

Liquidation of Complete State of the Art 1600mm Stainless Steel Cold Rolling Facility

- (2) 20Hi Sendzimir Rolling Mills
- (2) 2Hi Reversing Skin Pass Mills
- (4) Hi Reversing Cold Rolling Mill
- (2) Bright Anneal Lines
- (2) Hot/Cold Annealing Pickling Lines
- CNC Roll Grinders
- (2) Cut-To-Length Lines
- (3) Slitting Lines
- Plant Support and More

ALL ASSETS INSTALLED AT OUTOKUMPO NIROSTA IN DUESSELDORF, GERMANY



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1600MM SMS DEMAG ZR21BB-64 SENDZIMIR COLD ROLLING MILL

Strip width: 850mm - 1600mm
Strip thickness: 0.6mm - 10mm
Coil dimensions: 610mm - 1950mm
Max. coil weight: 29 ton
Max. rolling speed: 500m/min
Max. strip tension: 600kN
Max. rolling force: 16,000kN
Work roll diameter: 82mm - 105mm
First IMR rolls: 128mm - 140mm
Lateral Adjustment: Push - Pull, Hydraulic
Back-up roll/2st IMR: 228mm - 235mm
Backing Bearings: 180/406/171mm
Tension Reel: 3x 1700kW DC Each
Mill stand motor: 3 x 2000kW DC motors

Revamps and Upgrades

2002 Modernization oil wiper system
2006 Revamp of all main drives
2009 Modernization of all control systems for AFC, AGC
2010 Modernization First IMR roll system
2011 Modernization power converters main drives
2012 Electrical Modernization Pay-off reel

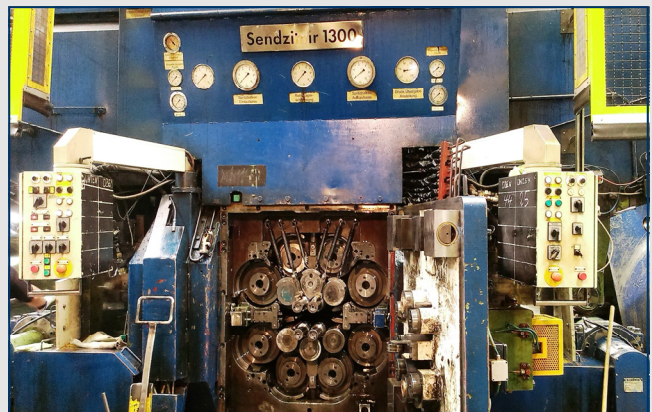


1300MM SMS DEMAG ZR22-52 SENDZIMIR COLD ROLLING MILL

Strip width: 750mm - 1300mm
Strip thickness: 0.25mm - 4mm
Coil dimensions: 610mm - 2000mm
Max. coil weight: 23 ton
Max. rolling speed: 450m/min
Max. strip tension: 400kN
Max. rolling force: 8000kN
Work roll diameter: 47mm - 62mm
First IMR rolls: 97mm - 104mm
Lateral Adjustment: Push - Pull, Hydraulic
Back-up roll/ 2st IMR: 168mm - 175mm
Backing Bearings: 130/300/172mm
Tension Reel: 2 x 1025kW DC motors each
Mill stand motor: 2x 1203kW DC motor

Revamps and Upgrades

2001 Modernization First IMR roll system
2004 Modernization oil wiper system
2005/2006 Revamp of all main drives
2008 New mill stand gear box
2010 Modernization of AFC, AGC control & PLC systems
2011 Modernization power converters main drives



1600MM SCHLOEMANN 2HI REVERSING SKIN PASS COLD ROLLING MILL

Strip width: 500mm - 1600mm
Strip thickness: 0.6mm - 6.0mm
Coil diameter: 610mm - 2160mm
Max. Coil weight: 26 ton
Max. Rolling speed: 200/400m/min
Max. Strip tension: 300/150kN
Max. Rolling force: 12,000kN
Hydraulic Screw down
Work roll diameter: 730mm - 780mm
Barrel length of work roll: 1620mm
Tension Reels: AC induction motor (2008) 1150kW each
Mill stand motor: AC induction motor 640kW (2008)

Revamps and Upgrades

2004 Installation of cleaning system for upper & lower work rolls

2007/2008 Complete electrical & mechanical modernization of electrical equipment for rolling mill, new winder gear boxes winders, mill gear box & work rolls protection



1300MM KRUPP 2HI REVERSING SKIN PASS COLD ROLLING MILL

Strip width: 500mm - 1320mm
Strip thickness: 0.2mm - 4.0mm
Coil dimensions: 610mm - 2160mm
Max. coil weight: 26 ton
Max. rolling speed: 190/370m/min
Max. strip tension: 200/100kN
Max. rolling force: 12,000kN
Hydraulic Screw down: 150mm
Work roll diameter: 720mm - 780mm
Barrel length of work roll: 1440mm
Tension Reel: 2x 346kW DC motor each
Mill stand motor: 880kW DC motor each

Revamps and Upgrades

2003/2004 Installation of cleaning system for upper & lower work rolls

2006/2007 Revamp of all main drives

2010 Modernization of rolling force control system



1320MM SMS SCHLOEMANN 4HI REVERSING COLD ROLLING MILL

Strip width: 800mm - 1320mm
Strip thickness: 0.4mm - 4mm
Coil dimensions: 610mm - 2160mm
Max. coil weight: 26 ton
Max. rolling speed: 240/400m/min
Max. strip tension: 240/140kN
Max. rolling force: 16,000kN
Work roll diameter: 320mm - 350mm
Barrel length of work roll: 1650mm
Back-up roll diameter: 1180mm - 1260mm
Barrel length of back up roll: 1380mm
Tension Reels: 2x 550kW DC motors each
Mill stand motor: 1000kW DC motors

Revamps and Upgrades

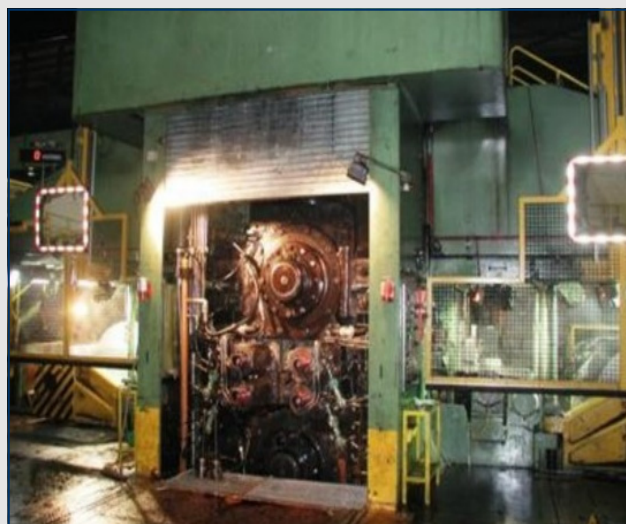
2005/2006 Revamp of all main drives

2009 Installation of a new twin drive gear box for mill drive

2010 Modernization of rolling force & thickness control

Modernization of main drive and paper winder drive converter

Modernization of drive control



1300MM GENERAL ELECTRIC BRIGHT ANNEALING LINE



Performance: 11.1T/H N
 Max Line Speed: 40M/Min
 Monthly Throughput: 6970 ton
 Austenetic 1.9%, Ferritic 98.1%
 Width: 500 - 1300mm
 Thickness: 0.30 - 3.00mm
 Entry: (2) Uncoilers, (2) Flatteners, (2) Crop Shears
 Welder: Miebach
 Degreasing: Pre-Purge, Degreasing, Rinse After Degreasing
 Temperature: 60 oC
 Strip Dryer: 60 - 120 oC Steam
 Furnace / Cooling Type: Electric
 Furnace Length: 10.2M
 Energy Consumption: 210 Kwh/T
 Temperature: Max 1150 oC
 Protective Gas: H275%, N225%
 Jet Cooler: 20
 Hno3 - Electrolytic: Concentration: 12%
 Parsytec Surface Detector System
 Exit: (2) Recoilers

1300MM DREVER BRIGHT ANNEALING LINE



Performance: 13.2 T/H N
 Max Line Speed: 70M/Min
 Monthly Throughput: 9080 ton
 Austenetic 26.9 %; Ferritic 73.1 %
 Width: 800 - 1320mm
 Thickness: 0.15 - 1.00mm
 Entry: (2) Uncoiler, (2) Flatteners, (2) Crop Shears
 Welder: Miebach Seam Welder
 Degreasing: Pre-Purge, Degreasing, Rinse After Degreasing
 Temperature: 60 Oc
 Strip Dryer: 60 - 120 Oc Steam
 Furnace / Cooling Type: Electric
 Length: 20.8M
 Energy Consumption: 220 Kwh/T
 Temperature: Max 1150C
 Protective Gas: H275 %, N225 %
 Jet Cooler: 4
 Hno3 - Electrolytic: Concentration: 12 %
 Exit: (1) Looper, (1) recoiler
 Parsytec Surface Detector System

1600MM SUNDWIG HOT/COLD ANNEALING PICKLING LINE



Performance: hot 41.7 t/h N; cold t/h N
 Max Line speed: 50m/min
 Monthly throughput: hot 1300 ton / cold 6300 ton
 Coil size: max 26 ton
 Austenetic 37 %; Ferritic 63 %
 Width: 1000 - 1600mm
 Thickness: 0.70 - 8.00mm
 Entry: (2)Uncoilers, (2) Flattener, (2) crop shears
 Vertical accumulator
 Thermtec Furnace, 3 zones
 Length: 41.1m
 Gas consumption 430kwh/t
 Temperature: max 1250 oc
 Gas: natural gas
 Cooling section: air / water
 Shot blaster: 2 cabinets, 4 wheels each
 Brush 2
 Na2SO4 - electrolytic:
 Pickling bath 1+ 2
 Mixed acid: HNO3 / HF
 Temperature: 60 oc
 Final rinse: (2) brushes
 Exit: (1) recoiler, (1) paper winder

1300MM SUNDWIG PICKLING LINE

Performance: Hot 26.5t/h N
 Max Line speed: 30m/min
 Monthly throughput: Hot 16,100 ton
 Coil size: max 25 ton
 Ferritic 100 %
 Width: 900 - 1300mm
 Thickness: 1.5 - 5.5mm
 Entry: (1) uncoiler, (1) flattener, (1) crop shear
 Welder: Oxytechnik
 Shot blaster: cabin 1 & 2 (4) wheels each
 Brushing Unit 1: brushes 2
 Pickling bath 1 + 2
 Acid: H₂SO₄, Temperature: 90oC
 Length: 2 x 15.5m
 Brushing unit 2: brushes 2
 Pickling bath 3
 Mixed acid: HNO₃ / HF, Temperature: 40C
 Length: 13m
 Brushing Unit 3: brushes 2
 Final rinse: 2 brushes
 Exit: (1) recoiler



1600MM SUNDWIG/ACME MURRAWAY COIL GRINDING LINE

Total length: 46m
 Strip width: 550 -1560mm
 Strip thickness: 0.3 - 8mm
 Coil ID/OD: 610mm - 1850mm
 Coil weight max.: 26 ton
 Speed range: 10 - 40 m/min
 Strip tension max.: 400 kN = 40 ton
 Belt polishing/Grinding cabinets: (4) ACME Murraway
 Side: Top cut
 Grinding speed:
 - I and II: 10-15 m/sec
 - III and IV: 15-22.5 m/sec
 Angle: from 20 to 7 positive negative
 Coolant: Mineral oil (from KWW scaffolding)
 Turn speed: 1000 l/min per cabin
 Grinding method: with cooling oil, positive or negative angle
 Sanding belts: Silicon carbide and aluminum oxide
 Grain size: 36 to 240, abrasive mat
 Motor drives: (2) 160kW DC motors = 320kW



1600MM X 6MM X 29 TON SUNDWIG STAINLESS STEEL SLITTING LINE

Coil Car, "C" Type
 Mandrel Type Uncoiler: 508 - 610mm, 110 Kw
 Peeler & Straightener
 Entry Strip Width Range: 350 - 1600mm
 Finished Strip Width: 50 - 1560mm
 Max. Coil Weight Uncoiler: 29 ton / Coiler 29 ton
 Material Thickness: 0.8 - 6mm
 Max. Speed [M/Min]: 180mm
 Trimming Width 200 - 1560mm
 Strip Tensile Force [Kn] 1,4 - 67
 Slitting Head, Shaft Dia: 200mm
 (2) Slitting Heads - Liftout
 Tension Stand/Device
 Recoiler 135kw, Overarm Separator
 Paper Winder
 Coil Car, "C" Type, Vertical Coil Control Holddown
 2-Arm Turnstile
 Emg Edge Control
 Paper Wrapping
 Tooling
 Line Direction: Right To Left



1300MM X 2.5MM X 26 TON SUNDWIG STAINLESS STEEL SLITTING LINE



Coil Car, "C" Type
 Mandrel type uncoiler: 508 - 610mm, 105kW
 Peeler & Straightener
 Entry Strip Width Range: 150 - 1400mm
 Finished Strip Width: 30 - 1350mm
 Max. Coil weight Uncoiler: 26 ton / Recoiler: 26 ton
 Min. Material Thickness: 0.3-2.5 mm
 Max. Speed [M/Min]: 200
 Looping Pit
 Cutting Knives Dia.: 320 - 260mm
 Slitting Heads, Injector, Turntable 2
 Slitter Shaft Diameter (mm)200mm
 Paper Wrapping
 Tension Unit, 3 Roll Bridle Type, (3) Individual Motor Drives
 Recoiler 105 Kw/440 Volt/278 Rpm, Overare Separator
 Paper Winder
 Coil Car, "C" Type, Vertical Coil Control Holddown
 2 Arm Turnstile, At Right Angle
 EMG Edge Control
 Tooling
 Direction: Right To Left

1350MM X 1.5MM X 27 TON SUNWIG STAINLESS STEEL SLITTING LINE



Coil Car, "C" Type
 Mandrel type uncoiler OD: 508 - 610mm, 52kW
 Peeler & Straightener
 Entry Strip Range: 250 - 1310mm
 Finished Strip Width: 50 - 1240mm
 Max. Coil weight: Uncoiler 27 ton / Coiler 27 ton
 Material Thickness: 0.3-1.5mm
 Max. Speed [M/Min]: 200
 Min. Trimming Width: 150 - 1290mm
 Cutting knives diameter: 320 - 260mm
 2 Slitting Heads, Injector Type, Turnstile
 Slitting Head Shaft Diameter: 200mm, 12.2kW
 Paper Wrapping
 Tension Roll
 Recoiler 105kW, Overarm Separator, Traversing, Hydraulic Expansion
 Coil Car With Hydraulic Strip Control, Vertical Clamp
 2 Arm Turnstile
 EMG Edge Guide
 Tooling
 Direction: Right To Left

1300MM X 2.5MM X 24 TON UNGERER STAINLESS STEEL CUT TO LENGTH LINE



Mandrel type uncoiler OD: 508 - 610mm, 16.8kW
 Max. Coil weight Uncoiler: 24 ton
 Finished Sheet Length: 500 - 6000mm
 Trimming Width: 400 - 1280mm
 Material Thickness: 0.3 - 2.5mm
 Max. Speed [M/Min]: 40
 Edge Trimming
 23-roll Leveler, RM 150/2.5/23
 Looping Pit
 Paper Wrapping
 Rotary Line Shear, Model S-36-1500/3
 Belt Runout
 Stacker, Vacuum lift, STPM S6000 x 1300
 EMG Edge Guide
 Direction: Left To Right

600MM X 2MM X 13 TON UNGERER STAINLESS STEEL CUT TO LENGTH LINE

Mandrel Type Uncoiler: 508 - 610mm
Entry Strip Width Range: 100 - 690mm
Finished Sheet Length: 500 - 4000mm
Max. Coil weight Uncoiler: 13 ton
Material Thickness: 0.3 - 2mm
Max. Speed [M/Min]: 60
23 Roll Ungerer Leveler, Model Rm900/2/23
Looping Pit
Flying Shear Model S-60-900/3
Paper Wrapping
Run Out
Direction: Right To Left



ANDRITZ LYNSON V 330 CNC ROLL GRINDER (NEW 2005)

Length: 3000mm
Diameter: 30mm - 300mm
Weight: 1000 Kg max.
Rotation speed rolls: 0 - 300 rpm
Rotation speed grinding wheel: 0-4500 rpm
Support / table speed: 0-15000 mm/min.
Dimensions grinding wheel: 7
50 mm x 80 mm (40 mm/CBN) x (305 mm)
Accessories: Steady rests, air shoes, oil station for roll
conservation, automatic balance system for the grinding wheel



ANDRITZ LYNSON V 645 CNC ROLL GRINDER (NEW 2006)

Length: 4500mm
Diameter: 100mm - 645mm
Weight: 3000 Kg max.
Rotation speed rolls: 10 - 300 rpm
Rotation speed grinding wheel: 50m/s
Support / table speed: 0-10000 mm/min.
Dimensions grinding wheel: 750 mm x (305 center) x 80 - 100 mm
Accessories: "Fooke" chuck for the grinding wheel, steady rests, air shoe's



DEHN AUTOMAT/SCHMALTZ CNC ROLL GRINDER

Length: 7000mm
Diameter: 78mm - 105mm
Weight: 200 Kg max.
Rotation speed rolls: 0 - 300 rpm
Rotation speed grinding wheel: 35m/s
Support / table speed: 5000 mm/min.
Dimensions grinding wheel: 750 mm x (305 center) 100 mm
Accessories: Bosch control Typ3osa PNC-R



NAXOS UNION W1400 ROLL GRINDER

Length: 4000mm
Diameter: 1400mm
Weight: 20000 Kg max.
Rotation speed rolls: 0 - 44 upm
Rotation speed grinding 0 - 1000rpm
Support / table speed: 0 - 3000mm
Dimensions grinding wheel:
600 mm x (305 center) x 80 mm
Accessories: steady rests, mechanical component for
crown and taper grinding, different gearwheels



(3) NAXOS UNION W500 ROLL GRINDERS

Length: 4000mm
Diameter: 500mm
Weight: 2000 Kg max.
Rotation speed rolls: 11 - 66 rpm
Rotation speed grinding 100 - 1000rpm
Support / table speed: 20mm - 4000mm
Dimensions grinding wheel:
600 mm x (203 center) 40 - 60 mm
Accessories: steady rests, mechanical component for crown and taper grinding, different gearwheels



NAXOS UNION W400 ROLL GRINDER

Length: 1500 - 4000 mm
Diameter: 400 mm
Weight: 1000 Kg max.
Rotation speed rolls: 13 - 78 rpm
Rotation speed grinding wheel: 22 - 28 m/s
Support / table speed: 50 - 3000 mm/min.
Dimensions grinding wheel: 600 mm x (center 203 mm) x 50 mm
Accessories: Steady rests, mechanical component for crown and taper grinding, different gear wheels



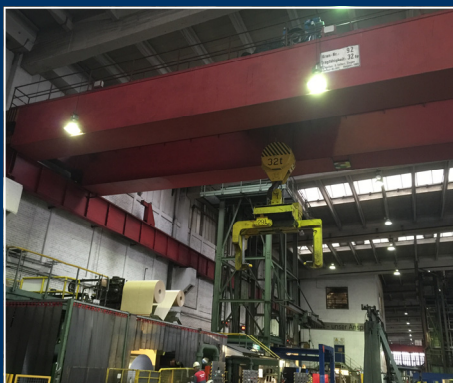
SCHMALTZ WR4/2000 ROLL GRINDER

Length: 2000 mm
Diameter: 400 mm
Weight: 800 Kg max.
Rotation speed rolls: 18 - 180 upm
Rotation speed grinding wheel: 800 - 1600 rpm
Support / table speed: 30 - 3000 mm/min.
Dimensions grinding wheel:
750 mm x (305 mm center) x 65mm
Accessories: Steady rests, mechanical component for crown and taper grinding



ANDRITZ LYNSON V 330 CNC ROLL GRINDER (NEW 2005) & ANDRITZ LYNSON V 645 CNC ROLL GRINDER (NEW 2006), See Page 7

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