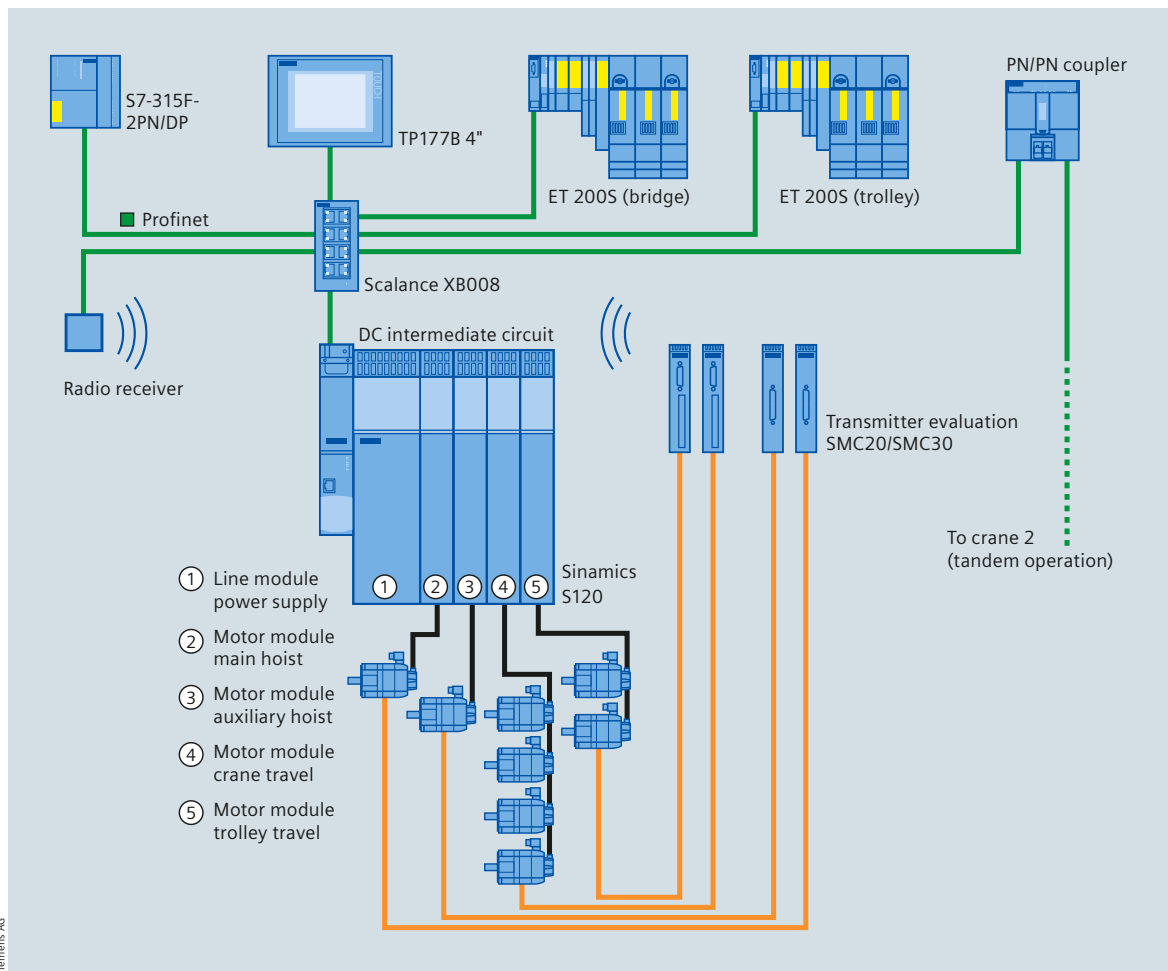
A large yellow Siemens generator is being lifted by a yellow Krafotec crane in a coal-fired power plant. The crane is suspended from above and is holding the generator with several thick cables. The generator is cylindrical and has the Siemens logo on its side. The crane has the Krafotec logo on its arm. The background shows the interior of a power plant with scaffolding and other equipment.

450 t generator  
installed in the  
coal-fired power  
plant in Lünen

In a joint effort with Krafotec Pannier GmbH, Siemens realized a crane control system that is both extremely lean and user-friendly. Together with drive-integrated safety functions and Profinet, servo control enables the timely realization of demanding crane construction projects – such as a recent project at a coal-fired power plant in North Rhine-Westphalia, Germany.

In the machine hall of the new coal-fired power plant in Lünen near Dortmund, two 150 t powerhouse cranes enabled the installation of the 450 t generator and other equipment. Krafotec Pannier GmbH, based in Wittenberg in Saxony-Anhalt, which specializes in the custom design of such cranes, was responsible for planning and implementing the entire project.

# Delicate Operation at Great Heights



### Servo control saves computer power

The drive concept of the two cranes is based on the use of the Sinamics S120 converter. For the control system, the project team decided on the fail-safe CPU of the Simatic S7 315F series. Among other things, the control system precisely coordinates and controls the cranes in tandem operation. Profinet serves as the communication medium for linking the two cranes in tandem operation. One of the advantages of Profinet is that Krafolec is also able to perform remote maintenance and diagnosis of the cranes from Wittenberg, at the customer's request. "We also had to ask ourselves whether we wanted to operate the engines with a vector control system as in the past or with a servo control system," says Michael Klaus, who is responsible for automation technology at Krafolec. "The advantage of the servo control is that it requires a lot less computer power from the control unit than the vector control system usually used for crane drives. And by using the ramp function generator, which is also available in servo operation, we are able to very easily adjust the dynamics of the drives to our requirements."

### Trouble-free commissioning thanks to modern technology

On the day of the inspection and approval, both cranes were put to the test with defined overloads. "They were designed for normal operation with loads of up to 150 t; however, on this day the cranes had to lift a test load weighing 312.5 t all the way to the top hall level at a height of 30 m," explains Dirk Pannier, the managing director. "Even experienced crane manufacturers like ourselves do not have to work with such loads on a daily basis," he adds. "But the technology was able to manage all this without any problems." Klaus was also enthusiastic: "Our drive design with the Sizer configuration software proved to be correct, even in this absolute borderline case. With Sizer, we decided on a tool with which we are able to quickly and easily configure the engines, converters, and feed lines of the respective crane system." Accordingly, the drive and control concept configured by Krafolec paid off immediately, on the first day of commissioning. "The commissioning of Profinet alone went like clockwork," remembers Klaus. In addition, the control characteristics and ▶▶

The crane system proved itself reliable during the installation of a column



Siemens AG

## Advantages of Sinamics S120

- Perfect basis for modular plant and machine concepts due to the innovative system architecture and digital communication options
- Broad range of control types and drive-related technology functions
- Integrated safety functions
- Rational engineering and quick commissioning thanks to the Sizer (for drive configuration) and Starter (for commissioning) tools
- Auto-configuration and auto-tuning of the control functions
- Quick and easy integrated solutions thanks to Totally Integrated Automation

able to coordinate the settings for manual operation via master switch with the future crane operator," says Klaus.

### Greater project security thanks to continuous automation

"Overall, we are very pleased with the result. The servo control of the Sinamics S120 converters has proven itself in every respect, and we are considering using it for future crane projects. We were also able to keep the development effort comparatively low using the integrated drive and control technology from Siemens," says Klaus. "Project security has also been improved significantly," agrees Pannier. He emphasizes: "The fact that construction, electronics configuration, component manufacture, and assembly take place in one location in our company is one of the reasons that we can offer this service reliably." This is because the streamlined approach improves communication and also contributes to quality assurance, thus favoring the smooth realization of the projects. ■

» integrated safety functions of the Sinamics converters noticeably accelerated the commissioning of the drives. "Completing commissioning of a crane like this easily takes an entire day. However, we very easily managed within the allotted time and were even

#### INFO AND CONTACT

[www.siemens.com/cranes](http://www.siemens.com/cranes)  
[andreas.schlegel@siemens.com](mailto:andreas.schlegel@siemens.com)