

MEASUREMENT & ANALYTICS

TISCO has successfully installed ABB's Millmate Strip Scanner systems in their two 5-stand tandem cold rolling mills (TCM)



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Millmate Strip Scanner system installed in TISCO's two 5-stand tandem cold rolling mills

In order to maintain safe and reliable production with a minimum level of stops and strip breaks TISCO is since 2014 running and relying on a professional strip position system from ABB in their two 5-stand TCM mills.

What has been achieved?

We ask Mr Ren Wei, Head of Electrical & Automation Department and Mr He Kai, Electrical Maintenance Engineer about ABB's Millmate Strip Scanner (MSS) installations:

"In the two 5-stand TCM mills it is very important with a well-functioning strip position system going together with the flatness control. We feel very secure with ABB's robust and reliable Millmate Strip Scanner systems", says Mr Ren Wei.

This year is the Quality Year at TISCO and since the installation of ABB strip position system in 2014 they have improved their production of high-quality stainless strip and they keep on improving it continuously.

"The MSS-sensors have been running very well for several years in operation. We are very satisfied with the performance of the Millmate Strip Scanner systems", confirms Mr He Kai.

ABB's robust and reliable Millmate Strip Scanner systems are keeping track of the strip position at TISCO Stainless steel in Taiyuan China, one of the world's biggest stainless steel producers.

Measurement made easy

TISCO has a good reputation on the stainless steel market and they are always working on keeping up and improving the production units. The target production for 2018 is set to 2.9 Mton. In 2018 TISCO is working hard with adjustments of the TCMs for testing and evaluation of their high-quality material.

"We certainly feel secure with ABB Millmate Strip Scanner systems. The robustness and reliability of the systems make us proclaim 'Install and Forget', which is excellent", summarize Mr Ren Wei and Mr He Kai.

In the start-up phase TISCO engineers were closely attending the ABB team during the entire commissioning process of the Millmate Strip Scanner systems. In phase two, after learning from ABB commissioning team, the TISCO engineers have read and followed the ABB manuals and instructions.

"It was easy to install the Millmate Strip Scanner systems and the manuals are very good", says Mr He Kai.

"One of the most important parameters for TISCO is fault-tracing and in the ABB manuals the fault-tracing procedure is very well-described, which is great", continues Mr He Kai.



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01 TISCO, Taiyuan Iron & Steel (Group) Co., Ltd, Taiyuan, Shanxi, China

02 Millmate Strip Scanner sensors

03 Mr He Kai, Electrical Maintenance Engineer TISCO and Mr Liang Tian, ABB Beijing

04 MSS-system installed at stand 5 exit

Company overview and facts

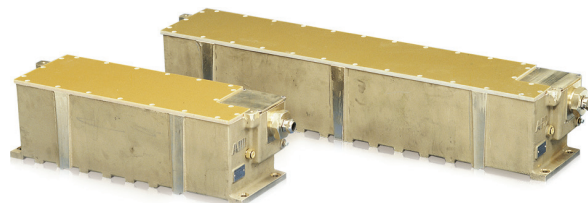
Taiyuan Iron & Steel (Group) Co., Ltd. (or TISCO in short) is a super iron and steel giant as well as an leading enterprise in global stainless steel industry, which operates iron ore mining, steel production, processing, distribution and trade.

TISCO was founded in 1934. It has been developing special steel as its trend, where the first ladle of stainless steel, the first piece of hot-rolled silicon steel and the first bulk of electromagnetic pure iron in China were produced. Today, TISCO has full process stainless steel production lines of international first class, i.e. smelting (with hot metal as raw material) – refining – continuous casting – hot rolling – cold rolling. Moreover, it has built its own S&T and innovation platform such as national level Technology Center, National Key Laboratory of advanced stainless steel materials and etc.

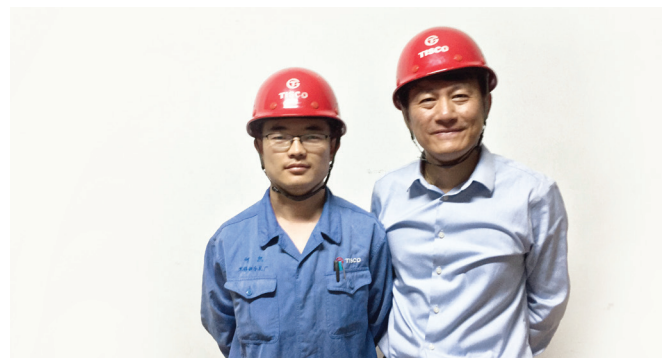
Mill data

Two 5-stand tandem cold rolling mills – TCM (WRAP-lines)

Mill builder:	SMS
Rolled material:	Stainless steel, AISI 300 and AISI 400 series
Tonnage:	1.5 Mtons/year
Strip width min./max.:	1,140 to 1,650 mm
Exit strip thickness min./max.:	0.6 to 3.0 mm
Max. rolling speed:	370 mpm



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TISCO has an annual capacity of 12 million tons (of which 4.5 million tons are stainless steel). It can produce various carbon steel and stainless steel series products, including high quality cold-rolled coil/plate, hot-rolled coil/plate, hot-rolled medium plate, composite steel, rod, wire, seamless tube, welding tube, precise strip, heavy casting, etc. It has several product clusters like stainless steel, silicon steel and high strength high ductility series that feature higher performance, energy efficiency and longer service life, which helps TISCO a stainless steel producer with the fullest range of grades and specifications of products worldwide.

Supplied equipment

ABB Force Measurement has supplied the following equipment to the two 5-stand TCM cold rolling mills (also called WRAP-lines, White Rolling, Annealing and Pickling lines). In total there are 18 MSS-sensors and 24 Strip tension Large PillowBlock load cells.

5-stand TCM cold rolling mill (WRAP300)

- 8 Millmate Strip Scanner sensors (MSS)
- Installation position of MSS: No.1 Exit, No.2 Exit, No.3 Exit & No.5 Exit at 5-stand TCM
- 12 Strip tension Large PillowBlock load cells
- 2 spares of MSS-sensors

5-stand TCM cold rolling mill (WRAP400)

- 8 Millmate Strip Scanner sensors (MSS)
- Installation position of MSS: No.1 Exit, No.2 Exit, No.3 Exit & No.5 Exit at 5-stand TCM
- 12 Strip tension Large PillowBlock load cells

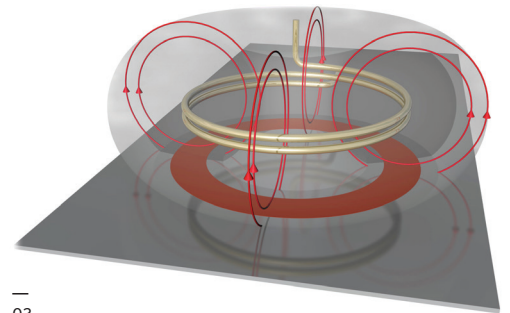
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Mr Ren Wei, Head of Electrical & Automation Department and Mr He Kai, Electrical Maintenance Engineer at TISCO





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ABB's Millmate Strip Scanner system with unique PEC measuring technology

01 ABB's Millmate Strip Scanner system

02 PEC Measuring Principle – Pulsed Eddy Current (PEC) technology

The Millmate Strip Scanner is based on the PEC measuring technology, which uses magnetic fields for measurement of the strip position. The interaction between an applied magnetic field and the electrically conductive strip indicates the position – without influence from the material composition or conditions in the measuring zone.

The measurement is independent of material and pass-line variations and will stay accurate, stable and reliable – year after year. Based on experience there is minimum maintenance and hardly any stoppages even in harsh rolling mill environments. A simple installation in a strip guide table gives more than ample protection. Even mounted in the exit of the mill housing, there is no influence on the measurement from oil, dirt, steam or washing coolants.

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