

MEASUREMENT & ANALYTICS

thyssenkrupp Rasselstein in Germany has successfully installed ABB's Pressductor PillowBlock load cells for stable strip tension measurement



In order to improve strip tension measurement in the TCM mill, thyssenkrupp Rasselstein has decided to use the latest Pressductor solid steel technology for secure measurements. This has resulted in considerably improved lifetime and stability of their strip tension measurement.

Measurement made easy

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01 Tandem Cold Rolling mill, 4-stand, 6-stand TCM at thyssenkrupp Rasselstein

02 Pressductor® Technology: Mechanical force alters magnetic field

One of the crucial parameters in achieving correct strip thickness during cold rolling is the strip tension. To reach the highest possible accuracy, ABB's Pressductor strip tension load cells were chosen as a reliable alternative measuring accurately even in the harshest environment and ensuring that the strip tension can be controlled within the desired range, during both acceleration and deceleration.

What has been achieved?

We ask Mr Torsten Gehrke, Electrical engineering, Cold rolling, and Mr Christoffer Weinand, Process technician, Cold Rolling, about ABB's Pressductor PillowBlock load cell installation:

"To start with, we have, over the years, very good experience with ABB and its products".

"After the revamp, the production in the tandem mill has been running very well with ABB's Pressductor strip tension load cells. They measure perfectly, and they are long-term stable, which is excellent."

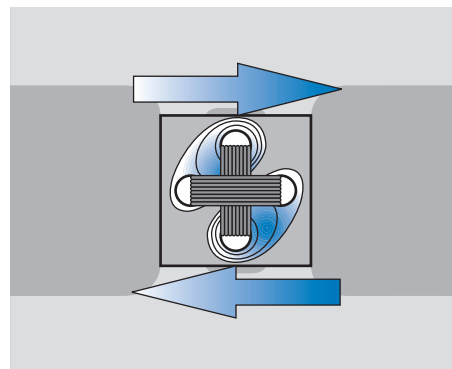
"The MC400 electronics, going with the load cells, is working fine. Also to mention; ABB's MC400 electronics is now standard in all cold rolling mills at site". Furthermore, the ABB load cells are massive and very robust and there is no need for calibration. That is great!"

"Conclusion: With ABB's Pressductor PillowBlock load cells installed we feel relaxed and it is easy to sleep tight every night. So far anyway!"

The Pressductor® difference

Like ABB's other load cells based on Pressductor® Technology, PillowBlock Load Cells rely on electro-magnetic changes in the transducer, not on physical movement, to sense fluctuations in strip tension. The Pressductor Technology operating principle provides exceptional improvements in load cell performance characteristics, including reliability (notably absence of drift), durability, repeatability, and wider measurement range.

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01 ABB PillowBlock load cells installed in millstand 6 beneath the flatness roll

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02 Mr Torsten Gehrke by the cubicle for MC400 electronics.

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03 ABB PillowBlock load cells installed in millstand 5

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04 thyssenkrupp Rassenstein, the world's largest production site for packaging steel

Company overview

thyssenkrupp Steel Europe is one of the world's leading suppliers of high-grade flat steel. With around 27,000 employees, we supply high-quality steel products for innovative and demanding applications in a wide range of industries. Customer-specific material solutions and services associated with the material steel round off our range of services.

Together with our customers we continue to develop the long and successful story of our company, thereby shaping global markets, our region and a large number of powerful industries, including the automotive industry, machinery and plant engineering, the packaging industry and the energy sector.

thyssenkrupp Steel Europe fulfills the increasing demands for ever more efficient lightweight construction and safety standards, researches and develops new high-tech steels and sets standards for surface and processing technologies. Our intensive research and development work secures the basis for our sustained success.

Packaging steel

thyssenkrupp Rasselstein stands for more than 250 years of company history. The Andernach company is today a subsidiary of thyssenkrupp Steel Europe and one of the three largest packaging steel manufacturers in Europe. Currently, around 2,400 employees produce approximately 1.5 million tons of packaging steel a year for 400 customers from 80 countries.

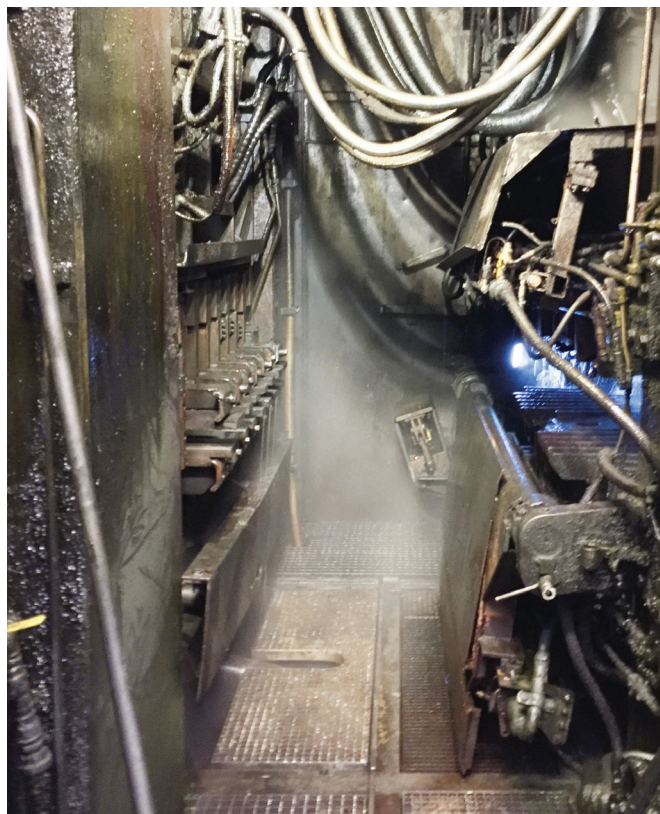
Products and applications

At the world's largest production site for packaging steel, thyssenkrupp Rasselstein manufactures blackplate, ECCS (cold-rolled steel plate and tin plate in thicknesses from 0.100 to 0.499 mm). With and without an organic coating (such as paint, foil), the material is suitable for a wide range of packaging solutions.

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“We are very satisfied with the new proposal from ABB and the following solution.”

Mr Torsten Gehrke, Electrical engineering, Cold rolling, thyssenkrupp Rasselstein GmbH



More than 90 % of the material produced by thyssenkrupp Rasselstein is used in the packaging field, e.g. for the packaging of food, drinks or chemical-technical products such as aerosol or paint cans. This is where the material can take full advantage of its strengths in particular. Tinplate is a highly efficient, stable and secure packaging material. It enables 100 % product protection against light and oxygen.

What is tinplate?

Tinplate is a thin cold-rolled steel sheet whose surface is coated with tin. Currently, sheet thicknesses of 0.1 to 0.5 mm are common. The tinning is mainly used for corrosion protection. Until the mid-20th century, hot tinning was common in which the tin was applied in a molten state. With today's electrolytic tinning, the coating has not only become more uniform, but also much thinner, which at the same time saves raw materials and costs.

Mill data

Tandem cold rolling mill, 4-hi, 6-stand TCM	
Millbuilder	SMS AG
Rolled material	Tinplate, packaging steel
Backup rolls	1280 to 1450 mm
Work rolls	562 to 617 mm
Max rolling speed	2414 m per min
Strip width min.	750 mm
Strip width max.	1380 mm
Exit strip thickness min.	0.10 mm
Exit strip thickness max.	1.2 mm
Entry thickness Hot strip	1.0 to 4.0 mm
Coil weight	35 ton



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01 Pressductor®
PillowBlock Load Cell
– PFCL 201 Vertical force
measurement, 50 kN

**ABB Force Measurement products installed at
thyssenkrupp Rasselstein GmbH in Andernach,
Germany:**

- Ten (10) Pressductor® PillowBlock Load Cells,
PFCL 201 Vertical force measurement, 50 kN.

These vertically measuring load cells are ideal for applications with high speed gradients during acceleration and deceleration in cold rolling. These units are designed for strip tension measurement in applications where it is essential or advantageous to determine the vertical force component.

Machined from a single block of stainless steel, they have exceptionally high tolerance for overloads, shock and impact, in addition to high immunity to dust and corrosion.

The standard construction is of highly resistant stainless steel with potted internal components. Mill-duty versions are available for exceptionally hostile environments in e.g. cold rolling mills, galvanizing lines and pickling lines.

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