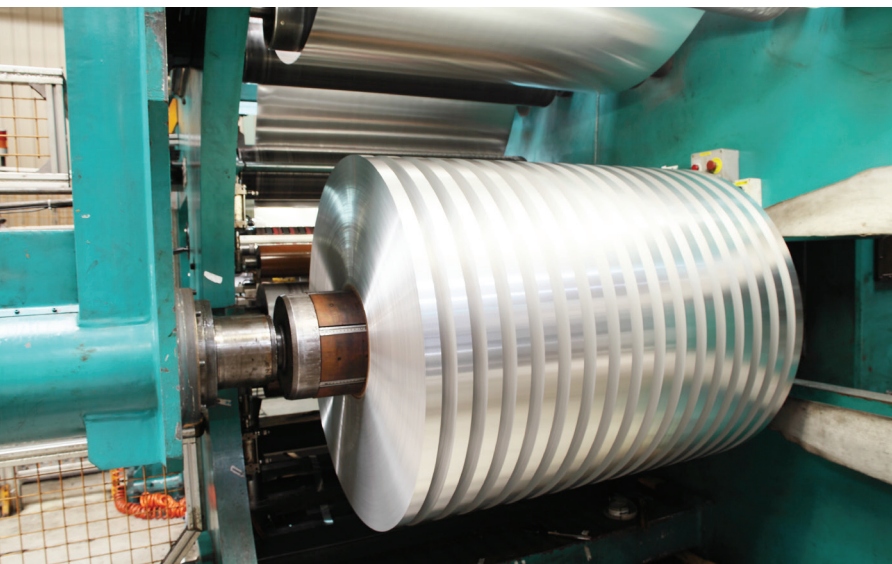


## Gränges Shanghai, China has installed many ABB Force Measurement products in their rolling mills and process lines



Gränges Shanghai's (former Sapa Shanghai) rolling mills and process lines are running with 6 Stressometer systems, 7 MTG-gauges, 2 Strip Scanner systems and around 30 tension load cells.

### Measurement made easy

#### Background

In the 1980's Gränges Sweden installed the first Stressometer flatness system. Two decades later Gränges Sweden continued investing in another Stressometer system in order to scale up production. Also Gränges expanded internationally and set up upgraded Stressometer systems in the Gränges Shanghai factory.

The investments continued and in 2004 two Stressometer systems were installed in the Tandem Cold Mill at Gränges Sweden. Also, at this time, Gränges carried through a MTG test installation in one of the rolling mills at the Finspång site in Sweden. The test resulted in very good feedback, highlighting the potential and benefits with the Millmate Thickness Gauging system (MTG) and the underlying PEC measurement technology, Pulsed Eddy Current technology. This test ended up with the first MTG-installation in the rolling mill.

In 2004 and 2005 Gränges Shanghai installed two Stressometer systems in CM1 and CM2 as well as a MTG in the levelling line.

In 2008 the investments continued and Gränges Shanghai installed another two Stressometer systems in the Tandem Cold Mill. Also MTG-gauges, Millmate Strip Scanners and LPBT and PRT load cells were installed in the TCM rolling mill.

The positive functions of the MTG and Stressometer systems have resulted in so far 7 MTG-gauges and 5 Stressometer flatness systems installed in the Gränges Shanghai mill. Further, in 2010, there were Stressometer, MTG, Millmate Strip Scanners as well as LPBT and PRT load cells installed in the Shanghai CM1 rolling mill. The latest additions at Gränges Shanghai is a Stressometer system in the hot rolling mill and a Stressometer system in CM4.

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“Gränges has very good communication with ABB and we take benefit of the technical competence and expertise they have on flatness, thickness, tension, width and position measurement.”

**What are the main benefits with ABB Force Measurement products and what has been achieved?**

We ask Mr Chen Peng, Process Control Engineer and Mr Bengt Jansson, Strategic Projects Manager to comment the ABB Force Measurement products in Gränges’ hot and cold rolling mills and process lines:



**Stressometer system in the hot rolling mill**

“The hot Stressometer installation is running very well and we have really achieved better quality. The good tailout from the hot rolling mill results in high quality head-in to the cold rolling mill. Further, we have increased rolling speed and the yield is also better than before. We also got good hot mill strip flatness and benefit for cold rolling speed performance and quality.”



**Stressometer systems in the cold rolling mills**

“The rolling mill performance is much better with the Stressometer flatness systems. We have increased the productivity step by step and the availability has improved a lot. The measurements are very stable and reliable and we have seen a considerable decrease of scrap due to the Stressometer installations.

Further, in the long term we have increased the production speed from 300 m/min to 1500 m/min and thereby we have succeeded to increase our production efficiency considerably.”

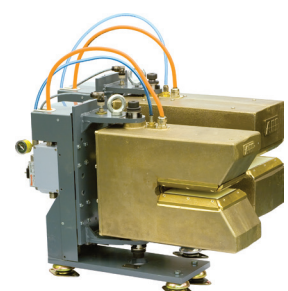
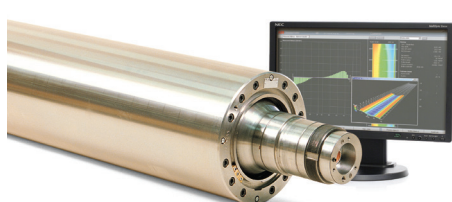
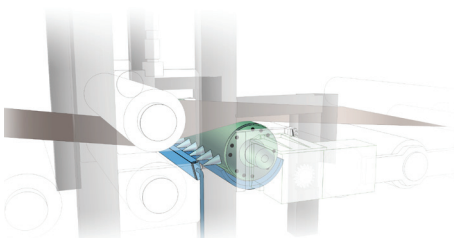


**Millmate Thickness Gauging (MTG) in the cold rolling mills**

“The accuracy is very good with the MTG-gauges.

Further, MTG-gauges are alloy-independent and for the clad mode, the measurement is insensitive to the alloy chemistry.

We see a big advantage with the non-contact MTG thickness gauges having very stable and reliable measurements over time. Also, there is a minimum of maintenance and there are no radiation problems with MTG.”







### Millmate Strip Scanner systems in the cold rolling mills

"The Millmate Strip Scanner system (MSS) is always working and the MSS-sensors have been running perfectly for many years of operation. There is no maintenance and maintenance costs with MSS.

MSS is very reliable as the sensor is unaffected by mill environment and the measurements are very stable.

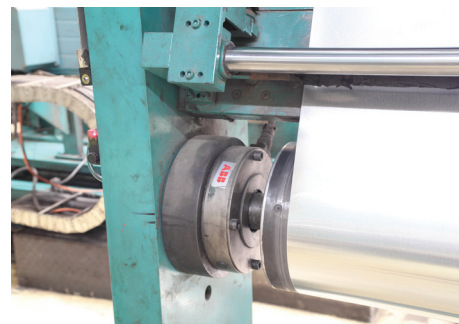
Coiler centering is very good with MSS. Also excellent recoiling without imperfections such as telescoping."



### Large PillowBlock Tensiometers (LPBT) in the cold rolling mills

"Tension control is one of the most important process parameters in a process line. In order to achieve good tension control you need reliable input of the actual tension. Therefore the selection of reliable tension load cells is crucial. For Gränges the choice was ABB's Large PillowBlock Tensiometers and the underlying Pressductor® technology.

We appreciate the reliable and accurate measurements with ABB's Large PillowBlock Tensiometers."

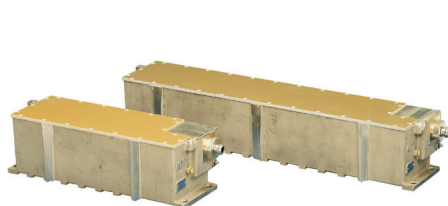


### Pressductor Radial Tensiometers (PRT) in the cold rolling mills and process lines

For measuring tension with shaft-mounted load cells, PRT system is a high-quality system that provides exceptional and long-lasting performance.

PRT load cells and tension electronics are designed for medium-tension and light-tension process lines used in light gauge and loop slitters.

Easy to install and virtually maintenance-free, PRT tension measurement makes a significant contribution to more productive operations and improvements in product quality.





### Gränges Aluminium (Shanghai) Ltd.

Gränges Aluminium (Shanghai) Ltd. is a wholly owned subsidiary of Gränges AB in Sweden. Gränges Aluminium (Shanghai) Ltd. together with the sister company, Gränges Sweden AB, are the only rolling mill plants in the world that works exclusively with rolled aluminium to produce brazed heat exchangers.

Gränges develops, manufactures and markets value-added profiles, profile-based building systems and heat exchanger strips. The business concept is built on close cooperation with their customers located all over the world.

In Shanghai Gränges began production in 1999 and over the years they have continuously invested in enhancing their production capacity and competencies in order to meet the always growing market demand. Today the annual production capacity has reached about 120,000 tons.

Gränges is concentrating all their resources on one single task – to be the preferred partner for manufacturers of brazed aluminium heat exchangers.

For more information visit:  
[www.granges.com](http://www.granges.com)

#### Mill data

##### Hot rolling mill

Mill builder	CNPT/ProEng
Slab/strip temperature	500 °C
Exit strip thickness	3 to 5 mm
Min. to max. width	900 to 1500 mm
Rolling speed	225 m/min
Total ABB portfolio	1 STR

##### Tandem cold mill

Mill builder	LINP
Thicknesses	0.3 to 5.0 mm
Min. to max. width	900 to 1500 mm
Rolling speed	750 m/min
Total ABB portfolio	2 STR, 2 MTG, 1MSS, 2 LPBT, MC400

##### CM1 cold rolling mill

Mill builder	LINP
Thicknesses	0.05 to 5.0 mm
Min. to max. width	800 to 1260 mm
Rolling speed	1000 m/min
Total ABB portfolio	1 STR, 1 MTG, 1 MSS

##### CM2 cold rolling mill

Mill builder	NP
Thicknesses	0.04 to 0.60 mm
Min. to max. width	650 to 1250 mm
Rolling speed	1500 m/min
Total ABB portfolio	1 STR, 2 LPBT, MC400

##### CM4 cold rolling mill

Mill builder	Zhuoshen/ProEng
Thicknesses	0.03 to 0.60 mm
Min. to max. width	900 to 1500 mm
Rolling speed	1800 m/min
Total ABB portfolio	1 STR, PRT D-type load cells, PFEAR

#### Process lines

##### Tension leveler

Total ABB portfolio	1 MTG
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##### Light Gauge Slitter 4 (LGS4)

Total ABB portfolio	1 MTG
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##### Loop Slitter

Total ABB portfolio	PRT D-type load cells PFEA 112
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##### Light Gauge Slitter 2305

Total ABB portfolio	PRT D-type load cells PFEA
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##### Light Gauge Slitter 3

Total ABB portfolio	1 MTG, LPBT load cells, MC400
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##### Heavy Gauge Slitter

Total ABB portfolio	1 MTG, LPBT load cells, MC400
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STR = Stressometer flatness control system

MTG = Millmate Thickness Gauge

MSS = Millmate Strip Scanner system

LPBT = Large PillowBlock Tensiometers, strip tension measurement

MRF = Millmate Roll Force system, rectangular load cells

PRT = Pressductor Radial Tensiometer load cells

PFEA = Tension electronics

MC400 = Millmate Controller 400