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**1+3 HOT ROLLING MILL LINE**  
BAOWU ALUMINUM,  
SANMENXIA, CHINA

# HOT ALUMINUM ROLLING MILL TECHNOLOGY

The new mill has been supplied to Baowu Aluminum Technology Co., Ltd. Sanmenxia, Henan Province, China.

## MAIN BENEFITS

- Flexible, cost-efficient rolling of a wide range of products
- Most advanced and innovative automation
- Tightest strip thickness and profile tolerances
- High surface quality
- Reliable, consistent performance
- Realize tight tolerance right from the strip head
- Maximum operation efficiency
- Integrated occupational safety concepts



## THE CUSTOMER

**Name:** Baowu Aluminum Technology Co.,Ltd  
**Location:** Sanmenxia, Henan Province, China

## SERVICES:

As part of the Baowu Group, Baowu Aluminum's new aluminum hot rolling line, installed by Primetals Technologies, has strengthened their position as the leading flat rolled products producer in China, with the capability to supply a wide range of products to world class quality standards.

## THE CHALLENGE

As the demands for aluminum increase in terms of quality and quantity, so have the demands on the equipment that produces the aluminum. Today's rolling mills are, therefore, expected to produce high-quality stock without compromising production levels.

The Primetals Technologies mill has been designed to meet Baowu's need to expand capacity to over 300,000 metric tons per annum at widths in excess of 3.1 meters, servicing the high quality strip and sheet markets, including aerospace plate, automotive can body can lid, and electronics.

## OUR SOLUTIONS

The hot rolling mill was supplied to Baowu Aluminum Technology Co., Ltd., located in Sanmenxia City, Henan Province, China, and started up in December 2020.

The new hot aluminum rolling line included a vertical edger, a single-stand roughing mill, two crop shears, a three-stand tandem finishing mill, mill exit equipment, coil handling equipment, hydraulic, lubrication, and coolant systems. Primetals Technologies provided process support on the hot mill project, which ensured the smoothest start up and quickest production build-up, with the first slab being rolled on schedule.

Primetals Technologies was responsible for the mechanical and electrical equipment supply, engineering, and advisory services for the implementation. The electric and automation solution comprises basic (level 1) and process (level 2) automation systems, drive systems, instruments, and sensors.

## PRODUCT DATA

Feed stock	aluminum and aluminum alloys
Slab width	1,050-2,650 mm
Slab thickness	400-830 mm
Slab length	2-8.4 m
Plate thickness	12-250 mm
Plate width	1,020-4,350 mm
Plate length	max. 38 m
Finished coil thickness	2-12 mm
Coil width	max. 2,950 mm
Coil weight	max. 30 t

## EQUIPMENT FEATURES

### Hot mill roughing stand

- Bottom mounted double acting load cylinders
- Positive work roll bend
- Side shift work roll change
- Chock mounted oscillating scratch-brushes
- ISV pulse width modulated coolant spray bars
- Independent drive to work rolls

### Edger

- Under driven, low height requirement
- Fully hydraulic long stroke operation
- Absolute position referencing
- Separately located for ease of access

### Hot mill finishing stands

- Top mounted double acting roll load cylinders
- E-block positive and negative work roll bend
- Chock mounted oscillating scratch brushes
- ISV pulse width modulated coolant spray bars
- Entry and inter stand strip cooling sprays
- Multi-channel profile gauge
- Smart Crown

### Coiling Equipment

- Edge trimmer with separate scrap chopper
- Deflector roll

- Grease free coiler mandrel
- Belt wrapper with remote adjustment
- Automation system
  - Basic automation system including technological control
  - Process automation system
  - Process automation Digital Twin
  - Analytical online process models
  - Profile, thickness, and temperature control
  - Flexible production scheduling
  - Data logging and reporting system
  - Comprehensive diagnostics
- Drive system
  - SINAMICS SM150 and S120 converters

## EQUIPMENT DATA

	Hot roughing mill stand	Vertical edger	3-stand tandem mill	Edge trimmer	Coiling equipment
Work rolls	1,175x4,600 mm	965x740 mm	780x3,600 mm		
Backup rolls	1,900x4,500 mm		1,700x3,300 mm		
Maximum roll load	80,000 kN	7,500 kN	60,000 kN		
Speed	0/110/240 m/min	0/92/250 m/min	0/136/452 m/min	500 m/min	
Mill drive power	2x7,000 kW	2x700 kW	3x7,000 kW	400 kW	2,500 kW
Roll Bend	+3,200 kN/side		+/- 2,200 kN/side		
Mandrel diameter					610 mm

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