

Requirements and Solutions

The KHS Innopro HF system, process technology for hot filling, is a heater for the continuous heating and provision of juices with and without fibers for filling, such as nectars, iced tea, health and sports drinks, energy drinks, milk and soy-based beverages, and sauces. After successful heating and recooling of the product to filling temperature, the system supplies the product to the filling system according to requirements. In order to enable the system to be specifically adapted to cope with the range of beverages to be processed, it is equipped with either plate or tubular heat exchangers, the latter suitable for fibrous and highly viscous products. Warm product deaeration with flavor recovery can be optionally implemented to effectively disperse amounts of foreign gas dissolved in the beverage, which also contain oxygen, thereby reducing any residual oxygen content to an excellently low value. The thermal energy required for this process can be supplied through an interconnected energy system to the bottle re cooler. HF process technology ensures

clean, foamless filling in particular of sensitive beverages.

Key Features

- The product is heated to deaeration temperature using energy from the bottle re cooler
- The product is heated to a specific beverage pasteurization temperature
- The product is re cooled and trimmed to the filling temperature
- Fully automatic regulation of the production capacity between approx. 50% and 100%
- Product quality and system monitored by 15" touch panels
- Adapted system outputs ensure sustained and consistent production
- Beverage-specific temperatures adapted by activating recipes

Standard Equipment

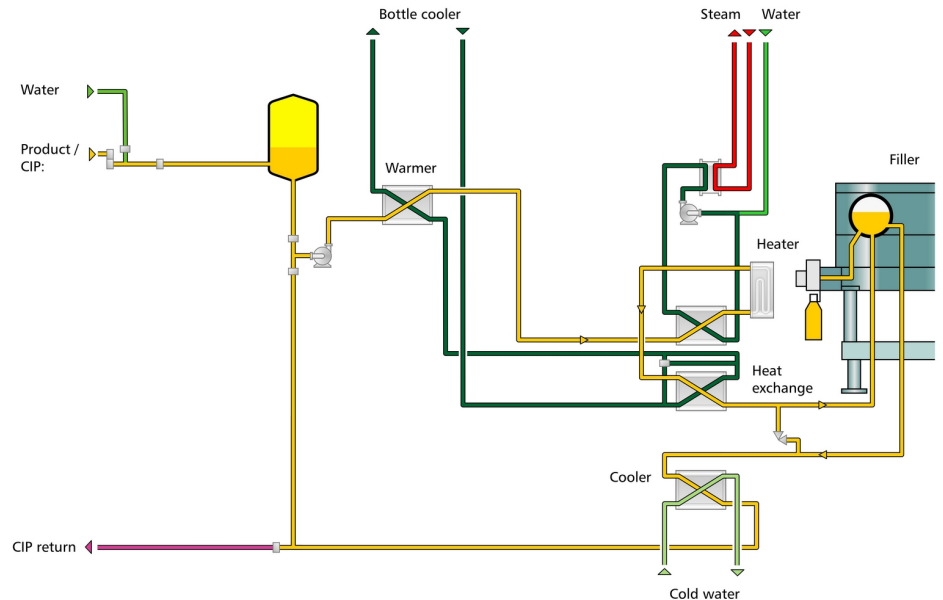
- Primary feed tank buffers the incoming and circulating product
- Product heated by plate/tubular heat exchangers
- Product re cooled and trimmed by plate/tubular heat exchangers
- System output regulated by flow meters and control valves
- Automation system for a fully automatic, complete basic system, including a control cabinet to accommodate the control elements
- Visualization, system monitoring, and logging on 15" touch panels
- Piping exposed to product made of 1.4301 stainless steel (AISI 304)
- Open-design machine frame made of 1.4301 stainless steel (AISI 304)





Advantages

- If product deaeration is implemented, minimum oxygen levels in the product enable a high filler performance
- Customized adaptation for normal products and products containing fibers and pulp
- An interconnected energy system to the bottle cooler uses up to 50% less energy



Service

- Worldwide service
- Customized design
- Complete line design
- Turnkey system manufacture
- Fast supply of spare parts

Options

- Tubular heat exchangers for processing of products containing fiber, pulp, or chunks of fruit
- Product deaeration with one or two-stage flavor recovery
- Interconnected energy system to the bottle re cooler saves energy
- Implementation of a homogenizer
- Quality measurement for conductivity, oxygen, or Brix, etc.
- Piping and tanks exposed to product made of 1.4401 stainless steel (AISI 316)

Technical Data

Nominal Beverage Capacity

4,000–45,000 l/hr

Products

Non-carbonated beverages

Fibers

< 15 mm with 1 mm diameter

Pulp

up to 10%

Standard Infeed Temperature

approx. 20°C

Standard Heating Temperature

approx. 95°C (adjustable)

Standard Filling Temperature

approx. 85°C (adjustable)

Degree of Automation

Fully automatic

Type of Deaeration (Optional)

Warm spray deaeration with flavor recovery

Residual Oxygen in the Product (Optional)

<1 ppm (T > 55°C)

Machine Dimensions

Output dependent

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