



Infrared Heat for Hot Juices in Glass Bottles

The Britvic factory in Great Britain handles a range of fruit juices. The juices are pasteurised prior to filling to temperatures in the region of 80°C; glass bottles arrive on the line at ambient temperatures. When filling glass bottles, there is a significant danger of sufficient thermal shock to cause cracking/bottle failure if the temperature difference between fluid and glass is greater than around 42°C.

Historically to ensure that the bottle/juice temperature difference was maintained below this critical level, the bottles to be filled would be first subjected to a hot rinse and then passed through a steam oven to complete their heating to around 55°C. The hot water was then allowed to drain, with associated energy losses. The steam oven was also energy intensive and could not be switched off quickly in the event of line stoppage.

The production facility finally installed at Britvic consists of a 4m long infrared oven of total power of 109.2kW, split into three zones. The first two zones are each fitted with two 15.6kW carbon infrared modules and the final heating zone is equipped with two 23.4kW modules. The final zone also features PID control to ensure that the bottles emerge at the correct temperature for filling. The carbon infrared emitters offer virtually instant response, so that bottles are not overheated in the event of line stoppage.

Since installation, the new medium wave infrared system has proved very successful, providing huge energy savings. Apart from that, the new system also allows Britvic to cold rinse bottles before heating. This is important as it means that the rinse line can now be shared with the carbonated drinks line without major modifications, and cost, as it is impossible to fill carbonated drinks into heated bottles.



Features

- Pre-heating of glass bottles prior to filling with hot fruit juices
- Replacing heating by hot water and steam saves huge amounts of energy

Technical Data

- Carbon Infrared heaters
- 109.2kW/m²
- three zones, two of 15.6kW each, third of 23.4kW
- PID control of third zone to ensure correct temperature of glass bottles for filling

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