



First Eaton Power Xpert® UX switchgear system in the Netherlands

Tata Steel puts more power into high strength steel

Location

IJmuiden, The Netherlands

Segment

Industrial steel production

Problem

Tata steel needed higher electrical power requirement for a hot strip mill. Therefore it started a medium Voltage Substation renovation project. The installation is also a pilot project for the exchange of old 3kV Coq installations that are at the end of technical lifetime.

Solution

Delivery of a withdrawable Medium Voltage Switchgear Power Xpert® UX, 5 panels, 17.5 kV, 1250 A (rail) and 630 A (circuit breakers). Eaton implemented the system including a foundation frame to enable installation on a bumpy surface. In preparation for this project Eaton made an extension to the existing High Voltage Capitole switchgear system that is feeding the UX system.

Result

Eaton provided a state of the art medium voltage solution and ensured testing of primary and secondary equipment on site.

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As a consequence of the growing market demand for high strength steel (HSS), Tata Steel has upgraded one of the reels of hot strip mill 2. In order to meet the higher electrical power requirement, Eaton delivered its new switchgear system for medium voltage: Power Xpert® UX. The delivery to Tata Steel is the first delivery of UX in the Netherlands. Eaton has already delivered this switchgear system worldwide for various applications.

Tata Steel in IJmuiden uses its hot strip mill to roll out thick slabs of steel into steel strips in each desired thickness between 2.5 and 25 mm. Three reels achieve speeds of up to 70 km per hour as they roll the steel up into large rolls before it is delivered to the customers. Customers are opting for the special properties of high strength steel more and more frequently but until recently that was only just possible on

the existing reels. "For this 120% extra power is necessary" At Keet, Senior Electrical Project Engineer at PTC tells us. In reel 3 the direct current motors have therefore been replaced by alternating current motors and a new 10 kV substation had to be fitted. Our old COQ substations, some of which go right back to 1968, are at the end of their service life.

After Sales makes the difference

Projects & Technical Consultancy (PTC) is Tata Steel's engineering centre and it takes care of all internal installations which are necessary for the production of steel. Out of the 200 or so PTC workers, around 30 specialise in electrical engineering and three specialise in high voltage installations. "We ensure that our internal clients, the various



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Tata Steel factories, have the energy they require in the right place," Dennis Kramer, Electrical Project Engineer at PTC, explains. "Our work involves transforming 150 kV to 50, 33, 24, 10, 6 and 3 kV and we ensure that the users can work safely with it.

After detailed analysis and comparison of the tenders received, Eaton's Power Xpert® UX was chosen. "As far as price and quality were concerned, the two remaining suppliers and their installations were of equal quality but our excellent experiences with Eaton were the decisive factor," is how At Keet summarises the decision. "We have pretty much everything Eaton supplies in the field of switchgear installed in our premises. The company is particularly good in the service it provides. Others may promise to do it but Eaton keeps its promises. After Sales makes all the difference and that together with the potential of the UX gives us lots of confidence for the future as we will definitely be expanding in the long term."

Restraining factor?

With a focus on the planned conversion work over the next three years, Tata Steel chose to have five fields put in place. One incoming field with rail side voltage transformers fitted on a truck and four feeder fields with withdrawable vacuum circuit breakers. The complete system is housed in 60 cm wide fields and can easily be extended if necessary. "The installation is in a room with old tiles which are not all exactly level," Dennis Kramer continues. "If you go and drill in such a floor it will not get better. For this reason Eaton built a solid frame first of all on which all the fields are fitted. This forward thinking is a fine example of total quality."

This UX at Tata Steel is the first of its kind in the Netherlands. At Keet: "It is a happy circumstance that we are the first in the country although there is also a downside as you can expect teething problems. To

be completely honest that is a restraining factor but as the service is so good, you can always trust Eaton to solve it well. The UX also stands out because of its pure appeal, safe structure and the use of tried and tested elements."

Safe to separate physically

The identifying factors for the UX are the compact structure and the application of SF₆ free vacuum circuit breakers, the moulding resin technology for the solid state insulation and the rail system with high quality copper rails. The switchgear systems are extendable and the structure is completely modular. "It looks very solid and reliable," says Dennis Kramer, pointing to the installation. "During work you can really make a physical separation and lock the extended truck. Everything is also more than adequately protected and insulated. And don't forget that a pile of steel is used. That is an extra advantage for a steel producer."

Before the Eaton specialists started building in IJmuiden, the PTC workers carried out an acceptance test in the factory in Hengelo. They looked and checked whether everything was fitted as desired and as agreed. The components were placed under test voltage and the final details were gone through. At Keet says "It is much easier for them to make any adjustments or improvements there in the factory than it is at our premises".

Instruction for optimum use

After the build at Tata Steel it was possible to complete the subsequent stage of the upgrade of the reel. At the start of February everything was ready and PTC handed the UX over to the user: production at hot rolled steel mill 2. Eaton provided the technical teams with training prior to the actual commissioning. "The reactions were extremely positive," Dennis Kramer smiles in conclusion. "People think the system is clearly structured. The LED indication means it is very easy to see and follow



Power Xpert® UX, a safe and reliable medium voltage switchgear system used at Tata Steel.



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what you are doing and see how everything works."

At Keet finishes off with a small, critical footnote: "You do need to have pretty small cable fitters as the connections at the rear are somewhat tight. It is clearly the consequence of the compact structure. Fortunately it did not put our regular fitters off. All in all, the project ran well and without any problems. We are satisfied."

For more information: www.eaton.eu/electrical

Tata Steel: Active worldwide

Tata Steel is among the top ten steel producers worldwide. The group has a total production capacity of over 28 million tonnes of steel and more than 80,000 employees spread over four continents. Tata Steel is the second largest steel producer in Europe with production facilities in the Netherlands and the United Kingdom. Both locations provide steel products and additional services for sectors like construction, automotive, packaging, material handling and other demanding markets all over the world.