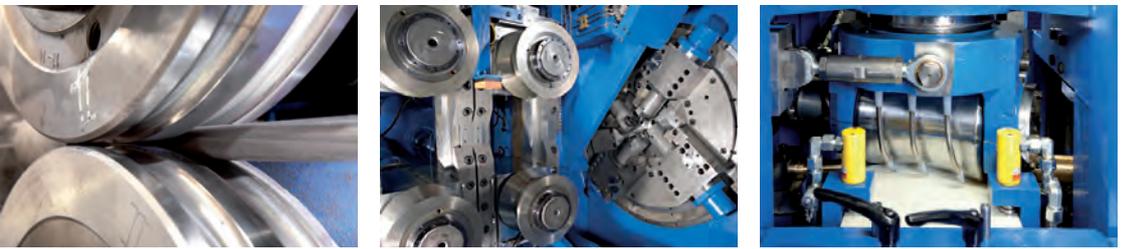




Bright steel processing machines

Improving surface quality, raising performance



Bright steel – drawn, peeled and ground

Machines for all key processes

It has a clean, smooth surface, high dimensional accuracy and is particularly economical to produce – these are the benefits which have made bright steel indispensable to so many industries. Car manufacturing is a typical example: bright steel is used to make piston rods as well as steering and drive components. But bright steel is also crucially important in engineering, equipment manufacturing and building systems technology.

Building on over 80 years' experience

The SMS group is a global market leader in integrated plants for producing semi-finished steel and non-ferrous products. The company has more than 80 years' experience of making machinery to draw, peel and grind bright steel. It stretches back to the heritage brands of Schumag and Kieserling which have been part of the SMS group since 2008. Nowadays the SMS group concentrates its bright steel expertise in the Long Products business unit in Mönchengladbach.

All machines from a single source

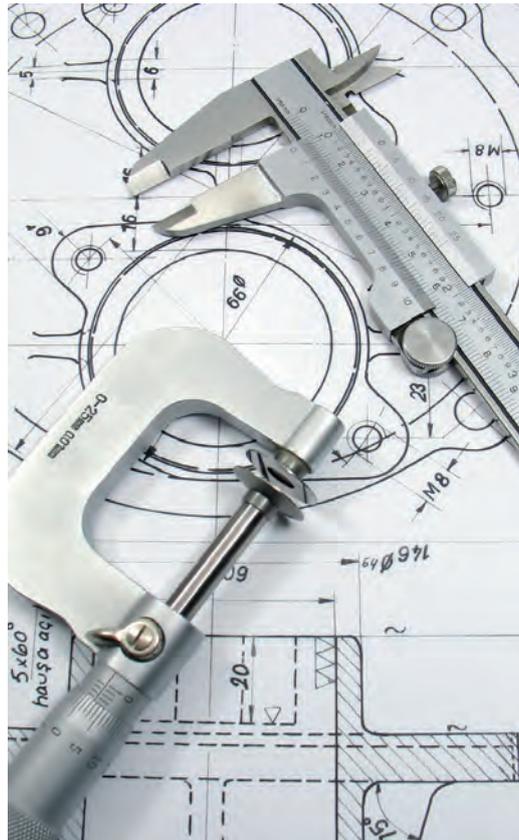
The key processes in bright steel production cover a broad spectrum: there is nothing our specialists do not know about the benefits and specifics of both production process alternatives – drawing and peeling. And so plant owners can benefit from their expert advice. The SMS group not only supplies high-performance drawing and peeling machinery, but also develops complete, custom-made drawing lines and bright steel centers. Subsequent bright steel product refining is also a field where the SMS group is setting standards with its grinding and polishing machines.

How our business partners benefit: they are provided with integrated solutions that help them to achieve all their goals. There are already more than 2,000 reference projects worldwide which bear this out.

From the customer's point of view

“The SMS group has long been our partner for drawing, peeling and grinding bright steel. It has been a very positive experience for us. We are able to maintain our high standards, particularly in terms of close tolerances, even at high output levels.”

Peter Schubert, Managing Director,
SCHMOLZ + BICKENBACH Blankstahl GmbH, Germany



Ongoing progress for more customer benefits

The demands the bright steel industry places on quality and performance are constantly growing. That is why the plants and machines need to be improved all the time. To ensure this happens, the SMS group is constantly developing its product range, with specific value to the customer as its core priority. With the new grinding and polishing series, the set-up and changeover time between two jobs has been reduced from two hours to ten minutes. This quantum leap helps bright steel manufacturers to produce even more flexibly and raise productivity on a sustainable basis.

Good service the world over

To ensure the SMS group experts always knows exactly what its customers need, they are always close at hand: SMS group plants for producing bright steel are in operation on every continent – and the same goes for its Service team. No matter where they are in the world, customers know that they can always rely on their partner the SMS group – from the initial idea to the launch of production, from project planning, commissioning and start-up services right through to modernisation.

Typical applications

- Mechanical engineering
- Building services
- Medical technology
- Automotive industry
 - Chassis springs and stabiliser
 - Steering shafts and racks
 - Connecting rod bolts and piston pins
 - Inlet and exhaust valves

Portfolio

Services for all your needs – from the coil to the packing station

Drawn, peeling or grinding bright steel – the SMS group offers high-performance standalone machines as well as fully integrated production lines. Employees put their design, assembly and maintenance expertise into tailoring every component exactly to the customer’s demands. In so doing, they help to ensure smooth processes: the SMS group experts manage the sites, supervise erection and commissioning and provide qualified support at the

start of production. At later stages, too, they are always there for their business partners – for example to provide optimal maintenance or modernisation services.

Everything covered

In round bar production, bright steel manufacturers put their trust in the peeling machines of the PM, PMS and PMH series, integrated by the SMS group into high-

CONTROL AND



Starting material

Hot-rolled wire rod or bars made of all common steel alloys, round cast steel, titanium and other non-ferrous metals

Preparation

- Payoff
- Coil end opener or manipulator
- Prestraightener
- Descaling
- Straightener
- Sizing stand
- Bar feeder and separator
- Black bar

Drawing or peeling

- Carriage drawing machines
- Chain track drawing machines
- PM, PMS or PMH series peeling machines

Straightening

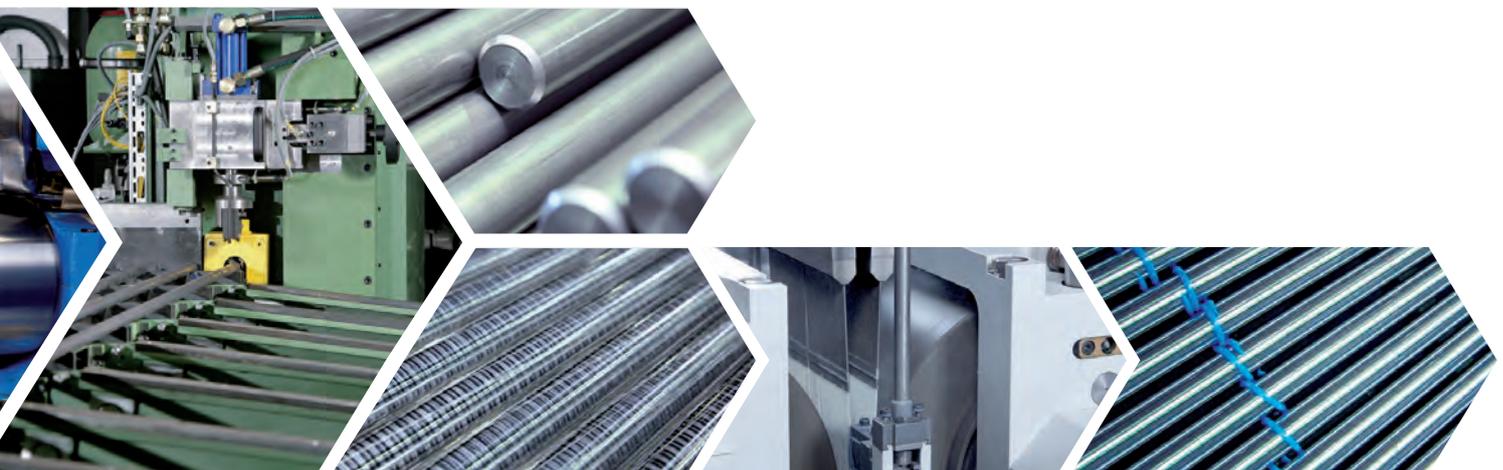
- Two-roll straightening machines (WRP)
- Straightening and polishing machines (Ripo)

SUPPORT AND SERVICE –

performance bright steel centers. The combined drawing lines also permit square, rectangular or hexagonal cross-sections and special sections, while the grinding and polishing machines from the Schleipo and RSM series achieve extremely high levels of surface quality. Alongside the core elements, the SMS group also supplies peripheral equipment such as systems for safe loading of the coils, transport facilities and sizing stands.

The SMS group combines the individual machines into fully integrated and automated production lines to produce complete and perfectly coordinated systems. In this way, the SMS group achieves the highest possible throughput levels and guarantees short changeover times and plant flexibility. Plant owners benefit from high productivity, optimum product quality and good planning.

AUTOMATION



Final machining

- Impact shearing
- Material inspection
- End machining

Products

- Round, square, rectangular or hexagonal cross-sections as rings or bars
- Special sections
- Solid material or thick-wall tube
- Bundling and packing

Grinding

- Schleipo grinding and polishing machine
- RSM 60 regulating wheel grinder

Products

- Round bars
- Solid material or thick-wall tube
- Bundling and packing

Drawing lines

Standalone machines, cleverly combined

The SMS group offers combined drawing lines for round, square, hexagonal and special sections: from safe loading of the uncoiler to the finished bundle, employees make sure that the individual machines are perfectly coordinated and tailored to the exact demands of their business partners. Depending on requirements, the SMS group offers two kinds of drawing system: conventional two-carriage drawing machines and chain track drawing machines. Clamping is performed under hydraulic control to ensure continuous feed for tight tolerances during cutting of the bars.

Efficient production, whatever the batch size

On conventional drawing machines, the material is continuously drawn through the die by two carriages.

Each slide alternates between a forward and backward stroke following the draw curves. On the forward stroke, the material is clamped in jaws and drawn. Hydraulic control of the drawing jaws ensures that clamping takes place at exactly the correct time. This guarantees precise and continuous feed and helps to achieve close length tolerances when cutting the bars. Operating at a maximum drawing force of 450 kN and drawing speeds of up to 150 m/min, the machines are particularly profitable with small and medium batch sizes. On the newest generation of chain track drawing machines, the material is clamped between two circulating inverted-tooth chains by clamping tools and drawn at a constant speed. This drawing system permits speeds of up to 250 m/min and is therefore especially suited to large batch sizes.

Technical data at a glance

Possible applications

Free-cutting, carbide, tool, roller bearing, valve, spring and stainless steels and non-ferrous metals

Working size range Ø

- Round, solid 2 – 60 mm dia.
- Tube 16 – 76 mm dia.
- Square, solid 7 – 45 mm
- Hexagonal, solid 8 – 50 mm
- Rectangular, solid 12 – 70 mm

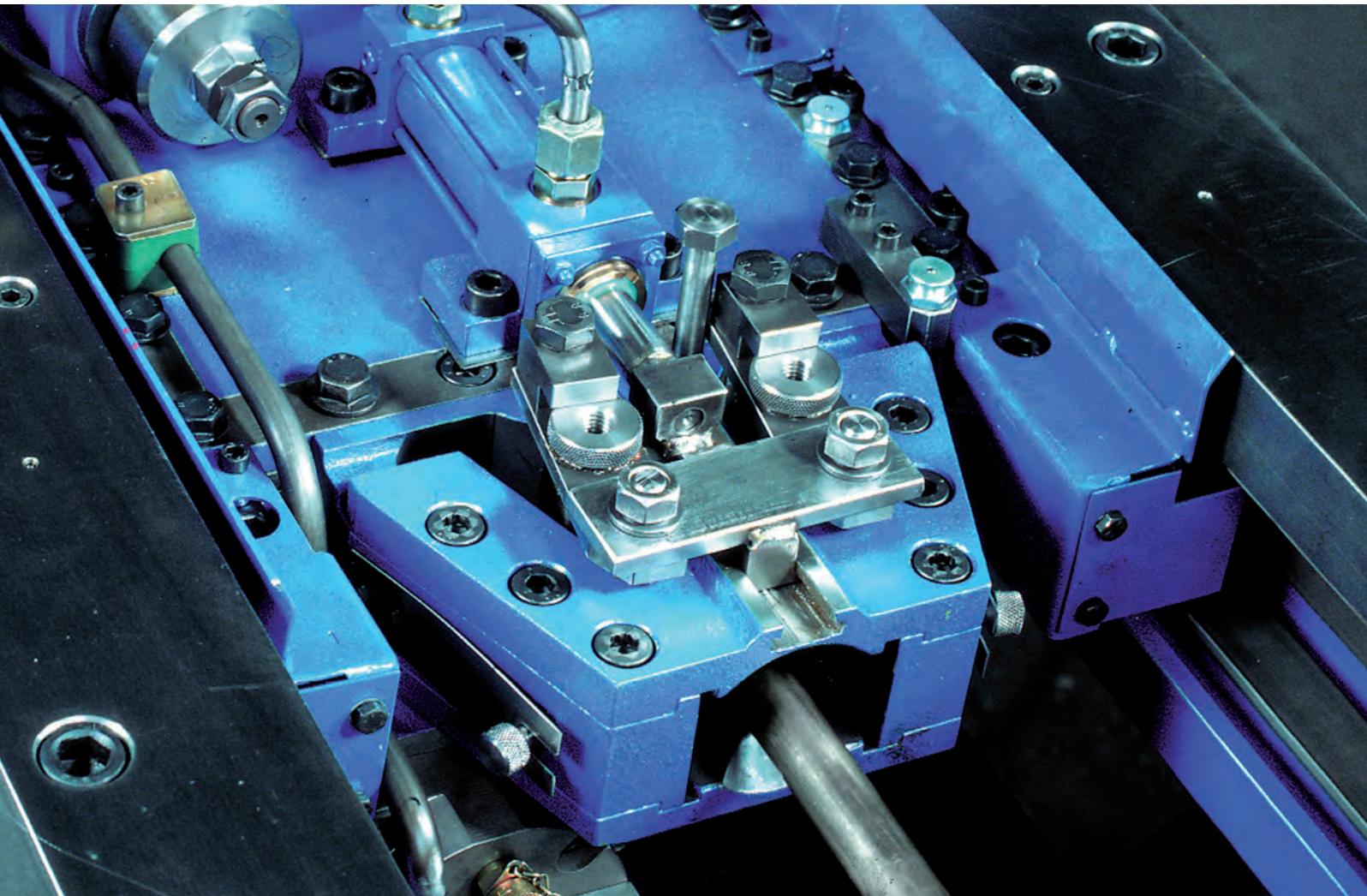
Capacity

Up to 100,000 t/year (depending on material, batch sizes and cross-section)

Integrated drawing machines for optimal results

The SMS group adds equipment upstream and downstream of its drawing machines to form integrated drawing lines – at the same time as optimising the plant with the overall process in mind: prior to drawing, ring-bending and pre-straightening machines ensure that the raw material is prepared in the best possible way. On request, the SMS group can also install optional machines for descaling the steel. Motorised adjustment of the drawing die holder is also possible under load.

For the processes subsequent to drawing, SMS offers cutting devices, straightening and polishing machines and inspection equipment. With a wealth of experience at their fingertips, the experts at SMS group always find the right machine for every demand.



From the customer's point of view

"The SMS group was the perfect partner for our bright steel production in Vietnam. We benefited substantially from their extensive technical know-how for the layout of the core components and the necessary infrastructure for the drawing line as a whole. It put us in a position to compete on the national and above all the international bright steel market from day one."

Danny Liao, General Manager,
Longtech Precision Vietnam Co., Ltd., Vietnam

Peeling lines

Three machine concepts for every demand



The SMS group supplies standalone machines for bright steel peeling but also complex integrated lines with a maximum level of automation, for bar-bar and ring-bar operating modes for cylindrical, conical and double cone bars, and for ringring operation.

At the heart of these bright steel centers is the PM (peeling machine) technology that enables bright steel manufacturers to set standards on quality, productivity and flexibility. Depending on the specifications, the SMS group has three types of machine on offer, with operating ranges of between 5 and 630 mm diameter.

- PM series for the top performance and quality range
- PMS series for economic mid-level production
- PMS series for large diameters

The peeling line product programme also includes machines for ring and bar preparation, bright bar straightening and polishing, inspection and end machining.

From the customer's point of view

"Our new BC bright steel center enables us to meet the demands of our customers on an even more individual level. We are also expecting the SMS group plant to deliver optimal product quality."

Udo Gebel, Production Manager for Bright Steel,
Flanschenwerk Bebitz, Germany



Technical data at a glance

Possible applications

Free-cutting, carbide, tool, roller bearing, valve, spring and stainless steels and non-ferrous metals

Working size range Ø

- PM series 5 – 250 mm
- PMS series 15 – 250 mm
- PMH series 60 – 630 mm

Capacity

Up to 100,000 t/year (depending on material, batch size and cross-section)



Grinding

Impressive tolerances with Schleipo and RSM 60



High rigidity, excellent dynamic behavior and low vibrations: these are features the SMS group customers have put their faith in for more than 65 years. All machines operate with a constant grinding axis, dispensing with the need for lateral adjustment of the bar guide and creating ideal conditions for fast, high-quality grinding of bars.

Schleipo: Grinding and polishing in a single step

The Schleipo series produces ground and polished round bars in a single operation – combining performance and precision. This machine type is used for peeled or drawn round bars made of steel.

The newest generation of the series, Schleipo N 1, additionally offers a high level of flexibility and easy operation: the machine helps operators to cut the set-up and changeover time between two jobs by a significant amount – from around 120 minutes to approximately 15 to 20 minutes. This also makes smaller batch size production fast and profitable.



RSM 60: For a wide range of formats

For pre- and finish-grinding round bars made of steel and non-ferrous metals, the SMS group also offers the RSM 60 regulating wheel grinding machine. The opening between the grinding and regulating wheel is between 2 and 200 mm, and it is also possible to machine short lengths. The RSM 60 combines a very high rate of material removal with tight diameter tolerances and high-quality bar surfaces. A dimensional control system automatically monitors and regulates the grinding process.

In addition to its grinding machines, the SMS group also offers various bar separating, feed and depositing equipment for different workpieces.



Technical data at a glance

Possible applications

Free-cutting, carbide, tool, roller bearing, valve, spring and stainless steels and non-ferrous metals

Working size range Ø

- Schleipo 2 - 120 mm
- RSM 60 2 - 200 mm

Capacity

Up to 30,000 t/year (depending on material, batch size and cross-section)

Pre-straightening

Quality right from the start

Whether peeling or drawing – the SMS group supplies the right pre-straightening machines for all common operating modes and diameters. Depending on the customer's requirements, standalone pre-straighteners can also be extended into complex inspection and testing lines. The SMS group incorporates the machines into an integrated plant or supplies standalone machines with their own handling system.

Optimal peeling in bar-bar operation

The experts at SMS group recommend straightening for all input bars with a straightness deviation of around two millimeters per meter of measured length before peeling – for example on two-roll and multiple-roll straightening machines. They ensure that round bars and thick-wall tubes with diameters of between 8 and 170 mm are ideally prepared for the subsequent machining stages. These machines offer high levels of accuracy, user-friendly operation and easy maintenance.

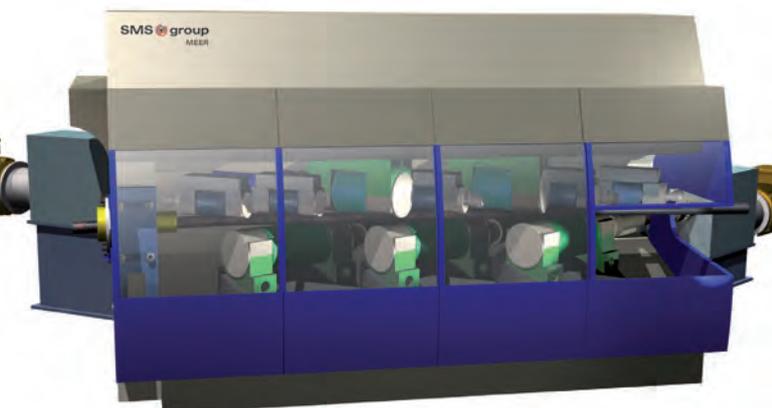
The MWR series is particularly high-performance, reaching feed rates of up to 240 m per minute. The ten-roll concept with motorised diameter adjustment

and hydraulic clamping for all top rolls permits fast and accurate size changes.

The WRP S series with two rolls is particularly well-equipped to meet high straightness requirements over the full bar length, including the leading and trailing ends. Plant owners achieve a straightness accuracy of up to 0.5 mm in relation to 1 m measured length with these machines.

Pre-straightening rings for high product quality

For peeling and drawing in ring-ring and ring-bar operation, the SMS group offers compact systems for ring preparation. Coil opening machines, optionally in combination with transverse transport units, provide for an automatic function sequence. As an alternative, plant operators can use a manipulator, which is controlled by a joystick and is suitable for a wide range of diameters and formats. The SMS group also supplies horizontal and vertical pre-straighteners for the subsequent straightening process. Horizontal pre-straighteners are designed for better straightening results, with special requirements met by the new generation of straightening device.



Bright bar straightening

For high straightening accuracy



From two-millimeter thin wire to formats a hundred times thicker – at SMS group, plant operators find the right straightening solution for a broad spectrum of demands. Shock absorber rods or printer feed shafts are just two examples of applications in which the straightness of the employed materials plays a crucial role.

Maximising straightness and surface quality

For particularly hard materials and high product specifications, the SMS group offers its WRP B and WRP BF series two-roll straightening and finishing machines. Adjustment and clamping are largely performed by motor or hydraulic means, equipping the machines to achieve the best possible straightening results within a diameter range of between 4 and 250 mm over the full bar length. With feed rates of up to 210 m per minute, the machines are particularly fast – for high productivity. Other beneficial features for the plant operator include the quick-changing systems and individual roll contours for special materials.

The WRP E series is a cost-effective solution for low to moderate strengths and diameters of between 4 and 60 mm. The machine parameters are set manually. Depending on design, the machines are suitable for long or short bars.

All three series can be used as part of a line or as separate units with a connected handling system.

Quality for small diameters

In combined drawing lines, bright steel manufacturers also use the straightening and drawing machines with straightening nozzles and polishing wheels. They are particularly well suited to thin sizes. These models machine steel and non-ferrous materials in a diameter range of 2 to 30 mm and combine high levels of straightening accuracy, surface quality and throughput speed.



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