



SIDE TRIMMERS

GREATER ACCURACY, INNOVATIVE
PROCESSES AND AVAILABILITY

COMMITTED TO CONTINUOUS IMPROVEMENT

YOUR CHALLENGE

LINE PRODUCTION

Metal producers need the most reliable machine to avoid stoppage and improve production rates. They expect a very precise and intelligent machine to reduce the scrap width.

ROBUSTNESS AND EASE OF USE

The equipment must be of sturdy construction and have optimal service lifetime. The operation must be easy and maintenance limited.

QUALITY

The strip cutting quality must be perfect to match customer requirements, increase the knife lifetime and reach the required cutting profile.

SAFETY

The operation must be safe, operator friendly and without line stoppage.

OUR SOLUTION

The Side Trimmer mechatronic packages have been designed for the best strip edge cutting quality on your production lines for Carbon steel, Stainless steel and Aluminium.

Primetals Technologies has more than 50 years' experience in side trimmer mechatronics and operates in many various strip processing lines from Pickling Line/ Tandem Cold Mills to Inspection Lines. This experience helps us build robust and reliable trimmers. The new DWA, DCA and integrated edge-monitoring functions prevent line stoppage and make production gains by increasing the cutting width and minimizing the scrap.

As a result of long years of experience, our machines are famous worldwide for their robustness and lifetime. They include a fully automatic system to minimize operator assistance.

Our machine provides the best cutting quality and accuracy through a high level of design and the selection of components of the highest quality. It is designed to integrate edge quality inspection system on board with possibility to provide feedbacks on side trimmers settings.

The machine is delivered with an integrated safety concept which allows the operator to work safely for daily maintenance without interrupting the production.

- DWA = Dynamic Width Adjustment
- DCA = Dynamic Centring Adjustment

GOOD REASONS FOR PRIMETALS TECHNOLOGIES SIDE TRIMMERS

- **Mechatronic package for optimized functionality**
The mechatronic package is a combination of mechanical, electrical and automation equipment for optimized functionality
- **Complete workshop building and testing**
Our Side Trimmer machines are assembled and tested in our workshop in Montbrison, France. All the individual movements, interlocks, safety functions and sequences are checked during assembly
- **Revamping: present and future**
The mechatronic package concept permit to easily replace a machine and is especially adapted to revamping projects. It permits to lower the shutdown time and to have a fast ramp-up
- **Perfect integration**
Our Side Trimmer machines have been designed for a perfect integration into processing lines



PRIMETALS TECHNOLOGIES SIDE TRIMMERS



Heavy Side Trimmer



Medium Side Trimmer



Light Side Trimmer

		Side Trimmers				Scrap machines		
		ST 21 H Turret type	ST 21 M Turret type	ST 21 M Cantilver type	ST 21 L Cantilver type	Scrap chop- per	Scrap press	Scrap baller
Carbon steel	Pickling line & tandem coupled	X				X		
	Continuous pickling line	X				X		
	Continuous galvanizing line		X			X	X	
	Electrolytic galvanizing line		X			X	X	
	Continuous annealing line		X			X	X	
	Electrolytic tinning line				X	X		X
	Tension leveling line		X	X		X		X
	Inspection line		X	X		X	X	
Stain- less steel	Annealing & pickling line	X				X		X
	Finishing line		X			X		X
Aluminium	Inspection line				X	X		X
	Tension leveling line				X	X		X
	Recoiling line				X	X		X

ADVANTAGES OF STRIP PROCESSING HIGH CUTTING WIDTH ACCURACY

Edge trimming of the strip brings high added value to the coil by eliminating strip edge defects and giving a precision width tolerance. Available in many processing lines like Pickling Lines, Annealing Lines, Galvanizing Lines, Tinning Lines, Inspection Leveling and Cut-to-Length Lines, the side trimming section is a key equipment for final quality of the product.

Primetals Technologies equipment for side trimming section covers the full range of processing lines with various sizes of Side Trimmers, single pair of heads or double pair of heads, Turret type for fast knife changing, Scrap Chopper, Scrap Baller or Scrap Press associated with the Side Trimmer to manage the scrap according to the strip thickness and speed.

Using the latest advanced technology in servomotors and screw ball system without backlash, the Primetals Technologies Side Trimmer is a high precision machine in its construction to match the tolerance quality result on the strip.

The new Side Trimmer generation features a fully electrical system without hydraulic media, which simplifies maintenance and becomes environmentally friendly without oil leakage and fire risk.

The technological solution integrates Siemens-engineered automation systems which provide a top level performance in terms of cutting accuracy.

Optional function DWA (Dynamic Width Adjustment) is available to change width between two coils without stopping the strip.

Our systems are engineered, manufactured and tested for:

- User-friendly operation
- Convenient diagnostics
- Optimized maintenance
- Complete workshop testing

MAIN BENEFITS

- Accuracy in the strip width and coil
- High precision in automatic knife adjustment with less burr
- Safe and reliable management of the scrap evacuation
- Quick knife replacement with turret type side trimmer
- Environmentally friendly using electric energy and without hydraulic media

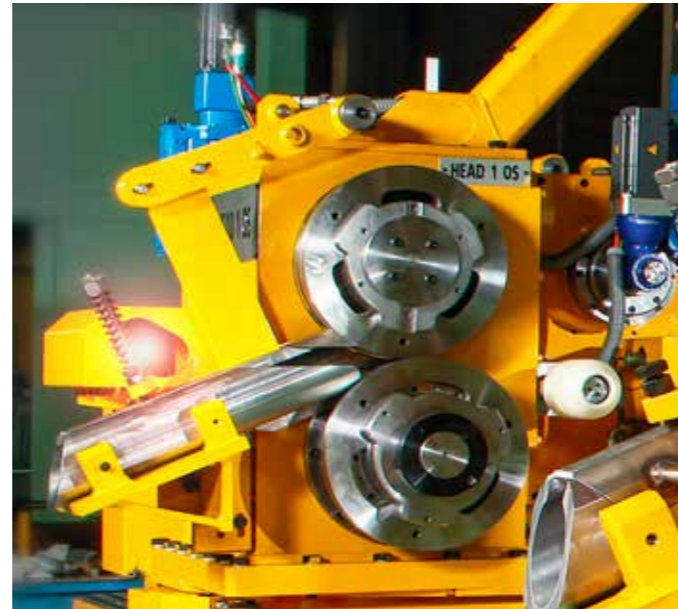
Application	CAL, CGL, EGL, ETL, TLL, PKL, Stainless Steel Lines
Function	To trim the edge of the strip
Product thickness	0.15 to 8 mm
Product width	600 to 2,100 mm
Line speed	0 to 750 mpm

INSPECTING THE PROCESS

FULL AUTOMATIC INLINE INSPECTION OF TRIMMED EDGE



EdgeMon front view ST21H



Integrated EdgeMon

EDGEMON FOR SIDE TRIMMERS

Primetals Technologies' EdgeMon system inspects the trimmed edge surfaces on both sides of the strip. By visualizing sharp, clear and magnified pictures it evaluates the quality of the trimming process and measures the cut-break ratio. Thus it eases and accelerates parameterization phase of the cutting tool. To carry out immediate improvement actions, warnings are generated for a bad strip edge quality or when knife breakout is detected.

EdgeMon can inspect products from 0.15 up to 8 mm strip thickness with strip speeds up to 750 m/min. Due to the intelligent synchronal scanning the system is capable to detect periodic failures at very high speed. The hardware to control cameras is stored in a switching cabinet up to 100 m away from the inspection zone.

To ease detection of trim defects due to wobbled knives, Primetals Technologies' EdgeMon system analyzes and broadcasts highly magnified pictures of exactly one knife turn independently of strip speed. A full reporting on each coil is given to the downstream processing lines, with the possibility to analyze, zoom and archiving. Primetals Technologies' EdgeMon is not only mechanically integrated to our Side Trimmer, it is also part of the whole automation system as it is able to control its cutting parameters according to EdgeMon analyzes and measurements, increasing thus productivity.

Running on from this integration, Primetals Technologies' EdgeMon also performs burr monitoring. The more knives

are worn, the more cutting quality is degraded and the more burrs are likely to appear. As the system can automatically and continuously feed our Side Trimmer with optimal settings, it warns the operator as soon as cutting quality cannot be improved, meaning that Side trimmer's knives have reached their wear limit. Burr is then avoided before it appears.

MAIN BENEFITS

- High-End online-monitoring at a reasonable price
- No downtime to inspect trimmed edges
- Less scrap by recognition of defects in time
- More efficiency by simultaneous inspection of both sides
- Less roller damages by knife breakout
- Optimized maintenance by life time prognostication
- Reduced time for knife-parameter optimization
- Burr monitoring for higher cutting edge quality

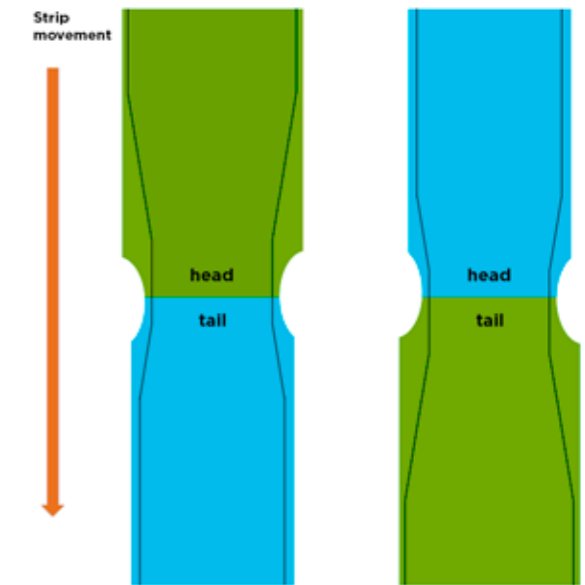
Application	CAL, CGL, EGL, ETL, TLL, PKL, Stainless Steel Lines
Function	To inspect the trim result
Product thickness	0.15 to 8 mm
Line speed	200 to 750 mpm

IMPROVING LINE PRODUCTION YIELD

DYNAMIC WIDTH ADJUSTMENT (DWA)



DWA electromechanical actuator



DWA with notched strip

DWA FOR SIDE TRIMMERS

DWA is an integrated mechatronic feature that performs adjustment of cutting width during line run. This full automated sequence minimizes the side trimmer section cycle time, significantly reduces cobble rate (slit edges are being kept engaged into scrap chute) and eliminates risk of strip breakage for narrow strip (notching sequence becomes useless).

At last, process speed is increased to a point where trimmed and untrimmed production levels nearly meet each other, allowing fast investments recover. Primetals Technologies' DWA is based on a specific actuation system. The DWA is rotating the Side Trimmer at the vertical of the cutting axis generating no stress on the knives. The angle of knives and the width change are continuously calculated by the software to ensure smooth trajectories.

Included in Side Trimmer PLC, DWA's automation system receives from line PLC information of the product that comes next (new strip width, new thickness, weld position, line speed...). Then it calculates an optimised motion profile according to these data. Line decelerates in the Side Trimmer area and on-fly width change is launched. Cutting angle and frames head movements are controlled accurately all along the profile according to the weld position for a minimized stress.

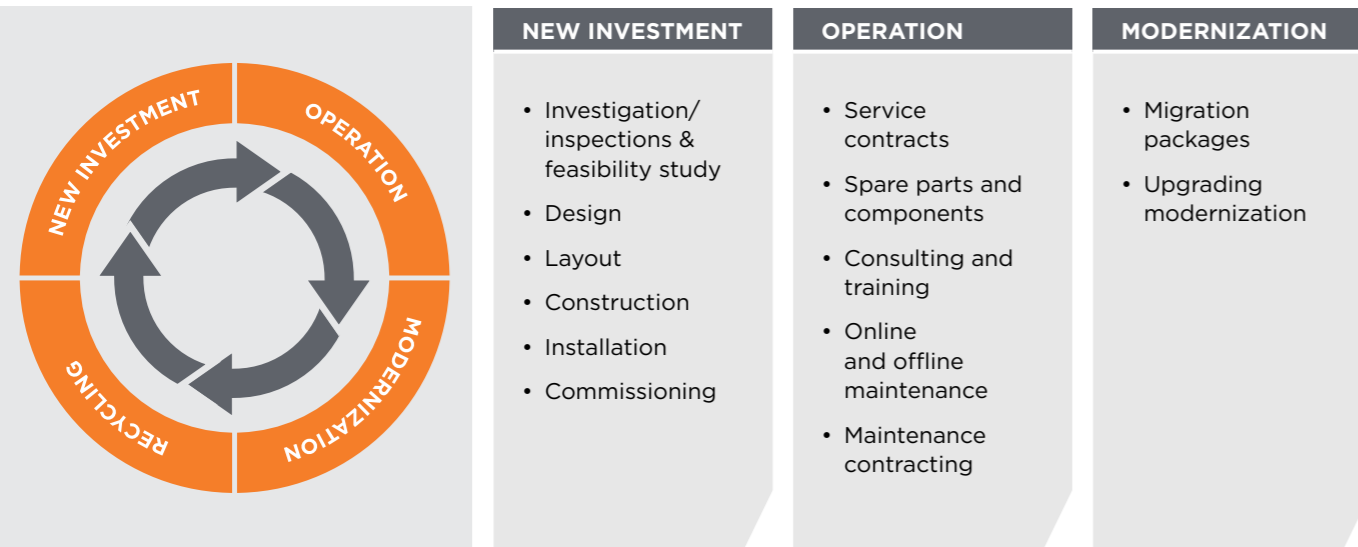
The machine is designed to be upgraded from the Classic Mode to the DWA Mode at any time.

MAIN BENEFITS

- Increased production yield
- Fast investment recovering with optimized planned production
- Lowered entry cycle time (no notch necessary)
- Lowered exit cycle time (no stoppage at side trimmer)
- Slit edge is kept inside chutes: cobbles risks at threading is eliminated.
- Less risk of strip breakage for narrow strip

LIFECYCLE MANAGEMENT PARTNERSHIP NEVER ENDS

CONSULTING | PLANNING | FINANCING



PRIMETALS TECHNOLOGIES LIFECYCLE SERVICES

As a Side Trimmer user, 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 time scale compared with the capital market. Depending on the lifetime of your Side Trimmer, 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 long-term 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 and your Side Trimmer in every phase of its lifecycle. Whether we are providing 24/7 technical support, optimizing maintenance, or making permanent plant improvements, we are always working to ensure the cost effective operation of your plant and products. Thanks to our lifecycle supports organized in clusters (Europe, America and Asia), you will benefit from our worldwide presence.

THE FOLLOWING SERVICES ARE AVAILABLE TO OUR SIDE TRIMMERS:

- Spare parts management and supply, from a set of standard spares, with on-demand replacement and repair
- Preventive maintenance visits, organized periodically to prevent or detect at an early stage any efficiency loss of the equipment, on the basis of thorough diagnostics
- Expertise of the condition of the machine, report and refurbishment or upgrading proposal
- Hotline and remote maintenance services; software updates
- On-demand on-site intervention



EXCELLENCE FROM EXPERIENCE

SELECTED SUCCESS STORIES WITH SIDE TRIMMERS FOR LINES



Heavy Side Trimmer, Turret type with scrap chopper
Customer. ArcelorMittal Mardyck, France
Line Type. Pickling Line
Our solution. Non driven knife
The result. High cutting quality for automotive products. High strip cutting speed 600 mpm.
Technical data. Width: 900 - 2050 mm; thickness: 0.25 - 2.5 mm

Heavy Side Trimmer, Turret type with scrap chopper
Customer. Pohang Iron and Steel Company Ltd., Korea
Line Type. Annealing Pickling Line, silicon steel
Our solution. Mechatronic package and Driven knife, Edge lost detection system
The result. High cutting quality and reliability
Technical data. Width: 950 - 1750 mm; thickness: 1.5 - 3 mm

EXCELLENCE FROM EXPERIENCE

SELECTED SUCCESS STORIES WITH SIDE TRIMMERS FOR LINES



Medium Side Trimmer, Turret type with scrap press
Customer. China Baowu Steel Group Corp., Ltd., China
Line Type. Continuous Annealing Line
Our solution. Driven knife associated with scrap press for high speed
The result. High production rates
Technical data. Width: 700 - 1430 mm; thickness: 0.3 - 2 mm

Medium Side Trimmer, Turret type with scrap chopper
Customer. Tata Steel IJmuiden BV, Netherlands
Line Type. Continuous Galvanizing Line
Our solution. Driven knife integrated, Safety, DWA, EdgeMon
The result. Safe maintenance, High cutting quality for automotive products
Technical data. Width: 900 - 2050 mm; thickness: 0.25 - 2.5 mm



Medium Side Trimmer Single type with scrap baller
Customer. ArcelorMittal Dofasco, Hamilton, Canada
Line Type. Continuous Galvanizing Line
Our solution. Driven knife, Automatic width adjustment
The result. Short time cycle
Technical data. Width: 600 - 1830 mm; thickness: 0.5 - 2 mm

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