PRIMETALS TECHNOLOGIES

Press

London, November 26, 2020

Primetals Technologies achieves successful remote commissioning of process automation of continuous caster for Outokumpu in Tornio

- **Upgraded Level 2 process automation of CCM1 line now offers more flexible quality evaluation and offline simulations of the production process**
- **Remote commissioning kept the project on schedule**
- **Empirical values gained from commissioning the CCM2 caster speeded up remote commissioning of the CCM1 line**
- **TPQC system offers continuous recording of quality data**

In June 2020, Primetals Technologies successfully completed the online commissioning of the new software for optimizing the Level 2 process automation for the CCM1 continuous caster at Outokumpu's plant in Tornio, Finland. The remote commissioning used empirical values gained from commissioning the similar CCM2 continuous caster at the same location in December 2019. As well as upgrading the process optimization software for the CCM2, Primetals Technologies also installed a TPQC (Through-Process Quality Control) caster system, which records all the quality data of the entire production process in a long-term archive. The experience gained during the CCM2 project and the mutual trust this built up were decisive factors in the success of the trouble-free remote commissioning of the CCM1. The new process optimization solution offers Outokumpu more options for flexible quality evaluation and a "digital twin" for offline simulation of the casting process. The casting speed can also be controlled via Level 2 with the "Speed Expert" process model, which also covers start of casting and casting situations.

New Level 2 automation for the CCM1 line

The hardware and software for optimizing the processes of Outokumpu's CCM1 continuous caster in Tornio had become outdated and individual spare parts difficult to procure. Outokumpu consequently engaged Primetals Technologies in the middle of 2019 to upgrade the process optimization solution for the CCM1 line. The original operation on physical servers has now been replaced by operation on virtual servers in Outokumpu's VM infrastructure. The operators of the continuous caster can now use the

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"Quality Expert" module themselves to create and maintain rules for evaluating the quality of the strands. The "Speed Expert" module has been controlling casting speed, including start of casting and casting situations, since the first batch after the upgrade. The "Dynacs 3D" model is used to optimize secondary cooling. The "Process Intelligence Cockpit (PIC)" is a digital twin of the line and enables offline simulation of the casting process.

Remote commissioning completed on schedule

It was important to implement the CCM1 project on schedule so that the process optimization software could be updated at the same time as other scheduled maintenance work at Outokumpu. Because of the travel restrictions in force at the time, the experts from Primetals Technologies and Outokumpu brought the system into operation entirely via a "remote link". The operators were also given remote training on the new system. One important factor in the success of the remote commissioning was that both teams had already got to know one another during the commissioning of the similar CCM2 continuous caster in December 2019. That commissioning had been performed on-site, and in some cases had also been supported by Primetals Technologies experts connected online when the need arose.

Parallel operation with real-time data speeds up remote commissioning

Together with Outokumpu, Primetals Technologies performed all the interface tests with the Level 1 and Level 3 "communication partners" via remote support in advance of commissioning. The new Level 2 system was then supplied with real-time data from Level 1 and Level 3 in parallel operation lasting several months, during which time the system was verified and optimized. So when the time came to switch over, the CCM1 line's new Level 2 system had already been tested over the course of several months. This parallel operation was crucial for the trouble-free commissioning of the new Level 2 system.

Outokumpu is one of the world's leading stainless steel producers. The corporation has its headquarters in Helsinki, Finland, and employs some 10,000 people in over 30 countries. The works in Tornio, Lapland, is an integrated production complex with a cold rolling capacity of approximately 1.2 million metric tons per annum. The chromite ore used in the plant is extracted from Kemi Mine, which is also run by Outokumpu.

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Primetals Technologies used remote commissioning throughout to upgrade the process optimization software on schedule for Outokumpu's CCM1 line in Tornio.

This press release and a press photo are available at www.primetals.com/press/

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