



ALUMINIUM COLD ROLLING MILL
CHINALCO SOUTH WEST ALUMINIUM
(CSWA), CHINA

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THE CUSTOMER:

Name: Chinalco South West Aluminium (CWSA), China

Location: China, Chongqing

Production: circa 100,000 tonnes per year - (depending on plant wide scheduling).

THE CHALLENGE

Chinalco is China's largest nonferrous metals enterprise principally engaged in mineral resources development, nonferrous metals smelting and processing. Chinalco is the leading aluminium producer in the country and the third largest in the world.

As an integral part of a strategic expansion project aimed at increasing quality and overall productivity, Chinalco added a new cold rolling mill to the aluminium cold rolling plant of Chinalco Southwest (CSWA) located in Chongqing City.

THE SOLUTION

Chinalco selected Primetals Technologies to supply the new cold rolling mill which is the most technically advanced and fastest heavy breakdown cold mill supplied anywhere in the world. It features the latest technological advances in all aspects of mechanical, fluid and electrical design and includes the unique Dynamic Shape Roll (DSR®) that works in conjunction with Primetals Technologies market leading Process Control and Automation Systems.

The DSR® replaces the top solid back-up roll usually installed in four-high mill stands and provides dramatically improved flatness control, especially in the critical areas at the head and tail ends of the strip. The DSR® thus gives significant improvements in overall coil yield. DSR® is a unique technology, being the only truly on-line dynamic actuator able to undertake symmetric and asymmetric changes to the roll-gap profile during rolling. This is accomplished in the DSR® roll by varying the force distribution across the strip width, in conjunction with feedback signals from the shape measurement roll.

The Primetals Technologies Alu Solution for cold mills is specifically configured to the high speed rating of the mill, processing large coils at high rolling loads and handling the robust demands imposed by the heavy gauge cold rolling process without compromising the achievement of world class finished product tolerances.

Furthermore, the Primetals Technologies Alu Solution has the flexibility, together with DSR®, to roll light gauges as part of a multi-alloy product mix, including high added value products such as Lithographic and Can Stock sheet.

ACHIEVED RESULTS

PRODUCT DATA

Material	Aluminium AA 1000, 3000, 5000 and 8000 series alloys
Entry Thickness	6.0mm (maximum)
Exit Thickness	0.15 mm (minimum)

MILL DATA

Mill Type	4-high breakdown mill
Work roll dimensions	470mm dia x 2000mm
Back up roll dimensions	1400mm dia x 1950mm
DSR® roll dimensions	1400mm dia x 1950mm
Nominal production capacity	circa 100,000 tonnes per year - (depending on plant wide scheduling).
Max. rolling load	2000 tonnes
Maximum mill speed	1900 m/min
Main drive power	5300 KW synchronous motor with SINAMICS SM150 voltage source converter

COIL DATA

Diameter	2500 mm
Max Weight	21,300 Kg
Density	11.83 Kg/mm width

FEATURES:

- Dynamic Shape Roll DSR®
- AGC by feedforward, feedback and mass flow
- ISV spray bars and Hot Edge Sprays
- Edge Wipe System
- Constant force twin ironing roll
- Twin Strand Pallet Conveyor Coil Handling system, Integrated to an automatic high bay coil storage system
- Automated Spool and Scrap Coil Handling
- Off-line coil inspection station
- Fully integrated mechatronic solution
- High Product Quality
- Sustained high throughput capability
- Flexible production

- High speed and load capacity
- User friendly operation
- Intelligent diagnostics systems

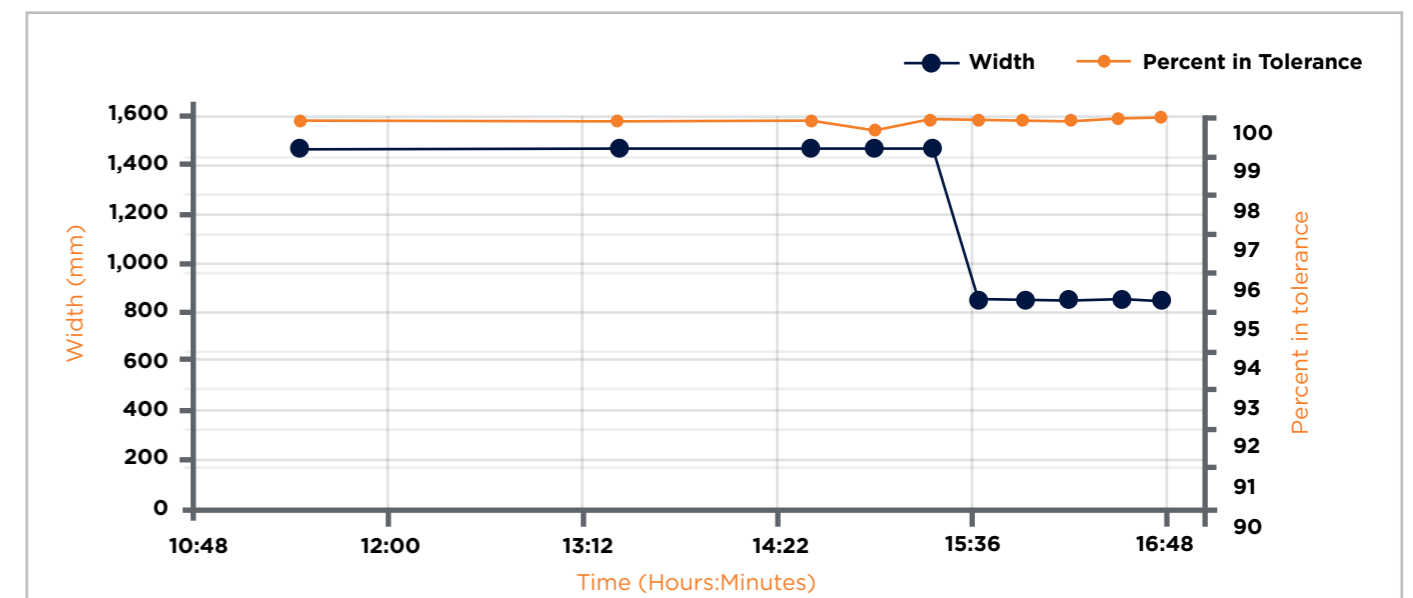
RESULTS:

- Minimum gauge
- Much reduced lengths to achieve the flatness target.
- Cold starting - no warm up coil.
- Flexible - handle width changes with no transition coils.

ACHIEVEMENTS WITH DSR®:

- Saleable product at finished gauge of 0.15mm
- Minimum length to achieve on gauge flatness and thickness targets
- Excellent cold starts, no warm up coil required

HANDLING WIDTH CHANGES



Primetals Technologies Limited

A joint venture of Mitsubishi Heavy Industries and partners

Sheffield Business Park, Europa Link,
Sheffield, S9 1XU
United Kingdom

[primetals.com](https://www.primetals.com)

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