

Case note

A replica motor from ABB Service in Sweden has helped Outokumpu Stainless in the town of Degerfors to guard against production stoppages.



The town of Degerfors in central Sweden has a tradition of metal making that stretches right back to the 17th century when the region's first iron works was established.

Today, the metal-making tradition continues in town in production facilities owned by the global stainless steel manufacturer, Outokumpu. The company's Outokumpu Stainless facility at Degerfors produces custom products in coarse, special stainless steel. Its products are used in offshore applications, in chemical tankers and in papermaking machines. Stainless steel from Degerfors can be also found in products as diverse as desalination plants and bridges.

Outokumpu Stainless in Degerfors has a history of working together with ABB. One major project involved ABB delivering converter substations with the 800xA control system for field meters and oil coolers, with connection to parent control systems.

The problem

Intense competition from the global market means that the Degerfors mill has narrow margins and needs to avoid downtime. Looking for ways to ensure the mill's efficiency, Outokumpu Stainless realized that a breakdown of the aging synchronous motor that drives its four high rolling mill could severely impact production. The 50-ton ASEA motor was produced in 1959.

"Should the worst happen with our current motor breaking down, then the whole rolling mill would come to a complete standstill," explains Peter Svedrin, the Outokumpu Stainless project manager. "It would take from three to six months to repair it. Naturally, we wanted to avoid such an eventuality by having a spare motor in place."

To solve the problem the company turned to ABB Service in the Swedish town of Storvik.



The solution

ABB in Sweden has considerable expertise in building faithful replicas of old ASEA manufactured motors. In response to Outokumpu Stainless's concerns, it built a complete replica of the high-voltage AC ASEA motor used to drive the rolling mill. This was installed over the summer of 2012, with the original motor retained for use in case of failure.

The new 8-pole motor has an output of 8 500 kilowatts, running at 750 RPM and a rating of 10 kilovolts/750 amperes. It is magnetized with slip rings and brushes, and weighs a total of 50 tons, of which the rotor weighs 25 tons and the stator 25 tons.

Building an exact copy from scratch of the 50-year-old motor required skills and knowledge that are not to be found in many places in the world. ABB's Storvik site has a long history, going back as far as 1903 and uses original drawings to manufacture replicas of old Swedish-made AC and DC motors. ASEA, which produced the original motor used at Degerfors, used to be the world's leading producer of such motors. A great number of them are still up and running in important industries around the world.

ABB Storvik site manager Oskar Wastlund says recreating such engines is an exciting challenge. "Seeking out old drawings involves research and we manage to track down the great majority of them," he says. "Those same drawings then have to be interpreted and made into reality. We manage to do this thanks to our people in the workshop, whose remarkable craftsmanship is coupled with their deep historical technical sense of motors. Just as important is locating subcontractors that possess the necessary expertise to produce precision components, both large and small. It is then a matter of continual testing, from the making of the first coil, right through to the installation of the completed replica. Finally, we have to take seriously the all-important subject of delivery time: Here our customer has little or no margin to play with. And it is here that we remain ever-sensitive to our original promise."

Customer benefits

ABB technical sales representative Kent Erikson explains ABB's replica motors combine both new and old technologies. "Our replicas work electrically and mechanically in exactly the same way as their predecessors," he says. "Yet at the same time, where appropriate, some of the materials and manufacturing methods are updated. Blending the old with cutting-edge technology results in a replica motor that has proven to be a most effective preventative answer to those undesirable production stoppages."

The benefits to the customer are clear cut. A new motor and related site modifications can often be prohibitively expensive, necessitating changing the drives and control system. Installing a replica circumvents these problems.

Oskar Wastlund explains, "Our motor performs a dual role: First, you can install it straight away if a breakdown should occur. Second, you have an immediate replacement when your current motor is being overhauled as part of time-based routine maintenance."



Customer statement

So what does Peter Svedrin think of the job ABB performed on replicating the motor?

"Previously, there was just one in the world," he says. "Now, there are two. That says something about how special our motor is."

For more information please contact:

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