Maximum Availability for Tandem Rolling Mill

Corus Strip Products UK in Port Talbot, Wales

Advanced drive technology increase availability

ABB has supplied advanced drive technology for three of the five stands of the tandem rolling mill at Corus in Port Talbot and brought the plant up to the state of the art.

Before the revamping, insufficient drive power and especially low availability of the drives resulted in long downtimes and therefore less production.

The productivity of the rolling mill could be increased significantly by means of the medium-voltage drives of the type ACS6000 with direct torque control from ABB. The complete drive system clearly exceeded an availability of > 99.5% over a longer period.
The ABB scope of performance included:

- Drives, consisting of inverter system, motor and gear system
- Complete power supply for the drive train
- Integration at the automation level
- Installation and training

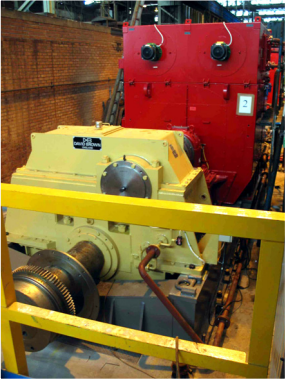
Revamping and commissioning in only 10 days

Revamping and commissioning were carried out in two stages. The 6.9 MW synchronous motors and gear systems were temporarily set up next to the plant and commissioned before the main shutdown of the rolling mill.

All the requisite tests, such as acceleration up to a maximum speed of 1280 rpm, were concluded during the cold commissioning.

The installation of the new motors, the recabeling of the connections for the supply and auxiliaries, the optimization of the parameters and the hot commissioning were all carried out during the 10 day main shutdown of the rolling mill.

This extraordinarily short revamping time was also made possible by the ABB simulation software by means of which all the important drive parameters were determined in advance, and the drives could therefore be commissioned before the installation.




Corus Strip Products UK

Corus Strip Products UK is a manufacturer of flat strip products and with two locations in the UK is part of the Corus group, which was formed by the merger of British Steel and the Dutch company Koninklijke Hoogovens in 1999. Corus has 20 business units worldwide and produced almost 17 million tons of steel and 500,000 tons of aluminium in 2002.

Advanced drive technology

The mill main drives for the three mill stands have been equipped in AC technology with IGCT medium voltage inverters of the ACS6000 type. ABB drives control is based on the patented Direct Torque Control DTC concept, providing dynamic performance in terms of torque and speed accuracy. The superior performance of the drives has a direct impact on the process performance, since the drives are one of the main actuators for strip tension and rolling speed when it comes to high strip quality.

ABB Scope of performance

For Corus Strip Products UK ABB has designed and delivered the following equipment and was responsible for engineering, training, erection and commissioning. Project management has been performed jointly by Corus and ABB.

Power system

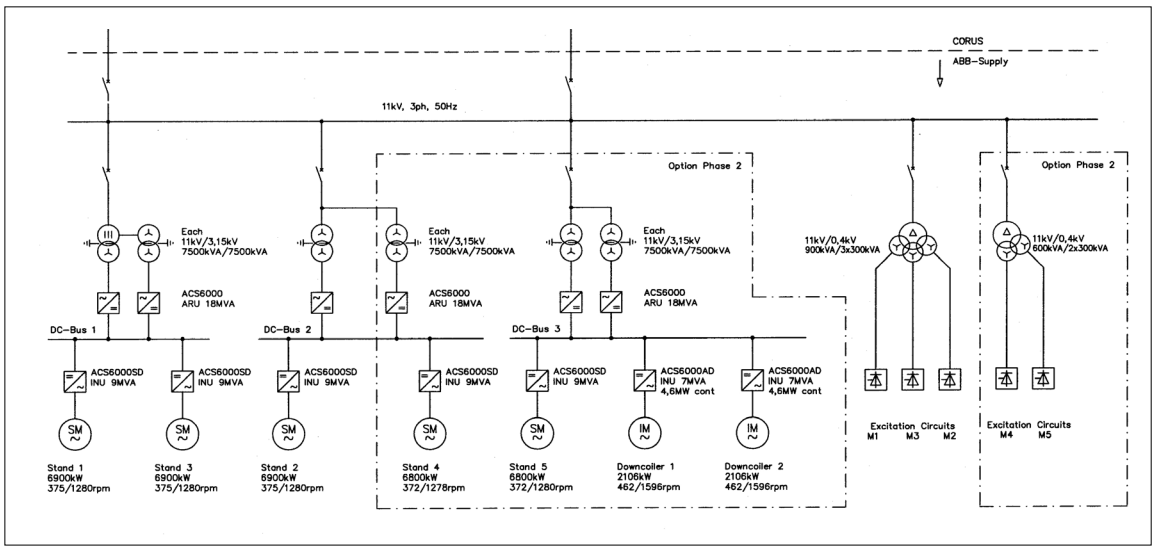
- IGCT medium voltage inverters ACS6000 with Direct Torque Control DTC
- 3 synchronous motors of 6.9 MW each
- 3 main transformers
  1 excitation transformer
- 3 gear boxes inclusive couplings
- Medium voltage switchgear system and harmonic filters 11 kV

Automation level

- Drives automation functions
- Coupling to customer PLC
- Human-System-Interface for drives visualization
- Drives diagnostics tool

Data of the AC main drives

Mill stands 1 to 3
- each 6,9 MW
- 375/1280 rpm



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