

SUCCESS STORY 89

FLAT GLASS TEMPERING IN LOW HEIGHT FURNACES



Q

How can the temperature profile of glass sheets be measured accurately in low height tempering furnaces?

A

Situation and background

The tempering of sheet glass is a process used for automotive, architectural and specialist glass sheets, such as those used in solar photovoltaic panels. It is widely understood that the process needs to be carefully measured and controlled. The glass used in these applications has had its properties enhanced by the addition of low emissivity or other surface coatings. As a result of these coatings, temperature measurement using the traditional method of pyrometry is problematic. Through-process profiling has not been possible until now because of the extremely low clearance available for the profiler and the high process temperature. Datapaq® has now overcome these obstacles and has designed a pass-through thermal profiling system for this process.

The winning solution

- Datapaq was able to design and model the thermal performance of the barrier using CFD simulation, so the end-user had confidence in our proposed solution.
- Datapaq applied novel construction techniques to ensure that thermal distortion of the barrier was minimized.
- The end-user can now obtain an accurate temperature profile of the process regardless of the surface coating of the glass.

Savings made

- An incorrect temperature profile can cause the glass sheets to break as they cool, with subsequent production line disruption and revenue loss.
- The even tempering of the glass is critical to minimize visual distortions in the finished product. This is a key requirement in large architectural glass sheets and enables the end-user to sell a premium product at an increased margin.
- The pass-through profiler can be quickly and easily used with minimal production line disruption, whereas the previous solution required significant user time and production downtime.

KEY FACTS

Customer's End Product
Tempered glass sheets used in automotive and architectural applications

Max Temperature Reached
675°C/1247°F

Duration of Process
Up to 10 minutes, depending on product thickness

PRODUCT AND BENEFITS



Datapaq DQ1840 datalogger
TB7528 thermal barrier
Insight™ software

- Product temperature uniformity can be measured easily and thus optimized.
- Set-up time for new panel types and thicknesses is reduced.
- Low-E glass profiles can be measured accurately.
- Trouble-shooting the furnace profile is now quick, easy and safe.