#### HT220DSI Integrated Direct & Indirect System

# Automated Steam Injection Technology

The HT220DSI system integrates both indirect & direct heating processes, with or without a homogenizer, in one system. The automation technology facilitates the operation to control three pumps (product pump, homogenizer and DSI outlet-pump) with a single click using the touch screen.



The HT220DSI provides unparalleled flexibility. Equipped with multiple operating programs, it accommodates both direct and indirect processing options, with or without homogenization (upstream or downstream). These capabilities are intuitively guided step-by-step through user-friendly software accessed via the touch screen (HMI). The inclusion of two independent boilers for indirect processing—one for preheating and another for final heating—enhances the system's versatility and precision.

OMVE design guarantees the smallest dead volume, requiring a smaller amount of product to run a test, but also minimizes the space required to install the equipment in the application lab. The HT220DSI was designed with safety & ergonomics in mind and is easy to clean with the built-in CIP process.

## Features & Benefits

- User-friendly
- Low maintenance cost
- Sanitary & aseptic design
- Easy access for maintenance
- Automatic CIP/ SIP
- High level of automation

## Applications

- Dairy products
- Plant-based products
- Functional beverages
- Other applications

## Working Principle

Three stages can be distinguished during the system's operation: sterilization, production and cleaning (CIP).

The sterilization (SIP) cycle involves heating the system to a specific temperature (typically 121°C) for a set duration (usually 20 minutes) to effectively eradicate microorganisms.

After the SIP cycle the system is ready for processing. The system will stabilised at the set temperature profile with running water, after which production can be started. Following production, the system should be cleaned (CIP) by using the cleaning program.





# Optional Accessories

- Mixer in feed hopper
- Variable holding tubes
- Automatic vacuum pump & backpressure valve
- Sterilization link (start-up booster)

• Data logging

#### Specifications

| Product Code                          | HT220DSI-20  | HT220DSI-50  |
|---------------------------------------|--|--|
| Vessel size                           | 5 or 10L   | 10L  |
| Nominal/ process flow rate            | 20L/hr / 10-50L/hr   | 50L/hr / 30-90L/hr   |
| CIP flow rate product pump            | Up to 160L/hr  | Up to 160L/hr  |
| CIP pump                              | Up to 600L/hr  | Up to 600L/hr  |
| Max. temperature boiler (medium size) | 160°C [320°F]  | 160°C [320°F]  |
| Hot water (electrical heated)         | 6kW, 2x6kW (50Hz) or 4 + 6kW (60Hz)                            | 6kW + 8kW  |
| Tube-in-Tube Heat Exchanger           |  |  |
| Internal diameter                     | 8mm or 10mm [0,3" / 0,4"]                                      | 8mm or 10mm [0,3" / 0,4"]                                      |
| Viscosity                             | 2500cPs  | 2000cPs  |
| Direct Steam Injection                |  |  |
| Max. particle size (soft particles)   | 0,5mm [0,02"]  | 0,5mm [0,02"]  |
| Min. pressure flash tank              | 0,3bar(g) ~70°C [4psi~158°F]                                   | 0,3bar(g) ~70°C [4psi~158°F]                                   |
| Pressure outlet pump flash tank       | 10bar(g) [145psi]  | 10bar(g) [145psi]  |
| Max. viscosity (in flash tank)        | 500cPs   | 500cPs   |
| Homogenizer                           |  |  |
| Adjustable flow rate                  | 12-30L/hr  | 40-60L/hr  |
| Homogenization pressure               | 600bar [8700psi]   | 400bar [5800psi]   |
| Weights & Dimensions                  |  |  |
| Weight                                | 490kg [1080lbs]  | 580kg [1279lbs]  |
| L x W x H                             | 2050 x 950 x 1670mm [80,7 x 37,4 x 65,7"]                      | 2050 x 950 x 1850mm [80,7 x 37,4 x 72,8"]                      |
| Required utilities                    |  |  |
| Electrical                            | 370-400Vac/ 3ph+N+E/ 50Hz/ 32A<br>200-240Vac/ 3ph+E/ 60Hz/ 32A | 370-400Vac/ 3ph+N+E/ 50Hz/ 32A<br>200-240Vac/ 3ph+E/ 60Hz/ 63A |
| Water                                 | 2,5bar(g) 0°C - 20°C [36psi 32°F - 68°F]                       |  |
| Steam low pressure                    | 2,5bar(g) [43,5psi] for sterilization                          |  |
| Steam for DSI                         | 8bar(g) [116psi]   |  |
| Compressed air                        | 6bar(g) [87psi]  |  |



20L/hr HTST/UHT + Homogenizing + Steam Generator + Filling

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Lab & Pilot Equipment

