

Major Benefits

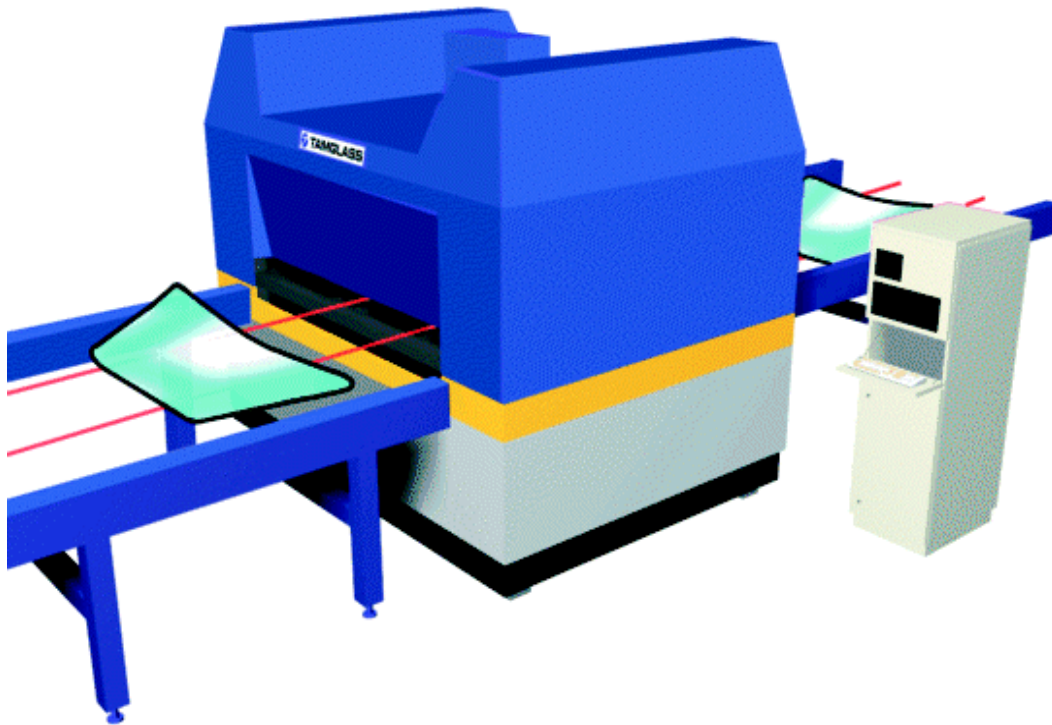
- Increased Glass Performance and Quality
- Defect detection for each part
- Visual representation of thermal distribution of each part
- Automated Quality Control logging and documentation (ISO9000)

DESCRIPTION OF APPLICATION

Referred to as “secondary glass operations”, bending, forming, annealing and tempering processes are extremely heat critical. Since temperature is the most critical variable affecting the productivity and quality of any secondary glass processing operation, then of course knowing the temperature distribution of each glass part improves 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 glass strength qualities.



PROBLEM

Due to the rigidity 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.

RAYTEK SOLUTION

The easy-to-use GS100 thermal analysis system increases operating efficiency, product quality and uniformity. With the user-friendly technology of the GS100 System, glass manufacturers can accurately and continuously monitor temperature distribution of any heated glass part.

The GS100 system is based on the MP50 process imager, which measures the complete temperature distribution of each glass part exiting the heating process. The temperature information is then transmitted to a PC, where the GS100 software translates the data into a thermal image for display on the PC monitor. GS100 software allows the operator to create custom system configurations for virtually any type of glass product or glass furnace. These product specific configurations, data files, and thermal images are easily stored and recalled.

The GS100 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. It is possible to use the system for closed-loop control of the power to each heating element. With this critical information, operators can read zone temperatures immediately for each part, and program automatic alarms for any zone out of limit. Early detection of heater problems or failed heating elements improves product quality, uniformity, and provides added cost savings.

BENEFITS

The GS100 system automatically monitors each part for temperature related problems in order to avoid internal deformations, cracks, or stresses. This gives improved product quality, reduced scrap, faster process setup, and detailed quality monitoring. Closing the process heater control loop with the GS100 system provides another level of savings and ensures even more accurate temperature control. The automated quality control and documentation system (ISO 9000) ensures the end user of the manufacturing process control. Other benefits include:

- Failsafe alarm logging with error description for the factory data capture system
- Identification of failed heating elements almost immediately
- Reduced off-spec product & customer returns.

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