



■ f | glass, Germany

Setting Industry Standards

The new f | glass plant is one of the world's most advanced and energy-efficient float-glass production units. Siemens technology plays a decisive role in the plant's success.

After successfully beginning production in the fall of 2009, f | glass GmbH in Osterweddingen, Germany, now produces up to 700 tons of float glass a day. The stockholders of f | glass are the Dutch glass industry specialist Schreun Group and Germany's Interpane Industrie AG.

The joint venture's float-glass plant sets industry standards in several ways: not only does it lead the way in terms of process and plant technology, the production plant also stands out for product quality and construction time. It took only 15 months from groundbreaking to the start of production – quite an accomplishment according to f | glass GmbH's CEO Herbert Köhler, who was involved in project management right from the start. "Clear objectives are decisive for that kind of project," he says. "That is why we set a fixed date for beginning production. And we wanted to meet the deadline while staying on budget. We managed to do both." Dr. Ing. Wolfgang Rübiger, chief technology officer at f | glass, adds: "Within a very short period of time we built a fully integrated solar-glass production unit that allows a relatively new product – a very low-iron glass designed specifically for the solar industry – to

be manufactured at one site: from the float-glass unit to the cutting lines and the coating of large-format glass sheets all the way to our solar-glass center."

Technology "made in Germany"

There is a technological highlight right at the beginning of the process: the glass furnace, a regenerative cross-fired furnace with six pairs of gas-fired burners. Rübiger played an important role in the development of this furnace. "Our goal was to build a furnace that is able to do just about anything. It was supposed to be able to melt normal glass, white glass for construction, and solar glass, but also consume as little energy as possible and have a long service life," says Rübiger. The previous furnace, also co-developed by Rübiger, was in operation for 16 years. "I am certain that the new furnace will be in service for 20 years," he predicts.

Nearly all the other equipment for the plant was supplied by German machine and plant equipment manufacturers. For Dr. Thomas Belgardt, managing director of glass processing at f | glass, supplier quality is decisive. "In this regard, it is not just about



The exhaust gas treatment system at f | glass GmbH



A true gem: the control room

the technology being delivered but also about a long-term partnership. After all, in 10 to 15 years we still want to be able to rely on competent support. That is why we always select market-leading suppliers."

Highly advanced energy recovery and reliable control technology

One of the project partners was Siemens. The company supplied automation technology for the plant and the turbines for energy recovery. Osterweddingen is one of the first glass plants in the world to recover a large part of the process waste heat using a modern heat recovery system. The system's most important component is a compact Siemens industrial steam turbine with a rated capacity of 2.5 megawatts, which f | glass uses to generate electrical energy from the waste heat in the process exhaust air. The energy recovery system not only saves energy, but, according to Rübiger, "the energy recovery process also helps ensure process security. By producing 60 percent of the electricity required for the float-glass plant ourselves, we are better able to cope with a power outage, for example."

The control technology system in Osterweddingen, which is based on the most recent version of Simatic PCS 7, was implemented by Siemens Industry Partner STG. The system is operated via five Simatic WinCC clients, an engineering station, and a web server. The operating level is connected to the two redundant control system servers via Industrial

Ethernet. The system bus is also based on Industrial Ethernet. The furnace, float bath, and annealing lehrs are each controlled by a dedicated PCS 7 AS 416 automation system. Visualization of the top rollers as well as the electrical and control technology systems is also integrated within PCS 7. Reversal switching is redundant and is controlled by the furnace automation system and a lower-level Simatic ET 200M of the automation system in the float bath. "We are very satisfied with the technology being used," says Rübiger. "The constructive and committed approach demonstrated by the Siemens specialists as they supported us in solving problems was excellent, as was the professional and successful implementation of the project."

Optimally equipped

Gross output at f | glass is currently 255,000 tons of float glass per year. At the beginning of 2010 the Magnetron coating line began production and is coating around six million square meters of glass a year – or more upon request. Around 80 percent of the production output is shipped to the building construction sector; however, in the next five years the share of ultrawhite glass and solar glass is to be increased to approximately 50 percent. Thanks to its high-performance production technology, Osterweddingen is optimally equipped for the job. ■

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