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450mm & 1350mm x 1780mm 4-High-Reversing Cold Rolling Mill

1. Introduction

- Manufacturer: Voest Alpine AG, Austria
- Year of construction: 1962
- Revamp: 1998, Siemens VAI
- Weight (estimated): approx.1535 t
- Supplier of electrical / control systems: Siemens Simatic S 5
- Plant state: Dismantled, packed, and stored.
- Documents: complete
- Availability: readily available for inspection, loading & shipment.
- Spare parts as available
- Installation, assembly, start up and commissioning available upon request.

2. Specifications:

- Revamp 1998
  extent of revamp: total change of electrical equipment, new process control system, new automatic gauge control, new strip elongation control, installation of hydraulic roll gap setting system, both expanding mandrel reels changed (including gear-boxes)

Product range:

- strip width: 800 – 1570 mm
- maximum coil diameter: 1800 mm
- maximum incoming gauge: 6 mm
- minimum product gauge: 0.25 mm
- strip quality: silicon alloyed magnetic steel sheet
  sheet metal for automotive bodies and white goods
- permanent set: 50 – 80%

Technical specificatons:

- operations mode: cold rolling, spooling, skin-pass rolling
- maximum rolling speed: 600 m/min
- maximum coil weight: 27 t
- maximum coil diameter: 1800 mm
- maximum rolling force: 18 MN
- max. coiler driving power: 150 kN
- work roll diameter: 395 – 450 mm
- backup roll diameter: 1230 – 1350 mm

Plant assembly:

- coil support: ramp
- payoff: double cone 2 x 26 kW
- reversing coiler: expanding mandrel 2 x 840 kW
  diameter 560 – 840 mm
  threading equipment
  coil remover
  edge control
  mandrel support
  pinch roll
  coil evacuation with hydraulic lift coil car
- guide roll: 18 kW – diameter 500 mm
- strip blow-off: compressed air 5 bar, flat-nozzle
- strip break: wood
- lateral guidance: adjustable
- supporting rolls: Morgoil bearing, hydraulic tilt out, 2 pairs in use

- work rolls: twin-drive with switch to pinion-drive
  2 x 950 kW per roll
  bearing: four row tapered rolls
  roll-change with counterweight and crane
- roll gap adjustment system:
  mandrel 200 mm travel,
  hydraulic plunger with servo-drive and reservoir
  reservoir 50 mm travel
  2 position encoders & 1 pressure sensor for each plunger
  210 bar = 18 MN rolling force
- gauge measuring: isotopic – Toshiba
- strip air-wipe system: compressed air, 5 bar, flat nozzle
- guide roll: 18 kW, diameter 310 mm
- reversing coiler 2: expanding mandrel 2 x 840 kW
  diameter 560 – 620 mm
  threading equipment
  coil remover
  edge control
  mandrel support
  pinch roll
  coil evacuation with hydraulic lift coil car
- hydraulic system: 100 bar
- drive motors: SIEMENS 400 V GS, thyrisor-fed SIEMENS Simoreg
- supply drives: 500 V DS
- control system: SIEMENS Simatic S5
- gauge control
  strip elongation control
  drive control: INTEL Multibussystem
  visualization: Prolink
- gaugemeter, pre-control, mass-flow & monitor
- gauge accuracy better than ± 2%
- degree of extension 0.5 – 10 % with liquid skin-pass agent