

# sedak to produce the largest glass sheets

## To produce units with dimension of up to 3.51m x 20m in 2018

From mid-2018, the German glass manufacturer, sedak will fabricate glass of up to 3.51m x 20m, **CEO Bernhard Veh** has announced. With the new record-breaking dimensions, sedak will further reinforce its leading position as a specialist for exceptionally large glass. The technology leap was a consistent step, explained Veh. "From year to year, the demand for oversize glass formats rises. Ten years of experience and the continuing good order situation encouraged us to take the next big step."

By expanding its production capabilities, sedak will become the world's only manufacturer for glass of that size. Since 2007, the Bavarian company has been establishing itself as a specialist for glass of exceptionally large dimensions and investing steadily in its own research and development.

Besides the pioneer work, like extensive tests for technical approvals, sedak focuses on the knowledge and the experience of its own employees. "They are our most valuable resource," reiterates Veh.

The production of 20-meter long

glass will start in mid-2018. The special machines have been ordered. Each of them is tailored to sedak's special requirements and developed in close cooperation with the machine manufacturers. Therefore, the glass units can be produced in the quality standards typical of sedak; and the manufacturer stays the top performer for record dimensions.

## Full supplier with long list of references

In the glass industry, sedak has been establishing itself as a full supplier for glass up to 16.5 m. All production steps are highly automated.

sedak's competence for oversize glass can be easily recognized when looking at the latest, realized projects: Replacement of the 13 m high glass units of the façade of the 'United



sedak in Gersthofen, Germany



Nations Conference on Trade and Development' building, production and delivery of the 15.5 m long glass laminates for the façade of the shopping mall Iconsiam in Bangkok, manufacture of 13-meter glass fins for the Lakhta Center in St. Peterburg, the representative office building "111 South Main Street" in Salt Lake City with glass fins up to 11 m and unique glass laminates with wood veneers in between the layers, and the fabrication of the 15 m long glass units for the façade of Apple's new headquarters in Cupertino.

#### About the company

sedak, the glass manufacturer in Gersthofen, Germany, was founded in 2007. The company and its 150 employees have developed into the world's technology and innovation leader for large insulating and safety glass. With a 10-year experience of manufacturing oversize glass and after having increased the level of automation continuously, sedak is regarded as a specialist in this know-how intensive segment. The core capabilities are the lamination of glass, edging, and the company's special knowledge of producing glass components with additional functional and decorative elements. sedak's production has been optimized for extraordinary glass sizes and weights.

# sedak

#### sedak GmbH & Co. KG Tatjana Vinkovic E-Mail: tatjana.vinkovic@sedak.com

pr nord. neue kommunikation. Kerstin Ahlburg E-Mail: k.ahlburg@pr-nord.de



# sedak further expands its innovation leadership

## Tempering Coated Glass of Up To 16.5 Metre Now

When tempering glass areas of up to 50 square metres, sedak's new tempering furnace comes into play. It processes glass with the maximum dimensions of 3.2 m x 16.5 m into fully tempered or heat-strengthened glass.



ith this second furnace, the specialist for oversize glass not only doubles its tempering capacities but also enlarges its entire production to a new maximum length of 16.5 m. Thanks to innovative technology and sedak's know-how, the new tempering furnace can toughen coated glass in oversize dimensions which means an enormous time and cost benefit. "Our new furnace allows us to expand the status quo and to realize a leap in technology," says Ulrich Theisen, General Manager and Sales Director of sedak.

As modern façade glass has to fulfill

ever higher demands on structural physics, coatings for solar and thermal protection become more and more important. Additionally, the trend to very large glass formats persists although the handling and the logistics of them are particularly complex. Therefore, sedak permanently improves its production processes regarding technology and efficiency.

A result of that development is the new tempering furnace. It extends the maximum length from 15 m to 16.5 m and optimizes the production process. Coated glass can now be tempered also in the maximum dimensions.

#### **Challenge: Coated Glass**

When tempering in the furnace, the glass has to be heated on both sides evenly. A coating has a major impact on that process. Especially low-e and solar control coatings are difficult to be tempered because they reflect the heat. Hence, the glass heats faster on the non-coated (lower) side and, with the generally used technology, the edges would bend upwards. That effect increases with the size of the glass. Similarly, the larger the glass, the more probable are anisotropies, roller waves, or color changes.

Further damages of the coating can appear due to non-regulated heat distribution which could additionally burn the coating, change its color, or cause cracks. "To achieve the perfect result, it is essential to regulate and control the heat distribution in the furnace, and to adjust it to the specific profile of the glass pane," explains Theisen. What first sounded simple is in fact a highly complex firing process that requires, besides a high-performance furnace, operating personnel that are very experienced with the raw material glass.

#### Leap in firing technology

The specification sheet for the new furnace arose from the praxis. For a project in St. Petersburg, sedak had to supply 16.5 m long glass fins. However, the existing tempering line was designed to process glass only up to 15 m. That was the cornerstone of purchasing a new tempering furnace.

Moreover, the previous firing

technology was supposed to be improved. "Our ten-year experience of tempering oversize glass was included in the development," says Theisen. "It was about improving the regulation and to increase the overall performance." Tempering coated glass up to 16.5 m is a technical and, in the end, also an economical milestone.

With a common furnace, that would not have been possible. The new furnace is a so-called convection furnace that allows for a quick and exact heat regulation. Also the quenching station, in which the tempered glass is cooled, received an upgrade because coated glass reacts faster to changing air conditions. Now, the operators can influence the production process in that part of the machine precisely.

#### Knowledge is not scalable

To temper coated glass is nothing new. However, the knowledge and the technology cannot be simply transferred from standard formats to oversize dimensions. With increase of every metre in glass, the tempering process becomes more difficult.

"Each defect in that step cannot be corrected and worsens during the following production process," says Theisen. Deviations regarding flatness or shape turn the glass quickly into reject. Hence, it is worth it to put great effort into a perfect production because the result is convincing: extremely flat high performance glass fabricated accurately to a millimetre; glass that is quickly processed into the desired functional glass units.

This is the perfect interaction of modern machinery and glass experts. "Such a precise production would not be possible without the know-how of our operators. They know when they have to adjust the prevailing machine settings."

#### **3 Questions to Ulrich Theisen**

#### Which were the decisive reasons for planning a furnace that can temper oversize, coated glass?

Glass bigger than 9 metres is growing in popularity. Therefore, we first increased our delivery capacity. Since we are now able to temper

### Technical Article



Additional quality test for fully tempered glass: sedak usually heats the glass in the heat-soak chamber after the tempering process. Spontaneous failures caused by nickel sulfide inclusions can be prevented. Photo: sedak GmbH & Co. KG | Photographer: René Müller

coated glass of that size, we have also reached the goal to produce such glass quicker and in high quality.

#### What was a special challenge?

The demands on facade glass and its structural physics have been rising on and on. To fulfill those requirements, the coatings have become ever more complex. That applies to solar control as well as low-e coatings. However, it's especially those coatings that have an extremely high impact on the result in the furnace. There is simply a difference between a triple silver coating and a nickelchrome coating that goes through the furnace. So, we have to be able to adjust the machine to the respective special feature of the glass; and the operator has to know how the glass and the coating react to the firing process.

Our experts are very experienced in handling the tempering furnace. By the way, there are some coatings that still cannot be tempered. In that cases, the production works in reverse order and the glass is first coated and then tempered.

## And how did you solve that challenge?

The new furnace works on a convective principal. Thus, it is possible to heat it evenly but also

to adjust single sections. Improved heating circuits allow us now to balance the heating considerably faster and more precisely. We also had a close cooperation with the furnace fabricator. Not only our tenyear experience in tempering glass but also our partner's experience in constructing furnaces influenced the development.

#### About the company

sedak, the glass manufacturer in Gersthofen, Germany, was founded in 2007. The company and its 150 employees have developed into the world's technology and innovation leader for large insulating and safety glass. With a 10-year experience of manufacturing oversize glass and after having increased the level of automation continuously, sedak is regarded as a specialist in this know-how intensive segment. The core capabilities are the lamination of glass, edging, and the company's special knowledge of producing glass components with additional functional and decorative elements. sedak's production has been optimized for extraordinary glass sizes and weights.

## sedak

sedak GmbH & Co. KG Tatjana Vinkovic E-Mail: tatjana.vinkovic@sedak.com

**pr nord. neue kommunikation.** Kerstin Ahlburg E-Mail: k.ahlburg@pr-nord.de