsvolumen

Konventionelle Ziehwerkzeuge benötigen einen kontrollierten Materialfluss, der durch eine konstante Kraft des Zylinders während des Hubs erreicht wird. Das hier beschriebene System arbeitet üblicherweise mit einem Druckanstieg von 10% - 20%, andere Systeme können auch steilere Druckanstiegskurven aufweisen.
Um das benötigte Volumen zu errechnen müssen Sie zunächst das Stickstoff-Verdrängungsvolumen (SV) kalkulieren. Das ist die Menge Stickstoff, die während des Hubs in Summe aus allen Zylindern herausgedrückt wird.
Die effektive Fläche der Kolbenstange beträgt bei den Zylindern mit …

500 daN	5,03 cm²
1.000 daN	11,40 cm²
2.500 daN	22,20 cm²
4.000 daN	34,90 cm²
6.000 daN	51,50 cm²

Das gesamte Stickstoff-Verdrängungsvolumen (SV) errechnet sich in unserem Beispiel nun aus der Formel:
SV = Anzahl Zylinder x Länge Arbeitshub X Effektive Fläche der Kolbenstange

Beispiel:
SV = 8 X 4,445 cm X 22,2 cm²
SV = 789,4 cm³

Designing a Standard 1500 psi System

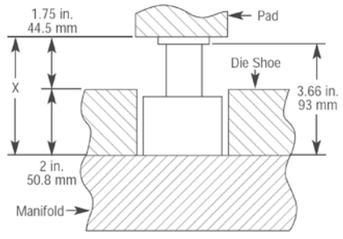
Step One – Force

Determine how much force is needed to form, hold, strip or draw the part.
Example: 15 tons of force is required for a conventional draw of a rectangular part.

Step Two – Cylinder Quantity of HS MOR-XP

Determine how many pressure points are needed to distribute the pressure evenly across the pad. To accommodate variances in part thickness, tensile strength, and die wear, build in more force than required.

Step Four – Cylinder Profile



Measurement from the bottom of the shoe to the bottom of the pad in the die-open position is known as the “X” dimension. Choose a cylinder that closely matches this dimension, remembering that the cylinder should be always protected from overstroking.
Example: The appropriate cylinder choice is the
HS MOR-D 2.5-2,00 XP

Example: The system design has the capability for 20 tons, more than the 15 tons required.

40	cylinders, each with	500 daN
20	cylinders, each with	1.000 daN
8	cylinders, each with	2.500 daN
5	cylinders, each with	4.000 daN
4	cylinders, each with	6.000 daN

Eight 2.5 ton cylinders provide a good pressure point distribution with the necessary tonnage.

Step Three – Cylinder Stroke

Pad travel dictates stroke length, and standard strokes for most cylinder types are in one-half-inch increments. Choose the stroke length that will not be exceeded by the actual working stroke.

Example: The travel of the pad is 1-3/4 inches so the proper cylinder stroke for this application is 2 inches.

Step Five – Pressure Rise/Volume Holes

Controlled material flow is needed in conventional draw dies with cylinders maintaining constant force throughout the stroke. This type of system is usually designed with a 10%-20% pressure rise, while other systems can use a higher pressure rise.
Determine the volume requirements, and therefore the length and diameter of the drilled holes, by calculating the Swept Volume (SV), the amount of nitrogen displaced from the cylinders during the stroke.

500 daN	0.78 in.²
1.000 daN	1.77 in.²
2.500 daN	3.44 in.²
4.000 daN	5.42 in.²
6.000 daN	7.98 in.²

SV = number of cylinders X work stroke of cylinders X effective piston area of cylinders

Example:
SV = 8 X 1.75 in. X 3.44 in.²
SV = 48.16 in.³

Standard-System 103 bar
Standard 1500 psi system
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

Abschließend berücksichtigen Sie bitte den entsprechenden Druckanstiegs-Faktor (DF) bei gewünschtem Druckanstieg. Bei geforderem Druckanstieg von …

10%	ergibt sich ein DF von 10,00
15%	ergibt sich ein DF von 6,66
20%	ergibt sich ein DF von 5,00

Das benötigte, in den Bohrungen unterzubringende Gesamtvolumen beträgt somit letztendlich: SV x DF

Beispiel (für 10%igen Druckanstieg):
Gesamtvolumen = 789,4 cm³ x 10
= 7.894 cm³

Abschließend wird dieses benötigte Gesamtvolumen in der Tankplatte eingebracht. Dabei ist der Bohrungsdurchmesser und damit der zu errechnende Bohrungsquerschnitt von der Dicke der Tankplatte abhängig.
Solange es die Einbaumaße erlauben, empfiehlt es sich aus Kostengründen immer, auf dickere Tankplatten zurück zu greifen, um dann größere, dafür aber kürzere Bohrungen einzubringen.

Die gesuchte Gesamtlänge der Bohrung errechnet sich wie folgt:

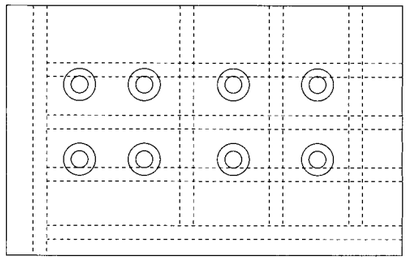
$$\text{Bohrungslänge} = \frac{\text{Gesamtvolumen}}{\text{Bohrungsquerschnitt}}$$

Beispiel: Bei einer Platte mit den Außenabmessungen von etwa 1.200 mm x 2.000 mm x 63 mm beträgt der maximale Bohrungsdurchmesser 38 mm, was einer Kreisfläche von 11,33 cm² entspricht. Für die in der Tankplatte unterzubringende Gesamtlänge der Bohrungen ergibt sich

$$\frac{7.894\ \text{cm}^3}{11{,}33\ \text{cm}^2} = 697\ \text{cm}$$

Eine mögliche Verteilung dieser Bohrungen könnte so aussehen:

4 Bohrungen	x	114,3 cm lang	=	457,2 cm Gesamt
3 Bohrungen	x	63,5 cm lang	=	190,5 cm Gesamt
1 Bohrung	x	76,0 cm lang	=	76,0 cm Gesamt
		in Summe		723,7 cm



Calculate the total manifold volume by multiplying the Swept Volume by pressure rise.
If you wish a pressure rise about …

10%,	you need the PF 10.00
15%,	you need the PF 6.66
20%,	you need the PF 5.00

PF = Pressure Rise Factor

The Total Volume you need amounts: SV x PF

Example (for a 10% pressure rise):
Total Volume = 48.16 in.³ x 10
= 481.6 in.³

Note: when shut height allows, design the system with a thicker manifold plate and reduce the number and length of drilled holes to reduce costs.

Convert the Total Volume into linear inches of drilling:

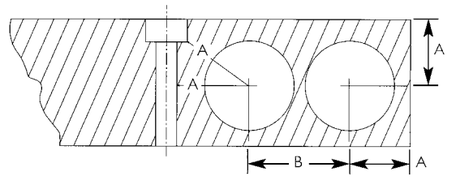
$$\text{Linear Inches Drilling} = \frac{\text{Volume required}}{\text{Volume per inch of drilled hole}}$$

Example:
For a plate measuring 2-1/2 in. X 80 in. X 48 in., the largest diameter volume hole is 1-1/2 in. Volume per linear inch of drilling is 1.767 in.².

$$\frac{481\ \text{in.}^3}{1.767\ \text{in.}^2} = 272\ \text{in.}$$

Example:

4 holes	x	45 in. long	=	180 linear inches
3 holes	x	21 in. long	=	63 linear inches
1 holes	x	29 in. long	=	29 linear inches
		sum		272 linear inches



Die folgende Tabelle zeigt unter anderem den maximalen Bohrungsdurchmesser unter Berücksichtigung der Plattenstärken:
From the Volume Hole Drilling chart that follows, identify the largest volume hole for the plate thickness:

Verschlussstopfen Plugs	Gewinde Thread	Fläche Area cm² (in.²)	Bohrungs-Ø Hole Diameter mm (in.)	A mm (in.)	B mm (in.)	Plattenstärke Plate Thickness mm (in.)	max. Bohrtiefe max. Drilling Depth (1 Seite / 1 Way) mm (in.)
HS NF 771-4	7/16 - 20	0,71 (.110)	9,53 (.375)	9,53 (.375)	18,75 (.738)	51 (2.00)	584 (23)
HS NF 771-5	1/2 - 20	0,97 (.151)	11,13 (.438)	10,31 (.406)	22,22 (.875)	51 (2.00)	584 (23)
HS NF 771-8	3/4 - 16	2,18 (.338)	16,60 (.656)	14,30 (.563)	30,96 (1.219)	51 (2.00)	483 (19)
HS NF 771-10	7/8 - 14	2,85 (.442)	19,05 (.750)	15,88 (.625)	34,93 (1.375)	51 (2.00)	1092 (43)
HS NF 771-12	1 - 1/16 - 12	4,46 (.691)	23,83 (.938)	19,05 (.750)	42,06 (1.656)	51 (2.00)	1092 (43)
HS NF 771-14	1 - 3/16 - 12	5,71 (.886)	26,97 (1.062)	22,45 (.884)	46,05 (1.813)	51 (2.00)	1092 (43)
HS NF 771-16	1 - 5/16 - 12	7,15 (1.108)	30,18 (1.188)	23,83 (.938)	50,80 (2.000)	57 (2.25)	1092 (43)
HS NF 771-20	1 - 5/8 - 12	11,40 (1.767)	38,10 (1.500)	26,97 (1.062)	58,75 (2.313)	64 (2.50)	1143 (45)
HS NF 771-24	1 - 7/8 - 12	15,52 (2.405)	44,45 (1.750)	31,75 (1.250)	60,33 (2.375)	70 (2.75)	1194 (47)
HS NF 771-M47	M47 x 2	15,52 (2.405)	44,45 (1.750)	31,75 (1.250)	60,33 (2.375)	70 (2.75)	1194 (47)
HS NF 771-M63	M63 x 2	27,75 (4.301)	59,44 (2.340)	39,70 (1.563)	76,20 (3.000)	89 (3.50)	1829 (72)
HS NF 771-32	2 - 1/2 - 12	28,58 (4.430)	60,33 (2.375)	39,70 (1.563)	76,20 (3.000)	89 (3.50)	1829 (72)
HS NF 771-82	M82 x 2	48,51 (7.518)	78,59 (3.094)	53,98 (2.125)	95,25 (3.750)	114 (4.50)	1524 (60)
HS NF 771-100	M100 x 2	71,26 (11.045)	95,25 (3.750)	63,50 (2.500)	111,25 (4.380)	133 (5.25)	1829 (72)

Berechnung eines Hochdruck-Tankplatten-Systems mit 138 bar

Schritt 1: Kraft

Ermitteln Sie die erforderliche Kraft zur Umformung, zum Halten oder Abstreifen des Blechteils.
Beispiel: Zur Umformung eines Blechteils wird die Kraft von 15.000 daN benötigt.

Schritt 2: Anzahl der Zylinder HS MOR-XP

Legen Sie die Anzahl der benötigten Druckpunkte fest, um die Kraft gleichmäßig über den gesamten Niederhalter zu verteilen. Um Abweichungen in Bezug auf Blechstärken, Zugfestigkeiten und allgemeine Abnutzung zu berücksichtigen, wählen Sie mehr Kraft als eigentlich rechnerisch erforderlich.
Beispiel: Wenn das gewünschte System nun über 20.000 daN (mehr als die zuvor kalkulierten 15.000 daN) verfügen soll, bestehen in Bezug auf die Zylinder-Auswahl folgende Optionen:

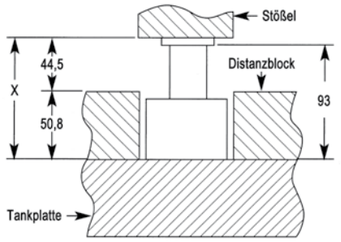
26	Zylinder mit jeweils	750 daN
13	Zylinder mit jeweils	1.500 daN
7	Zylinder mit jeweils	3.000 daN
4	Zylinder mit jeweils	5.000 daN
3	Zylinder mit jeweils	8.000 daN

Ausgewählt werden **4** Zylinder mit je **5.000 daN**, die eine gute Kraftverteilung sicher stellen.

Schritt 3: Hub

Die Arbeitshublänge des Niederhalters bestimmt die Hublänge der Gasdruckfedern, wobei die Standardhübe der meisten Zylinder in etwa in 12,7 mm-Schritten ansteigen. Wählen Sie eine Hublänge, die sicher zu jeder Zeit größer ist als der Arbeitshub.
Beispiel: Da der Arbeitshub des Niederhalters 44,45 mm betragen soll, wählen Sie einen Zylinder mit 50 mm Hublänge.

Schritt 4: Zylinder-Auswahl



Ermitteln Sie das X-Maß bei geöffnetem Werkzeug und wählen Sie einen Zylinder, der in seiner Gesamtbauhöhe möglichst nah an diesem Wert liegt. Berücksichtigen Sie dabei, dass eine Gasdruckfeder niemals „auf Block“ gefahren werden darf.
Beispiel: Der nun ermittelte, passende Zylinder ist ein
HS MOR-D 5000-2,00 XP

Schritt 5: Druckanstieg / Bohrungsvolumen

Konventionelle Ziehwerkzeuge benötigen einen kontrollierten Materialfluss, der durch eine konstante Kraft des Zylinders während des Hubs erreicht wird. Das hier beschriebene System arbeitet üblicherweise mit einem Druckanstieg von 10% - 20%, andere Systeme können auch steilere Druckanstiegskurven aufweisen.
Um das benötigte Volumen zu errechnen müssen Sie zunächst das Stickstoff-Verdrängungsvolumen (SV) kalkulieren. Das ist die Menge Stickstoff, die während des Hubs in Summe aus allen Zylindern herausgedrückt wird.
Die effektive Fläche der Kolbenstange beträgt bei den Zylindern mit …

750 daN	5,03 cm²
1.500 daN	11,40 cm²
3.000 daN	22,20 cm²
5.000 daN	34,90 cm²
8.000 daN	51,50 cm²

Das gesamte Stickstoff-Verdrängungsvolumen (SV) errechnet sich in unserem Beispiel nun aus der Formel:
SV = Anzahl Zylinder x Länge Arbeitshub X Effektive Fläche der Kolbenstange

Beispiel:
SV = 4 X 4,445 cm X 34,9 cm²
SV = 620,5 cm³

Designing a High Pressure 2000 psi System

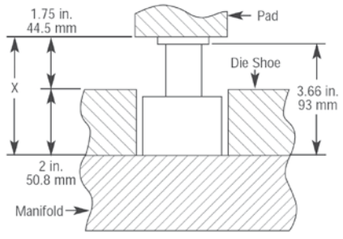
Step One – Force

Determine how much force is needed to form, hold, strip or draw the part.
Example: 15 tons of force is required for a conventional draw of a rectangular part.

Step Two – Cylinder Quantity of HS MOR-XP

Determine how many pressure points are needed to distribute the pressure evenly across the pad. To accommodate variances in part thickness, tensile strength, and die wear, build in more force than required.

Step Four – Cylinder Profile



Measurement from the bottom of the shoe to the bottom of the pad in the die-open position is known as the “X” dimension. Choose a cylinder that closely matches this dimension, remembering that the cylinder should be always protected from overstroking.
Example: The appropriate cylinder choice is the
HS MOR-D 5000-2,00 XP

Step Five – Pressure Rise/Volume Holes

Controlled material flow is needed in conventional draw dies with cylinders maintaining constant force throughout the stroke. This type of system is usually designed with a 10%-20% pressure rise, while other systems can use a higher pressure rise.
Determine the volume requirements, and therefore the length and diameter of the drilled holes, by calculating the Swept Volume (SV), the amount of nitrogen displaced from the cylinders during the stroke.

750 daN	0.78 in.²
1.500 daN	1.77 in.²
3.000 daN	3.44 in.²
5.000 daN	5.42 in.²
8.000 daN	7.98 in.²

SV = number of cylinders X work stroke of cylinders X effective piston area of cylinders

Example:
SV = 4 X 1.75 in. X 5.42 in.²
SV = 37.94 in.³

Example: The system design has the capability for 20 tons, more than the 15 tons required.

26	cylinders, each with	750 daN
13	cylinders, each with	1.500 daN
7	cylinders, each with	3.000 daN
4	cylinders, each with	5.000 daN
3	cylinders, each with	8.000 daN

Four 5.0 ton cylinders provide a good pressure point distribution with the necessary tonnage.

Step Three – Cylinder Stroke

Pad travel dictates stroke length, and standard strokes for most cylinder types are in one-half-inch increments. Choose the stroke length that will not be exceeded by the actual working stroke.

Example: The travel of the pad is 1-3/4 inches so the proper cylinder stroke for this application is 2 inches.

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Abschließend berücksichtigen Sie bitte den entsprechenden Druckanstiegs-Faktor (DF) bei gewünschtem Druckanstieg. Bei geforderten Druckanstieg von …

10% ergibt sich ein DF von 10,00
15% ergibt sich ein DF von 6,66
20% ergibt sich ein DF von 5,00

Das benötigte, in den Bohrungen unterzubringende Gesamtvolumen beträgt somit letztendlich: SV x DF

Beispiel (für 10%igen Druckanstieg):
Gesamtvolumen = 620,5 cm³ x 10
= 6205 cm³

Abschließend wird dieses benötigte Gesamtvolumen in der Tankplatte eingebracht. Dabei ist der Bohrungsdurchmesser und damit der zu errechnende Bohrungsquerschnitt von der Dicke der Tankplatte abhängig.
Solange es die Einbaumaße erlauben, empfiehlt es sich aus Kostengründen immer, auf dickere Tankplatten zurück zu greifen, um dann größere, dafür aber kürzere Bohrungen einzubringen.

Die gesuchte Gesamtlänge der Bohrung errechnet sich wie folgt:

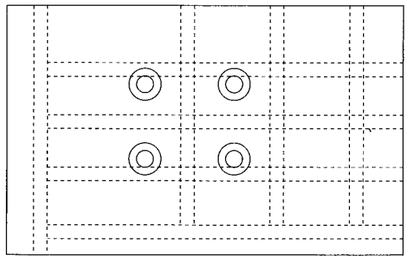
$$\text{Bohrungslänge} = \frac{\text{Gesamtvolumen}}{\text{Bohrungsquerschnitt}}$$

Beispiel: Bei einer Platte mit den Außenabmessungen von etwa 1.200 mm x 2.000 mm x 63 mm beträgt der maximale Bohrungsdurchmesser 38 mm, was einer Kreisfläche von 11,33 cm² entspricht. Für die in der Tankplatte unterzubringende Gesamtlänge der Bohrungen ergibt sich

$$\frac{6205\ \text{cm}^3}{11{,}33\ \text{cm}^2} = 547{,}7\ \text{cm}$$

Eine mögliche Verteilung dieser Bohrungen könnte so aussehen:

4 Bohrungen	x	70 cm lang	=	280 cm Gesamt
3 Bohrungen	x	51 cm lang	=	153 cm Gesamt
1 Bohrung	x	117 cm lang	=	117 cm Gesamt
		in Summe		550 cm



Calculate the total manifold volume by multiplying the Swept Volume by pressure rise.
If you wish a pressure rise about …

10%, you need the PF 10.00
15%, you need the PF 6.66
20%, you need the PF 5.00

PF = Pressure Rise Factor

The Total Volume you need amounts: SV x PF

Example (for a 10% pressure rise):
Total Volume = 37.94 in.³ x 10
= 379.4 in.³

Note: when shut height allows, design the system with a thicker manifold plate and reduce the number and length of drilled holes to reduce costs.

Convert the Total Volume into linear inches of drilling:

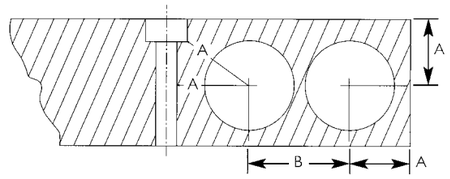
$$\text{Linear Inches Drilling} = \frac{\text{Volume required}}{\text{Volume per inch of drilled hole}}$$

Example:
For a plate measuring 2-1/2 in. X 80 in. X 48 in., the largest diameter volume hole is 1-1/2 in. Volume per linear inch of drilling is 1.767 in.².

$$\frac{379.4\ \text{in.}^3}{1.767\ \text{in.}^2} = 214.7\ \text{in.}$$

Example:

4 holes	x	27.56 in. long	=	110.24linear inches
3 holes	x	20.09 in. long	=	60.27 linear inches
1 holes	x	46.06 in. long	=	46.06 linear inches
		sum		216.57 linear inches

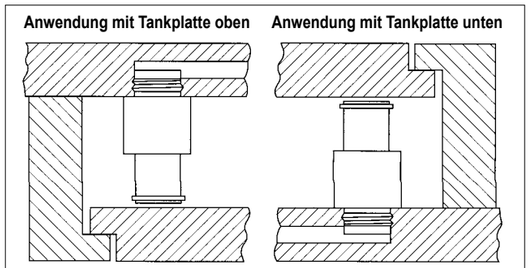


Die folgende Tabelle zeigt unter anderem den maximalen Bohrungsdurchmesser unter Berücksichtigung der Plattenstärken:
From the Volume Hole Drilling chart that follows, identify the largest volume hole for the plate thickness:

Verschlussstopfen Plugs	Gewinde Thread	Fläche Area cm² (in.²)	Bohrungs-Ø Hole Diameter mm (in.)	A mm (in.)	B mm (in.)	Plattenstärke Plate Thickness mm (in.)	max. Bohrtiefe max. Drilling Depth (1 Seite / 1 Way) mm (in.)
HS NF 771-4	7/16 - 20	0,71 (.110)	9,53 (.375)	9,40 (.370)	19,05 (.750)	51 (2.00)	584 (23)
HS NF 771-5	1/2 - 20	0,97 (.151)	11,13 (.438)	10,41 (.410)	22,22 (.875)	51 (2.00)	584 (23)
HS NF 771-8	3/4 - 16	2,18 (.338)	16,60 (.656)	15,24 (.600)	30,96 (1.219)	51 (2.00)	483 (19)
HS NF 771-10	7/8 - 14	2,85 (.442)	19,05 (.750)	17,53 (.690)	34,93 (1.375)	51 (2.00)	1092 (43)
HS NF 771-12	1 - 1/16 - 12	4,46 (.691)	23,83 (.938)	21,34 (.840)	42,06 (1.656)	51 (2.00)	1092 (43)
HS NF 771-14	1 - 3/16 - 12	5,71 (.886)	26,97 (1.062)	23,62 (.930)	46,05 (1.813)	51 (2.00)	1092 (43)
HS NF 771-16	1 - 5/16 - 12	7,15 (1.108)	30,18 (1.188)	25,91 (1.020)	50,80 (2.000)	57 (2.25)	1092 (43)
HS NF 771-20	1 - 5/8 - 12	11,40 (1.767)	38,10 (1.500)	31,75 (1.250)	60,33 (2.375)	67 (2.62)	1143 (45)
HS NF 771-24	1 - 7/8 - 12	15,52 (2.405)	44,45 (1.750)	36,32 (1.430)	69,85 (2.750)	76 (3.00)	1194 (47)
HS NF 771-M47	M47 x 2	15,52 (2.405)	44,45 (1.750)	36,32 (1.430)	69,85 (2.750)	76 (3.00)	1194 (47)
HS NF 771-M63	M63 x 2	27,75 (4.301)	59,44 (2.340)	48,01 (1.890)	88,90 (3.500)	95 (3.75)	1829 (72)
HS NF 771-32	2 - 1/2 - 12	28,58 (4.430)	60,33 (2.375)	61,98 (2.440)	114,30 (4.500)	95 (3.75)	1829 (72)
HS NF 771-82	M82 x 2	48,51 (7.518)	78,59 (3.094)	76,20 (3.000)	114,30 (4.500)	124 (4.88)	1524 (60)
HS NF 771-100	M100 x 2	71,26 (11.045)	95,25 (3.750)	76,20 (3.000)	136,53 (5.375)	152 (6.00)	1829 (72)

Außerdem bei der Konstruktion zu beachten:

1. Keine Vorspannung

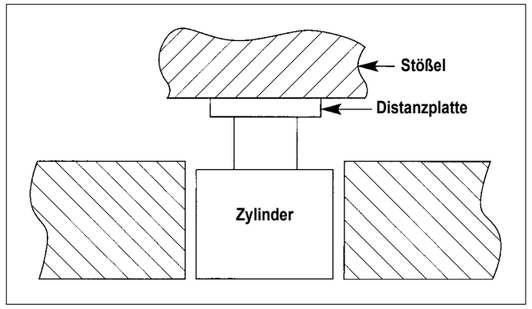


Achtung: Das Gewicht des Niederhalters darf nicht höher sein als der Gegendruck der Stickstoff-Zylinder.

Um die Kolbenstange der Stickstoff-Zylinder ganz ausfahren zu können, sollte zwischen der zu betätigenden Platte (Abstreifer, Niederhalter) und der Kolbenstangen ein Spalt von 0,2 bis 0,3 mm vorgesehen werden.

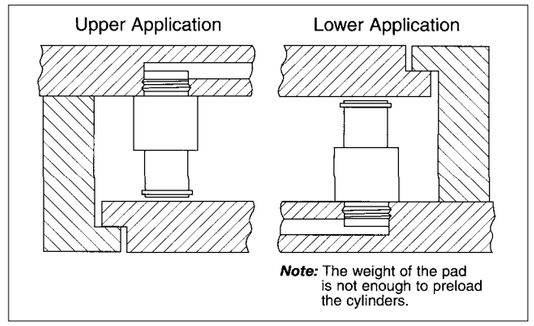
2. Vermeiden Sie Kolbenstangen mit Sonderlängen

Sollten die verfügbaren Zylinderlängen nicht exakt mit dem gewünschten Hub übereinstimmen, empfehlen wir den Einsatz von gehärteten Distanzplatten zum Ausgleich der Längendifferenz.
Bei Bedarf können die Zylinder bei Überlänge auch etwas in der Aufnahmeplatte versenkt werden.
Sonderzylinder sind in der Regel teurer und haben längere Lieferzeit.



Additional Design Considerations:

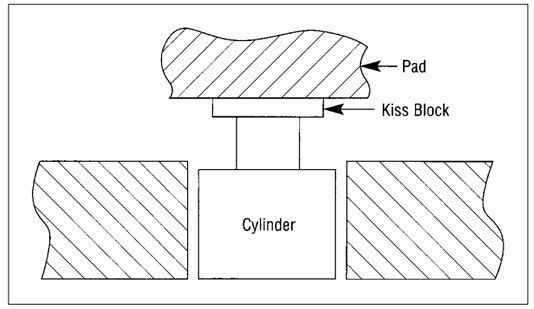
1. Design with Die Open Clearance



Manifolds require a minimum clearance of .010 inch (.254 mm) in the die to allow the nitrogen cylinders to come to a full, open position. In an upper application, the clearance occurs between the end of the cylinder rod and the pad. In a lower application, the clearance is between the pad and its retainer system.

2. Avoid Special Length Piston Rods

If the height of a standard nitrogen cylinder does not match the distance to the back of the pad, we recommend using kiss blocks to make up the height difference. Another alternative is to counterbore the cylinders into the manifold.
Cylinders with special length piston rods are custom orders and require longer delivery times.



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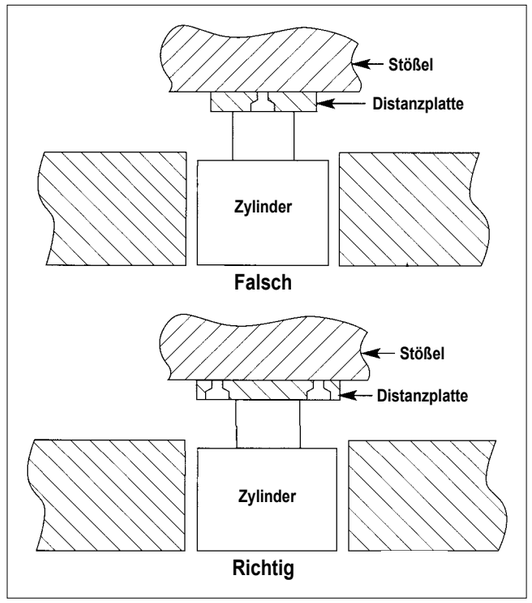
Informationen
Information
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

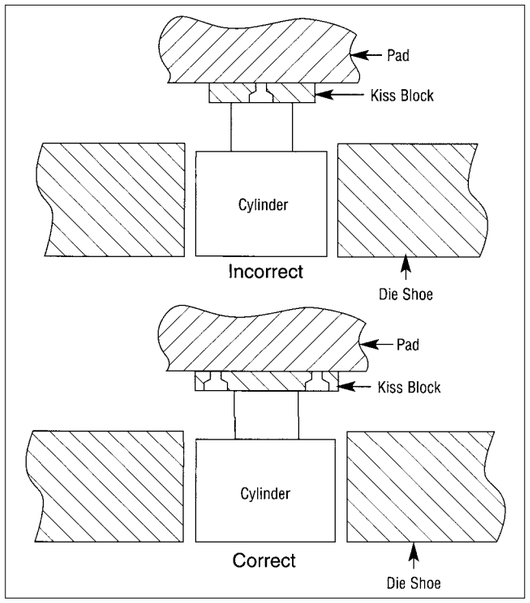
3. Kolbenstangen-Kontaktfläche

Es ist wichtig, dass die Flächen, gegen die die Kolbenstangen arbeiten, eben sind. Arbeiten Sie nie gegen Senkungen, Gussoberflächen oder Bolzen.

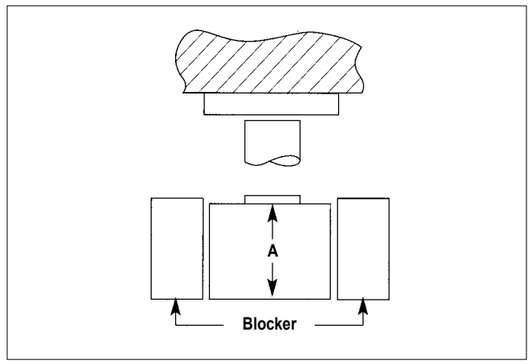


3. Piston Rod Contact Surfaces

It is essential that the nitrogen cylinder's piston rod make contact with a flat surface. Never put the piston rod against a counterbored hole, rough casting or bolt.

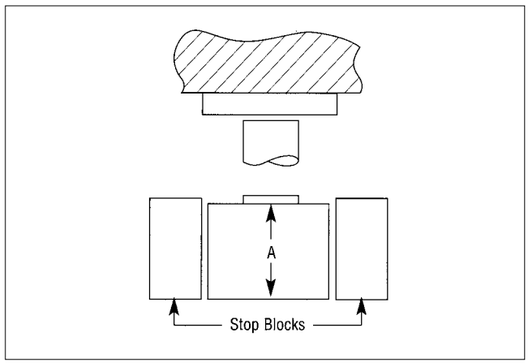


4. Blocker



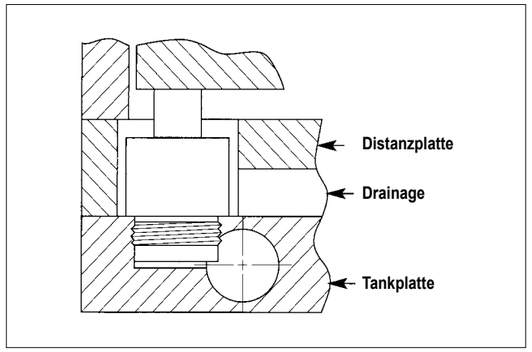
Arbeiten Sie mit Blockern um die Zylinder für den Fall zu schützen, dass der Niederhalter über den eigentlichen Hub hinausfährt.
Der Blocker sollte gleich groß oder größer als die Körperlänge (A) des Zylinders sein.

4. Stop Blocks



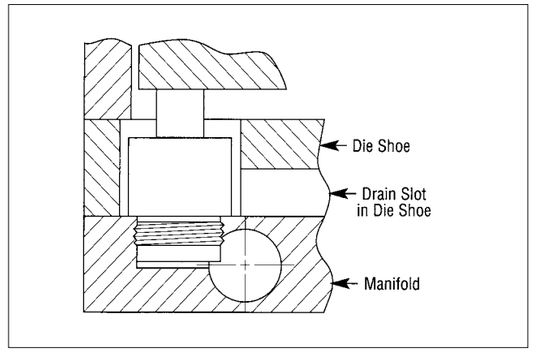
Use stop blocks to prevent cylinder damage in the event that the pad is overstroked.
The stop block should be equal to or greater than the "A" dimension on the cylinder.

5. Drainagebohrungen



In den meisten Anwendungen werden die Zylinder in gesenkten Bohrungen untergebracht. Diese können sich mit Ziehölen, Spänen oder auch Reinigungsmitteln füllen und die Standzeit des Systems reduzieren.
Um das zu vermeiden, berücksichtigen Sie Drainagebohrungen in jeder Zylinderaufnahme. Sie sollten groß genug sein, um Verstopfungen auszuschließen.
Sollten Sie sich bezüglich der Größe dieser Bohrungen unter Berücksichtigung der angeschlossenen Zylinder nicht sicher sein, helfen wir Ihnen gerne weiter.

5. Drain Slots



In most die designs, cylinders are placed through a pocket in the die shoe or subplate in the die. This pocket can fill with draw lubricants, metal chips and/or cleaning solvents that submerge the cylinder and shorten the life of the system.
To prevent this, install drainage slots in each cylinder pocket. They should be of sufficient size to prevent blockage, and because the size of the drain slots or drain holes depend on the number of cylinders connected by one slot/hole, please contact Hyson Products for assistance.

6. Zugang / Wartung / Service

Stellen Sie schon bei der Konstruktion sicher, dass das Stickstoff-System gut transportiert, installiert, gewendet und gewartet werden kann, ohne Bauteile zu beschädigen.

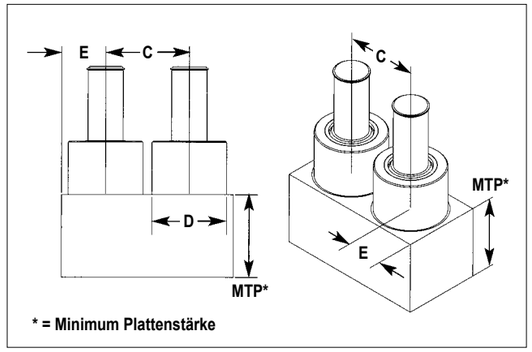
6. Handling Holes

Every manifold should have handling holes so the system can be installed, turned and serviced without damaging the nitrogen cylinders.

Informationen
Information
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

7. Zylinder-Platzierung

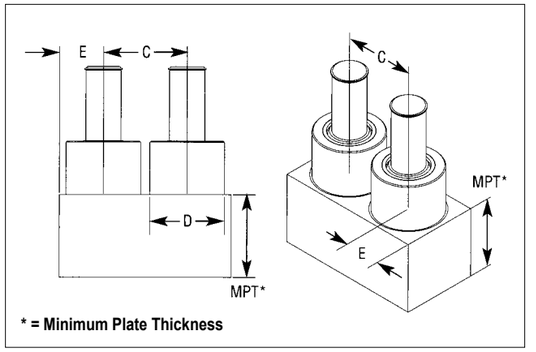
Die Mindestabstände zwischen Zylindern, wie auch zu den Plattenaußenkanten, entnehmen Sie bitte den folgenden Tabellen.



*** = Minimum Plattenstärke**

7. Cylinder Location

Using the charts that follow, locate cylinders for the standard 1500 psi manifold or the high pressure 2000 psi manifold with a minimum distance between the cylinders and plate edge.



*** = Minimum Plate Thickness**

Standard-System 103 bar

Kraft [t]	D [mm]	min. C [mm]	min. E [mm]
0,5	41	51	24
1,0	54	60	32
2,5	70	76	40
4,0	90	95	54
6,0	109	114	64

Standard 1500 psi System

Force [t]	D [in.]	min. C [in.]	min. E [in.]
0,5	1.60	2.00	.94
1,0	2.12	2.38	1.25
2,5	2.75	3.00	1.56
4,0	3.56	3.75	2.13
6,0	4.31	4.45	2.50

Hochdruck-System 138 bar

Kraft [t]	D [mm]	min. C [mm]	min. E [mm]
0,75	41	51	26
1,5	54	70	37
3,0	70	89	48
5,0	90	115	62
8,0	109	137	77

High Pressure 2000 psi System

Force [t]	D [in.]	min. C [in.]	min. E [in.]
0,75	1.60	2.00	1.02
1,5	2.12	2.75	1.43
3,0	2.75	3.50	1.89
5,0	3.56	4.50	2.44
8,0	4.31	5.38	3.00

Auswahl der richtigen Tankplatten-Zylinder

Unsere Hyson Tankplatten-Zylinder werden in den unterschiedlichsten Ausführungen bezüglich Durchmesser, Kräften, Hüben und Höhen und mit den unterschiedlichsten Eigenschaften abgeboten.

Choosing a Manifold Cylinder

Hyson Products nitrogen manifold cylinders are available in a wide variety of diameters, tonnages, profiles, strokes and heights to meet your stamping requirements.



HS SB 2,5-1,0 HS MOR 2,5-1,0 HS MOR 400-1,0 HS TSB 2,5-1,0 HS MOR-D 2,5-1,0

SB

Der Hyson Kurzhub-Zylinder wurde für Ziehkissen oder für Gegenhaltearbeiten konstruiert.

SB

A short height cylinder for short stroke applications. Designed originally for stripper pad operations, the cylinder profile allows for minimal clearance and weight when manifolds are mounted in upper stripping dies.

MOR

Dieser Zylindertyp wird nicht in die Tankplatte eingesenkt, sondern wird eingesetzt, wenn genügend Einbauhöhe zur Verfügung steht.

MOR

The cylinder used most often in basic nitrogen systems. This taller cylinder extends beyond the surface of the manifold plate for applications where shut height is not an issue.

MOR 400

Unser kompaktester Tankplatten-Zylinder. Ideal dort einzusetzen, wo niedrigere Kräfte gewünscht sind.

MOR 400

Our most compact manifold cylinder, ideal for low tonnage operations. Often used as a lifter or when higher speeds are required.

TSB

Ein Zylinder mit niedriger Körperhöhe für Anwendungen, bei denen die Einbauhöhe begrenzt ist und ein minimales Überstehen des Zylinders gewünscht wird.

TSB

A low body profile cylinder for applications where shut height is very limited. The TSB requires less die shoe machining for cylinder body clearance and shallower pockets if counterbored in the manifold.

MOR-D

Ein Zylinder mit niedrigem Körper für Anwendungen bei denen die Bauhöhe das wichtigste Kriterium ist. Eingebaut in eine dicke Tankplatte kann der Zylinder auch eingesenkt werden, wobei eine Pinolstange die Zylinderkolbenstange betätigt.

MOR-D

A shorter cylinder for applications where space is at a premium. Often vertical die height can be saved using a MOR-D profile cylinder. Installed in a thick manifold, the cylinder sleeve extends deep to allow the piston to stroke into the plate.

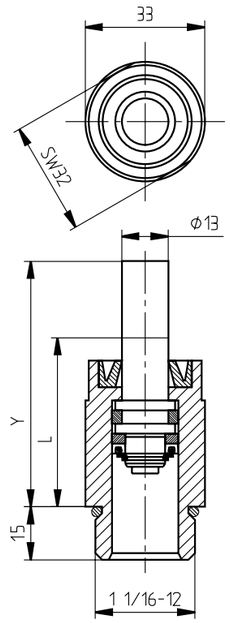
[11.03.2020]
[11.03.2020]

HS MOR 400 XP

Technische Daten:
Medium: N2
Max. Fülldruck: 110 bar
Min. Fülldruck: 20 bar

Specifications:
Medium: N2
Max. charging pressure: 110 bar
Min. charging pressure: 20 bar

HS MOR 400-1,50 XP



MAIL

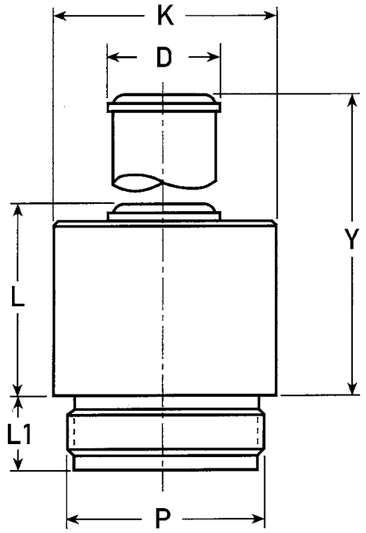
Zylindertyp / Model	Code	Hub / Stroke	Max. Kraft / Max. force kN (110 bar)	Kolbenfläche / Piston area cm^2	Y	L	Plattenstärke / Plate thickness min.
HS MOR 400	**0,50**	12,7	4,06	2,62	42	30	25,4
HS MOR 400	**0,75**	19,1	4,06	2,62	55	36	25,4
HS MOR 400	**1,00**	25,4	4,06	2,62	68	42	25,4
HS MOR 400	**1,50**	38,1	4,06	2,62	93	55	25,4
HS MOR 400	**2,00**	50,8	4,06	2,62	118	68	25,4
HS MOR 400	**2,50**	63,5	4,06	2,62	144	80	25,4
HS MOR 400	**3,00**	76,2	4,06	2,62	169	93	25,4

HS MOR . . XP

Technische Daten:
Medium: N2
Max. Fülldruck
Standard-System: 103 bar
Max. Fülldruck
Hochdruck-System: 138 bar
Min. Fülldruck: 20 bar

Specifications:
Medium: N2
Max. charging pressure
Standard system: 103 bar
Max. charging pressure
High pressure system: 138 bar
Min. charging pressure: 20 bar

HS MOR 1,0-3,00 XP



MAIL

Zylindertyp / Model (103 bar)	Zylindertyp / Model (138 bar)	Kolbenfläche / Piston area cm²	K	P	D	L1	Plattenstärke / Plate thickness min. (103 bar)	Plattenstärke / Plate thickness min. (138 bar)	max. Hub / max. stroke
HS MOR 0,5	**HS MOR 750**	5,07	41	1 5/16 - 12	22	22	44,5	47,8	101,6
HS MOR 1,0	**HS MOR 1500**	11,40	54	1 7/8 - 12	27	18	44,5	49,0	127,0
HS MOR 2,5	**HS MOR 3000**	22,26	70	2 1/2 - 12	35	25	50,8	55,4	152,0
HS MOR 4,0	**HS MOR 5000**	34,92	90	M82 x 2	47	32	50,8	57,0	178,0
HS MOR 6,0	**HS MOR 8000**	51,50	109	M100 x 2	64	32	63,5	73,0	203,0

Standard-Zylinder
Standard cylinders
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

HS MOR . . XP

HS MOR 1,0-3,00 XP



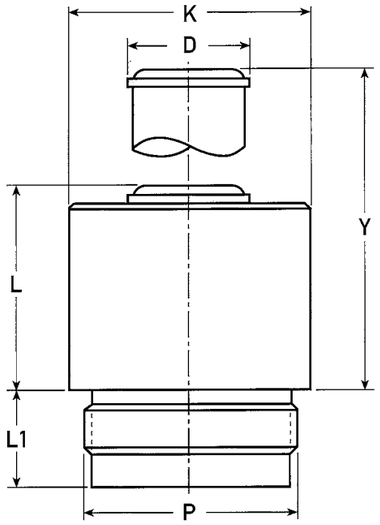
Code	Hub	HS MOR 0,5 / 750		HS MOR 1,0 / 1500		HS MOR 2,5 / 3000		HS MOR 4,0 / 5000		HS MOR 6,0 / 8000	
		Y	L	Y	L	Y	L	Y	L	Y	L
0,25	6,4	29,5	23,1	–	–	–	–	–	–	–	–
0,50	12,7	42,2	29,5	48,3	36,2	48,3	36,2	48,3	36,2	48,3	36,2
0,75	19,1	54,9	35,8	61,3	42,2	61,3	42,2	61,3	42,2	61,3	42,2
1,00	25,4	67,6	42,2	73,9	48,5	73,9	48,5	73,9	48,5	73,9	48,5
1,50	38,1	93,0	54,9	99,3	61,2	99,3	61,2	99,3	61,2	99,3	61,2
2,00	50,8	118,4	67,6	124,7	73,9	124,7	73,9	124,7	73,9	124,7	73,9
2,50	63,5	143,8	80,3	150,1	86,6	150,1	86,6	150,1	86,6	150,1	86,6
3,00	76,2	169,2	93,0	175,5	99,3	175,5	99,3	175,5	99,3	175,5	99,3
3,50	88,9	194,6	105,7	200,9	112,0	200,9	112,0	200,9	112,0	200,9	112,0
4,00	101,6	220,0	118,4	226,3	124,7	226,3	124,7	226,3	124,7	226,3	124,7
4,50	114,3	–	–	251,7	137,4	251,7	137,4	251,7	137,4	251,7	137,4
5,00	127,0	–	–	277,1	150,1	277,1	150,1	277,1	150,1	277,1	150,1
5,50	139,7	–	–	–	–	302,5	162,8	302,5	162,8	302,5	162,8
6,00	152,4	–	–	–	–	327,9	175,5	327,9	175,5	327,9	175,5
6,50	165,1	–	–	–	–	–	–	353,3	188,2	353,3	188,2
7,00	177,8	–	–	–	–	–	–	378,7	200,9	378,7	200,9
7,50	190,5	–	–	–	–	–	–	–	–	404,1	213,6
8,00	203,2	–	–	–	–	–	–	–	–	429,5	226,3

HS MOR-D . . XP

Technische Daten:
Medium: N2
Max. Fülldruck
Standard-System: 103 bar
Max. Fülldruck
Hochdruck-System: 138 bar
Min. Fülldruck: 20 bar

Specifications:
Medium: N2
Max. charging pressure
Standard system: 103 bar
Max. charging pressure
High pressure system: 138 bar
Min. charging pressure: 20 bar

HS MOR-D 4,0-0,25 XP



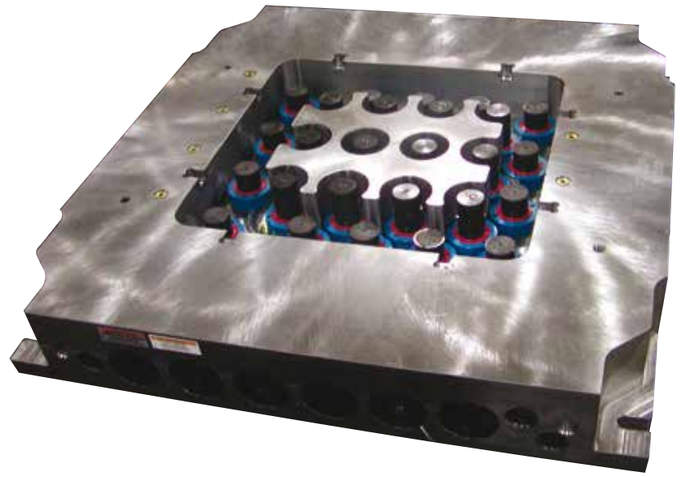
MAIL

Zylindertyp / Model (103 bar)	Zylindertyp / Model (138 bar)	Kolbenfläche / Piston area cm²	K	P	D	L	max. Hub / max. stroke
HS MOR-D 0,5	**HS MOR-D 750**	5,07	41	1 5/16 - 12	22	42	101,6
HS MOR-D 1,0	**HS MOR-D 1500**	11,40	54	1 7/8 - 12	27	42	127,0
HS MOR-D 2,5	**HS MOR-D 3000**	22,26	70	2 1/2 - 12	35	42	152,0
HS MOR-D 4,0	**HS MOR-D 5000**	34,92	90	M82 x 2	47	42	178,0
HS MOR-D 6,0	**HS MOR-D 8000**	51,50	109	M100 x 2	64	42	203,0

Standard-Zylinder
Standard cylinders
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

HS MOR-D . . XP

HS MOR-D 4,0-0,25 XP



Code	Hub	HS MOR-D 0,5 / 750				HS MOR-D 1,0 / 1500				HS MOR-D 2,5 / 3000				HS MOR-D 4,0 / 5000				HS MOR-D 6,0 / 8000			
	Stroke	Y	L1	$S_{min.}$ **0,5**	$S_{min.}$ **750**	Y	L1	$S_{min.}$ **1,0**	$S_{min.}$ **1500**	Y	L1	$S_{min.}$ **2,5**	$S_{min.}$ **3000**	Y	L1	$S_{min.}$ **4,0**	$S_{min.}$ **5000**	Y	L1	$S_{min.}$ **6,0**	$S_{min.}$ **8000**
0,25	6,4	48,5	15,0	44,5	47,8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0,50	12,7	54,9	15,0	44,5	47,8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0,75	19,1	61,3	16,0	44,5	47,8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1,00	25,4	67,6	22,4	44,5	47,8	67,6	24,6	44,5	49,0	67,6	31,8	50,8	55,4	67,6	38,1	63,5	69,9	67,6	38,1	63,5	73,0
1,50	38,1	80,3	35,1	46,0	49,0	80,3	37,3	47,8	52,6	80,3	44,5	57,0	61,7	80,3	50,8	69,9	76,0	80,3	50,8	69,9	79,5
2,00	50,8	93,0	47,8	58,7	62,0	93,0	50,0	60,5	65,0	93,0	57,2	69,9	74,4	93,0	63,5	82,6	88,9	93,0	63,5	82,6	92,0
2,50	63,5	105,7	60,5	71,4	74,7	105,7	62,7	73,0	78,0	105,7	69,9	82,6	87,0	105,7	76,2	95,0	101,6	105,7	76,2	95,0	104,9
3,00	76,2	118,4	73,2	84,0	87,4	118,4	75,4	85,9	90,7	118,4	82,6	95,0	99,8	118,4	88,9	108,0	114,0	118,4	88,9	108,0	117,6
3,50	88,9	131,1	85,9	96,8	100,0	131,1	88,2	98,6	103,4	131,1	95,3	108,0	112,5	131,1	101,6	120,7	127,0	131,1	101,6	120,7	130,0
4,00	101,6	143,8	88,6	109,5	112,8	143,8	100,8	111,0	116,0	143,8	108,0	120,7	125,0	143,8	114,3	133,4	139,7	143,8	114,3	133,4	143,0
4,50	114,3	–	–	–	–	156,5	112,8	124,0	128,8	156,5	120,7	133,4	137,9	156,5	127,0	146,0	152,4	156,5	127,0	146,0	155,7
5,00	127,0	–	–	–	–	169,2	126,4	133,7	141,5	169,2	133,4	146,0	150,6	169,2	139,7	158,8	165,0	169,2	139,7	158,8	168,4
5,50	139,7	–	–	–	–	–	–	–	–	181,9	146,1	158,8	163,0	181,9	152,4	171,5	177,8	181,9	152,4	171,5	181,0
6,00	152,4	–	–	–	–	–	–	–	–	194,6	158,8	171,5	176,0	194,6	165,1	184,0	190,5	194,6	165,1	184,0	193,8
6,50	165,1	–	–	–	–	–	–	–	–	–	–	–	–	207,3	177,8	196,9	203,0	207,3	177,8	196,9	206,5
7,00	177,8	–	–	–	–	–	–	–	–	–	–	–	–	220,0	190,5	209,6	215,9	220,0	190,5	209,6	219,0
7,50	190,5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	232,7	203,2	222,0	231,9
8,00	203,2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	244,7	215,9	235,0	244,6

HS TSB

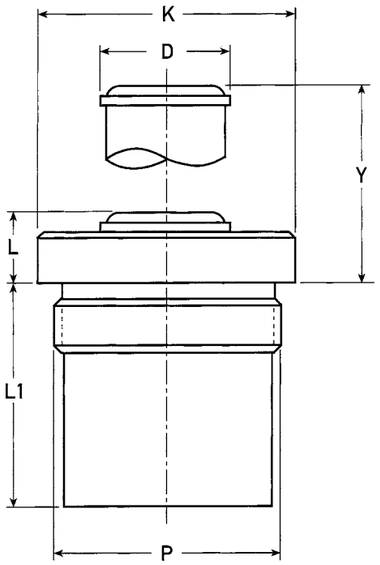
Dieser Zylindertyp wird in sehr starken Tankplatten eingesetzt.

For usage in thick manifold plates.

HS TSB 2,5-1,50

Technische Daten:
Medium: N2
Max. Fülldruck
Standard-System: 103 bar
Max. Fülldruck
Hochdruck-System: 138 bar
Min. Fülldruck: 20 bar

Specifications:
Medium: N2
Max. charging pressure
Standard system: 103 bar
Max. charging pressure
High pressure system: 138 bar
Min. charging pressure: 20 bar



MAIL

Zylindertyp / Model (103 bar)	Zylindertyp / Model (138 bar)	Kolbenfläche / Piston area cm²	K	P	D	L	max. Hub / max. stroke
HS TSB 0,5	**HS TSB 750**	5,11	40,6	1 5/16 - 12	21,6	16,8	101,6
HS TSB 1,0	**HS TSB 1500**	11,42	53,8	1 7/8 - 12	27,4	16,8	127,0
HS TSB 2,5	**HS TSB 3000**	22,28	69,9	2 1/2 - 12	35,1	16,8	152,0
HS TSB 4,0	**HS TSB 5000**	35,05	90,4	M82 x 2	47,2	16,8	178,0

Standard-Zylinder, tiefbauend
Standard cylinders, smaller height
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS
HS TSB
HS TSB 2,5-1,50



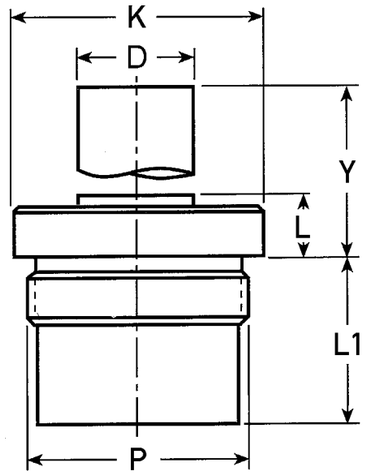
Code	Hub	HS TSB 0,5 / 750				HS TSB 1,0 / 1500				HS TSB 2,5 / 3000				HS TSB 4,0 / 5000			
	Stroke	Y	L1	$S_{min.}$ **0,5**	$S_{min.}$ **750**	Y	L1	$S_{min.}$ **1,0**	$S_{min.}$ **1500**	Y	L1	$S_{min.}$ **2,5**	$S_{min.}$ **3000**	Y	L1	$S_{min.}$ **4,0**	$S_{min.}$ **5000**
0,25	6,4	23,1	28,7	44,5	47,8	–	–	–	–	–	–	–	–	–	–	–	–
0,50	12,7	29,5	35,1	46,0	49,0	29,5	35,8	46,7	51,6	29,5	44,5	57,4	62,0	29,5	50,8	68,6	74,9
0,75	19,1	35,8	41,4	52,3	55,6	35,8	42,2	53,0	57,9	35,8	50,8	63,8	68,0	35,8	57,2	74,9	81,0
1,00	25,4	42,2	47,8	58,7	62,0	42,2	48,5	59,4	64,0	42,2	57,2	70,0	74,7	42,2	63,5	81,0	87,6
1,50	38,1	54,9	60,5	71,4	74,7	54,9	61,2	72,0	77,0	54,9	69,9	82,8	87,4	54,9	76,2	94,0	100,0
2,00	50,8	67,6	73,2	84,0	87,4	67,6	73,9	84,8	89,7	67,6	82,6	95,5	100,0	67,6	88,9	106,7	113,0
2,50	63,5	80,3	85,9	96,8	100,0	80,3	86,6	97,5	102,4	80,3	95,3	108,0	112,8	80,3	101,6	119,4	125,7
3,00	76,2	93,0	98,6	109,5	112,8	93,0	99,3	110,0	115,0	93,0	108,0	120,9	125,5	93,0	114,3	132,0	138,4
3,50	88,9	105,7	111,3	122,0	125,5	105,7	112,0	122,9	127,8	105,7	120,7	133,6	138,0	105,7	127,0	144,8	151,0
4,00	101,6	118,4	124,0	134,9	138,0	118,4	124,7	135,6	140,5	118,4	133,4	146,0	150,9	118,4	139,7	157,5	163,8
4,50	114,3	–	–	–	–	131,1	137,4	148,0	153,0	131,1	146,1	159,0	163,6	131,1	152,4	170,0	176,5
5,00	127,0	–	–	–	–	143,8	150,1	161,0	165,9	143,8	158,8	171,7	176,0	143,8	165,1	182,9	189,0
5,50	139,7	–	–	–	–	–	–	–	–	156,5	171,5	184,4	189,0	156,5	177,8	195,6	201,9
6,00	152,4	–	–	–	–	–	–	–	–	169,2	184,2	197,0	201,7	169,2	190,5	208,0	214,6
6,50	165,1	–	–	–	–	–	–	–	–	–	–	–	–	181,9	203,2	221,0	227,0
7,00	177,8	–	–	–	–	–	–	–	–	–	–	–	–	194,6	215,9	233,7	240,0

HS SB

Technische Daten:
Medium: N2
Max. Fülldruck
Standard-System: 103 bar
Max. Fülldruck
Hochdruck-System: 138 bar
Min. Fülldruck: 20 bar

Specifications:
Medium: N2
Max. charging pressure
Standard system: 103 bar
Max. charging pressure
High pressure system: 138 bar
Min. charging pressure: 20 bar

HS SB 4,0-0,38



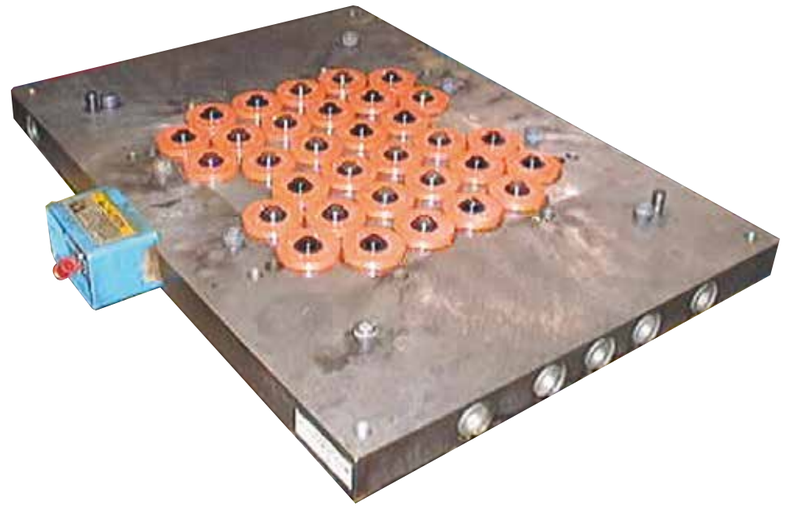
MAIL

Zylindertyp / Model (103 bar)	Zylindertyp / Model (138 bar)	Kolbenfläche / Piston area cm^2	K	P	D	L	max. Hub / max. stroke
HS SB 1,0	**HS SB 1500**	11,42	53,8	1 - 7/8 - 12	19,1	11,2	25,4
HS SB 2,5	**HS SB 3000**	22,28	69,9	2 - 1/2 - 12	19,1	11,2	25,4
HS SB 4,0	**HS SB 5000**	35,02	90,4	M82 x 2	38,1	16,0	25,4
HS SB 6,0	**HS SB 8000**	51,70	109,5	M100 x 2	47,5	16,0	25,4

Standard-Zylinder
Standard cylinders
HYSON STICKSTOFF-SYSTEME / HYSON NITROGEN SYSTEMS

HS SB

HS SB 4,0-0,38



Code	Hub Stroke	HS SB 1,0 / 1500 Y	L1	$S_{min.}$ 1,0	$S_{min.}$ 1500	HS SB 2,5 / 3000 Y	L1	$S_{min.}$ 2,5	$S_{min.}$ 3000	HS SB 4,0 / 5000 Y	L1	$S_{min.}$ 4,0	$S_{min.}$ 5000	HS SB 6,0 / 8000 Y	L1	$S_{min.}$ 6,0	$S_{min.}$ 8000
0,25	6,4	17,5	30,2	42,9	47,8	17,5	30,2	42,9	47,8	22,1	37,3	54,9	61,0	22,1	37,3	54,9	64,5
0,38	9,7	20,6	33,5	46,0	51,0	20,6	33,5	46,0	51,0	25,4	40,4	57,9	64,0	25,4	40,4	57,9	67,6
0,50	12,7	23,9	36,6	48,0	54,0	23,9	36,6	48,0	54,0	28,4	43,7	61,0	67,6	28,4	43,7	61,0	70,9
0,62	15,7	26,9	39,6	52,6	57,4	26,9	39,6	52,6	57,4	31,8	46,7	64,0	70,6	31,8	46,7	64,0	73,9
0,75	19,1	30,2	42,9	55,6	60,5	30,2	42,9	55,6	60,5	34,8	50,0	67,6	73,9	34,8	50,0	67,6	77,0
1,00	25,4	36,6	49,3	62,0	66,8	36,6	49,3	62,0	66,8	41,1	56,4	73,9	80,0	41,1	56,4	73,9	83,6

HS NF 771

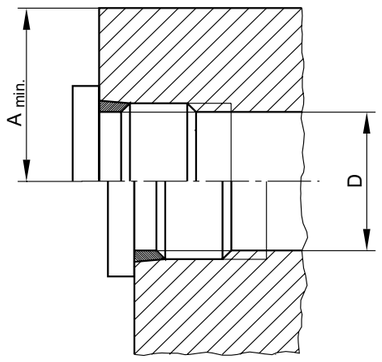
Sollen Stickstoff-Volumenbohrungen direkt in die Tank- oder Werkzeugplatte eingebracht werden, müssen diese mit Verschlussstopfen verschlossen werden. Die Speicher oder Versorgungsbohrungen sollten so konzipiert werden, dass keine Sacklochbohrungen entstehen. Zylinderaufnahme und Tankplatten aus Stahl oder Alu müssen einer Ultraschallprüfung unterzogen werden (keine Wärmebehandlung). Die Berechnung des Gesamt-Volumens ist auf Seite HS.41 dargestellt

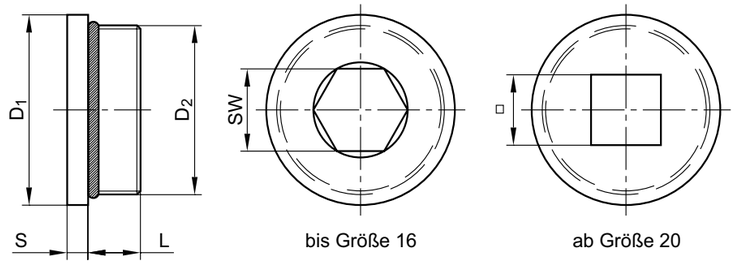
In der nachfolgenden Tabelle können Sie in Abhängigkeit vom Bohrungs-ø D das Volumen in cm^3/lfd. 10 mm Bohrung entnehmen

In case nitrogene volume-holes need to be drilled into the manifold-plate, blind holes should be avoided and all these holes must be shut with sealing plugs.
All (manifold-) plates with connection- and/or volume-holes, no matter if made out of steel or aluminum, must be ultra-sonic checked.
In order to calculate the total volume needed, please refer to our corresponding literature page HS.41.

HS NF 771 - 4

The table below shows - depending on the hole-diameter - the volume in cm^3 per 10 mm hole-length.





Typ Type	Gewinde Thread D2	D1	S	L	A	D min.	V cm^3/10 mm	SW	□
HS NF 771-4	7/16 - 20	14,3	2,8	9,1	10	9	0,64	4,8	–
HS NF 771-5	1/2 - 20	16,0	2,8	9,1	11	10	0,79	4,8	–
HS NF 771-8	3/4 - 16	22,4	4,1	11,2	15	16	2,01	7,9	–
HS NF 771-10	7/8 - 14	25,4	4,1	12,7	16	20	3,14	9,7	–
HS NF 771-12	1 1/16 - 12	31,8	4,6	15,0	20	24	4,91	14,3	–
HS NF 771-14	1 3/16 - 12	35,1	4,6	15,0	22	28	6,15	14,3	–
HS NF 771-16	1 5/16 - 12	38,1	4,6	15,0	24	30	7,07	16,0	–
HS NF 771-20	1 5/8 - 12	47,8	4,1	15,0	27	38	11,33	–	1/2"
HS NF 771-24	1 7/8 - 12	53,8	4,1	15,0	32	45	15,90	–	1/2"
HS NF 771-M47	M47 x 2	53,8	4,1	15,0	32	45	15,90	–	1/2"
HS NF 771-32	2 1/2 - 12	69,9	4,1	15,0	40	60	28,26	–	1/2"
HS NF 771-M63	M63 x 2	39,9	4,1	15,0	40	60	28,26	–	1/2"
HS NF 771-82	M82 x 2	88,9	6,4	19,1	54	76	45,34	–	3/4"
HS NF 771-100	M100 x 2	108,0	6,4	19,1	64	95	70,85	–	3/4"

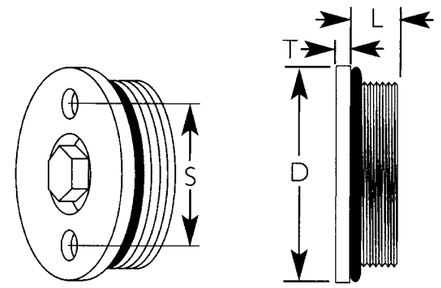
[11.03.2020]

[11.03.2020]

HS NF 771 . RD

mit Berstscheibe | **with rupture disc**

HS NF 771 - 20-RD

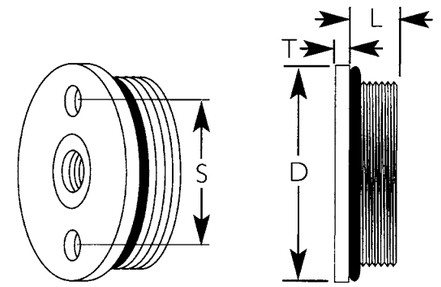


Typ Type	D	T	L	S	Gewinde Thread
HS NF 771-20-RD	47,8	4,1	15,0	25,4	1 5/8 - 12
HS NF 771-24-RD	53,8	4,1	15,0	31,8	1 7/8 - 12
HS NF 771-32-RD	69,9	4,1	15,0	44,5	2 1/2 - 12
HS NF 771-82-RD	88,9	6,4	19,1	57,2	M82 x 2
HS NF 771-100-RD	108,0	6,4	19,1	57,2	M100 x 2

HS NF 771

mit Anschlussgewinde | **with internal ports**

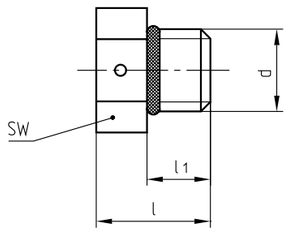
HS NF 771-20-5



Typ Type	D	T	L	S	Gewinde Thread
HS NF 771-20-5	47,8	4,1	15,0	25,4	1 5/8 - 12
HS NF 771-24-5	53,8	4,1	15,0	31,8	1 7/8 - 12
HS NF 771-32-5	69,9	4,1	15,0	44,5	2 1/2 - 12
HS NF 771-82-5	88,9	6,4	19,1	57,2	M82 x 2
HS NF 771-100-5	108,0	6,4	19,1	57,2	M100 x 2

HS RD 2150

HS RD 2150



MAIL

Typ Type	d	l	l1	SW
HS RD 2150	7/16 - 20	17,5	10,5	14,3
HS RD 2150/MZ*	7/16 - 20	17,5	10,5	14,3
HS RD 2150/US**	7/16 - 20	17,5	10,5	14,3
* mit TÜV-Zertifikat / with TUV-approval		** für Hochdruck-Systeme / for high pressure systems		

[11.03.2020]

Die Kontrollarmaturen werden in jedem Stickstoffsystem benötigt. Das Manometer, Einlassventil und das Regelventil werden zum Ablesen, Füllen und Ablassen des Systemdrucks benötigt. Der Systemdruck sollte zwischen 20-110 bar liegen.

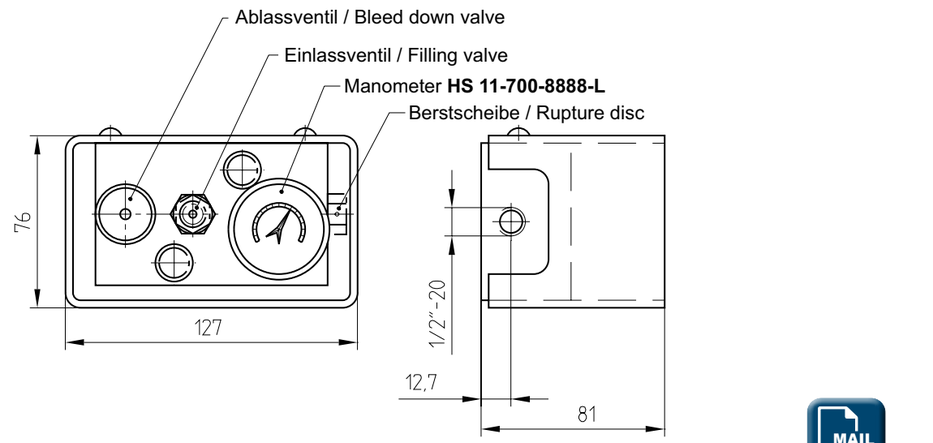
Standard control panels contain all the necessary controls for reading, charging and exhausting nitrogen pressure in a 1500 psi manifold system.
Control panels should be mounted in an accessible location where the pressure gauge can be read easily.

HS CP 1555

Kontrollarmatur Typ **HS CP 1555** wird eingesetzt für Schlauchverbindungen zwischen Speichertank / Platten

For remote connection to a manifold plate via an NH-250 hose.

HS CP 1555



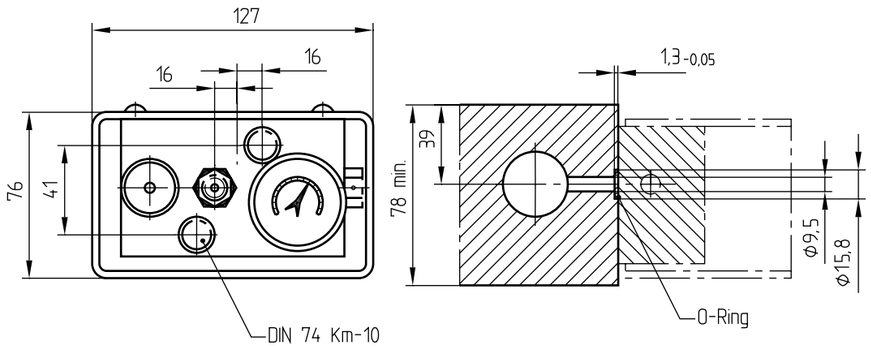
MAIL

HS CPM 1555-M

Kontrollarmatur Typ **HS CP 1555-M** zum Verschrauben an Tankplatten mit einer Plattenstärke von min. 78 mm.

For direct mounting to a finished manifold plate by an O-ring seal. Minimum manifold thickness required is 3 inches.

HS CPM-1555-M



MAIL

Die Kontrollarmaturen werden in jedem Stickstoffsystem benötigt. Das Manometer, Einlassventil und das Regelventil werden zum Ablesen, Füllen und Ablassen des Systemdrucks benötigt. Der Systemdruck sollte zwischen 20-110 bar liegen.

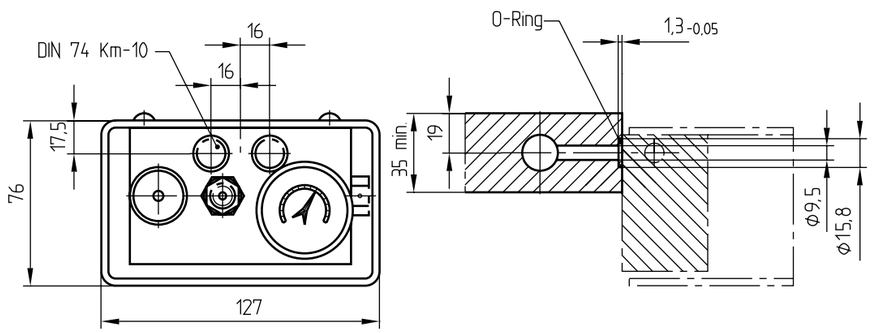
Standard control panels contain all the necessary controls for reading, charging and exhausting nitrogen pressure in a 1500 psi manifold system.
Control panels should be mounted in an accessible location where the pressure gauge can be read easily.

HS CPM 1555-E

Kontrollarmatur Typ **HS CPM 1555-E** kann an Tank- oder Versorgungsplatten ab 35 mm Plattenstärke verschraubt werden.

For direct mounting to a finished manifold plate by an O-ring seal. Maximum manifold thickness required is 3 inches.

HS CPM-1555-E



MAIL

HS CP-N2

für Hochdruck.Systeme

Systemdruck von 20 - 138 bar

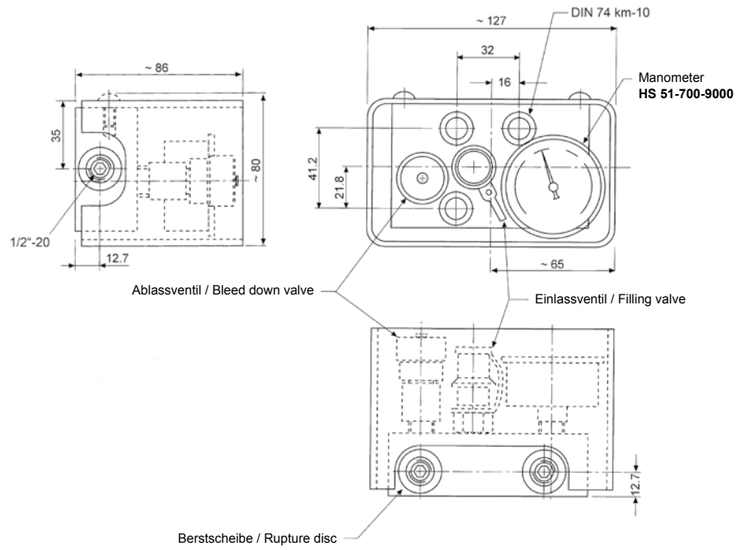
Die Kontrollarmatur Typ **HS CP-N2** wird für Schlauchverbindungen zwischen Speichertank und Tankplatten eingesetzt.

for high pressure systems

Nitrogen pressure up to 2000 psi

For remote connection to a manifold plate via an ORH hose.

HS CP-N2



HS CPM 2000-M

für Hochdruck.Systeme

Systemdruck von 20 - 138 bar

Kontrollarmatur Typ **HS CPM 2000-M** zum Verschrauben an Tankplatten mit einer Plattenstärke von min. 78 mm.

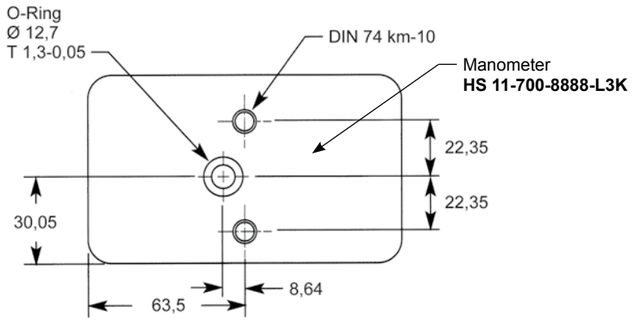
for high pressure systems

Nitrogen pressure up to 2000 psi

For direct mounting to a finished manifold plate by an O-ring seal. Minimum manifold thickness required is 3 inches.

HS CPM 2000-M





MAIL

HS CPM 2000-E

für Hochdruck.Systeme

Systemdruck von 20 - 138 bar

Kontrollarmatur Typ **HS CPM 2000-E** kann an Tank- oder Versorgungsplatten ab 35 mm Plattenstärke verschraubt werden.

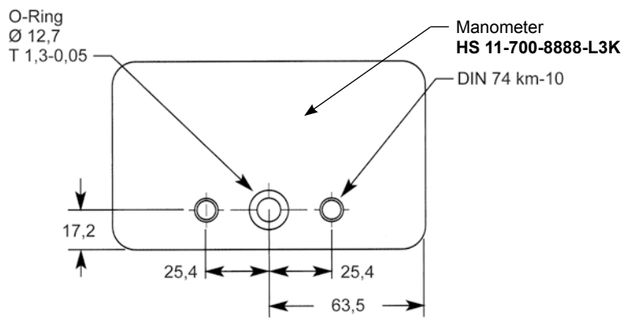
for high pressure systems

Nitrogen pressure up to 2000 psi

For direct mounting to a finished manifold plate by an O-ring seal. Maximum manifold thickness required is 3 inches.

HS CPM 2000-E





MAIL

Speichertanks können den Druckanstiegs-Faktor signifikant reduzieren und damit unter anderem auch die Wärmeentwicklung, was zusätzlich zu längeren Standzeiten der Gasdruckfedern führt.

Aufgrund der von Fall zu Fall stark voneinander abweichenden Anforderungen sind diese Tanks in unterschiedlichsten Ausführungen und Größen erhältlich. Bei der entsprechenden Auswahl und Spezifikation helfen wir gerne.

Bitte nennen Sie uns in diesem Fall
- die gewünschte Kraft
- die benötigte Hublänge
- die ungefähre Anzahl und maximale Größe der Gasdruckfedern
- den angestrebten Druckanstieg (empfohlen zwischen 5 % und 20 %)

Sollten Sie sich bereits für ein Gasdruckfeder-Modell bzw. eine Abmessung entschieden haben, teilen Sie uns auch dies gerne mit.

Compression tanks can significantly reduce the pressure rise factor and thereby the temperature increase, which additionally results in longer service lives of the gas springs.

Due to the widely spread requirements in regards to volumes, sizes etc., these tanks are available in different designs, forms and shapes.
We will gladly help you with the appropriate selection and specification.

In that case, please specify
- the desired force
- the required stroke length
- the approximate number and maximum size of the gas springs, and
- the target pressure rise factor (recommended between 5% and 20%)

If you have already decided on a gas spring model or dimension, please let us know as well.

Speichertanks und Ausführungen auf Anfrage!

Compression tanks and designs on demand!

[11.03.2020]
[11.03.2020]

HS Z

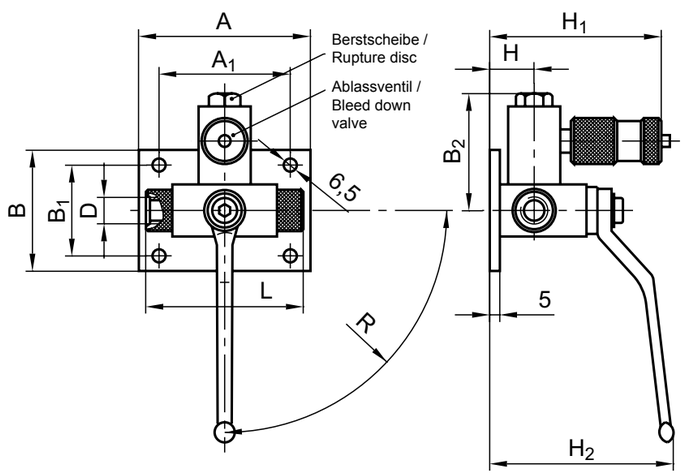
mit Ablassventil und Berstscheibe

Werden vorzugsweise zwischen Werkzeug oder Ziehkissen und Speichertank eingesetzt. Bei häufigem Werkzeugwechsel wird Stickstoff eingespart.

with bleeding valve and burst disc

May be placed between die or die cushion and storage tank, in order to save nitrogene in applications with frequent die-changes.

HS Z 13



Typ Type	D	L	A	A1	B	B1	B2	H	H1	H2	R
HS Z 13	3/4-16	78	85	65	60	45	58	22	85	91	110
HS Z 35	7/8-14	95	110	65	70	52	58	24	87	109	152

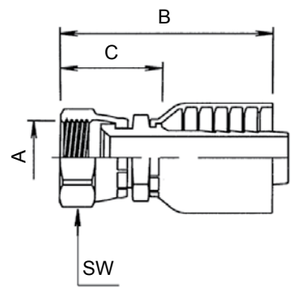
[11.03.2020]
[11.03.2020]

HS NHP

Pressarmaturen, gerade

Crimping fittings, straight

HS NHP 6



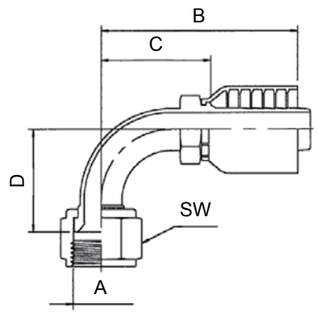
Typ Type	A	B	C	SW	für Schlauch for hose
HS NHP 6	1/2 - 20	65	33	17	HS NP 250
HS NHP 7	3/4 - 16	72	35	24	HS NP 375
HS NHP 8	7/8 - 14	82	41	27	HS NP 500

HS NHP

Pressarmaturen 90°

Crimping fittings 90°

HS NHP 7-90



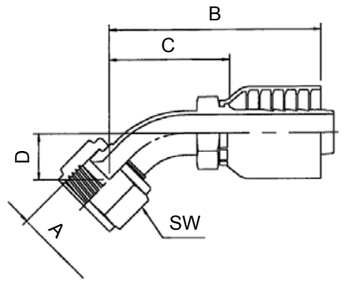
Typ Type	A	B	C	D	SW	für Schlauch for hose
HS NHP 6-90	1/2 - 20	64	32	25	17	HS NP 250
HS NHP 7-90	3/4 - 16	71	34	29	22	HS NP 375
HS NHP 8-90	7/8 - 14	77	36	32	27	HS NP 500

HS NHP

Pressarmaturen 45°

Crimping fittings 45°

HS NHP 6-45



MAIL

Typ Type	A	B	C	D	SW	für Schlauch for hose
HS NHP 6-45	1/2 - 20	70	38	13	17	HS NP 250
HS NHP 7-45	3/4 - 16	78	42	15	22	HS NP 375
HS NHP 8-45	7/8 - 14	85	44	16	27	HS NP 500

HS NP

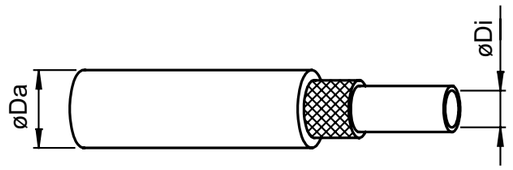
Hochdruckschläuche (Pressschläuche)

Länge nach Kundenwunsch [mm]

High pressure hoses, flexible

Length at customer request [mm]

HS NP 250 x 3000



MAIL

Typ Type	Da	Di	min. Biegeradius min. bend radius [mm]
HS NP 250	12,7	6,3	51
HS NP 375	16,1	9,5	64
HS NP 500	20,4	12,7	102

HS Z 20

Information:
Wird der Druckwächter direkt in eine Kontrollarmatur eingeschraubt benötigten Sie den Adapter **NCQ.11**.

Druckwächter werden im Druckbereich von 40 - 240 bar zur Überwachung des Systemdrucks eingesetzt. Bei Druckabfall wird bei Elektroanschluss die Maschine gestoppt. Bei Stickstoffverlust kann auch über optische oder akustische Signale gewarnt werden.

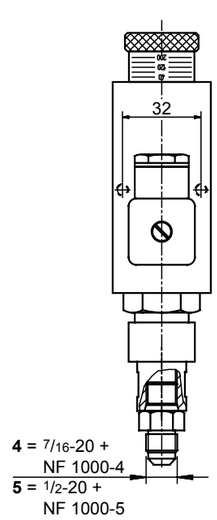
Bei der Bestellnummer ergänzen:
4 = Anschluss 7/16 - 20 + NF 1000-4
5 = Anschluss 1/2 - 20 + NF 1000-5

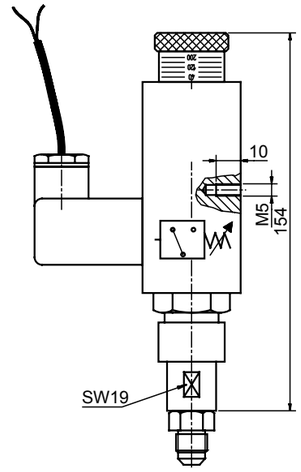
Information:
In case the pressure monitor is used in connection with a control panel, the Adapter **HS Z20-5-NCQ.11** is needed.

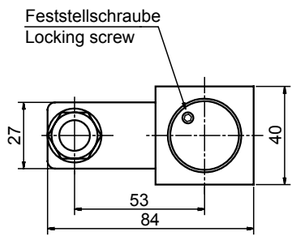
These units are being used to monitor the system-pressure (between 40 and 240 bars). In cases of a pressure decrease optical / accustical warnings can be initiated or the press can even be stopped.

HS Z 20 - 4

When ordering, please specify:
4 = Connection-thread 7/16 - 20 + NF 1000-4
5 = Connection-thread 1/2 - 20 + NF 1000-5







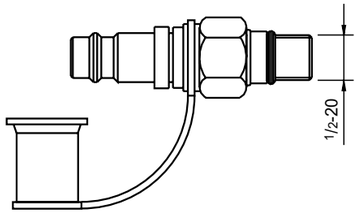
MAIL

HS 11-700-8555

Stecknippel
(HS NDZ-22)

Male quick release couplings
(HS NDZ-22)

HS 11-700-8555



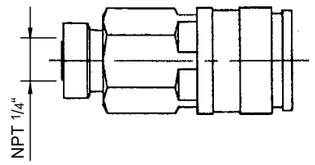
MAIL

HS 11-770-2700

Steckkupplungen
(HS NDZ-21A)

Female quick release couplings
(HS NDZ-21A)

HS 11-770-2700



MAIL

HS NCA 3000

Abfüllarmaturen

Charging assemblies

HS NCA 3000

MAIL

HS NCCS

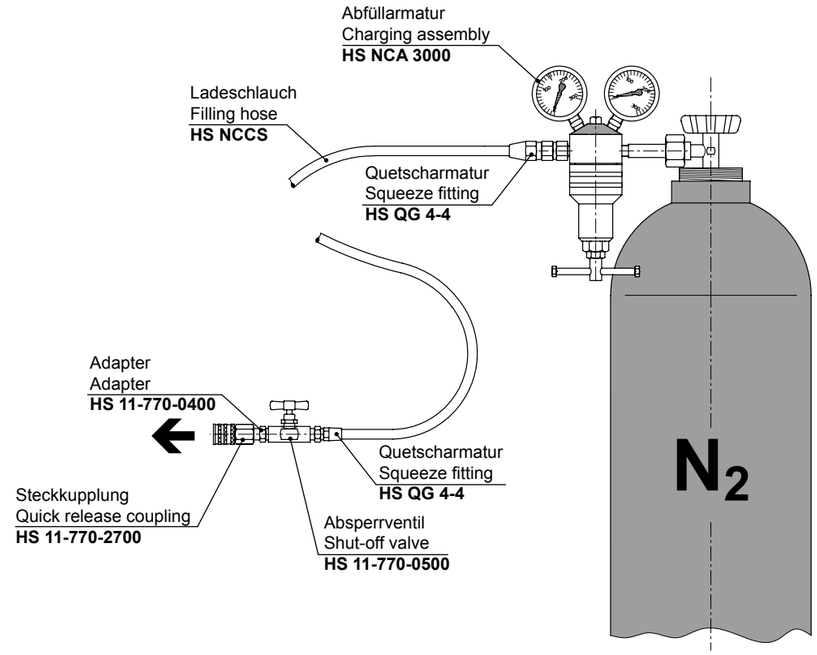
Ladeschläuche

Standardlänge: 3000 mm

Filling hoses

Standard length: 3000 mm

HS NCCS



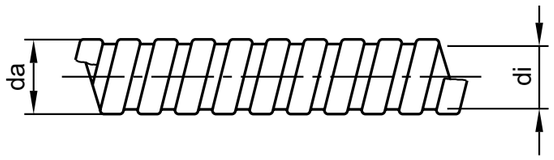
MAIL

HS HG

Schlauchschutzspiralen aus Metall
Länge nach Kundenwunsch [mm]

Hose guards
Length at customer request [mm]

HS HG 5 x 5000



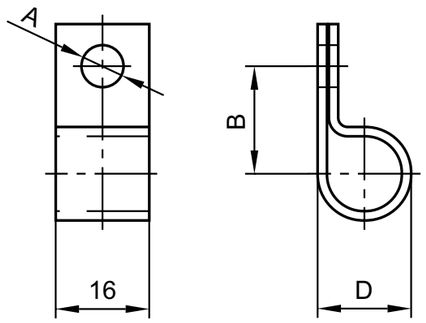
Typ Type	Da	Di	für Schlauch for hose
HS HG 5	17	14,5	HS NP 250
HS HG 8	21	19,1	HS NP 375
HS HG 10	26	22,2	HS NP 500

HS HC

Schlauchschellen aus Kunststoff

Hose clamps

HS HC 5



Typ Type	A	B	D	für Schlauch for hose
HS HC 5	5,1	12,7	12,7	HS NP 250
HS HC 8	5,1	15,7	15,7	HS NP 375
HS HC 10	5,1	20,6	20,6	HS NP 500

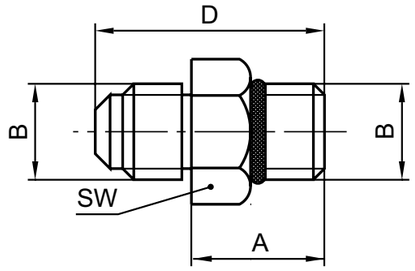
[11.03.2020]

HS NF-1000

Anschlussstücke, gerade

Straight fittings

HS NF-1000-5



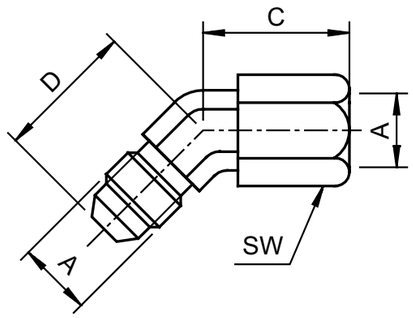
Typ Type	B	A	D	SW	für Schlauch for hose
HS NF-1000-5	1/2 - 20	22,1	31,2	15,9	HS NP 250
HS NF-1000-8	3/4 - 16	26,4	37,6	22,2	HS NP 375
HS NF-1000-10	7/8 - 14	30,5	43,2	25,4	HS NP 500

HS NF-4500

Winkelstücke 45° mit Überwurfmutter

45° elbow swivel nuts

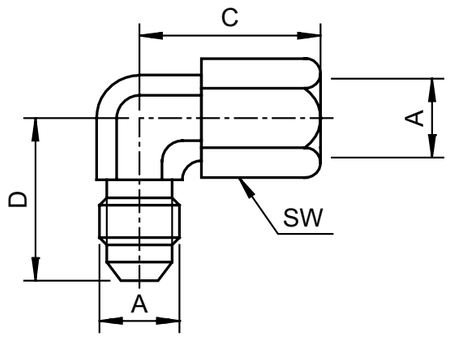
HS NF-4500-5



Typ Type	A	C	D	SW	für Schlauch for hose
HS NF-4500-5	1/2 - 20	19,6	24,4	15,9	HS NP 250
HS NF-4500-8	3/4 - 16	24,9	32,5	22,2	HS NP 375
HS NF-4500-10	7/8 - 14	28,3	36,6	25,4	HS NP 500

HS NF-2000

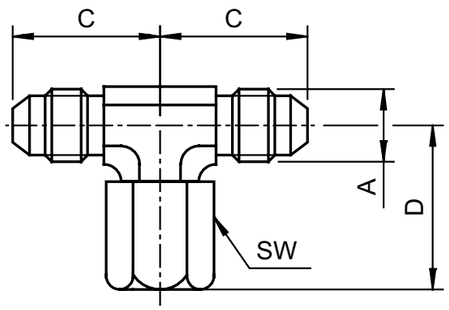
Winkelstücke 90° mit Überwurfmutter | **90° elbow swivel nuts** | **HS NF-2000-5**



Typ Type	A	C	D	SW	für Schlauch for hose
HS NF-2000-5	1/2 - 20	24,1	26,9	15,9	HS NP 250
HS NF-2000-8	3/4 - 16	31,8	35,1	22,2	HS NP 375
HS NF-2000-10	7/8 - 14	36,8	41,1	25,4	HS NP 500

HS NF-3000

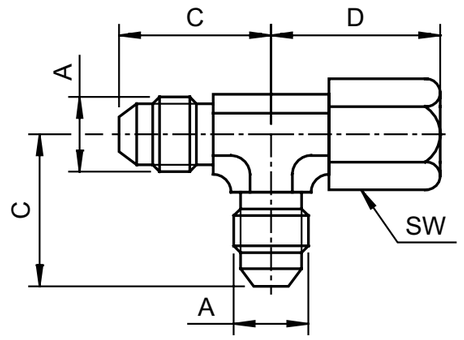
T-Stücke mit Überwurfmutter | **Branch tee swivel nuts** | **HS NF-3000-5**



Typ Type	A	C	D	SW	für Schlauch for hose
HS NF-3000-5	1/2 - 20	24,1	26,9	15,9	HS NP 250
HS NF-3000-8	3/4 - 16	31,8	35,1	22,2	HS NP 375
HS NF-3000-10	7/8 - 14	36,8	41,1	25,4	HS NP 500

HS NF-3300

L-Stücke mit Überwurfmutter | **Run tee swivel nuts** | **HS NF-3300-5**



Typ Type	A	C	D	SW	für Schlauch for hose
HS NF-3300-5	1/2 - 20	24,1	26,9	15,9	HS NP 250
HS NF-3300-8	3/4 - 16	31,8	35,1	22,2	HS NP 375
HS NF-3300-10	7/8 - 14	36,8	41,1	25,4	HS NP 500