



The new float line produces one of the widest ribbons in the world

■ AGC Flat Glass Europe, Czech Republic

# Uniform Solution for a Complex Plant

The new float line of AGC Flat Glass Europe in the Czech Republic benefits from a uniform automation architecture based on Siemens automation and drive technology.

**G**lass production in Teplice in the north of the Czech Republic began in 1820, with the production of rolled glass sheets made from cylinders. In 1921, production was modernized with a Fourcault furnace for vertical pulling. The last fundamental change in production technology occurred in 1966, when the plant bought a float process license, making it the first float plant in the former Eastern Bloc. Today the Teplice plant is one of the 18 float plants of AGC Flat Glass Europe, a leading flat

glass producer and marketer with activities all over Europe, from Spain to Russia. The company mainly serves the building and automotive sector besides some special niche markets.

## A new float line, a new technology

In response to the continued growth in the demand for flat glass in central Europe, AGC Flat Glass Europe decided to build a third float line at its Teplice plant

in the Czech Republic. This line, with a capacity of 700 tons, produces one of the widest glass ribbons in the world. Due to the width of the ribbon and its various thicknesses, there is a selected number of top rollers in the float bath. Since the float also serves the automotive industry, which requires smaller sizes than the building sector, the line was also optimized for this type of product. By employing a very complex cold end with a cutting line supplied by the Italian company Bottero, the glass ribbon is cut both lengthwise and crosswise into the required sizes. The cold end is built following a fully new design and is equipped with control and drive technology from Siemens. "This type of cutting line was implemented for the first time within AGC, so it wasn't easy," says Jiří Bílek, chief of electrical maintenance and control system maintenance at AGC in Teplice. "However, the new approach made the line more efficient, as it minimizes the manipulation and handling of the glass."

### Uniform control architecture

Final decisions regarding this project, including the process control system and the power supply technology, were taken by the Engineering Team of AGC Flat Glass Europe and by the global project manager of this third float line in Teplice, Guy André. The Siemens hardware in all sub packages of the new line, such as batch house, cullet handling and cutting line, offered the best solution.

The batch house by Lahti Precision is equipped with a redundant Simatic S7-400 controller, Simatic ET 200S distributed I/O devices, Siemens drives and motors and Siemens low-voltage switchgear and electrical systems, as well as Simatic WinCC as the Supervisory Control and Data Acquisition (SCADA) system. The cullet return system was supplied by Zippe and is also equipped with Simatic technology. Siemens Solution Partner AEG supplied the roof heating in the annealing lehr. Siemens Belgium supplied the power supply system for medium and low voltage. For the process control technology, AGC opted for Simatic PCS S7. AGC Flat Glass Europe already had a positive experience with other projects such as the float line in Klin, Russia. In contrast to previous automation projects with PCS S7 at AGC, the system for Line 3 employs a redundant concept for the first time. "Before, AGC typically used Sipart backup controllers to ensure continuous control. However, we had already had good experience with a redundant control system here at the Teplice site, so we proposed using this approach for Line 3 as well," says Jiří Bílek.

The process control system was designed and implemented by the Siemens Automation Partner STG Cottbus. STG is also currently qualifying for Siemens Industry Partner. Jiří Bílek says, "STG has excellent expertise, and they have already engineered several float lines. They know both aspects – the control technology and the float bath process – and when you

## Solution Partner

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STG is active in more than 20 countries. STG's customers are primarily in the glass industry, but are also serving in the ceramic and metallurgical production.

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work with people who know what to do and how to do it, the results are good." All the important systems are redundantly designed with "hot standby" backup systems ready for immediate takeover in case of a component failure. Because it is important that the operators be able to control the furnace and the float bath under absolutely all circumstances, all output parts from the screen in the control room to the actuator are designed as redundant systems.

### Start-up on time

Shortly before Christmas 2007, Line 3 started up on time without any delay. Jiří Bílek is very satisfied with the results of the project: "There are always some problems; that's normal. What is important is that everything that occurred was in the manageable range. I would like to point out the performance of STG, however. They were simply perfect."

"It was a great opportunity for me to be part of this project, to share experience and gain knowledge. I was working on the engineering team for the new line, and now I have shifted to maintenance. It was very exciting to help start it up!" ■

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