3. Foil Rolling Mills

Technical Features

- Hydraulic Pushup Control
- Quick Work Roll Changer
- Positive/Negative WR Bender
- Single or Double Unwinder
- Coolant Spray Headers for On/Off and Zone Control
- Coolant Wiping System
- Air Bearing type Shape Sensor Roll
  - Compact, Stable and Accurate Sensing
  - Defect Free on Strip Surface
  - Wrinkle Free for Thin Foil Rolling

Automatic Process Control

AGC (Automatic Gauge Control)
- Optimum Speed and Length Control
- Common HMI with AFC
- Tension and Speed Monitor AGC Roll Force/Gap Monitor AGC

AFC (Automatic Flatness Control)
- SHEETFLAT-Total shape Control system
- Shape Analysis by Fourier series method
- Sensitive and accurate control
- Coolant Zone Control
- WR Bending and Roll Tilting

Mill Setup

OUTLINE OF GAUGE AND SHAPE CONTROL

ALUMINUM ROLLING MILLS

Primetals Technologies Japan, Ltd.
A joint venture of Siemens, Mitsubishi Heavy Industries and Partners

Tokyo office:
Shintamachi Bldg.,
34-6, Shibas, 5-Chome, Minato-ku,
Tokyo 108-0014, Japan
Phone: +81-3-5765-5231

Hiroshima Works:
6-22, Kanonshin-Machi, 4-Chome, Nishi-ku,
Hiroshima 733-8553, Japan
Phone: +81-82-291-2181

primetals.com

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ALUMINUM ROLLING MILLS

Simple/Compact/Efficient

Primetals Technologies Japan, Ltd. is a world leading manufacturer of advanced aluminum rolling mills for higher quality products.

1. Hot Rolling Mills

Typical Arrangement

1 + 2
Reversing Roughing Mill (RM) Reversing Finishing Mill (FM)

1 + 4
Reversing Roughing Mill (RM) Tandem Finishing Mill (FM)

1+4 Hot Rolling Mill Line

- Mill Approach Table, Transfer Table
- Heavy Gauge/Light Gauge Shears
- Reversing Mill (RM) and 4 stands Tandem Mill (FM)
- Mechanical Passline Adjustment
- Positive/Negative WR Bender
- Coolant Spray Headers for On/Off and Zone Control
- Brush Rolls
- Star type Side Trimmer
- Tension Reel
- Coil Inspection Equipment
- Produce high quality product coils, integrated with process control system
- Strip gauge, crown and temperature control
- Mill Set-up system

2. Cold Rolling Mills

UCM-MILL

Main Equipment:
- All (WR, IMR, BUR) straight rolls
- Positive/Negative WR Bender
- IMR Bender
- IMR Shift

Features:
- Super-Heavy reduction
- Excellent strip shape control
- Stable high speed rolling

Strip Wiping System

Main Equipment:
- High volume Strip Blow-off Nozzles
- Non-Contact Roll Barrel Sealing attached with Cobble guard
- Splash guard with coolant suck at the strip edge (adjust according to the strip width)

Features:
- Good surface quality (Low Oil Carryover of strip)
- Effective residual coolant collection on the strip surface

AGC/ASC Control Function

HYROP-F

Main Equipment:
- Hydraulic push up cylinder
- Force motor valve (High-response servo valve)
- High accuracy position detector

Features:
- Quick response (20Hz)
- High accuracy (±3µm)
- Long lasting servo valve (2-5 years)
- Easy oil maintenance (NAS Class 8-9)

AGC Function (SSFC, FB AGC, FF AGC, BISRA AGC)

- Monitor AGC (FB AGC)
- Roll Force Compensation
- Decoupling Control
- Mass Flow AGC
- Smith AGC

ASC Function (WR Bender ASC, IMR Bender ASC, Leveling ASC)

- Work Roll
- Shape deviation
- Thermal expansion
- Spot Coolant Nozzle

1) Control to coincide with the profile of strip and the thermal crown of roll
2) Control stabilized ASC to keep the condition

- (a) Shape deviation
- (b) Time change
- (c) Spatial change