

Outokumpu Stainless in Avesta, Sweden has successfully installed Millmate Roll Force systems in their roughing and steckel mills



Rotating load cell packages – the key to success for Outokumpu Stainless in Avesta.

Measurement made easy

Background

Outokumpu Stainless in Avesta, has built up a continuous process when it comes to service and check-ups of roll force measurement load cells in the roughing and steckel mills. In order to carry through pro-active maintenance and secure quality Avesta follows a load cell rotation schedule where the roll force load cells are checked and serviced on a regular basis.

In order to avoid possible future problems there is in the roughing mill 1 set of spare load cells and in the steckel mill there are 2 sets of spare load cells. These backup units (load cell packages) are needed in case of unpredicted events in the mill.

The most important factor is to keep the standstill time to an absolute minimum level. The cost for rolling mill standstill is very high in comparison to keep load cell spares available 24/7.

What is the main benefits with ABB's Millmate Roll Force systems and what has been achieved?

We ask Mr. Kristian Wikström, Automation Engineering and Mr. Ulf Jansson, Electrical Technician Automation (both working in the roughing and steckel mills) who concordantly express their opinion about the ABB Millmate Roll Force System installations: "ABB's Millmate Roll Force Systems (MRF) have been working very well over the years and the MRF load cells together with the electronics Millmate Controller 400 (MC400) is an unbeatable combination. The MC400 is very user-friendly and easy to operate."

"Despite the tremendous heat and harsh environments in the roughing and steckel mills the MRF roll force measurements are accurate and stable and you always feel secure that the load cells are doing the job. Further, the load cell packages are excellent and work very well in the load cell rotation schedule we have successfully maintained in Avesta Works."

"ABB's Millmate Roll Force load cells combined with precision-machined pressure plates certainly contribute to better control of the rolling process, safe stable rolling, improved strip/plate quality and less scrap."

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01-03 Roughing mill
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04 Rotating load
cell packages
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05 Outokumpu Stainless
Avesta, Sweden

“ABB’s Millmate Roll Force load cells combined with precision-machined pressure plates certainly contribute to better control of the rolling process, safe stable rolling, improved strip/plate quality and less scrap.”

“A small but excellent improvement is the connector cable on the load cells. The O-ring now stays with the cable and doesn’t fall out as it used to do before. Great!”

“It is really worthwhile installing good quality load cells like MRF. Our scrap levels have come down considerably. There is a lot of money to save by keeping the valuable stainless scrap to a minimum.”

“We want to have a close relation with ABB and take benefit of the technical competence and expertise they have on load cells and rolling applications. We are also interested in more rolling mill/load cell training from ABB.”

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Outokumpu Stainless in Avesta, Sweden is relying on stable measurement from the ABB Force Measurement products in their hot and cold rolling mills.

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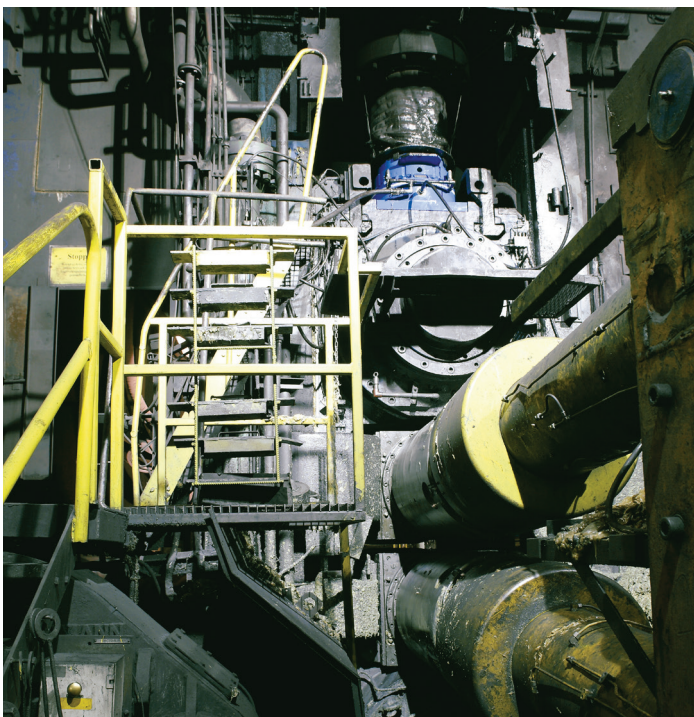


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Outokumpu Stainless

Outokumpu is a global leader in stainless steel with the vision to be the undisputed number one.

Customers in a wide range of industries use their stainless steel and services worldwide. Being a fully recyclable, maintenance-free, as well as very strong durable material, stainless steel is one of the key building blocks for a sustainable future. Outokumpu employs some 10,000 people in more than 30 countries. Main production plants are Tornio and Kemi in Finland, Avesta (steel melting shop, hot and cold rolling), Nyby and Degerfors in Sweden, Krefeld, Dillenburg and Dahlebrück in Germany, Sheffield in the UK and Calvert and Richburg in the US.

Outokumpu’s main products are hot and cold rolled stainless steel sheets, plates and strips that are used in numerous applications – such as the construction industry, the automotive industry and equipment for the process industry.

Wide and thick individually rolled quarto plates are used in the energy sector, to transport chemicals and to extract salt from sea water. They are also widely used in the process industry in pressure cylinders, tanks, thickwalled tubes, bridge structures and process equipment.

Outokumpu’s customers include the processing and construction industries, the energy sector, the transport sector, the food and electronics industries, and the producers of household and industrial machinery around the world.

For more information visit:
www.outokumpu.com

Mill data

4-hi Reversing roughing mill	
Supplier	Schloemann Siemag
Initial slab thickness	140 or 200 mm
Work roll diameter, length, weight	895 mm, 2800 mm, 22 tons
Backup roll diameter, length, weight	1600 mm, 2650 mm, 58 tons
Maximum roll force	4000 tons
Motor, drive power	2 x 4.35 MW
Slab width	2100 mm
Maximum edging force	600 tons
Rolling speed	0 to 5.2 m/s

4-hi Steckel mill	
Supplier	SMS Demag, VAI and ABB
Mill entry thickness	20 or 32 mm
Work roll diameter, length, weight	720 mm, 2500 mm, 2.3 tons
Backup roll diameter, length, weight	1600 mm, 2200 mm, 53 tons
Maximum roll force	5000 tons
Drive system, single side drive	15 MW
Strip width	800 to 2100 mm
Strip thickness	2.5 to 12.7 mm
Rolling speed	0 to 11 m/s

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02



01 Roughing mill

02 Steckel mill

03 KBR cold rolling mill

ABB Force Measurement product portfolio installed at Outokumpu Stainless in Avesta, Sweden

Supplied equipment

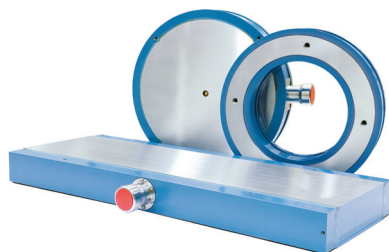
ABB Force Measurement has supplied the following equipment to Outokumpu Stainless' hot and cold rolling mills in Avesta Works, Sweden:

Roughing mill, hot rolling

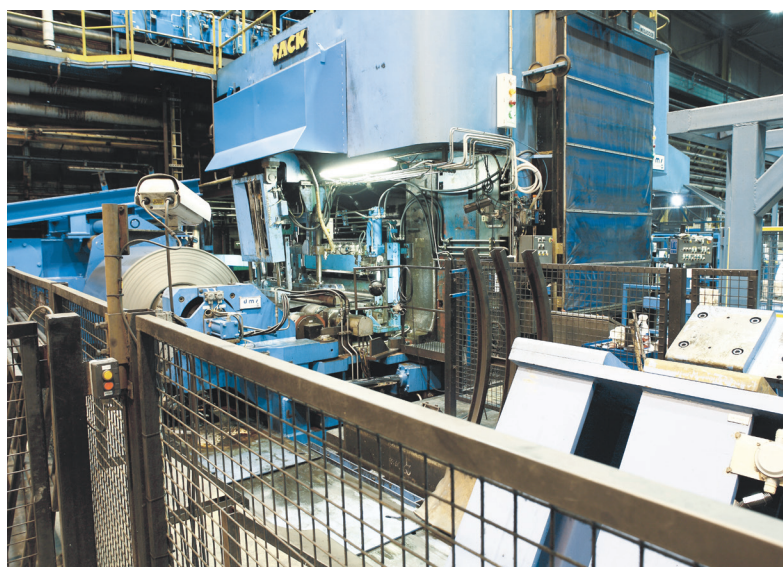
- Millmate Roll Force systems
 - Five circular load cells, 20 MN (PFVL 141C, 20 MN)

Steckel mill, hot rolling

- Millmate Roll Force systems
 - Six rectangular load cells, 25 MN (PFVL 141V, 25 MN)



03



KBR cold rolling mill, Z-high, reversible Stressometer systems

- One Stressometer 9.0 flatness system
 - Intermediate roll bending control
 - Skewing control
 - Intermediate roll sideshift preset
- Two standard rolls, diameter 313 mm
 - 42 measuring zones, each zone 52 mm wide



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