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**1 + 4 HOT ROLLING MILL LINE**  
SOUTHWEST ALUMINIUM (SWA),  
CHONGQING, CHINA

# HOT ALUMINIUM ROLLING MILL TECHNOLOGY

## ACHIEVED RESULTS

- Installation Started 6<sup>th</sup> July 2004
- First slab rolled 11<sup>th</sup> April 2005 – ahead of schedule
- First Coil rolled 1<sup>st</sup> May 2005
- Final acceptance achieved 7<sup>th</sup> December 2005
- Product quality performance Market leading tolerances achieved for thickness, profile and temperature



## THE CUSTOMER

Name: Southwest Aluminium  
Location: Chongqing, China

Services:  
As part of the Chinalco Group, Southwest Aluminium's new aluminium hot rolling line, installed by Primetals Technologies, has strengthened the position of Southwest Aluminium 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 aluminium increase in terms of quality and quantity, so have the demands on the equipment that produce the aluminium. Today's rolling mills are, therefore, expected to produce high quality stock without compromising production levels. At Southwest, the customer wanted to produce high quality can body and lid stock at widths of up to 1800mm. Utilising the Primetals Technologies portfolio of technologies, we provided a solution to meet these needs.

## OUR SOLUTION

The Southwest Aluminium contract supplied, offered a state of the art aluminium hot rolling line with added features from our portfolio of products. The project was supplied to Southwest Aluminium in Chongqing as part of the companies continuous expansion program. Commissioned in 2005, the new hot aluminium rolling line included a vertical edger, single stand roughing mill, two crop shears, four-stand tandem finishing mill, mill exit equipment, coil handling equipment, hydraulic, lubrication and coolant systems. Primetals Technologies provided process support on the Southwest hot mill project which ensured the smoothest start up and quickest production build up, with the first slab being rolled ahead of schedule.

Bottom mounted double acting roll load cylinders on the roughing mill provide optimum positioning of the bottom work roll relative to the roller tables. This minimises refusals and turn down ends. Each roll load cylinder is fitted with a central internal position transducer for maximum protection and performance. The top work roll assemblies are supported by the top back up roll chocks. This highly-sophisticated design improves the backup roll balancing system and helps prevent roll skidding. Independent direct drive to the work rolls eliminates the requirement for gearboxes and allows differential speeds of top and bottom work roll, e.g. to prevent turn down of the slabs. The side shifting work roll change system enables roll withdrawal directly into the roll grinding shop

## PRODUCT DATA

- Feed stock: Aluminium & aluminium alloys inc can stock
- Slab width: 800mm – 1800mm
- Slab thickness: 520mm – 610mm
- Slab lengths: 5m – 7.2m
- Finished coil thickness: 2mm – 8mm
- Maximum coil weight: 20,300 Kgs



## EQUIPMENT DATA

	Hot roughing mill stand	Vertical edger	4 stand tandem mill	Edge trimmer	Coiling equipment
Work rolls	930mm x 2100mm	965mm x 740mm	750mm x 2100mm		
Back up rolls	1500mm x 2000mm		1500mm x 2000mm		
Maximum roll load	35,000 kN	7,500 kN	35,000 kN		
Speed	0/120/240m/min	0/120/240m/min	0/180/450/m/min	500m/min	500m/min
Mill drive power	2 x 3750 kW (AC)	1 x 1400 kW (AC)	4 x 4500 kW (AC)		
Roll Bend	+ 2,100 kN/side		+/- 1,530 kN/side		
Blade diameter				610mm	
Mandrel diameter					610mm
Maximum tension					25 tonnes

## EQUIPMENT FEATURES

### Hot mill roughing stand

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

### Edger

- Underdriven, low height requirement
- Fully hydraulic longstroke operation
- Absolute position referencing
- Separately located for ease of access

### Hot mill finishing stands

- Top mounted double acting roll load cylinders
- Bottom stepped packer pass-lineheight adjustment
- E-block positive and negative work roll bend
- Side-shifting floor plate work roll change
- Chock mounted oscillating scratch brushes
- ISV Pulse width modulated coolant spray bars
- Entry and interstand strip cooling sprays
- Multi-channel profile gauge

### Coiling equipment and Crop Shears

- Hydraulic heavy/light shear
- Edge trimmer with separate scrap chopper
- Deflector roll and 3 roll bridle
- Grease free coiler mandrel
- Beltwrapper

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