



Secondary Glass Operations

Glass Bending, Forming, Annealing and Tempering

Q

Question

How do you monitor critical temperatures to improve productivity and quality in these processes?

A

Answer

Situation Analysis

Referred to as “secondary glass operations”, bending, forming, annealing and tempering processes are extremely heat sensitive. Since temperature is the most critical variable affecting the productivity and quality of any secondary glass processing operation, knowing the temperature distribution of each glass part can improve the operating economy of virtually any secondary glass process. Bending and forming are fairly obvious to define. Annealing is the process of adding a non-glass layer, which is typically either for safety (auto glass) or for ultraviolet filtering. Tempering refers to the use of temperature cycling in order to affect the strength qualities of the glass. Due to the rigid and fragile nature of glass, temperature related problems are critical to avoid. The results of temperature imbalances can be process shutdowns, cracks, internal stresses, and/or internal deformations.

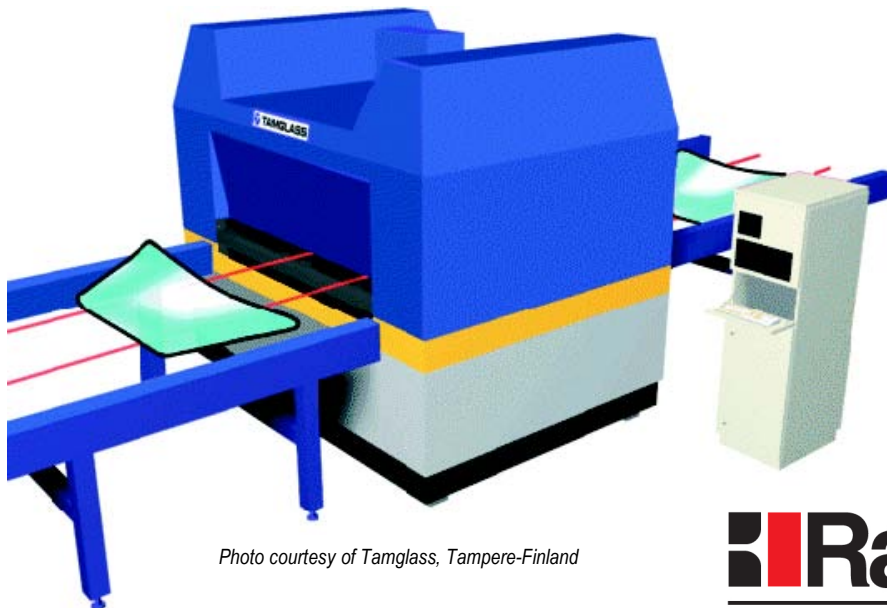


Photo courtesy of Tamglass, Tampere-Finland

A

Answer

Solution and Improvements

The easy-to-use Raytek GS150 thermal analysis system increases operating efficiency, product quality and uniformity. With the GS150 System, glass manufacturers can accurately and continuously monitor the temperature distribution of any heated glass part. The GS150 System (based on the MP150 process imager) measures the complete temperature distribution of each glass part exiting the heating process. The temperature information is then transmitted to a PC, where the GS150 software translates the data into a thermal image for display on a PC monitor. Product specific configurations, data files and thermal images are easily stored and recalled.

The GS150 System allows subdivision of the thermal image into a selected number of rectangular “zones” corresponding to those in the furnace, and the software displays these zones as a grid superimposed on the thermal image. The software analyzes the temperature distribution in each zone to look for problems related to the forming/bending or annealing/tempering operations, and the system can be used for closed-loop control of the power to each heating element. Operators can read zone temperatures immediately for each part, and program automatic alarms for any zone. Early detection of heater problems or failed heating elements improves product quality, uniformity, and provides added cost savings.

Raytek Product

GS150 System

Accessories

- Accessories
- Specials
- Software

Benefits

- Increased Glass Performance and Quality
- Automated Defect Detection for Reduced Scrap
- Faster Set-up
- Data Logging and Documentation for Quality Control (ISO9001)

For customized solutions to your process, please contact:

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