WIRE ROD MILLS
Sophisticated solutions for economic success
Wire rod is an all-round talent. From components for the automotive industry, the chemical industry, power stations and machine engineering through to connecting elements such as nuts and bolts – everything is based on wire rod. That is why SMS Meer designs its solutions for wire rod mills with versatility in mind. All size ranges, materials and alloys can be produced efficiently and with high productivity on the wire rod mills.

EXPERIENCE THAT IMPRESSES
SMS Meer has vast experience with the design and construction of rolling mills. The experts from the business area have built over 420 wire rod and light section mills in the last 60 years alone, and satisfied customers can be found around the world. The rolling mill specialists have implemented a wide variety of solutions – from single-strand high-speed wire rod mills through combined wire rod and bar mills right up to highly flexible minimills.

INNOVATIONS THAT SET STANDARDS
SMS Meer is constantly on the look-out for new solutions in order to offer plant owners a competitive lead in their industry, and sets the standards on the market today in many sectors. One of the most recent innovations is the MEERdrive® technology: The stands of the mill blocks are driven individually, complicated gearing is eliminated – just like the fixed reduction ratios between the individual stands. Wire rod producers benefit from complete flexibility in sizing and reduce their operating costs by up to 30 percent, because energy consumption is minimised, the required roll ring stocks are reduced and the costs for service and maintenance are cut significantly.

The experts from SMS Meer also put the technical know-how of their colleagues in the other product units at the disposal of the plant owners. The deeper understanding of metallurgical processes, for example, is utilised in the LCC® loop cooling conveyor. Together with the CCT® System (Controlled Cooling Technology) it is possible to specifically achieve the demanded mechanical properties, such as tensile strength and ductility, as well as the desired microstructure of the finished product.
HIGH-PERFORMANCE SERVICE FOR HIGH-SPEED ROLLING MILLS

The staff at SMS Meer see themselves as partners of the plant owners. They are always searching for the optimum solution, even after commissioning. This philosophy also entails intensive consultation and comprehensive service – from the plant planning through support during production, operator training and modernisation measures. No matter when and where a customer needs support, the worldwide service network ensures quick and dependable help from proven experts.

Quality, flexibility and profitability are a matter of course with the solutions from SMS Meer. That puts plant owners in a good position with their customers.

EXPERTISE AND REFERENCES

- Some 650 reference long products plants, including more than 420 wire rod and light section mills and 8 minimills
- Customers around the world, including ArcelorMittal, Fujian WuHang, Gerdau, Jiangsu ShenYuan, Swiss Steel, Trinecke Železárny, Kardemir and Voestalpine
- Trendsetting new developments
  - MEERdrive® technology
  - 3-fan technology for the LCC® (Loop Cooling Conveyor)
  - CCT® (Controlled Cooling Technology) process model
  - Electric tying heads for compactors
Completely integrated wire rod mills in which all the components are perfectly matched – that is the recipe for success, for both SMS Meer and the wire rod producers – because it guarantees that engineering, automation and processes are perfectly geared to one another. The result: Top quality and high productivity with minimum investment and operating costs.

TAILORED PROCESS CHAIN
In close cooperation with the plant owners, SMS Meer designs the wire rod mills to perfectly meet the demands of the application. No matter what challenging grades are to be rolled, the experts from SMS Meer select exactly the technologies that offer their business partners the greatest benefit – while keeping the whole process in their sights at all times. Every plant owner thus gets a tailored solution, right down to turnkey minimills. For these high-efficiency mini steelworks with adjoining rolling mill, SMS Meer works closely with SMS Concast – the experts for steelworks and continuous casting.

ONGOING PROCESS OPTIMISATION
The process control systems and process models from SMS Meer help plant owners optimise their processes, quality and productivity: Together with transport systems, the advanced user-friendly control system ensures a high capacity utilisation of the plants and makes

PORTFOLIO
All the components from a single source

STARTING MATERIAL
Billets/blooms in various material grades

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

ROLLING
- HL stands
- CL stands
- High-speed wire rod blocks
- MEERdrive® technology

CONTROL AND
Integrated solutions
it easy for the operators to find the ideal settings. The SMS Meer service technicians support the plant owners in exploiting the full potential of the systems.

AUTOMATION
– intelligently networked

COOLING AND INLINE HEAT TREATMENT
Loop technology: Flexible cooling and equalising sections for wire rod in different material grades

COIL HANDLING/FINISHING
- Loop laying head
- Loop cooling conveyor (LCC®)
- Coil transport, compacting and tying systems

PRODUCTS
Wire rod in diameters from 4.5 mm to 26 mm in different material grades

A WHOLE PLANT LIFE LONG
WIRE ROD MILLS FOR QUALITY AND STAINLESS STEELS
Plants and products: Tough, precise, profitable

The market for wire rod of quality and stainless steels continues to develop, and the demands on the quality of the finished products rise. At the same time, the production facilities and machines have to become more and more flexible and profitable. SMS Meer is keeping pace – with innovative processes and advanced technologies that are combined to offer mill owners a tailored plant solution. That applies not only to new wire rod mills, but also to revamping, modernisation and expansion projects.

SPEED MEETS FLEXIBILITY
Single-strand high-speed wire rod mills from SMS Meer roll small sizes with high production rates – up to 120 m/s are possible. Even at full speed, the mills achieve a very good laying pattern, while temperature-controlled rolling guarantees the highest quality. Thanks to the modern cooling systems and their control possibilities, plant owners can easily reproduce product characteristics. Wire rod producers achieve high flexibility and low operating costs with the MEERdrive® concept. Because every stand in the mill block is driven individually, mill owners are free in the sizing and configuration of their mill trains. Furthermore, the block simplifies service and maintenance. The payback time on the investment in a new wire rod mill is thus very short.

PRECISION WITH EVERY GRADE
The wire rod mills from SMS Meer generally have production capacities between 200,000 and 800,000 tonnes per year. The product dimensions lie in the range from 4.5 mm to 26 mm diameter – with tolerances of less than 0.1 mm. The versatile lines produce wire rod from low to high-carbon steels, cold-heading, free-cutting, alloyed, spring and roller bearing steels, stainless steels, tool steels and also welding wires – the right solution for every market.

TYPICAL LAYOUT OF A WIRE ROD MILL FOR QUALITY AND STAINLESS STEEL

- 1 Heating furnace
- 2 High-speed roughing train
- 3 Free runout
- 4 Intermediate train
- 5 Cooling and equalising loop
BENEFITS AT A GLANCE

- Product dimensions from 4.5 mm to 26 mm diameter
- Rolling speeds up to 120 m/s
- Tolerances of ± 0.1 mm and better
- Temperature-controlled rolling with the highest reproducibility of the demanded material properties
- Thermomechanical rolling thanks to very high stand capacity – even with small roll diameters in all the wire rod blocks
- Very good laying pattern even at high rolling speeds
- Individual drive of the wire block stands with MEERdrive® permits very high flexibility in the roll sizing
- Utilisation level of over 90% when using a MEERdrive® PLUS block
The demand for wire rod and bar steel is changing continuously. Today structural steel for new buildings, tomorrow wire rod for the automotive industry. Manufacturers who can react quickly to market changes, who are flexible in the product formats and can produce varying lot sizes cost-effectively have a clear advantage. That is why SMS Meer offers combined mills on which both wire rod and bar steel can be produced – cost-effectively and in high quality.

COMPREHENSIVE PORTFOLIO WITH ADDED VALUE
The individual components from the SMS Meer portfolio for SBQ plants form a broad basis for combined mills. SMS Meer links the components into plants with a very high level of flexibility in the finished product dimensions and metallurgical properties, so generating added value for its business partners. No matter whether wire rod or bar steel – SMS Meer gives comprehensive advice and tailors the plants individually to the customer’s needs.

1 Heating furnace
2 Roughing train
3 Intermediate train
4 PSM®
5 10-stand MEERdrive® block
6 4-stand MEERdrive® PLUS block
7 Loop laying head
8 LCC®
9 Coiler
10 Coil handling facilities
11 Quenching and tempering facilities
12 HSD® system
13 Cooling bed
14 Finishing facilities
BENEFITS AT A GLANCE

- High productivity with a broad and flexible product range
- Top quality of the rolled products with respect to tolerances, surface finish and metallurgical properties
- Very high flexibility of the line
Housingless (HL) mill stands are the backbone of modern rolling mills. They stand for the closest form and dimensional tolerances, fast stand changing and minimum maintenance costs. The modular design permits the use of HL stand cassettes in all possible configurations: horizontal, vertical, tiltable and universal. The HL concept is thus suitable for roughing, intermediate and finishing trains. The stand sizes differ, depending on the necessary dimensions of the rolls and roll journals, pass schedule, pass form as well as the gearbox and motor characteristics. SMS Meer identifies the relevant process variables with special computation models and thus determines the optimum stand size for the particular layout. With HL mill stands, plant owners achieve optimum results in bar steel mills, wire rod mills, light section mills and combination plants.

### MAIN FEATURES OF THE HL DESIGN

- Compact, rigid design of the parts
- Low roll bending thanks to favourable ratio of roll journal diameter to roll diameter
- Durable, multi-row roller bearings with self-aligning chocks under load
- Backlash-free balancing of the chocks
- Simple and precise adjustment of the guides and guards
BENEFITS AT A GLANCE

- Finished product meets exactly the demanded form and dimensional tolerances, hence close control of the metre weight
- High plant availability: Time saving for stand changes thanks to roll changing outside the rolling line
- High flexibility: Use of the same stand unit in horizontal, vertical, tiltable and universal configuration – for reduced spare part stocking
- Shorter maintenance times and lower costs thanks to fewer components and easier accessibility
- Automated roll gap adjustment
- Integration into the fully automated control system
Whether in single-strand rolling trains, split intermediate trains of two or three-strand rolling trains, in finishing trains or as prefinisher stands in wire rod delivery sections: Compact cantilever stands (CL) are a cost-effective solution for a wide range of applications. They offer high load-bearing strength even with small diameters, and are hence ideal for use in high-speed wire rod blocks, even at low initial pass temperatures.

WIDE RANGE OF COST BENEFITS
Irrespective of the field of application, mill owners profit from low costs: The investment costs are low, because little space is required and the low weight reduces the space requirement for the whole mill, the foundation costs and the erection time. Furthermore, no guide troughs are needed between the roughing train stands. Due to the small roll ring bearings, savings are also achieved in the corresponding roll ring machining facilities.

MAIN FEATURES OF THE CL DESIGN
- No axial roll ring adjustment necessary
- Rigid stand design
- Large roll shaft diameter (roller bearings)
- Low roll bending
- Stand of cassette construction
- Cassettes of the same stand type are interchangeable, even in horizontal/vertical stands
- Safety clutch as overload protection
The CL stands also score when it comes to operating costs: On the one hand, they need less spare parts and personnel in the roll workshop and allow short changing times at roll ring and programme changes. On the other hand, they increase the yield factor – mill owners thus increase the productivity and reduce costs at the same time.

**UNIVERSAL APPLICATION**

SMS Meer selects the right stands for the particular application from the wide range of sizes. Stands with roll ring diameters from 160 mm to 900 mm are available. Thanks to their compact design, CL stands allow rolling train modifications even where the available space is limited.

**BENEFITS AT A GLANCE**

- Low foundation costs
- Low roll costs
- Reduced stocking of spare and change parts
- Short roll dressing times
- Ease of operation and maintenance
- Fast roll and stand changing
- Short erection time with low erection costs
The core element of every wire rod mill is the wire rod block. The highly productive wire rod blocks from SMS Meer allow reliable rolling of thin dimensions with speeds of over 120 m/s. But speed is not everything: On the lines from SMS Meer, wire rod manufacturers produce high-quality wire rod and at the same time improve the metallurgical properties of their products – to constantly meet the growing demands of the market.

**NEW CONCEPT FOR MAXIMUM QUALITY**

The thermomechanical rolling of wire rod with small dimensions at high production rates is not possible with a conventional 10-stand finishing block. Due to the number of passes required, heating is too high to achieve the required metallurgical properties. Splitting the wire rod block into a 6-stand and a 4-stand unit allows wire rod of any dimensions to be finish-rolled in a maximum of four passes. With sufficient cooling and good temperature equalisation over the cross-section, thermomechanical rolling at high production rates is also possible. Good preconditions are offered also by the loop technology from SMS Meer that is already successfully in use in several wire rod mills. The ingoing temperature into the wire rod blocks is reduced to 750°C – with temperature deviations of less than 50°C. Even with dimensions that still have to be produced with ten rolling passes, the temperature can thus be reduced to 750°C again before the last four finishing passes. The advantage: Normalising or thermomechanical rolling of the wire rod is possible, optimising the mechanical and metallurgical properties even with small dimensions.
QUICK RING ROLL CHANGING AND HIGH OPERATIONAL RELIABILITY

The wire rod blocks are designed such that the roll rings can be changed without great expense: During roll ring changing they are positioned precisely on the roll shaft by a fixed oil spray ring. Axial adjustment of the roll rings is therefore superfluous. A special construction for fixing the eccentric bushes on the shafts also prevents the roll rings from moving on the roll shafts. The specialists from SMS Meer have developed effective solutions also for maximum operational reliability: Bar tracking from the inlet side of the wire rod block through to the loop laying head detects faults and thus prevents cobbles. A “safety cord” in the vicinity of the wire rod block rolling line detects any cobbles immediately. If necessary, a control loop activates an emergency shear upline of the block.

SMS Meer offers blocks of conventional design and as MEERdrive® blocks.

BENEFITS AT A GLANCE

- Compact design
- Less vibration
- Low noise level
- Controlled cooling technology and interstand cooling of round profiles
- High rolling speeds (over 120 m/s)
- High rolling forces with UHD/HD stands (ultra-heavy duty/heavy-duty) for minimum initial pass temperatures of 750°C
- Symmetrical roll gap adjustment by simultaneous turning of the eccentric for each roll pair
In the Formula 1, the racing cars tear up the track at 300 km/h – or 83 m/s. The new wire rod delivery section at the Xin Jiang YI LI Iron & Steel Co. Ltd. rolling mill is even faster. Project manager, William Li from Xin Jiang YI LI: “The components from SMS Meer functioned without problems right from the outset. Immediately after commissioning, we achieved rolling speeds of over 110 m/s, or almost 400 km/h.” The core components of the mill came from SMS Meer. Xin Jiang YI LI rolls up to 600,000 tonnes per year on the mill, with wire rod diameters from 5.5 mm up to 20 mm.
The MEERdrive® technology is a revolution in the field of wire rod blocks: It enables infinitely variable setting of the diameter, close tolerances, very good metallurgical product properties and last but not least significantly cuts the operating costs. At the same time, MEERdrive® reduces the energy consumption and thus improves the environmental balance.

LESS IS MORE
Instead of using a large motor and complex gearing, SMS Meer equips each stand with a small motor with the MEERdrive® concept. Fixed reduction ratios between the stands are therefore no longer required. This enables wire rod producers to achieve enormous flexibility in the roll sizing: With MEERdrive® they can roll different area reductions in the same stand. They can freely select the product formats and adapt the rolling process specifically to the steel grade and the customer’s requirements. Roll ring management is also much simpler as a constant ratio between the roll diameters is no longer necessary.

With MEERdrive® or MEERdrive® PLUS blocks the motors are controlled relative to one another so that the stands behave like a conventional wire rod block and can also be set far more precisely. This flexibility means that when using MEERdrive® technology on a 4-stand MEERdrive® PLUS block, only one change gear unit is required per stand for the speed range. Mill owners can thus save the additional gearboxes for changing the reduction ratios between the stands of a wire rod block.

AROUND ONE-THIRD LOWER OPERATING COSTS
Apart from the advantage on the product and process side, wire rod producers profit also from notable cost benefits: The operating costs are reduced by up to 30 percent compared with conventional drive concepts. Mill stands not in use are simply shut down with MEERdrive®, lowering the energy costs. If a roll ring pair is worn, only this pair has to be replaced – not the complete roll ring family. Mill owners therefore need less roll rings, and the costs for service and maintenance are decreased. The high investment costs and the stocking of spare parts for the large motor and the complex primary gear unit are eliminated.

Single-family rolling, thermomechanical rolling, finish-rolling of all dimensions in the last four passes, 2-stand, 4-stand, 6-stand, 8-stand or 10-stand blocks – all no problem with MEERdrive®. With the modern drive concept, mill owners can react far more flexibly and inexpensively to market developments.

SAVING OPERATING COSTS
A comparison of operating costs on different blocks

CONVENTIONAL | MEERdrive®

- 31%

Roll Ring Management
Electric Energy
Maintenance
Redressing
Roll Rings in Operation

18
MEERDRIVE® PLUS: FASTER ROLL CHANGES, HIGHER PRECISION

The MEERdrive® PLUS technology from SMS Meer is a high-precision and flexible solution for the finish-rolling of wire rod. The 4-stand block is installed downline of the wire rod block and finish-rolls all sizes between 4.5 mm and 26 mm diameter. With a gearbox on each block stand, MEERdrive® PLUS covers a wide range of speeds. It permits single-family rolling in the upline stands: Only one groove size is used in each stand over the whole size range. The required initial pass cross-sections for the MEERdrive® PLUS block are created by inserting or omitting two passes in each of the upline stands. This arrangement with a cooling section in between allows high-precision and thermomechanical rolling of all sizes and significantly reduces the amount of roll changing.

BENEFITS AT A GLANCE

- Complete flexibility in the sizing without fixed reduction ratios between the individual passes
- Simple roll ring management: Roll ring pairs can be changed individually
- Up to 30% lower operating costs through
  - Better use of the roll rings
  - Reduction in the number of roll rings required
- Energy savings for the roll cassettes not in use
- Cassette design with standardised stand sizes CL230, CL200 and CL160
- Flexibility in the arrangement as 2-stand, 4-stand, 6-stand, 8-stand or 10-stand block, MEERdrive® PLUS block or in random combinations
With the loop technology from SMS Meer, wire rod producers can set the desired metallurgical properties of their products flexibly, precisely and reliably – for any steel grade and any diameter. No matter whether the material used has to be rolled at a high or low temperature, the variable equalising sections and cooling systems ensure that the steel is always at the optimum rolling temperature.

**OPTIMUM ROLLING TEMPERATURE FOR EVERY PRODUCT**

For finish-rolling at low temperatures in wire rod mills, the material entering the wire rod block is intensively cooled. This is then followed by a sufficiently long equalising section to allow the desired metallurgical properties to be achieved uniformly over the cross-section of the finished product. That ensures a uniform temperature profile and hence a homogeneous microstructure. For steel grades that have to be rolled as hot as possible, the wire rod goes into the wire rod block directly – without the detour via the equalising section. The loop technology thus enables mill owners to react quickly and flexibly to widely differing order requirements.

**BENEFITS AT A GLANCE**

- Exact setting of the required metallurgical properties
- Flexible use, depending on the steel grade and diameter: Rolling at high and low temperatures
- High plant availability
MULTILINE LOOP: ONE ROLLING TRAIN, MULTIPLE EQUALISING SECTIONS

In wire rod mills in which all sizes are finish-rolled with MEERdrive® PLUS, the Multiline Loop is an optimum variant. The mill operators guide the wire rod via switches through various parts of the equalising section and cooling systems to achieve the best results, irrespective of diameter and steel grade. When rolling final sizes with diameters of more than 11.5 mm, the wire rod block upline of the MEERdrive® PLUS is not used. The Multiline Loop then enables the wire rod block to be changed over ready for the next size while production is still running. Nevertheless, wire rod producers can choose freely between hot and cold rolling.

SETTIG THE DESIRED METALLURGICAL PROPERTIES – FOR ALL DIAMETERS

- **Use of the Multiline Loop for thermomechanical rolling**
  - Diameter 5.5 – 7.5 mm
  - Diameter 8.0 – 11.0 mm
  - Diameter 11.5 – 22.0 mm

- **Use of the Multiline Loop for normal rolling**
  - Diameter 5.5 – 11.0 mm
  - Diameter 11.5 – 22.0 mm
The modern loop laying heads from SMS Meer reliably lay uniform wire rod loops even at high speeds and irrespective of the wire rod diameter. The difference compared with conventional systems: SMS Meer loop laying heads easily handle widely differing steel grades – even those that are rolled at low temperatures in order to improve the metallurgical properties. The service life is particularly high, wear parts such as the laying pipes can be replaced in a minimum of time. That improves the profitability of the plant as a whole.

GUARANTEES HIGH CUSTOMER SATISFACTION
SMS Meer subjects every loop laying head to a test run over several days before delivery and measures vibrations and imbalance during stringent test cycles. This guarantees that only perfect loop laying heads are delivered that meet SMS Meer’s high quality standards. The advantage for the customer: Quick and successful commissioning and smooth operation.
MORE FLEXIBILITY WITH TWIN-PIPE LOOP LAYING HEADS

The layout of the twin-pipe loop laying head makes the wire rod production more flexible: With two identical parts, mill owners minimise standstill times for maintenance work – or carry out quick size changes thanks to laying pipes with different inside diameters.
The LCC® Loop Cooling Conveyor is one of the most important facilities for achieving the desired material properties with different steel grades. After rolling temperatures, cooling system settings and equalising sections, it is the last link in the chain and gives the wire rod the final touch: It allows exact control of the cooling rate – for finished products with optimum metallurgical properties and high quality.

**EXAMPLES FOR LCC® MODES**

- **a) Rapid cooling with corresponding TTT diagram**
  
- **b) Retarded cooling with corresponding TTT diagram**
WIDE VARIETY OF POSSIBILITIES TO SUIT EVERY MATERIAL

The different methods of operation of the LCC® allow plant operators to selectively set the microstructure of the wire rod. The combination of speed, fan setting and cover position offers a wide variety of possibilities for controlling the temperature curve. During "rapid cooling", air is blown through the loosened windings with maximum fan power and open covers to cool the material as quickly as possible in order to achieve fine laminar pearlite.

During "retarded cooling", the wire rod loops are transported without fan, with the covers closed and at low LCC® speed in order to keep the temperature in a given range for as long as possible. That enables mill owners to achieve a ferrite/pearlite microstructure.

SPEED PROFILE OF THE AIR WITH 3-FAN SYSTEM

The 3-fan technology developed specially for the LCC® guarantees a better temperature distribution over the individual wire rod loops. Through varying use of the fans, the cooling rate over the whole width of the LCC® can be individually adapted to the requirements.

BENEFITS AT A GLANCE

- Selective achievement of the desired material properties
- Flexible setting for a wide variety of diameters and steel grades
- Ideal temperature distribution thanks to 3-fan technology
In modern wire rod mills, advanced guide technology is an enormous competitive advantage. The rolling speeds are becoming increasingly faster, and the rolled products therefore have to be guided in a particularly precise and reliable manner. It is just as important to ensure rapid and safe adjustment of the guides during production.

MEERguides® satisfy these high standards and are also characterised by their robust construction. They are designed for the highest of performance requirements – enabling the guides to be utilised efficiently and effectively in modern rolling mills. Rolling speeds of more than 120 m/s with final dimensions of 4.5 mm to 26 mm are handled without problems.

**STURDY AND RELIABLE DESIGN**

MEERguides® are characterised in particular by their sturdiness and reliability. They consist of a minimum number of individual components.

But they all offer properties that can be expected of high-quality guides. The innovative technology and sophisticated design satisfy the high demands for reliable and simple operation. The guides are thus an optimum solution for installing in rolling mills – both those from SMS Meer and from other suppliers. The MEERguides® impress with their lockable wedge adjustment that guarantees maximum stability. The design simplifies maintenance and minimises installation and maintenance times. The optimised design of the individual components and the maximised use of identical parts also helps cut the costs of stocking spare parts.

The guide rollers are easily positioned by means of a single or central adjustment facility. The accurate adjustment of the guide rollers is performed using a manual or optical adjustment device.
BENEFITS AT A GLANCE

- Compatible with every mill stand type
- Simple and solid design
- Sturdy and reliable
- Integrated lubrication and roll cooling
- Simple maintenance and adjustment
- Minimum number of spare parts
- Central positioning of the rolls
- Complete range of guides available
COIL HANDLING
Automatically well coiled

With SMS Meer coil handling facilities, wire rod producers can prepare their products quickly and easily for sale. The systems for transport, compacting and tying are perfectly matched and function very smoothly together. Thanks to the modular design of the individual components, the systems can be flexibly adapted to the requirements of the application. Special guards prevents scratches on the finished products so that they leave the works in perfect quality.

TRANSPORT: MODULAR IN EVERY DIRECTION
SMS Meer offers horizontal and vertical coil transport systems. As a special solution SMS Meer also offers a hybrid transport system that utilises the respective benefits of the horizontal and vertical coil transport system for certain sections. A large proportion of identical modules is used for all solutions – a proven and cost-effective system.

COIL COMPACTORS: PERFECTLY INTEGRATED
The coil compactors are designed for an ideal interplay with the transport systems: They are also of modular design, with many parts of the vertical and horizontal coil compactors being identical. They can therefore be optimally integrated into the overall system. Depending on the mill owner’s requirements, they can be design for wire tying or strapping.
STRAPPING SYSTEMS: ONE SOLUTION FOR EVERY APPLICATION

The wire tying and strapping systems from SMS Meer are suitable for all kinds of coil compactor. Here again, the modular design allows all demands to be satisfied. Different wire rod and coil diameters can be strapped without changing over the press. The all-electric strapping head enables mill owners to satisfy even the most stringent noise and environmental regulations. Furthermore, tool wear is individually measured, monitored and compensated during operation.

BENEFITS AT A GLANCE

- Universal, modular wire tying system for the use of tying wire with diameters from 6.5 mm to 8.0 mm
- Universal, modular strapping system for the use of steel straps from 25 mm to 32 mm in width
- Extended guards for protection against scratching
- Handling of coils with outside diameters from 1,100 mm to 1,450 mm thanks to variable lifting tables
- Guaranteed nominal cycle time: Compacting and tying/strapping in 30 seconds
One example of an open-loop control system from SMS Meer is the controlled cooling technology (CCT®) already successfully installed numerous times. The system monitors and controls the whole temperature curve in a wire rod or bar mill from the furnace through to the finished product – exactly and reproducibly. Mill owners thus achieve exactly the material properties that the market demands – and increase the productivity of their production line at the same time. CCT® consists of the packages CCT® Offline and CCT® Online.

**CCT® Offline: Reliable Planning**

With the CCT® Offline planning program, mill owners draw up cooling programs and determine the settings and plant parameters for the water cooling sections and the LCC®. These values and parameters can be entered directly into the line controller. Furthermore, CCT® Offline contains simulation cores for the calculation of the whole temperature curve, including LCC®. With the integrated microstructure model, wire rod and bar steel producers generate i.a. TTT diagrams and flow curves for the specific rolling lots.
**CCT® ONLINE: PRECISE CONTROL**

The CCT® Online process compute system can be installed in addition to CCT® Offline. It monitors and controls the cooling sections in the rolling mill and ensures that all the target temperatures according to the cooling programs created in advance using CCT® Offline are maintained. The control system operates inline, thereby minimising temperature fluctuations over the product length. Furthermore, irregularities from the heating process can be reduced and the coil quality becomes more homogeneous. CCT® Online can also be configured to include extensive Level 2 functions:

- Material tracking
- Report generation
- Data acquisition and storage
- Visualisation
- Graphic display of important measurement values

**BENEFITS AT A GLANCE**

- The temperature curve is monitored and controlled – from the furnace through to the finished product
- Effective and efficient planning using simulations and models
- Selective control routines
- Minimisation of temperature fluctuations
- Homogeneous, reproducible quality
- Higher productivity
The information provided in this brochure contains a general description of the performance characteristics of the products concerned. The actual products may not always have these characteristics as described and, in particular, these may change as a result of further developments of the products. The provision of this information is not intended to have and will not have legal effect. An obligation to deliver products having particular characteristics shall only exist if expressly agreed in the terms of the contract.