

# SSAB prepares for the future

Despite tough times for the steel industry, SSAB sees great opportunities in their new high-strength steels which are cut in their new cut-to-length line FS4 in Borlänge. This line is expected to cut new products in the lengths customers require with good profit margins. An increasingly important parameter is the product's flatness.



Photo: Fully-automatic production line FS4 at SSAB, Borlänge, Sweden.

In recent years SSAB has invested heavily in Borlänge, including significant focus on their cut-to-length FS4 line. Thanks to the new products processed in their latest line, SSAB aims to conquer new markets and stay ahead of the competition. To ensure the flatness of the steel plates, SSAB has invested in a flatness measurement system from Shapeline.

"The cut-to-length line is complicated since it is predominantly used for development materials," explains Peter Ekholm who works at the unit for technology and quality and Project Manager for the new Shapeline system on FS4.

"We have great use of Shapeline's system when we launch new products," adds Peter. "FS4 is an important part of the work for long-term profitable production."



*"Today we have a constant dialogue with our customers regarding flatness. There is a great difference in customer needs and the requirements on our products are constantly increasing," says Peter Ekholm who has worked on cut-to-length lines since 1994.*

## State-of-the-art facility

FS4 is a fully-automatic production line supplied by Fimi. Only four people are required to operate the line; two at the cutting section and two at the packing section. The line can handle high-strength material over 1000 MPa yield strength, 1.8 to 8 mm thickness, 600 to 1700 mm material width and a max speed of 60 m/min.

The start-up of FS4 has taken a year and now the line is handed over to production. Every year, 300,000 tonnes of steel sheets are expected to be processed, consisting mostly of hot rolled strips coming directly from the hot rolling mill. The hot rolling mill has recently been upgraded with an added powerful quenching section, meaning that Hardox 450 can be produced directly from the hot strip line. The entire range of high strength steel are thus fed into FS4, which in turn has set high requirements on scissors and leveler.

## Important product development

Tony Dyrsmeds, Quality Manager for FS4, has worked together with Shapeline during the start-up of FS4.

"SSAB's strength has long been niche products with good wearresistance and tensile strength. This trend is continuing and appropriate tools for analysing the product's characteristics are paramount," explains Tony.

"A consequence of the powerful cooling we use to manufacture the material is that it can easily become unflat.

This unflatness must be corrected in the leveler in FS4. Shapeline is an appropriate tool for evaluating how the material's flatness is influenced by different settings in the leveler. We are constantly trying to improve these settings and learn more about the connection between leveler and flatness."

If the flatness does not fulfill SSAB requirements, an alarm in the system is activated, an operator intervenes and the sheet is blocked from delivery to the customer. It solves the flatness problem directly. The measurements for each plate are also stored, so if we receive a complaint from a customer we can go back and check the measurement for this very sheet and use it in our dialogue with the customer.



*"Far-reaching trends are very important and now we have data to follow this up week by week, month by month and year by year," explains Tony Dyrsmeds, Quality Manager at FS4.*

**Close collaboration**

SSAB uses several Shapeline systems installed previously, among others for heavy plate in Oxelösund. Since 2001 together with Shape-line, SSAB has developed products which are specifically tailored to different requirements. Peter Ekholm states that it has been crucial to have the latest technology in the most modern line. Now he looks forward to continuing to use the system's more advanced features.

"We have had a continuous cooperation and good dialogue with Shapeline technicians during the start-up phase of FS4," adds Peter. "Now we have reached a good solution that suits our production. FS4 has barely been running for a year and has already proven to be very stable. We believe we can get even more out of the system, now that we are familiar with the basics and are ready to learn more."

**Thinking ahead**

Tony Dyrsmeds states that customers expect continuous improvement which is the very reason why investment was made into FS4.

"The assessment level is the biggest win of the Shapeline system, we ensure our quality and promise exactly this to our customers."

The Shapeline system examines on a much finer level than what you can see with the naked eye. On occasions, even the most experienced operators have had their judgement challenged by the system offering another result.

"They went to check the sheet and saw that the system was right," says Tony smiling. Peter Ekholm nods in agreement and concludes that SSAB has a constant dialogue with their customers regarding flatness.

"There is a big difference in customer requirements," says Peter. "And the requirements on our products are increasing. It is therefore crucial that we remain on the cutting edge. And that is how we have always worked. New types of steel have been developed and we have been able to stay ahead of the competition."

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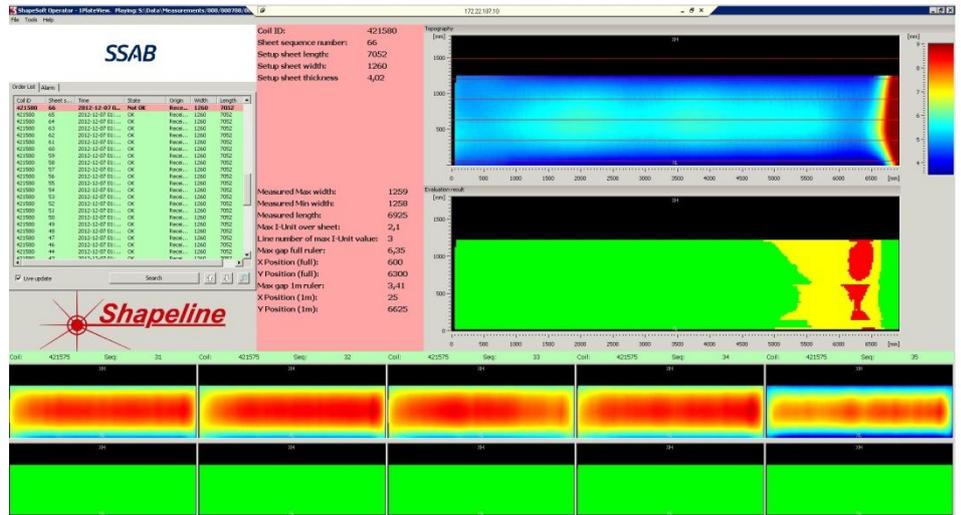


FIGURE 1. THE GRAPHS SHOW TOPOGRAPHY AND DEFECTS (GREEN-YELLOW-RED). THE IMAGE SHOWS A MEASUREMENT ORDER LIST ON THE LEFT, WHERE THE COLOUR IS INDICATIVE OF THE EVALUATION RESULT AS WELL AS THE KEY VALUES FOR EACH SHEET. (LIGHT RED).

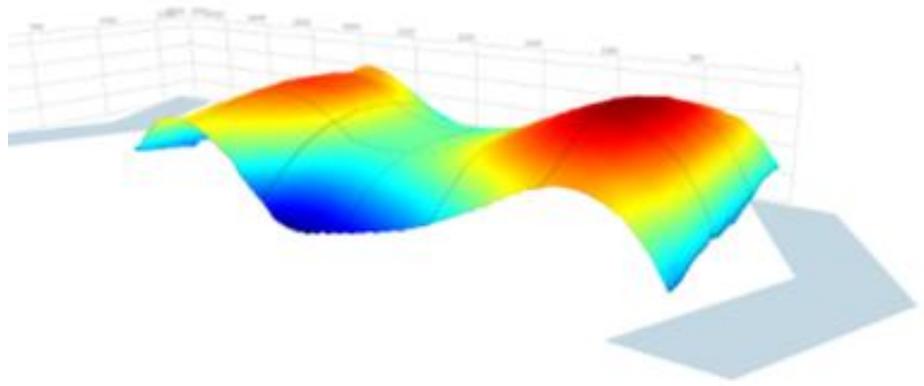


FIGURE 2. THE LASER PROJECTS TWO STRAIGHT LINES OVER THE SURFACE. IF THE LINES CURVE IN ANY WAY, IT MEANS THAT THE SHEET IS NOT FLAT. THE IMAGE SHOWS AN INTERACTIVE 3D VIEW.