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**SOLUTIONS FOR FINISHING LINES**  
FOR THE HIGHEST PRODUCTION RATES  
AND PRODUCT QUALITY

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# YOUR CHALLENGE

## MEETING INCREASING METAL DEMAND, HIGHER MECHANICAL PROPERTIES AND GROWING QUALITY REQUIREMENTS

### INCREASING STEEL CONSUMPTION

Driven by Asia's rapid economic growth, with a rising standard of living for a large population, along with the demand for transport, appliances and other goods, worldwide demand for steel is expected to increase.

### HIGHER-STRENGTH MATERIALS

Driven by the automotive industry and new environmental regulations, new steel grades with advanced mechanical properties are a challenge for the finishing equipment, which must incorporate new concepts and solutions for successful results.

### QUALITY REQUIREMENTS

The increasing automation of industrial processes and the growing expectations of customers lead to more stringent quality parameters for processed steel in terms of dimensional tolerances, surface aspects and mechanical properties.

### PLANT AVAILABILITY LEADING TO INCREASED PRODUCTIVITY

One of the most important factors to ensure the economic success of any plant is a high availability rate, which will result in the high production capability required to meet the growing demand.

### FLEXIBILITY TO MATCH PRODUCTION CAPACITY TO MARKET DEMANDS

Steel service centers typically serve a large number of customers, with various requirements in terms of quantity, quality, packaging and delivery time. Finishing lines must ensure that these market demands are met, while at the same time the productivity is not affected, which can only be achieved by means of flexible solutions built into the equipment.

### TAILORED MATERIALS AND DELIVERIES

Users of steel and nonferrous metals strip and sheet require their materials in many different sizes and qualities, and always delivered just in time. That's why producers and service centers need flexible, reliable plants to meet their customers' requirements.

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The consumption of metal continues to grow steadily worldwide. As greater quantities are needed, requirements are also increasing in terms of quality, productivity and reliability. Our mission is to provide our customers with products and solutions that allow them to meet the needs of the markets and their end customers in a competitive, reliable and safe manner.

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## **YOU EXPECT**

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- Maximum equipment availability
  - Increased productivity by means of reduced downtimes and changeover times
  - Reliable and consistent meeting of quality demands from the endcustomers
  - Maximum long-term performance and services to meet future requirements
  - Maximum flexibility to efficiently respond to rapidly changing production programs
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# OUR SOLUTION

## RELIABILITY, QUALITY PERFORMANCE AND REDUCED IDLE TIMES

Backed by more than 50 years of experience, with more than 250 lines delivered worldwide, Primetals Technologies is dedicated to excellence in the field of finishing lines. To ensure that our customers meet their production and quality targets, Primetals Technologies provides solutions that address the key success factors.

### **IDLE TIMES - VIRTUALLY ELIMINATED**

Reduced idle times to boost production rates are achieved by means of:

- Automatic quick change solutions for the slitter tools, separator discs
- Leveler cassettes
- Automatic setup of equipment based on incoming strip parameters
- Reduced maintenance ensured by robust and reliable equipment
- Ergonomic and easy-to-access designs when it comes to maintenance
- Remote monitoring of equipment status by modem connections

### **PRODUCTIVITY - A MATTER OF SPEED AND CONTINUITY**

Primetals Technologies combines its advanced knowhow and solutions to boost your production. Examples range from high-speed nonstop rotary shears and nonstop stacking in cut-to-length and blanking lines to full integration of packaging facilities in slitting lines. Our solutions are made for seamless processes with a high degree of automation - thus allowing you to increase output to the max.

### **PRODUCT QUALITY - ACHIEVED SYSTEMATICALLY**

World-class automation and advanced process models help you meet any quality requirement for flatness and dimensional tolerances - from thin automotive applications to thick, rough strip for pipes. Highest surface quality protection and accurate strip handling ensure ultimate quality for your finished products.

### **COMPLETE SOLUTIONS PORTFOLIO - FOR EVERY NEED**

We provide solutions for the finishing of ferrous as well as nonferrous material:

- Cut-to-length lines (CTL)
- Slitting lines (SL)
- Multiblanking lines (MBL)
- Tension leveling lines (TLL)
- Combination lines (CSCL)
- Blanking lines (BL)
- Recoiling side trimming and inspection lines (RSIL)
- Coil packaging lines (CPL)
- Slit coils packaging lines (SCPL)
- Grinding and polishing lines (GPL) for stainless steel

### **IN TOUCH WITH TOMORROW**

We look forward to helping our customers with our most advanced solutions and entire lifecycle management of the delivered plants. New solutions are being brought into the market to meet new challenges for finishing lines.

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As a full-line supplier active worldwide, we gather unique expertise in the entire production chain of metals. Backed by our extensive experience, our production lines feature solutions focused on process optimization. In everything we do, we have one goal in mind: to increase the performance of your plant.

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## **GOOD REASONS FOR PRIMETALS TECHNOLOGIES FINISHING LINES**

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- Minimum coordination effort for you – with a single-source supplier for mechanical, electrical and automation equipment
  - Maximum reliability – backed by more than 50 years of experience in the finishing and of steel strip production
  - High-quality solutions – based on a broad production portfolio, covering all ferrous and nonferrous materials in a wide range of thicknesses and strip widths
  - Low maintenance and high availability
  - Compliance with safety regulations
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Primetals Technologies offers a full range of finishing line solutions, from discrete machine to entire plant. As your lifecycle partner, we'll team with you to meet all your needs, including investment planning, operating concept and layout, as well as modernization activities to ensure that your plant is always using the latest technology.





# SERVICE CENTER EQUIPMENT

## A WIDE RANGE OF FLEXIBLE SOLUTIONS



Blanking line, Baosteel Group, Zhengzhou, PR China

Our lines are designed to meet your needs from the most demanding automotive quality to the stiff and heavy-duty applications for heavy-gauge hot-rolled strip.

### MAIN BENEFITS

- Minimized downtimes thanks to fast-changing devices for increased productivity
- High degree of automation for userfriendly equipment operation
- High-speed multislitting without strip contact for perfect surface quality of the strip
- High-speed stacking for perfect surface quality of the sheets
- Fully automatic packaging solutions for slitting and for cut-to-length lines, to prevent production bottlenecks
- Flexible solutions for production in service centers or heavy-duty solutions for production in rolling mill environments

With its solutions, Primetals Technologies offers a wide range of lines for slitting, cutting-to-length for rectangular sheets or trapezoids, multiblanking, packaging, and also for revamping existing lines for service centers and rolling plants.

We'll always find exactly the right technical solution for your requirements for strip parameters, process speed or tolerances of the final product.

### FEATURES

#### Slitting lines

- High-speed scrap cut drum and eccentric shears
- Automatic devices for tools loading and robots for tools preparation
- Automatic separator shafts change systems in tension device and recoiler
- Loop-free slitting lines for center cut or up to five cuts max
- Belt bridle for sensitive and dry strip up to 40 slits
- Rolls tension device for highspeed multislitting up to 40 slits
- Recoiling with or without separator discs on the recoiler
- Automatic strips threading devices





Cut-to-length line, Siderar, Argentina

#### **Cut-to-length lines**

- Low-cost civil works due to lack of pit
- Eccentric rotary shear or tilting shear for trapezoid blanks
- High production rates up to 200 cuts/min
- Sheet length tolerances within +/- 0.2 mm
- Automatic setup of levelers
- Plastic and paper applicators with ergonomic and fast feeding devices
- Automatic pallet feeding and centering devices in the stackers
- Magnetic stackers for scratch-free stacking
- Automatic setup of clearances of the rotary shear and side trimmer

#### **Blanking and multiblanking lines**

- On-line strip cleaning
- Cassette levelers for easy maintenance and different roll sizes
- High-precision press feeder
- Integration of mechanical or servo-press from the most well-known press producers
- Tilting die for trapezoid blanks
- Air cushion or magnetic stackers

#### **Packaging lines**

- Down ending tables to take slit and strapped coils fully automatically
- Automatic strapping machines, using steel or plastic bands in order to avoid damaging the slits
- Coils centering tables that avoid damaging the strip by eliminating contact to the inner and outer wraps
- Carriages with magnets for coils transfer
- Automatic pallet feeders
- Coils pilling on top of rotary carousels (4, 6, or 8 positions) or on-line stations (4, 5, or 6)
- Automatic plastic or paper wrapping stations
- Down enders for full-weight coils or stacks
- Sheet packages turning stations
- Tailored to suit any packaging requirement or plant layout

# ALUMINIUM FINISHING LINES

## SOLUTIONS THAT MEET ALL YOUR NEEDS



Alcoa, Russia

Primetals Technologies solutions are available for the aluminium industry as well.

### MAIN BENEFITS

On addition to the benefits mentioned above, they provide perfectly flat, clean and dry strip at the exit of our tension leveling lines, for input coming from both hot mill or continuous caster routes

#### Slitting lines

- High-speed scrap cut drum and eccentric shears
- Knives lubrication to avoid pick-up of metallic fines
- Automatic separator shafts change systems in tension device and recoiler
- Loop-free slitting lines for center cut or up to five cuts max
- Belt bridle for sensitive and dry strip up to 40 slits
- Eddy currents device for high-speed multislitting up to 40 slits
- Recoiling without separator discs on the recoiler
- Automatic strips threading devices
- Complete Primetals Technologies mechatronic solutions

#### Cut-to-length lines

- Eccentric rotary shear or tilting shear for trapezoid blanks
- Low-cost civil works due to lack of pit
- High production rates up to 200 cuts/min
- Sheet length tolerances within +/- 0.2 mm
- Automatic setup of levelers
- Plastic and paper applicators with ergonomic and fast feeding devices
- Automatic pallet feeding and centering devices in the stackers
- Vacuum stackers for scratch-free stacking
- Automatic setup of clearances of the rotary shear and side trimmer



Cut-to-length line, Hydro Aluminium, Norway

#### **Tension leveling lines**

- Cassettes levelers for easy maintenance
- All electric or hybrid drive systems for the bridles
- Possibility of integration in new or existing continuous processing lines
- Wet leveling, specially for strip coming from continuous caster
- On-line automatic surface inspection devices
- Washing and degreasing facilities
- Complete Primetals Technologies mechatronic solutions

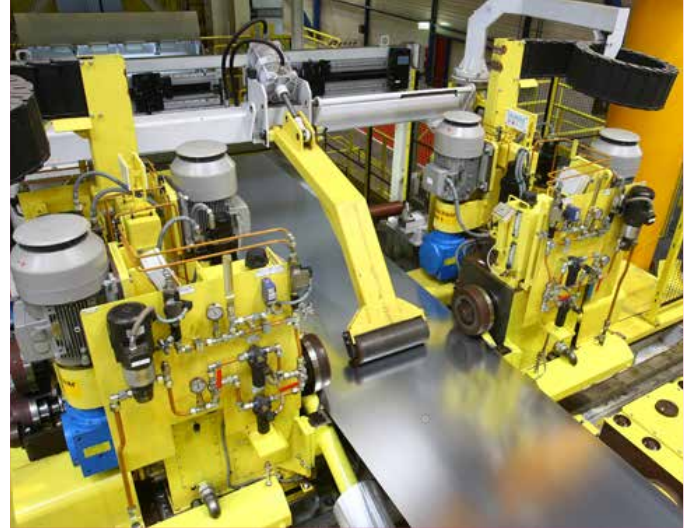
#### **Packaging lines**

- Down ending tables to take slit and strapped coils one by one from the turnstile fully automatically
- Automatic strapping machines, using steel or plastic bands in order to avoid damaging the aluminium
- Coils centering tables that avoid damaging the strip by eliminating contact to the inner and outer wraps
- Vacuum plates for coils transfer
- Automatic pallet feeders
- Coils pilling on top of rotary carousels (4, 6, or 8 positions) or on-line stations (4, 5, or 6)
- Automatic plastic or paper wrapping stations
- Down enders for full-weight coils or stacks
- Sheet packages turning stations
- Tailored to suit any packaging requirement or plant layout

# TENSION LEVELING AND RECOILING LINES



Welder Recoiling and Inspection Line, USS Kosice, Slovakia



Side trimmer

## TENSION LEVELING LINES AND RECOILING, SIDE TRIMMING AND INSPECTION LINES

Primetals Tension Leveling Lines and Recoiling, Side trimming and Inspection Lines are aimed to process semi-finished products for all type of applications, construction, household appliance or automotive products quality.

Frequently positioned after strip processing lines, such as galvanizing or annealing, those lines will incorporate on demand various processes to bring the required value added to your products.

Laser welders incorporating laser cut and laser welding functions are designed for easy maintenance with 'open-type' design. This machines are good answer for high-strength steel, greater product flexibility (from oxidized, pickled, and noncoated to coated strip), top-quality processing and weld geometry. Thanks to the perfect weld quality, coil build-up functionality on recoiling lines becomes possible avoiding any risk of damaging strip surface quality.

The 6-high cassette type tension leveler is suitable for processing surface critical materials and ensuring eliminate of flatness defects and cross bow during the leveling process.

The high-precision side trimmer results in an extremely high level of strip width accuracy. The knife heads can be automatically adjusted to new strip width with minimum line downtime.

With an embedded SIAS® - Automatic Surface Inspection Systems, these lines will perfectly track and record continuously the coils surface quality being either at a final stage or in an intermediate process stage of your production facilities.

## MAIN BENEFITS

- Optimized and flat line layout
- High productivity and flexibility,
- Output of products with reproducible and tolerances in width and flatness
- Quick leveling cassette change system
- Side trimmer equipped with Edge Monitoring for knives wear detection
- Low maintenance operation and downtime

## FEATURES

- Laser welder
- High precision 6-high tension levellers with quick-change cassette
- Off-line tooling change by turret type side trimming head adjustment
- All electric drive systems for the bridles
- On-line visual and automatic surface inspection
- Electrostatic oiler
- Washing and degreasing facilities

## SELECTED REFERENCES

- Ternium, Mexico
- Steel Dynamic Inc., Indiana, USA
- US Steel Kosice, Slovakia
- Nanshan Light Alloy, Yantai, PR China
- Southern Aluminium, Fuqing, PR China
- Mycron Steel, Klang, Malaysia
- Borçelik, Gemlik, Turkey

# SLITTING LINES, CUT-TO-LENGTH LINES AND BLANKING LINES FOR SEAMLESS PROCESSES



Slitting line at BlueScope Steel, Perth, Australia

## SLITTING LINES: PRECISE SLITTING AND TIGHT, SCRATCH-FREE REWINDING

Primetals Technologies slitting lines provide you with the most efficient and reliable solutions for the entire range (grade, width and thickness) of steel strip: from the thinner and surface-critical automotive applications to the thick, rough hot-rolled strip used for piping.

### MAIN BENEFITS

- Fast-change solutions to minimize downtimes
- Dedicated back-tensioning solutions for different applications (belt bridle, rubber rolls, pneumatic felt pads)
- Offline strapping by a single operator, ergonomic and safe
- Integrated slit coil packaging facilities
- Mechatronic packages specifically developed to suit the highest demands

### FEATURES

- Tooling change by off-line turnstile or side-shifting slitter head change
- Integration of tools loading robots
- Scrap recoiling into balls or chopping
- Burr mashing rolls
- Loop doubler
- Threading clamp from slitter head to recoiler mandrel
- Specific back-tensioning device for any application
- Entry and exit scrapping sections
- Paper and plastic film application

- Anticoil break roll
- Surface inspection systems using cameras

### SELECTED REFERENCES

- Angang, Guangzhou, PR China
- Aceros J.A. Ormazabal, Amorebieta, Spain
- BlueScope Steel, Perth, Australia
- Kovona Karvina, Karvina, Czech Republic
- Gonvarri Galicia, Marín, Spain
- Utva Silosi, Kovin, Serbia
- Alcoa, Russia (former Rusal Samara), Russia

## CUT-TO-LENGTH LINES: SUPERIOR FLATNESS AT HIGH SPEED

Primetals Technologies cut-to-length lines provide you with the right technical solutions to ensure world-class quality of the sheets and packages in terms of their flatness and dimensional tolerances, even for high-strength steels. Moreover, the highest production rates can be achieved by the nonstop rotary shears and flexible nonstop stacking and bundle evacuation and packaging systems.

### MAIN BENEFITS

- Outstanding sheet flatness by means of high plastification rates (up to 85%) both in levelers and by preliminary continuous flattening
- Quick-change cassette levelers or tandem units, depending upon production mix
- Nonstop high-speed eccentric rotary shears up to 16 mm of strip thickness



Cut-to-length line, Ugine Iberica S.A., Spain

- Dedicated stacking solutions for all steel types: air flotation, bomb door, magnetic and vacuum stackers
- Package evacuation sections featuring automatic traverse and longitudinal strapping, weighing, plastic wrapping, vertical package accumulation

#### FEATURES

- Side trimming sections
- 4-high or 6-high levelers
- Paper or film application onto the strip with automatic feeding devices
- Multiblanking solutions
- Cutting of trapezoidal or parallelogram sheets
- Anticoil break roll
- Brushing machines with scale exhaust

#### SELECTED REFERENCES

- Aceros J.A. Ormazabal, Amorebieta, Spain
- Siderar, San Nicolás, Argentina
- Plafesa, Getafe, Spain
- Gonvarri Galicia, Marín, Spain
- Utva Silosi, Kovin, Serbia
- Duferco-Manage SC, Manage, Belgium
- Van Heyghen Stahl, Belgium
- Hydro Aluminium, Norway
- Alfun, Czech Republic



Blanking line at Gonvarri, Brazil

#### BLANKING LINES: CAREFUL HANDLING, OPTIMUM LEVELING, PRECISE FEEDING

Primetals Technologies blanking lines focus on careful handling of the steel strip, maximizing surface quality protection while at the same time providing optimum leveling (by high plastification rates) and accurately feeding the strip into the cutting press.

#### MAIN BENEFITS

- Integration of presses from the leading suppliers worldwide in our press blanking lines, with one-source responsibility and single project management
- Extensive experience in cutting steel for the top automotive producers

#### FEATURES

- Tandem or cassette levelers
- Side trimming sections
- Strip on-line cleaning and/or reoiling
- Variable strip feeding heights, to match variable die dimensions
- On-line weld detection
- Strip release system for progressive cutting dies
- Strip tail feeders into the press with controlled length
- 4 points mechanical or servo-press
- Magnetic stacker for steel or combined magnetic and vacuum stacker for aluminum and steel

#### SELECTED REFERENCES

- Shougang Wuzhong, Chongqing, PR China
- Baosteel Group, Zhengzhou, PR China
- Gonvauto Navarra, Noain, Spain

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# OUR SERVICES

## BEST PERFORMANCE THROUGHOUT YOUR PLANT'S LIFETIME



You want your plant to produce at competitive costs over its entire life cycle, and always have state-of-the-art technology.

That's why you make an investment. And for this investment, you should expect an effective lifecycle concept from your plant manufacturer.

Services offered by Primetals Technologies range from planning, consulting and engineering to supply of both individual components and complete production lines, including safe and rapid start-up. Whether we're constructing new plants or modernizing existing capacities, our own training specialists make sure that your personnel know how to handle the process and technology safely and efficiently.

### OUR OFFERINGS INCLUDE ...

- Presale studies - from design, engineering and feasibility studies to improvement studies
- Start-up support - from on-site training to accelerated start-up programs

### SPARE PARTS AND COMPONENTS SUPPLY

Our spare parts service specializes in the engineering and supply of spare and wear parts, technological components and systems. Professional handling ensures that you receive the right part in the shortest time possible.

### FEATURES

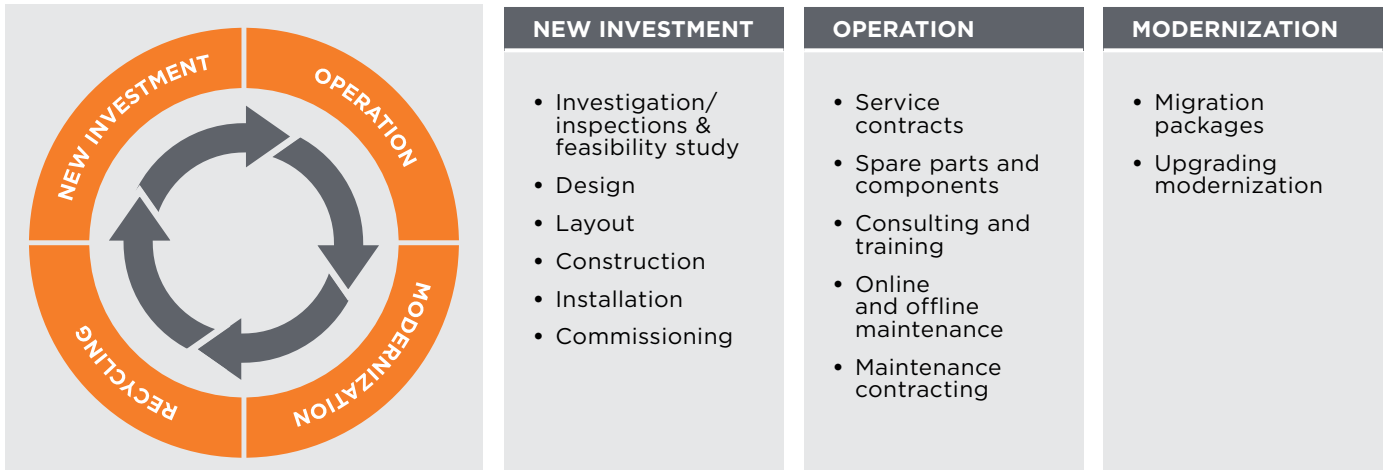
- Dedicated spare parts service from small proprietary items to major assemblies
- Stock control and distribution database
- Standard packages with measurable client benefits
- Dynamic spare parts and material management system
- Material information system
- Substitution of parts including reengineering

### SERVICE FOR ELECTRICAL EQUIPMENT AND AUTOMATION

The maintenance of your production facilities and equipment is a significant cost factor for you. Yet unplanned process downtime greatly affects the earnings of the entire company. Risks must be minimized, as must the costs for keeping those risks small.

# LIFECYCLE MANAGEMENT PARTNERSHIP NEVER ENDS

CONSULTING | PLANNING | FINANCING



## PRIMETALS TECHNOLOGIES LIFECYCLE SERVICES

As a plant operator, you have conflicting needs. On the one hand, your performance is measured each quarter against short-term profitability expectations. On the other hand, you have to think on a totally different timescale compared with the capital market. Depending on the lifetime of your plant, you have to take 15 years or more into account. At the very least, that's 60 full quarters.

But thanks to our comprehensive expertise and integrated approach to solutions, you benefit both short-term and longterm from our lifecycle services.

In the short term: Backed by our extensive experience with many reference plants, we provide you with the certainty of fast, dependable production start-up and shorter amortization periods.

In the long term: Our master plan guarantees competitive performance for your plant in every phase of its life cycle. Whether we're providing 24/7 technical support, optimizing maintenance or making permanent plant improvements, we're always working to ensure the cost-effective operation of your plant.





# COMPETENCE WRITES SUCCESS STORIES

## SELECTED REFERENCES



### NEW WAYS TO SERVE THE MARKET

**Customer.** Duferco-Manage service center, Manage, Belgium; associated with Duferco Steel Works

**Plant type.** Two cut-to-length lines (one for cold-rolled, one for hot-rolled steel)

**Our solution.** Automatic packaging for increased production.

**The result.** Brand-new service center associated with Belgian steel mill.

**Technical data.** Width: 500 - 2,100 mm; thickness: up to 3.5 and 6.00 mm; strength: 1,000 MPa



### ADVANCED PRODUCTION LINE FOR AUTOMOTIVE PRODUCTS

**Customer.** Baosteel Steel Distribution Co., Ltd., Zhengzhou, PR China

**Plant type.** One blanking line

**Our solution.** Highly productive equipment meeting the automotive quality standards.

**The result.** Advanced production line meeting the highly requirements from car makers.

**Technical data.** Width: 600 – 1,850 mm; thickness: 0.5 – 3.20 mm; strength: up to 800 MPa ; blank length: 4,300 mm; Max 60 spm



### MORE OUTPUT - MORE FLEXIBILITY

**Customer.** Aceros J.A. Ormazabal, Amorebieta, Spain

**Plant type.** One slitting line including coil packaging and one cut-to-length line

**Our solution.** Efficiency-focused, compact equipment.

**The result.** Flexible operation and increased production.

**Technical data.** Width: 600 – 2,000 mm; thickness: 0.4 – 4.00 mm; strength: up to 700 MPa



### 100% PRODUCTION FOR AUTOMOTIVE APPLICATIONS

**Customer.** Gonvauto Navarra, Noain, Spain

**Plant type.** One slitting line; one cut-to-length line for trapezoidal sheets; two blanking lines

**Our solution.** Highly productive equipment meeting the automotive quality standards.

**The result.** First-class service center fulfilling demanding requirements from automotive manufacturers.

**Technical data.** Width: 600 – 2,000 mm; thickness: 0.3 – 3.00 mm; strength: up to 500 MPa



### SUPPLYING HIGH-STRENGTH STEEL TO THE AUTOMOTIVE INDUSTRY

**Customer.** Gonvarri Galicia, Marín, Spain

**Plant type.** Two slitting lines; one cut-to-length line for trapezoidal sheets and one blanking line

**Our solution.** Surface care while processing high-strength steels.

**The result.** First-class service center fulfilling demanding requirements from automotive manufacturers.

**Technical data.** Width: 600 – 1,800 mm; thickness: 0.5 – 4.5 mm; strength: up to 650 MPa



### HIGH-SPEED SLITTING OF THIN-GAUGE ALUMINIUM COILS

**Customer.** Alcoa Russia, Samara plant, Russia

**Plant type.** Slitting line

**Our solution.** Loop-free slitting of four strands.

**The result.** Very high productivity of can stock strip.

**Technical data.** Width: 1,850 mm; thickness: 0.15 - 1.00 mm; speed: 800 m/min

### LITHOGRAPHIC STRIP AND CLOSURE STOCK PRODUCTION

**Customer.** Hindalco, India

**Plant type.** Tension and degreasing line

**Our solution.** Electrolytic cleaning process for pre-treated and clean strip.

**The result.** Perfectly flat, absolutely clean and re-oiled.

**Technical data.** Width: 1,550 mm; thickness: 0.15 - 1.2 mm; speed: 200 m/min



### CLEAN AND ADHERENT STRIP FOR SUBSEQUENT PAINT COATING AND FORMING/DRAWING

**Customer.** Profilglass, Italy

**Plant type.** Tension leveling and degreasing line

**Our solution.** Electrolytic cleaning process for pretreated and clean strip.

**The result.** Perfectly flat, absolutely clean and dry strip..

**Technical data.** Width: 1,600 mm; thickness: 0.25 - 2.5 mm; speed: 200 m/min

### COILS STRAIGHT FROM THE COLD MILL TURNED INTO FINISHED PACKAGES OF CLEAN, FLAT AND PROPERLY CUT SHEETS

**Customer.** Hydro Aluminium, Norway

**Plant type.** Cut-to-length line with automatic packaging

**Our solution.** Feeding, side trimming, washing, leveling, cutting, stacking and packaging all of it by two operators only.

**The result.** Fully automatic line without packaging bottlenecks and superior end product quality.

**Technical data.** Width: 1,620 mm; thickness: 0.5 - 3.00 mm; speed: 90 m/min

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