

A vertical strip on the left side of the page shows a close-up of industrial machinery. It features several rollers of different colors: a grey one at the top, a yellow one in the middle, and a blue one at the bottom. The rollers are arranged in a sequence, and a metal strip is visible between them, being processed. The background of the entire page is a solid blue color with a subtle, abstract pattern of light blue lines and shapes, suggesting a technical or industrial theme.

SOPREM

SWISS QUALITY 

STRIP STRAIGHTENERS

Strip straighteners

SOPREM Precision Straighteners ensure your product quality. Distorted metal components are a thing of the past; today quality products are processed regardless of the source material.

How do deviations in flatness occur?

Deviations in flatness can occur during punching, laser or plasma cutting, hardening, nibbling, shearing and coating. They are caused by the inner material tensions during processing.

Your specifications are our benchmark.

We manufacture quality equipment to meet your straightening requirements. We manufacture both SCHUBERT and SOPREM design straighteners. The best straightening quality for a component part can only be determined by first using a straightening test from SOPREM.

Strip spectrum

The following coil strips can be processed using our straightening equipment:

- Strips with thickness from 0,05 up to 8 mm
- Strips with a width from 5 up to 630 mm
- Strips with an unlimited length

Materials

- Steel
- Aluminium
- Copper
- Brass
- Special alloys
- Bimetallic

Use

- Equipment building
- Mechanical and vehicle engineering
- Electro technical parts
- Building industry products
- Sawing and cutting tools
- Drop wires
- Perforated metal plates



> 02



> 01

Combined machines – Design SOPREM

The compact construction of SOPREM equipment is the ideal solution, where there is lack of workshop space. We combine both the decoiler and the straightener in a strip feeding system. The picture shows a combination of the decoiling straightener to decoil and straighten wide strips.

> 02

Strip straightener with 9 straightening rolls

The strip straightener has 9 straightening rolls and is equipped with an ultrasonic loop control producing high quality material straightness. The upper part of the leveller can be pulled out for easy cleaning of the straightening rolls. The inclination of the straightening head can be motorized.

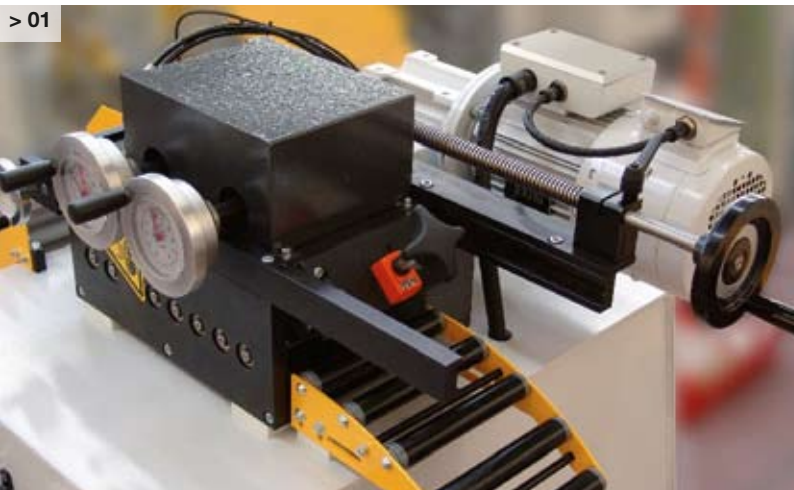
Advantages

- Economic strip straightener
- Preservation of the material stiffness due to larger bending radii.
- An individual adjustable roll can be fitted at the outlet of the straightener to adjust the run of the strip.

Features

A gear drives the lower straightening rolls with the upper straightening rolls freewheeling. This achieves a larger roller dimension between axes.

9-roll strip straightener



> 01

Straightening head

The straightening head is the tool of the straightening machine. Its precision and rigidity is decisive for the quality and result of the straightening process.

> 02

Longitudinal inclination of the roller bed

Most material bending will occur at the straightener inlet, where the material becomes ductile. Longitudinal inclination of the roller bed is achieved either by using a hand operated or a motor driven.

> 03

Straightener upper part to be pulled out

As an option, the upper part of the straightener can be pulled out for easy cleaning of the straightening rolls.

> 04

10th straightening roll

As an option, a 10th straightening roll can be fitted, which can be adjusted individually allowing you to additionally influence the strip straightness and optimize the feed direction.

> 05

SOPREM strip straightener with 19 straightening rolls

Precision strip straightener with 19 straightening rolls equipped with an ultrasonic loop control. The upper part of the straightener can be inclined longitudinally and transversally, thus enabling the straightening of strips with wavy edges. The lower part of the straightener can be pulled out for easy cleaning of the straightening rolls.

Advantages

- Economic precision straightener
- Preservation of material stiffness due to larger bending radii.

Features

Each straightening roll is driven by a gear. Thus achieving larger roller dimensions between axes and larger bending radii.

> 06

Combined machines

SOPREM's combination equipment is ideal where there is lack of workshop space. Both the pallet decoiler and the vertical decoiler can be equipped with a precision 19 roll straightener.

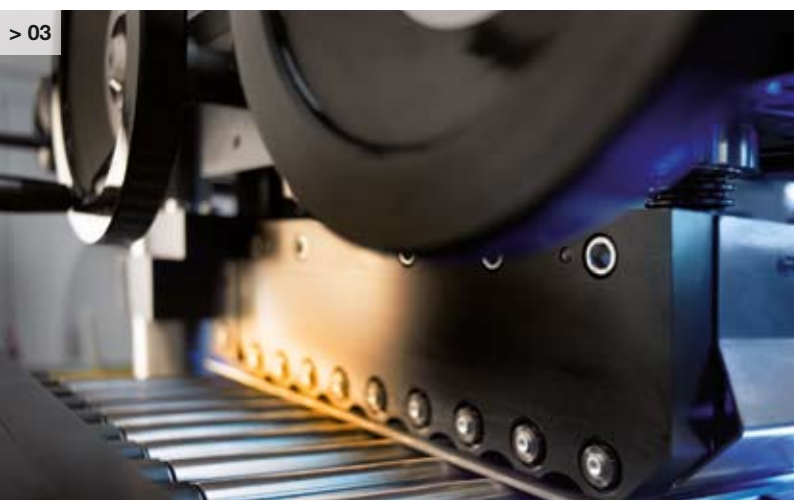
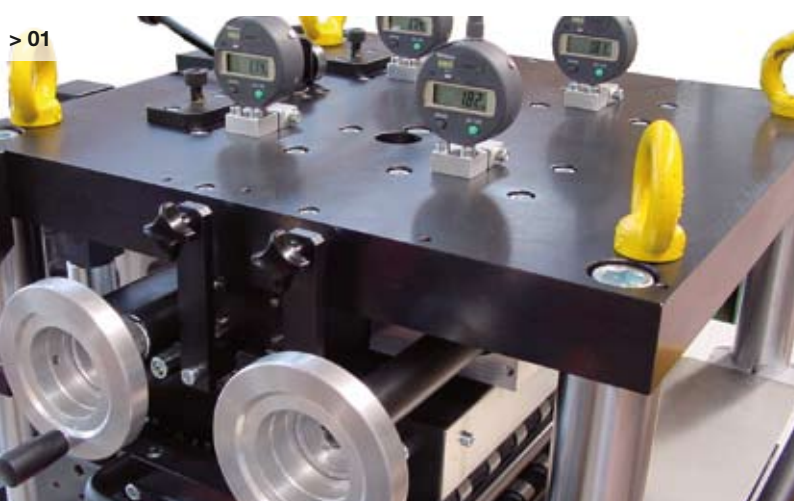
> 05



> 06



SOPREM design 19-roll strip straightener



> 01

Straightening head

The straightening head is the tool of the straightener and its precision and stiffness determines the quality and result of the straightening process. Adjustment of the straightening head establishes the position of the straightening rolls.

> 02

Transversal inclination of the roller bed

Wavy edges of strips can be eliminated by transversal inclination of the roller bed. Transversal inclination occurs using either a hand operated or motor driven worm gear.

> 03

Longitudinal inclination of the roller bed

Most material bending occurs at the straightener insert, where the material becomes ductile. Longitudinal tilting of the roller bed is achieved using either by hand operated or motor driven.

> 04

Straightener lower part to be pulled out

The lower part of the straightener can be pulled out for easy cleaning of the straightening rolls.

> 05

SCHUBERT strip straightener with 19 rolls

The SCHUBERT design 19x18mm diameter roll strip straightener is fitted with an ultrasonic loop control enabling straightening of material thicknesses from 0,15 up to 3 mm. The upper part of the straightener can be inclined both longitudinally and transversally.

Advantages

- Large range of part thicknesses can be covered.
- Narrow bending radii ensure better elimination of material inner tensions.

Features

Each straightening roll is driven by a hinge shaft, thus minimizing roller distances between axes resulting in an ideal straightening geometry with minimal bending radii. Material inner tensions are reduced.

> 06

Strip respooling unit

The automatic strip respooling unit for strip of 0,05 mm thickness producing high accuracy straightening and rewinding.

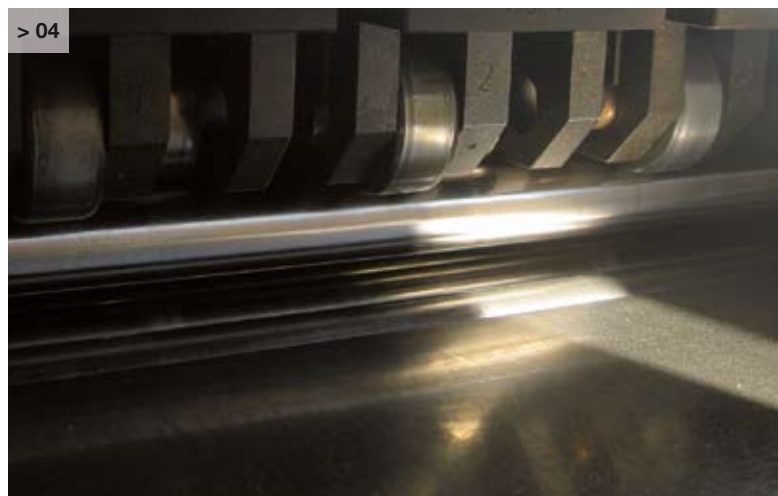
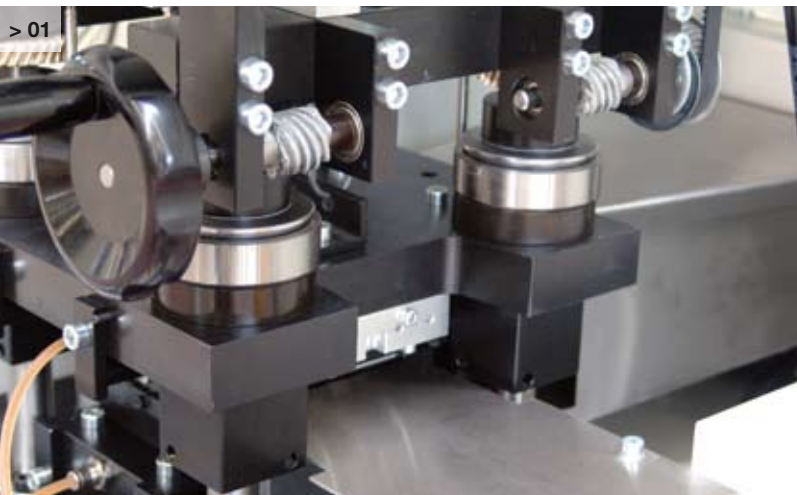
> 05



> 06



SCHUBERT design 19/23-roll straightener



> 01 Straightening head

The straightening head is the tool of the straightener and its precision and stiffness determines the quality and result of the straightening process. Adjustment of the straightening head establishes the position of the straightening rolls using either a hand operated or motor driven worm gear.

> 02 Drive

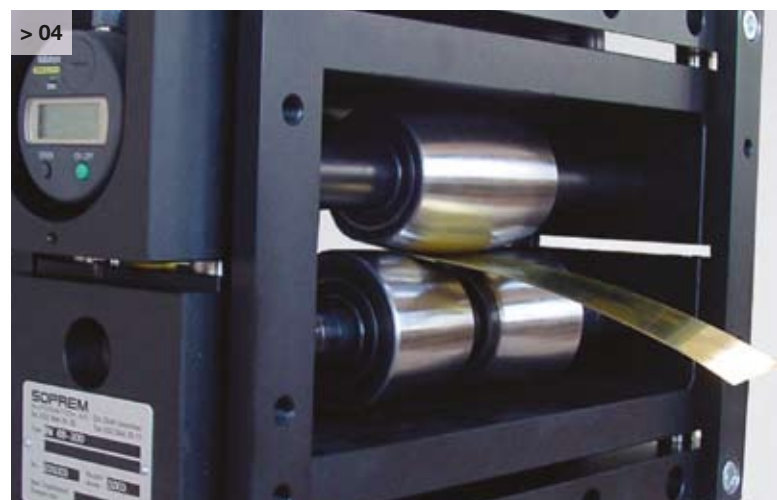
Usually speed controlled drives are used. The output is conveyed by a power take-off gear over a gear belt. Each straightening roll is driven by a hinge shaft. Roller dimensions between axes are minimized.

> 03 Support of the straightening rolls

A constant straightening profile is achieved by supporting the straightening rolls with support rollers, thereby avoiding bending of the straightening rolls during straightening.

> 04 Support of the straightener rolls as height adjustable

As an option, we can design each roll support of the lower part of the straightener as height adjustable, which results in bending of the rolls, eliminating strip inner waving. Motorised adjustment is available. This option is only possible with in-feed widths of 630 mm.

**> 01****Motorised adjustment of straightening rolls**

Operational parameters will be saved during motor activation of the straightening rolls. If the order is repeated, the appropriate program is selected and the straightener setting automatically moves to the programmed position.

> 02**10th straightening roll**

A 10th straightening roll, which can be individually adjusted, can be fitted at the outlet of the straightener. This allows you to further influence the straightening result and feed direction of the strip.

> 03**Loop control**

The loop control sets the straightener feed speed and depending on the strip, ultrasound scanning can be used. Further scanning with a dancer arm or capacity sensors is possible.

Scanning using ultrasound sensors

Non contact ultrasound sensor scans the loop size preserving the surface of the strip material without scratches.

> 04**Moulding unit for cross strip bulging**

With strips having strong cross bulging, a moulding unit can be fitted at the outlet of the straightener.

Straightening tests

Straightening tests as a first step

With the straightening test we ensure, that you can achieve the required result. Every case is different and the combination of your straightening quality requirements with the material quality, the inner tension and the specific surface characteristics of a component part is almost always unique, which makes straightening tests indispensable.

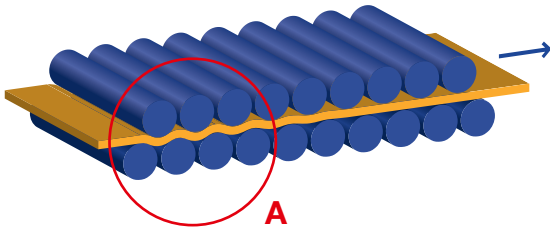
Our engineers will determine the most suitable straightening size and geometry. The diameter of the straightening rolls, the dimensions of the axes, the distance between the axes, the condition of the surface and the stiffness of the machine influence the straightening result. We offer 9- and 19- roll straighteners designed by SOPREM, as well as 19- and 23- roll straighteners designed by SCHUBERT.

Remo Wicker, test engineer in the SOPREM laboratory:

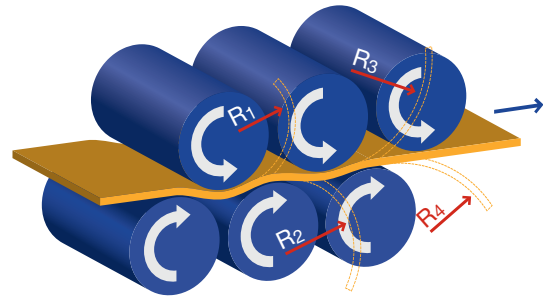
«With the straightening tests we determine the ideal straightening process. This way we achieve that the strip is straightened in the required quality, and maintains its shape.»



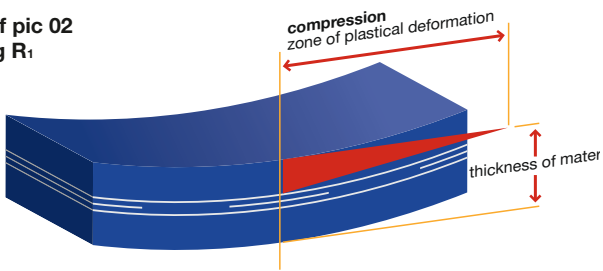
> 01
Straightening with 19 rolls



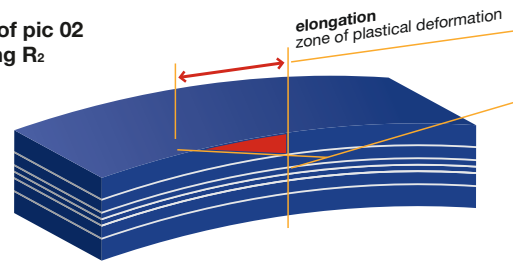
> 02
Detail A of pic 01



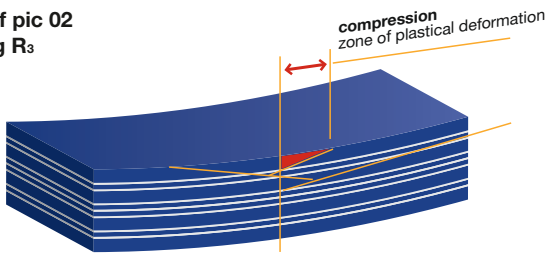
> 03
Detail of pic 02
Bending R_1



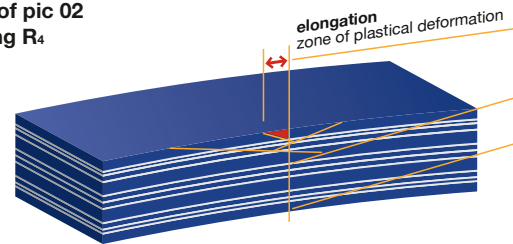
> 04
Detail of pic 02
Bending R_2



> 05
Detail of pic 02
Bending R_3



> 06
Detail of pic 02
Bending R_4



Advantages

- Straightening will reduce interruptions and downtime during production, installation and further processing.
- Processing complexity for components, which have to be processed subsequently, will be reduced.
- Straightening provide the basis for high quality and cost effective edge finishing for welding
- They support production accuracy.
- Straightening disposes of visible bending and rippling of components

Effects during straightening

We achieve the highest flatness accuracy through roller straightening and reducing material inner tensions.

Each of the driven straightening rolls adjusts the strip by alternate bending. To achieve this, the upper and lower row of rolls is staggered and form wedged-shaped profiles, which open in the feed direction. Most bending of the material occurs at the inlet, where the material becomes ductile. Depending on the range between the upper and lower yield point, the plastic deformation takes place, more or less material inner tension can be achieved.

As the optimum straightening quality can only be found empirically, our engineers will analyse your requirements first and then find the most suitable solution in a straightening test.

Straightener with 5–17 rolls

straightening rolls	strip thickness	strip width max.
5 × ø40 mm	0.4–2.0 mm	130/200 mm
7 × ø60 mm	0.6–2.8 mm	200/300 mm
7 × ø80 mm	0.8–4.5 mm	200/300 mm
9 × ø25 mm	0.1–1.0 mm	100/160 mm
9 × ø32 mm	0.2–2.2 mm	100/160 mm
9 × ø32 mm	0.2–1.5 mm	200/250 mm
9 × ø44 mm	0.3–4.0 mm	100/160 mm
9 × ø44 mm	0.3–2.5 mm	250/350 mm
11 × ø60 mm	0.4–2.5 mm	300 mm
17 × ø10 mm	0.08–0.6 mm	60 mm

Straightener with 19 rolls in SOPREM-Design

straightening rolls	strip thickness	strip width max.	Max. capacity
19 × ø12 mm	0.1–1.5 mm	160 mm	1.5 × 160 mm
19 × ø16 mm	0.2–2.0 mm	160 mm	2.0 × 160 mm
19 × ø16 mm	0.2–2.0 mm	250 mm	1.2 × 250 mm
19 × ø16 mm	0.2–2.0 mm	350 mm	0.8 × 350 mm
19 × ø25 mm	0.3–3.0 mm	200 mm	3.0 × 200 mm
19 × ø25 mm	0.3–3.0 mm	350 mm	1.7 × 350 mm
19 × ø25 mm	0.3–3.0 mm	450 mm	1.3 × 450 mm
19 × ø35 mm	0.5–4.0 mm	250 mm	4.0 × 250 mm
19 × ø35 mm	0.5–4.0 mm	350 mm	2.9 × 350 mm
19 × ø35 mm	0.5–4.0 mm	450 mm	2.3 × 450 mm

Straightener with 19/23 rolls in SCHUBERT-Design

straightening rolls	strip thickness	strip width max.	Max. capacity
19 × ø6	0.05–1.0 mm	85 mm	0.4 × 85 mm
19 × ø9	0.07–1.5 mm	120 mm	0.8 × 120 mm
19 × ø12	0.1–2.0 mm	150 mm	1.0 × 150 mm
19 × ø18	0.15–3.0 mm	120 mm	1.5 × 120 mm
19 × ø18	0.15–3.0 mm	220 mm	1.4 × 220 mm
19 × ø24	0.2–4.0 mm	120 mm	2.0 × 120 mm
19 × ø24	0.2–4.0 mm	260 mm	1.7 × 260 mm
23 × ø30	0.3–6.0 mm	350 mm	5.0 × 350 mm
23 × ø30	0.3–6.0 mm	630 mm	4.0 × 630 mm
23 × ø45	0.5–8.0 mm	350 mm	8.0 × 350 mm
23 × ø45	0.5–8.0 mm	630 mm	7.0 × 630 mm

SOPREM Automation AG
 Schlettstadtstrasse 4
 CH-2540 Grenchen
 Switzerland
 Tel. +41 32 644 35 35
 Fax +41 32 644 35 11
www.soprem.ch
info@soprem.ch