

ROLLING MILLS FOR LONG PRODUCTS

Profitable solutions for high-quality products



SMS GROUP

Leaders in plant construction and machine engineering

The SMS group unites global players in the construction of plants and machines for the processing of steel and NF metals, operating under the roof of SMS Holding GmbH. It consists of the two business areas, SMS Siemag and SMS Meer, as well as industrial participations. SMS Holding GmbH is responsible for strategic planning and control. The sole owner of the SMS group is Siemag Weiss GmbH & Co. KG, the holding of the Weiss entrepreneurial family.

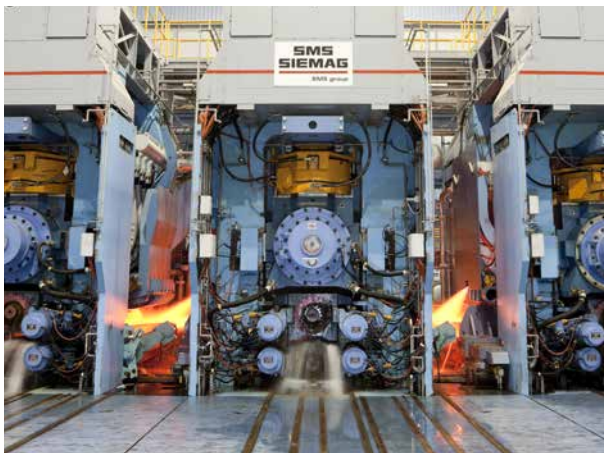
FAMILY-OWNED AND WORLDWIDE PRESENT

As a family-owned company, the SMS group has built on solid values and a culture of responsibility for four generations. It holds a strong market position, while its decentralised structure ensures a fast and efficient response to individual customer demands. The SMS group combines the flexibility of company units that operate as medium-sized enterprises with the broad resources of an internationally active company – all to the benefit of the business partners. The decentralised corporate culture ensures that not only the individual units, but also the employees always think and act in an entrepreneurial manner.

BUILDING ON A STRONG BASIS

A long-term view, careful financial management, the focus on values, plus an understanding of the cycles of the machine and plant construction market have guided the group's strategic planning for decades. Also high on the agenda are investments in the areas of energy and environment technology, service and modernisation of plants as well as on-the-job training and qualification of core employees. On this basis, the SMS group creates tailor-made plant solutions which enable its business partners to keep well ahead of the competition.

SMS  group



SMS MEER BUSINESS AREA

The SMS Meer Business Area bundles its activities in the fields of steelmaking plants and continuous casting technology (long products), tube plants, long product rolling mills, forging technology, nonferrous metals plants, heat treatment technology and service. Starting with advisory services, followed by implementation and commissioning, and finally modernisations – the employees of the business area always combine their specialist knowledge with approachability and flexibility.

TOP QUALITY

The innovative solutions provide our customers with measurable benefits in their challenging markets. Whether steel for automotive parts, pipelines, heavy structural profiles, wheels for high-speed trains or aluminium for façade structures: the machines and plants tailored by the SMS Meer Business Area ensure the cost-efficient and flawless production of the necessary components.

INDIVIDUAL SOLUTIONS

The SMS Meer Business Area concentrates the competence of globally successful specialist firms under one roof to create a unique, full range of supplies and services for metal processing and associated fields. In doing so, the employees focus consistently on the needs of their business partners. They find individual solutions and fulfil the plant operators' expectations, both flexibly and reliably. This is verified by 17,000 successful reference projects the world over – in the last 50 years alone.



ROLLING MILLS FOR LONG PRODUCTS FROM SMS MEER

Ahead of the competition – with a strong partner

SMS Meer bundles the expertise and experience of traditional companies such as Schloemann, Siemag, Demag, Krupp, Möller & Neumann and Sack within its Long Product Division. SMS Meer has already erected over 600 rolling mills across the globe, with plant owners impressed by the technologies offered. They enjoy the benefits of greater flexibility and productivity. Not only that, the quality of the products is considerably improved too. SMS Meer covers the entire range of long product mills. The individual machines are combined into integrated solutions, whether it's for an integrated rail mill or turnkey mini-mill. As far as upgrades are concerned, SMS Meer adapts existing plants to changing market conditions or upgrades them in line with the state of art.

GEARED TOWARDS MARKET DEMAND

And not only has demand grown over time, quality requirements have become more demanding too. In days gone by it was steam engines that trundled

down the rails; trains nowadays can reach speeds of over 400 km per hour. New heights are being reached in the construction sector, too, and the global production of consumer and industrial goods is continuously growing. As the demands placed on the products have risen, so has the expertise of SMS Meer: For decades now SMS Meer employees have been developing the technology further, whilst maintaining a constant focus on the demands made by plant owners and by the market.

With rolling mills for long products from SMS Meer, businesses are able to produce high-quality products on a profitable basis. SMS Meer has introduced a vast array of technologies that are now regarded as the market standard and deliver a high degree of flexibility, productivity and consistent product quality. With its minimills, in particular, SMS Meer is able to deliver cost-effective, integrated solutions, from the steel-works through the rolling mill right up to the further processing lines.



LONG PRODUCT ROLLING PLANTS AND MACHINERY:

- Section and billet mills
- Bar and wire rod mills
- Merchant bar mills
- Minimills
- Furnaces



ECOPLANTS

Act economically – grow sustainably



Reconciling sustainability with economic growth is a challenge facing practically all markets worldwide. Particularly in the metal industry with its comparatively high energy savings potential, this topic is playing an ever more important role. SMS Meer has recognised this and offers machines and plants which give equal consideration to both aspects. Ecoplants is the new hallmark from SMS Meer for sustainable solutions.

ECONOMIC AND ECOLOGICAL ADVANTAGES RECONCILED

Ecoplants reduce raw material input, emissions and energy consumption and improve the recycling quota. These factors are examined and measured on every reference plant. If these are satisfied, SMS Meer rates the corresponding product and the respective reference plant as an ecoplants solution – provided a further crucial condition is also met: Every ecoplants solution has to offer the plant owner real tangible economic advantages.

VERIFIABLE SUSTAINABLE SOLUTIONS

The economic and ecological advantages of the ecoplants solutions can be clearly proven – through the direct comparison with the previous technology. The CO₂ savings per year are thereby just as important today for many companies as the cost reduction per tonne.





eco plants

SECTION AND BILLET MILLS

Experience meets innovation

The rolling of long products has a long tradition. It began with industrialisation in the 19th century: rails were needed in large quantities for the rail network. Since then the market has grown at an enormous pace. Today such products play a pivotal role in everyday life. Modern, high-speed trains run safely on rails; beams and sections are what give bridges and buildings their stability and steel bars are indispensable in the mechanical engineering and automotive industries. It is impossible to imagine modern life without wire rod and the range of materials associated with it. Major construction projects and the industrial production of most goods were simply not possible without long products.



CONTROL AND
Integrated solutions



RAW MATERIALS

- Beam blanks
- Blooms



HEATING

Heating and reheating furnaces



ROLLING

- MPS® plants (integrated casting and rolling plants)
- Heavy section mills
- Medium section mills
- Rail mills
- Billet mills

SERVICE - FOR THE



PRECISELY TAILORED TO THE PRODUCT PORTFOLIO

In all cases SMS Meer tailors its plant and machinery to the customer's products – from beams and sections to rails and semi-finished products – right down to the last detail. The relevant heat-treatment and finishing equipment is incorporated into the rolling lines, e.g. for head-hardened rails, which are particularly suitable for high-load applications due to their far longer service life.

Plant owners can benefit measurably from technologies that are under continuous further development by SMS Meer. They are much more cost-effective than conventional alternatives and you can feel the improvement in the quality.

AUTOMATION

– intelligently networked



COOLING AND STRAIGHTENING

- Cooling beds
- CRS® straightening machines
- Straightening machinery for rails

FINISHING

- Shears, saws and abrasive cutting machines
- Piling machines
- Tying machines and loading beds
- Straightening presses for rails
- Quality control systems

PRODUCTS

- Beams
- Rails
- Standard sections
- Sheet piles
- Special sections
- Semi-finished products

LIFETIME OF YOUR PLANT

SECTION AND BILLET MILLS

Advanced technology that brings tangible benefits

Among the technical highlights in the field of section and billet mills from SMS Meer is the CCS® stand design, which guarantees close tolerances and high plant availability – with low investment and operating costs at the same time. Another example are CRS® straighteners: these are used by section and rail manufacturers to achieve perfect straightness and low residual stresses for a wide range of products, with quick program changes ensuring minimal down times.

CCS® STANDS: CLOSE TOLERANCES, QUICK SIZE CHANGES

Thanks to the particularly high stand rigidity and hydraulic roll gap control under load, CCS® stands (Compact Cartridge Stands) from SMS Meer mean final dimensions within a very narrow tolerance range can be produced. What's more, section manufacturers also benefit from the high level of availability: using the fully automatic stand-changing equipment the rolling schedule can be changed in just 20 minutes. In addition, CCS® stands enable wide sheet piles to be produced and help increase productivity and improve quality in the field of beam production. There are also cost advantages: investment and operating costs are lower than with conventional stands.

CRS® STRAIGHTENING MACHINERY: MINIMAL RESIDUAL STRESS

The CRS® horizontal compact roller straightener can be used to straighten a wide range of beams and sections – this flexible plant can handle even the challenges of straightening high-speed rails with ease. However versatility is by far not the only advantage of the CRS® concept: the hydraulic adjustment system and straightening shafts mounted on bearings on both sides provide perfect straightening quality with minimal residual stresses. Changing the straightening rolls during a size change can be performed in just 20 minutes, thereby increasing the availability of the entire rolling mill. Using the appropriate straightening models from SMS Meer helps plant owners to adjust the machine perfectly – producing top-quality results from the very first section.



FROM THE CUSTOMER'S VIEWPOINT

"SMS Meer has an outstanding reputation worldwide. We benefit from this every day, particularly when customers visit us. They see the signs on the machines and immediately have a positive feeling. German and Swiss technologies are excellent sellers, with us too."

Piya Chairat, Plant Manager at Siam Yamato



FLEXIBLE MINIMILL WITH WIDE PRODUCT RANGE

The minimill at Siam Yamato is particularly flexible: 400,000 tonnes of sections of varying forms and sizes are produced every year. The plant in Thailand produces beams with a dimensional range of 100 × 50 mm to 350 × 175 mm as well as numerous steel channels and angle steel. A later expansion to include round and flat formats with a simultaneous increase in production is also possible. As a result, Siam

Yamato is winning orders from a wide array of industrial sectors. The minimill concept ensures favourable production costs, high productivity and the necessary flexibility with the blooms: The continuous bloom caster has five casting strands and produces a wide range of formats, ranging from 150 × 150 mm to 230 × 450 mm – even simultaneous casting of various formats is possible.



REBAR AND MERCHANT BAR MILLS

Solutions for a wide range of products



SMS Meer offers all types of merchant bar mill. These include merchant bar mills for bars and small sections, rebar mills with high-speed delivery system (HSD®) or slit rolling technology as well as machines for coiling rebars and billet welding machines for endless rolling.

The smooth interaction between these machines is what ensures very high productivity and availability levels. A high degree of efficiency is also guaranteed thanks to the technology systems, actuators and quick-changing equipment: Size changes and adjustments to the product lengths can be performed very fast, while downtimes are reduced to a minimum.

CONTROL AND Integrated solutions



STARTING MATERIAL

Billets

HEATING

Heating and reheating furnaces

ROLLING

- HL stands (H; V; convertible)
- CL stands
- Wire rod blocks
- 2, 3 and 4-strand slitting

SERVICE - FOR THE



The production process itself is fast-moving too: with rebars, for example, rolling speeds can reach up to 45 metres per second.

High flexibility and reliability are the trademarks of SMS Meer merchant bar mills. State-of-the-art mills of this type are capable of producing various products such as angles, squares, flats and small channel steel sections in one plant. Rounds can be produced too.

SMS Meer rolling mills boast typical capacities of around 300,000 to 800,000 tonnes every year. Rebar mills can also be designed as high-performance plants with a capacity of 1,400,000 tonnes per year – depending on the capacity requirements customers request from rolling mill operators.

AUTOMATION

– intelligently networked



COOLING AND INLINE HEAT TREATMENT

- Cooling beds
- HSD® high-speed delivery system
- Quenching and self-tempering facilities

FINISHING

- VCC® vertical compact coiler
- Straighteners
- Piling machines
- Bundling and tying machines

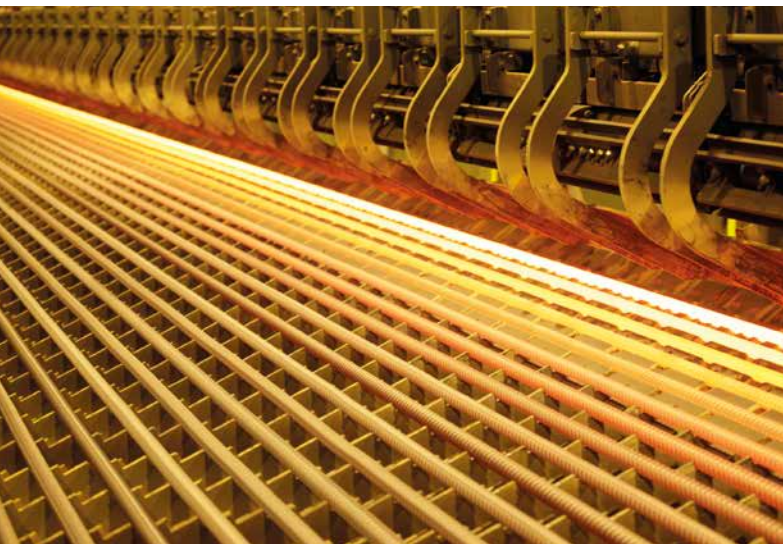
PRODUCTS

- Rebars
- Rounds, flats, squares
- Angles and channels

LIFETIME OF YOUR PLANT

REBAR AND MERCHANT BAR MILLS

State-of-the-art technology for perfect products



HSD®: SUPERFAST DELIVERY ONTO THE COOLING BED

The HSD® (High Speed Delivery) system enables bars to be transported onto the cooling bed at a speed of 45 metres per second. Thanks to soft braking rolls the surfaces remain in perfect condition despite the high delivery speed. The system adjusts the braking pressure to the individual diameter and temperature of the bars. Rotating channels are used for transfer onto the cooling bed. This ensures that only one bar is deposited per rake. A specially developed shear at the inlet section of the cooling bed cuts the bars to the precise length, whatever the speed.

VCC®: TORSION-FREE, COMPACT COIL WINDING

VCC® (Vertical Compact Coiler) is the market standard in the production of compact, torsion-free coils – aspects that are playing an increasingly important role when buying coiled rebars. SMS Meer has consistently tailored the VCC® concept to the economic needs and processes of rolling mill operators: low investment and operating costs in conjunction with low-maintenance technology and high safety standards. The compact coils are not only ideal for transportation and storage, they are particularly suitable for automatic processing in equipment used for bending and cutting to length.





SOLUTIONS TO SUIT ALL PRODUCTION VOLUMES

Jindal Steel & Power Limited (JSPL) in India has placed an order with SMS Meer for a rebar rolling mill for bars with diameters in the 8 to 40 mm range. The mill comprises 14 housingless (HL) stands in three different configurations: vertical, horizontal and shiftable. Large finished sizes are conveyed out of the HL stands and directly onto the cooling bed. Thin finished sizes, partially pro-

duced using the slit method, are rolled by means of two 8-stand wire rod blocks arranged in parallel. With its HSD® high-speed delivery system JSPL is able to attain a speed of 45 metres per second for transfer onto the cooling bed. The results of this high-speed system speak for themselves: the annual capacity of the rolling mill is 1.4 million tonnes.



VERSATILITY AND QUALITY

Slovakia Steel Mills (SSM) operates the first minimill to be erected in Slovakia. From melting through to finishing the plant guarantees fast and efficient processes as well as top product quality. Ideal conditions that ensure SSM meets all its

customers' quality requirements. The finishing line is equipped, among other things, with an HSD® system that runs at 36 metres per second. The plant boasts an overall annual capacity of 400,000 tonnes.

WIRE ROD MILLS

Economic success with sophisticated solutions

Wire rod is a great all-rounder: from high-quality components for the automotive sector, chemical industry and mechanical engineering through to fasteners – it's all based on wire rod. Accordingly, the solutions SMS Meer offers for wire rod mills are just as versatile: all sizes, materials and alloys can be efficiently produced on the wire rod mills.


ALL COMPONENTS FROM A SINGLE SOURCE

Complete wire rod mills, where all components are perfectly matched – this is the success formula for enhanced competitiveness. This guarantees that technology, automation and the individual process-

es work in perfect harmony. The result is top quality, high productivity and lower capital and operational costs.

CUSTOMISED PROCESS CHAIN

SMS Meer designs the wire rod mills in close cooperation with the plant owners based on the relevant requirements. Regardless of which demanding grades are being rolled – the wire rod experts offer the precise technology package to maximise the benefit to the customer. And always with an eye on the overall process. Temperature-controlled rolling and heat treatment in the rolling line enable precise adjustment of the desired properties.



CONTROL AND
Integrated solutions

STARTING MATERIAL	HEATING	ROLLING
Billets/blooms of various material grades	Heating and reheating furnaces – Pusher-type furnaces – Walking-beam furnaces – Walking-hearth furnaces	<ul style="list-style-type: none">■ HL stands■ CL stands■ High-speed wire rod blocks■ MEERdrive® technology

SERVICE – FOR THE



**CONTINUOUS PROCESS
OPTIMISATION**

The process control systems and process models from SMS Meer help plant owners optimise their processes, quality and productivity: they ensure the parameters are precisely adhered to and facilitate

easy operation of the plant. When it comes to the use of materials, energy efficiency or optimal metallurgical characteristics: production processes run better with the sophisticated systems from SMS Meer.

AUTOMATION
– intelligently networked



**COOLING AND INLINE
HEAT TREATMENT**

Loop technology: flexible cooling and equalising zones for wire rod of different material grades



**COIL HANDLING/
FINISHING**

- Laying head
- LCC® Loop Cooling Conveyor
- Coil handling systems, coil compactors/compacting/tying systems



PRODUCTS

Wire rod with diameters of between 4.5 and 26 mm in various material grades

LIFETIME OF YOUR PLANT

MEERdrive®

State-of-the-art technology for perfect products



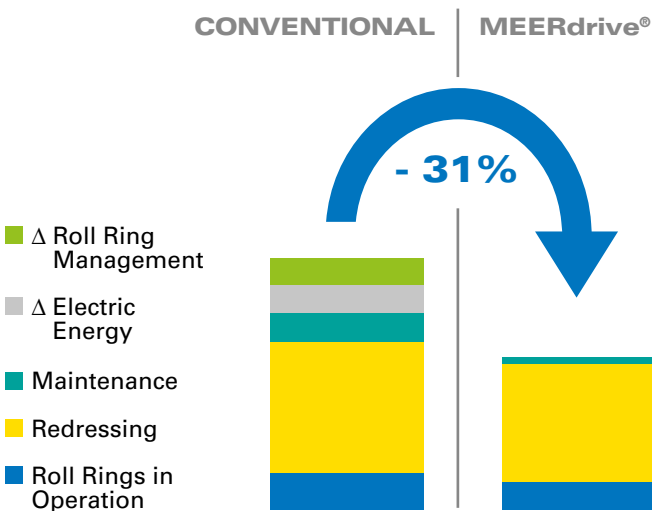
With MEERdrive® technology from SMS Meer each of the stands in a wire rod block is driven by an individual motor. This offers wire rod manufacturers a variety of benefits: The pass design can be perfectly adapted to the size schedule. The roll diameters can be chosen at random and allow individual roll pairs to be replaced – joint machining of all roll pairs within one family, as done in the past, is no longer required.

LESS IS MORE

Instead of using one large motor with a complex gear unit, SMS Meer equips each stand with a small motor – fixed reduction ratios between the stands are therefore no longer necessary. For wire rod manufacturers there is immense flexibility when it comes to the pass design: they can achieve a wide variety of area reductions within the same stand. Product sizes can be chosen at random and the steel grade can be adapted to the customer's requirements. Roll ring management is much simpler, too, as a consistent ratio is no longer needed among the different roll diameters.

SAVING OPERATING COSTS

A comparison of operating costs on different blocks



OPERATING COSTS REDUCED BY AROUND ONE-THIRD

The cost benefits of MEERdrive® are considerable: compared to conventional drive concepts operating costs are reduced by around one-third. MEERdrive® simply shuts down unused roll stands, thereby lowering energy costs. Only worn roll ring pairs need to be replaced, not the entire roll ring family. Therefore plant owners require fewer roll sets and the costs and labour associated with maintenance and re-machining are reduced. What's more, the roll inventory required is much smaller. The high investment costs and spare parts inventory for the large motor and complex gear unit are done away with.



60%

less roll rings
required

1,800

MWh savings
each year

PERFECT QUALITY, ECONOMICALLY PRODUCED

The new wire rod mill at ArcelorMittal in Duisburg-Ruhrort is the first wire rod mill to be erected in Germany for decades. At the same time it is one of the world's most advanced and energy-efficient. At the heart of the plant are the 6 and 4-stand MEERdrive® wire rod blocks, with a cooling and equalising line for temperature-controlled rolling. This plant layout allows ArcelorMittal to achieve top product quality and far greater flexibility during the rolling process, compared to conventional group drive technology.

The rolling mill has an annual capacity of 690,000 tonnes and produces technically challenging steel grades of excellent quality with narrow tolerances. The compact and efficient plant configuration is unique worldwide and features a host of innovative systems – including a cooling and equalising zone in a loop arrangement as well as a 104 m-long LCC® (Loop Cooling Conveyor) with 3-fan technology.

BAR MILLS FOR QUALITY AND SPECIAL STEEL

Special quality solutions

Typical applications for SBQ bars (Special Bar Quality) can be found in the automotive and mechanical engineering industries. The closest tolerances and maximum consistency are what is needed here – and competition is intense, especially among sub-suppliers. With bar mills from SMS Meer, rolling mill operators can meet all their customers' needs, both flexibly and efficiently – giving them a real competitive advantage.

EFFICIENT, FLEXIBLE AND HIGH-QUALITY PRODUCTION

For SBQ production SMS Meer has specifically developed machinery and systems that enable plant owners to offer customers products they can rely on – even with small batch sizes special product requirements can be met cost-effectively.

In terms of quality steel, in particular, every rolling mill operator has different demands to meet in order to deliver perfect products to customers. That is why SMS Meer develops customised solutions for each SBQ producer.

CONTROL AND

Integrated solutions



STARTING MATERIAL

Billets/blooms of various material grades

HEATING

Heating and reheating furnaces
– Pusher-type furnaces
– Walking-beam furnaces
– Walking-hearth furnaces

ROLLING

- HL stands
- 3-roll PSM® sizing blocks

SERVICE – FOR THE



**STREAMLINED PROCESSES,
LEAN COSTS**

The dedicated process control systems and process models supplied by SMS Meer are setting standards in the market – in terms of both quality and costs. The systems are based on a holistic approach: They moni-

tor the entire production process and automatically intervene if potential for optimisation is identified. By adapting the programs individually and using learning data bases, SBQ technology systems can deliver the right product, however specific the customer’s requirements may be.

AUTOMATION
– intelligently networked



**COOLING AND INLINE
HEAT TREATMENT**

- Cooling and equalising lines
- Cooling bed with systems for retarded cooling

**COIL HANDLING/
FINISHING**

- Pouring reel lines
- Saw and shear units
- Bundling equipment

PRODUCTS

- Round SBQ grades with diameters of 13 mm to 150 mm
- Hexagonal SBQ grades with diameters of 13 mm to 103 mm

LIFETIME OF YOUR PLANT

PSM[®]

All market requirements are met with flexibility and precision



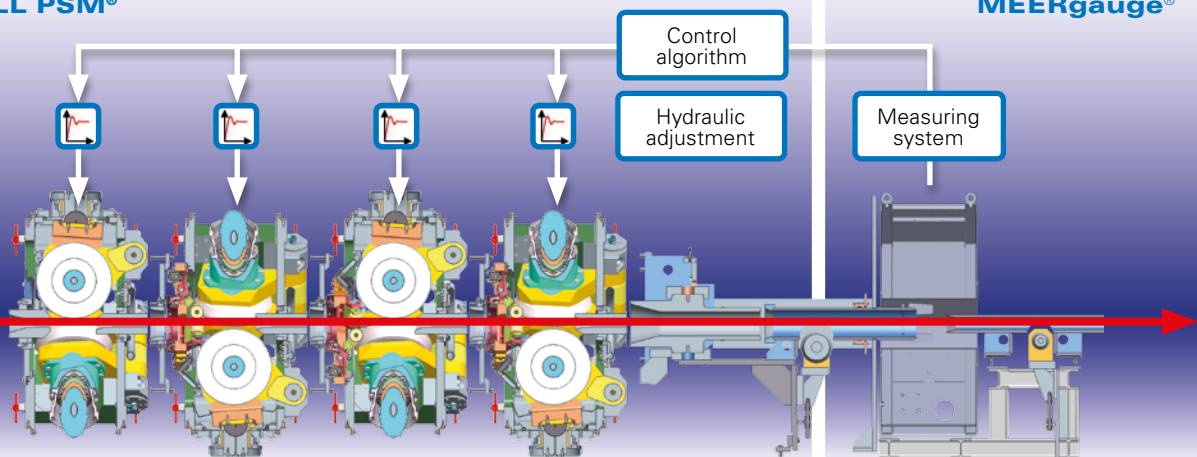
The 3-roll PSM[®] (Precision Sizing Mill) from SMS Meer considerably improves product quality and output. Using roll gap adjustment under load, the PSM[®] allows for one family rolling in the roughing and intermediate train as well as the infinitely variable production of all finished sizes. Different finished sizes can be produced without changing the rolls. Even the first bar is already within the specified tolerances.

SEAMLESS PROCESS CONTROL

Using the Technological Control System (TCS), MEERgauge[®] measuring system and the MEERcon PSM[®] process model, plant owners are able to optimise the rolling process: TCS controls the adjustment of each individual roll, while MEERgauge[®] measures the precise shape of the bars. This allows them to react immediately by automated means to any deviation from the setpoints. The MEERcon system bundles the data and makes it available to the operators in the various sectors, for example the rolling train, roll workshop or control room.

3-ROLL PSM[®]

MEERgauge[®]





HIGH PRECISION – FULLY AUTOMATICALLY

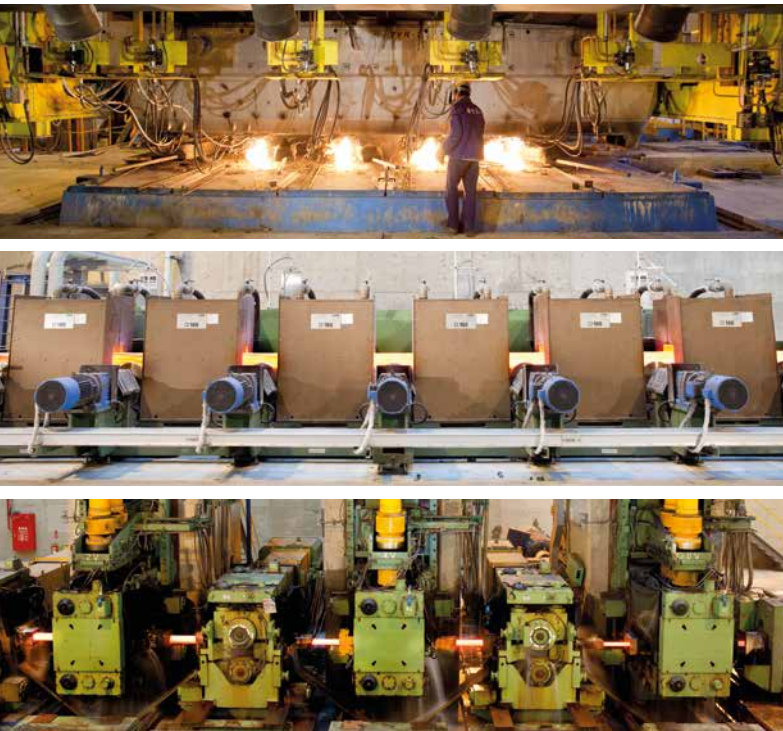
The Deutsche Edelstahlwerke operate a 3-roll PSM® with hydraulic roll adjustment under load, supplied by SMS Meer, at its site in Siegen-Geisweid. The MEERgauge® system installed directly behind the PSM® enables fully automated operation and ensures maximum precision during production – independently of the operating personnel.

The closest tolerances can be achieved by combining the MEERgauge® laser measuring system for measurement of the cross-section, the highly dynamic monitor control system and the rolls that can be adjusted under load. In the event of size or temperature variations in the ingoing product, the system automatically controls the tolerance deviation in the end product during rolling.

MINIMILL

40 years' experience

Minimills are part of the DNA of SMS: Around 40 years ago SMS built the first plants with an electric arc furnace and inline rolling mill. Willy Korff, a pioneer of minimill technology, put his faith in components supplied by Schloemann-Siemag, Concast and Demag – manufacturers that are now part of the SMS group.



THE BENEFITS OF SMS MINIMILLS AT A GLANCE

- **Good production results.** SMS minimills are setting new standards in the market in terms of production capacity, product sizes, tolerances and condition of the products – all for the benefit of plant owners.
- **Efficient production.** SMS bundles the expertise and technologies from a variety of traditional companies and combines this know-how to create new advantages. The best example of this is the CMT™ concept: By linking the casting and rolling process with innovative induction heating, huge savings can be made.
- **High profitability.** The integrated minimills continuously deliver maximum performance – thanks to the top quality of the plant and machinery, reliable technologies and innovative, integrated automation systems.
- **Maximum safety and reliability.** A good feeling for minimill operators and their employees: SMS minimills are designed to meet all safety requirements – no ifs, ands or buts.
- **Smooth processes.** From the initial consultation to commissioning and beyond: SMS Meer customers benefit from on-time delivery and trouble-free operation of their minimill.

MELTING

REFINING

CASTING





REHEATING



ROLLING



FINISHING



CMT™ CONCEPT

Competitive advantages enhanced by leading technologies

SMS Meer and SMS Concast together developed the Continuous Mill Technology (CMT™): Continuous casting and rolling were re-aligned with each other. The Concast INVEX® moulds allow operators to run the system at higher casting speeds and feed the billets directly into the rolling mill thanks to the consistent core and surface temperature. As a result, no conventional heating furnaces are required in CMT™ minimills. Instead the minimill team integrated an induction heating system from SMS Elotherm, a subsidiary of SMS Meer. The system measures the billet temperature and adjusts it to the required level. The hot billets are then conveyed directly into the rolling mill – a large portion of the casting heat is used for the rolling process. As a result, SMS has been able to eliminate the investment costs and fuel consumption associated with a conventional heating furnace. The investment costs for the induction heating plant are around 25 to 30 percent lower than with conventional furnace concepts.

Under certain conditions, even the induction heating system is no longer necessary as the billets are shaped in the INVEX® moulds supplied by SMS Concast in such a way that they lose hardly any heat during the subsequent production process. With or without

inductive reheating – CMT™ reduces CO₂ emissions considerably while lowering operating costs at the same time.

SMS Meer offers the most comprehensive long product minimill on the market – integrated solutions from a single source. To have confidence in the SMS minimill team is to have faith in the technological leadership of SMS Concast for electric steelmaking plants and continuous casting and the rolling mill know-how of SMS Meer – both now bundled within the SMS Meer Business Area.



FROM THE CUSTOMER'S VIEWPOINT

"The new minimill from SMS Meer meets all our requirements: We were able to increase production, cut costs using energy-efficient processes and at the same time do something for the environment. As a result we save in terms of both emissions and real cash too."

Tim Hsu, Tung Ho Steel, Taiwan





CMT™ MINIMILL: PIONEERING ENERGY EFFICIENCY

Environmental protection is becoming increasingly significant. And that goes for Taiwan too: The demands being made in terms of CO₂ emissions from industrial plants are high. The minimill at Tung Ho Steel Enterprise near Taipei is setting standards in this field and is a perfect example of how the basic idea of a minimill works in practice: short routes and direct connection between the steelmaking plant and rolling mill. The steel-

works with electric arc furnace, ladle furnace and a five-strand billet caster produces 1.2 million tonnes of billets each year. It also boasts high speeds: 40 to 45 tonnes per strand every hour. The rebar mill has an annual capacity of 800,000 tonnes. The innovative CMT™ process saves 72,000 tonnes of carbon dioxide each year and cuts operating costs by around 11 euros for every tonne of rebars.

800,000t
annual capacity

11 €
less costs per tonne

225t
less NO_x
per annum

72,000t
less CO₂
per annum

410t
less SO₂
per annum

SERVICE

Taking care of everything – MEERcare®, MEERcoach®, MEERconsult®

The employees at SMS Meer do everything to ensure that customers are satisfied with the company's machines and plants for many years. The SMS Meer Service experts continue to look after them even after commissioning – a whole plant life long. With MEERcare®, MEERcoach® and MEERconsult®, SMS Meer offers services for machines, people and processes.

MEERcare®			MEERcoach®	MEERconsult®	
					
Spare Parts Service	Maintenance	Modernization	Field Service	Training & Coaching	Consulting & Implementation
Spare Parts	Equipment Check	Mechanical Components	Repairs	Assessment	Fact Finding Audits
eService	Condition Monitoring	Hydraulic Systems	Trouble Shooting	Standardised Trainings	Feasibility Studies
Spare Parts Management	Maintenance Service	Electrical Control Systems	24/7 Support	Individual Training	ecoplants Assessment
Warehousing	Remote Service	Automation Equipment		eLearning	Strategies & Concepts
		Value Added Components			Change Management
Full Service					

These services cover three specific areas:

- With **MEERcare®**, SMS Meer offers tailored service solutions – from spare parts, through emergency calls at short notice, regular maintenance measures through to comprehensive modernisation measures.
- **MEERcoach®** focuses on the people: The SMS Meer Service experts share their know-how with the customers and provide on-site support for the ongoing production.
- The **MEERconsult®** specialists analyse processes in preparation for their optimisation.

THE RIGHT PARTS IN THE RIGHT PLACE AT THE RIGHT TIME

The right spare parts have to be available at all times so that production doesn't come to a standstill. At the same time, capital tie-up and storage costs have to be kept low. That is why SMS Meer delivers spare and wear parts for all machines quickly and reliably.

A web-based, machine-specific parts catalogue makes the ordering process even easier. On request, SMS Meer also takes care of the whole spare part and stock management. The differing parts stocking concepts are always geared to the customers' individual needs.

CONTINUOUS HIGH PERFORMANCE

Whether one-off fact-finding, continuous monitoring via remote service or regular plant inspections: The SMS Meer Service experts analyse and service the plants. On request they even take over the complete maintenance. Plant owners thus ensure maximum plant availability and optimum production results.

ALWAYS UP-TO-DATE

Plant owners are engaged in dynamic markets. The demands on profitability, product quality and productivity have risen steadily for plant owners in recent years. New technologies and plants arrive on the market in ever shorter innovation cycles. Tailored and customised modernisation concepts from SMS Meer ensure that the plants run for decades: and that with reduced operating costs, higher productivity and improved product quality.

FIELD SERVICE

Even in emergencies, customers can rely on SMS Meer Service. The Service technicians help with troubleshooting and the necessary repairs. With short reaction times and high availability, they ensure that the plant is up and running again as quickly as possible.



CORPORATE SUCCESS THANKS TO TECHNICAL KNOW-HOW

Whether individual or standardised trainings – the MEERcoach® experts plan individually tailored training programmes and implement these together with the customer. The plant operators gain valuable know-how through time-tested formats and special e-learning offerings – for more operational reliability and more efficient processes.

HIGHER PROFITABILITY THANKS TO THE RIGHT ADVICE

More efficient processes, optimised technology and more effective use of resources – those are the goals of MEERconsult®. SMS Meer carries out feasibility studies to establish a sound basis for management decisions, or develops strategies and concepts for the optimisation of existing plants and processes.

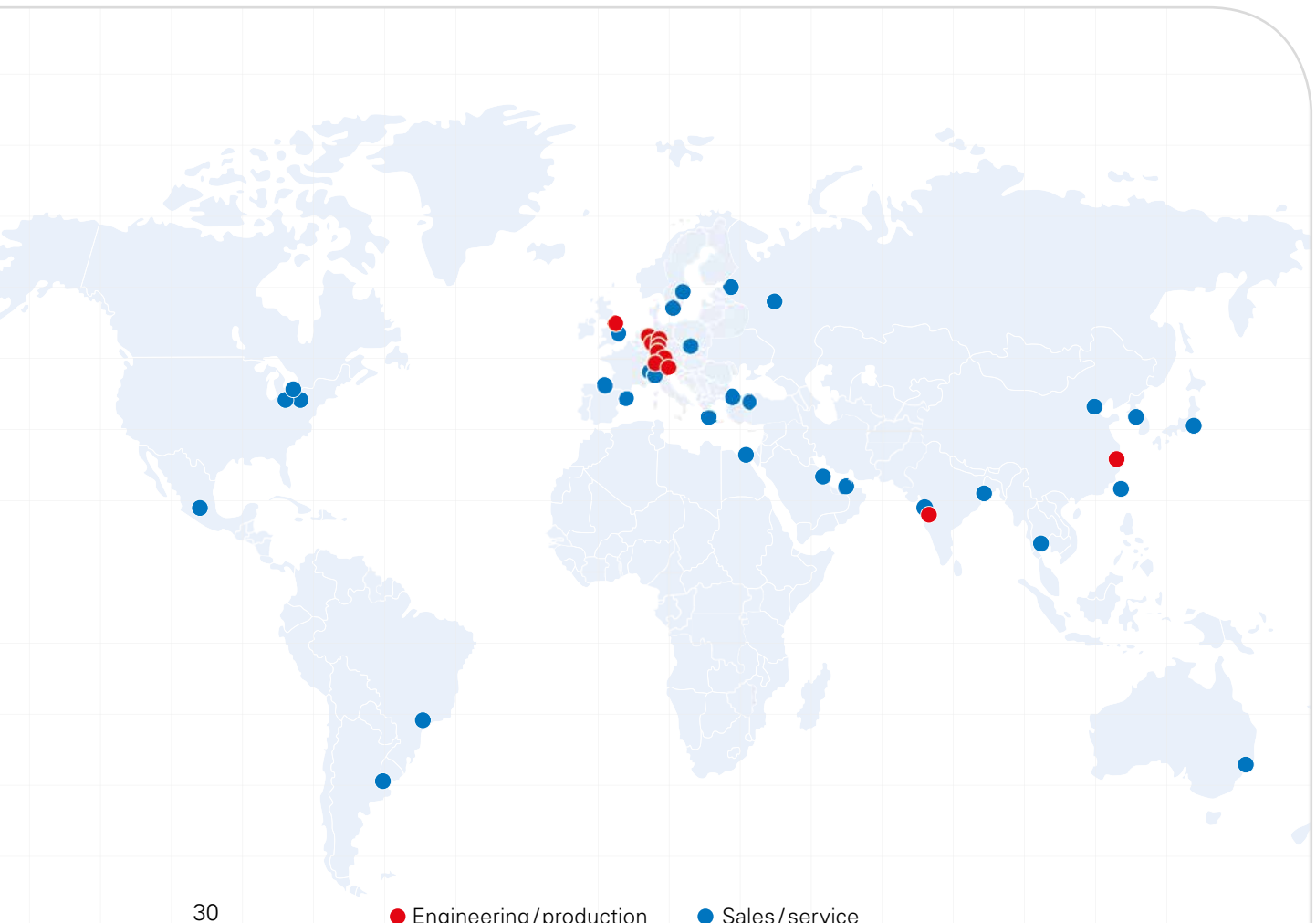
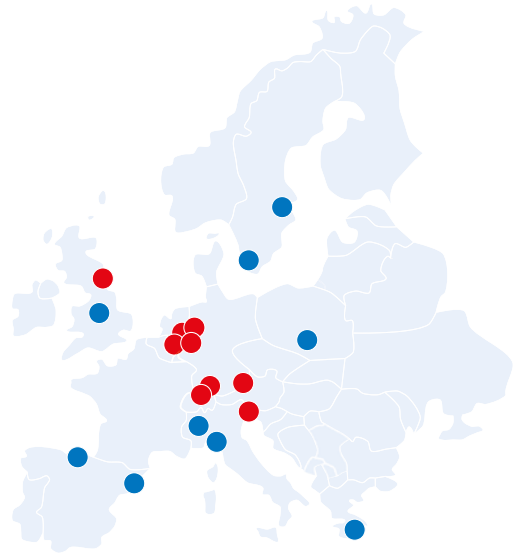


CLOSE TO CUSTOMERS

Think global, act local

The Business Area SMS Meer is represented world-wide. 17,000 reference installations demonstrate the market's confidence in the expertise, experience, reliability and flexibility of the company.

No matter where the customers work and what language they speak – the right people at SMS Meer are always on hand. In this way SMS Meer can support its business partners quickly and effectively.



IMPRINT

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MEETING your EXPECTATIONS