

Glass Melting

Production of Glass in a Melt Furnace



Q

Question

How can you optimize regenerator airflow and prolong the durability of a melt furnace?



A

Answer

Situation Analysis

Glass production starts with the molten glass at temperatures of 1480 to 1550°C (2696 to 2822°F). The batch melts inside the furnace and is freed from gases (refined). Melt furnaces can be either cross-fired or end-fired. Regenerators improve fuel efficiency by heating incoming air and alternating the firing direction. The temperature of the brick packing in the regenerator columns increases as the heated air from the furnace escapes. When this packing reaches the appropriate temperature, the cycle is reversed and these columns are then used to heat air entering the furnace.

For economical reasons, it is absolutely necessary to detect the optimum point in time to reverse the regenerator airflow. The temperature of the bridgewall and the port arch must be measured to optimize the melting process and the furnace durability.

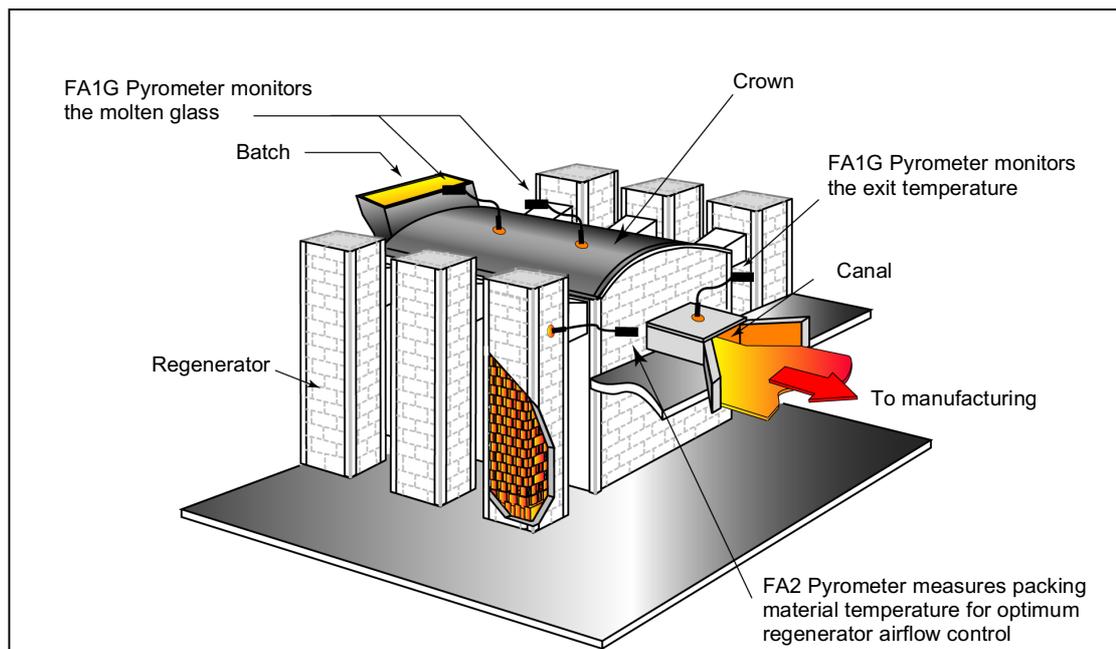


Fig. 1: Temperature Measurement at the Melt Furnace and Regenerators

A

Answer

Solution and Improvements

Recommended solutions for Temperature measurement at the melt furnace are:

- 1.) Raytek FA1G for temperature monitoring of the molten glass inside the furnace and at the exit (Fig. 1).
- 2.) Raytek FA2 for detecting the optimum time to reverse the regenerator airflow (Fig. 1).
- 3.) Raytek MM2M for prolonging the durability of the melt furnace by monitoring the refractory temperature at:
 - a) the Bridgewall (Fig. 2),
 - b) the Port Arch (Fig. 2 and 3).

The precise laser sighting of the MM2M guarantees the temperature measurement of single bricks without being influenced by flames.

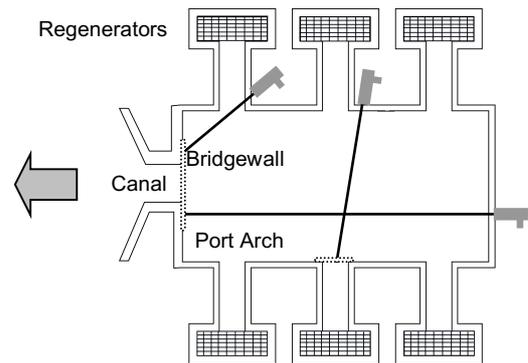


Fig. 2: Measuring Points inside the Melt Furnace

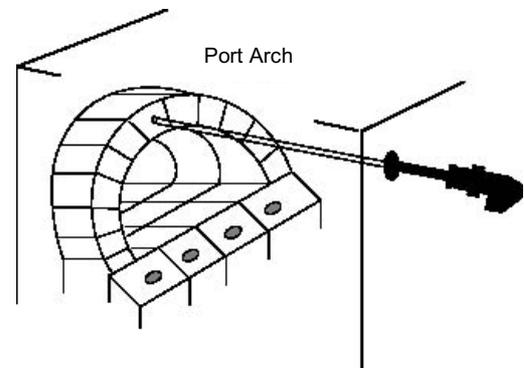


Fig. 3: Measurement at the Bridgewall inside the Melt Furnace

Raytek Product

- Marathon FA1G and FA2
- Marathon MM2M

Benefits

- Optimum Regenerator Airflow Control
- Energy Saving
- High Quality of the Molten Glass

Accessories

- Furnace Wall Mount System with flange for Marathon FA1G and FA2
- Furnace Roof Mount System gravity-held for Marathon FA1G and FA2
- ThermoJacket for Marathon MM2M
- Adjustable Mounting Brackets

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