Tetra Pak® Homogenizer 250

Homogenizer or high-pressure pump for liquid food applications with medium capacities

Highlights

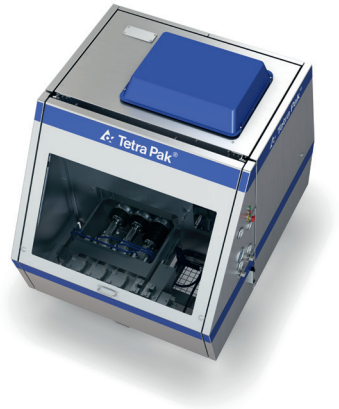
- Lowest operational costs – lowest utility costs, service time and spare parts cost in the medium segment
- Highest homogenizer uptime in the medium segment
- Secure consistent high product quality
- Handle a wide range of applications and easily change recipes at the push of a button

Working principle

First, the product enters the machine through the inlet pipe. The pistons pressurize the product and the high pressure pushes the product through the small annular gap of the homogenizing device. Then the pressure is released at high velocity, generating extreme turbulence and cavitation. This reduces the size of the liquid droplets and solid particles in the product. Finally the product exits through the outlet pipe.

Application

Our Tetra Pak® Homogenizer 250 handles high-pressure homogenization of emulsions and suspensions. It is ideal for both high and low viscous as well as aseptic and non-aseptic products including pasteurized milk, UHT milk, cream, yoghurt, condensed milk, ice cream mix, fruit juices, RNGS (rice, nut, grain or soy) beverages, concentrates, purées, tomato products, dressings, ketchups, liquid egg, mayonnaise, sauces and gravies. It is also available as a high-pressure pump – ideal for feeding a spray dryer when producing powder for example.



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Design

The Tetra Pak® Homogenizer 250 is a horizontally mounted 3-piston positive displacement pump with a built-in HD 100 homogenizing device. The seat and forcer disc are reversible, which doubles their lifetime. The wear-resistant parts are made of cobalt carbide.

The unit features a high-pressure pump block of one-piece forged stainless steel, designed for both aseptic and non-aseptic processing, with a quick-change piston seal cartridge system, and fully replaceable suction and discharge valve seats. An efficient serial cooling water system offers low water consumption. The pump block is backed by a 10-year warranty against cracking.

As a high-pressure pump, the machine is delivered with an automatic line pressure relief valve (LPRV), which is a hydraulically operated valve that protects the line after the homogenizer from overly high pressures.

It is possible to equip this homogenizer with a smart system: a new embedded automation/PLC with a remote operator panel in a tablet or on a PC connected online. Several functions or sub-options are available based on our data from over 7 000 homogenizer installations. Thus, we can draw smart conclusions and give recommendations if something goes wrong.

It also lets customers set alarms and it improves the user interface. It gathers data for trend and vibration analysis, allows customers to monitor working pressure, and enables customers to adjust pressure and find out more precisely when to turn and replace parts.

As on other homogenizer models, our homogenizing device HD 100 is the default setup for the Tetra Pak Homogenizer 250, but it is easier to control with the smart automation system. This ultimately saves you both time and money while ensuring product quality. And it also enables you to employ our smart analysis service as an option.

Removable modules are a practical maintenance feature that is an innovation from Tetra Pak in the design of homogenizers. In the 250 model, there are two units that are fully removable: the hydraulic unit and the cooling unit. If something goes wrong with either of these units, you can easily take away the entire module and fit a new one onto the homogenizer. In this way, you can soon restart production and minimize downtime.

This removable modular design also gives easier access behind the cooling water system and hydraulic system.

Technical features

- HD 100 homogenizing device with hydraulic pressure setting for stable pressure (HD 100 not included when the unit is supplied as high-pressure pump only)
- Easy access thanks to easy-to-open hood, side and back doors and large inspection window on front hood
- Hygienic design – separate wet and drive end, all parts inside the housing
- Turnable parts – doubles lifetime of homogenizing device, valves and seats
- Splash-lubricated crankcase made of high-quality cast iron
- One-piece forged pump block – hygienic and durable with 10-year warranty against cracks
- Pulsation dampers and hygienic, heavy-duty clamp connections
- Small footprint – 2.54 m^2
- Floating piston connection – self-aligning
- Serial piston-cooling circuit – low water consumption
- Premium efficiency IE3 electrical motor
- Integrated starter panel functionality (smart version)

Options

- Second stage homogenizing device – mounted after the first, to improve homogenization effect
- Aseptic version – piston seals and dampers adapted for aseptic use, aseptic condensers for steam production, automated valve for changing from steam to water during CIP
- Pneumatic cooling water valve – less temperature sensitive than standard electrical valves
- Smart system – to monitor and improve working condition of homogenizer, save downtime and maintain consistent high product quality
- Various remote control functions – for controlling homogenizing pressure from remote locations
- Machine control equipment – optimizes cooling water to crankcase and gearbox and monitors inlet pressure and oil temperature and level in crankcase
- Noise reduction – further reduction of up to 4 dB
- Spare parts kit – with two sets for non-aseptic version and five sets for aseptic version with the most common spares, e.g. seals and pistons
- Wear parts – key wear parts available in a wide selection of designs and materials adapted to application

Technical data

Capacity/pressure range

Pressure, bar (psi)	Max capacity, l/h (ghp)
630 (9 100)	3 400 (900)
400 (5 800)	5 400 (1 400)
315 (4 600)	6 800 (1 800)
250 (3 600)	8 500 (2 250)
200 (3 000)	10 800 (2 850)
160 (2 300)	13 700 (3 600)

Service media

	Non-aseptic	Aseptic
Cooling water (>300 kPa [40 psi], max 25°C [77°F], hardness < 10° dH)	200 l/h (53 gph)	563 l/h (149 gph)
Steam (>300 kPa [40 psi], dry and saturated)	-	25 kg/h (55 lbs/h)

Motor size

$$\frac{\text{Capacity l/h (gph) x Pressure bar (psi)}}{\text{30 600 (87 400)}} = \text{kW (hp)}$$

Capacity x pressure / 30 600	
Capacity (l/h)	13 700
Pressure (bar)	160
Size (kW)	75

Dimensions

Depth (mm)	1 780
Width (mm)	1 430
Height (mm)	1 750
Service area (mm)	4 000 x 3 500
Service height (mm)	2 000

Environment

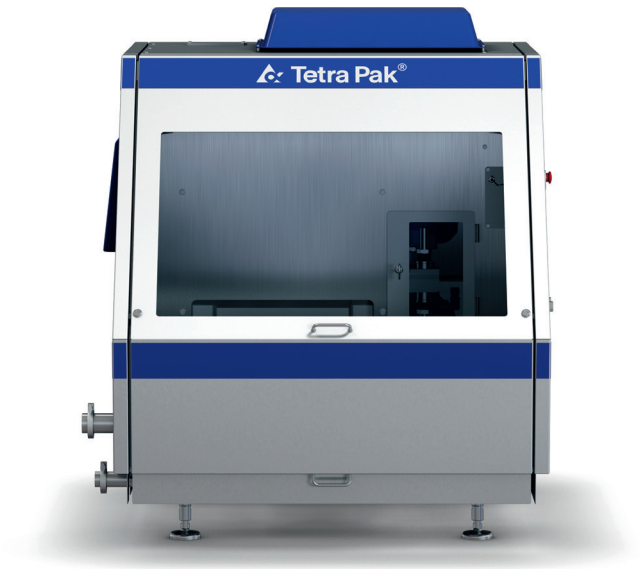
Consumption data	Non-aseptic	Aseptic
Energy consumption/1 000 l product (kWh)	4.6	8.2
Water consumption/1 000 l product (l)	15	66
Possible cooling water to recirculate (% of total)	73	25
Steam consumption/1 000 l product (kg/h)	-	2.9
Noise, dB(a)	77	77
Carbon footprint/1 000 l product (kg CO_2)	2.3	5.1

Data based on
Non-aseptic design: pasteurized white milk, max. capacity at 140 bar. Aseptic design: UHT, white consumption milk, max. capacity at 250 bar. Noise level as per ISO11203, at distance of 2 metres. CO_2 emissions are based on electricity production generating 0.5 kg CO_2/kWh (world average), and steam production from natural gas.

Shipping data

Motor type	Net weight
No motor (kg)	1 800
45 kW/60 hp (kg)	2 050
75 kW/100 hp (kg)	2 400

Export packaging: add 500 kg
Shipping volume: 9 m³



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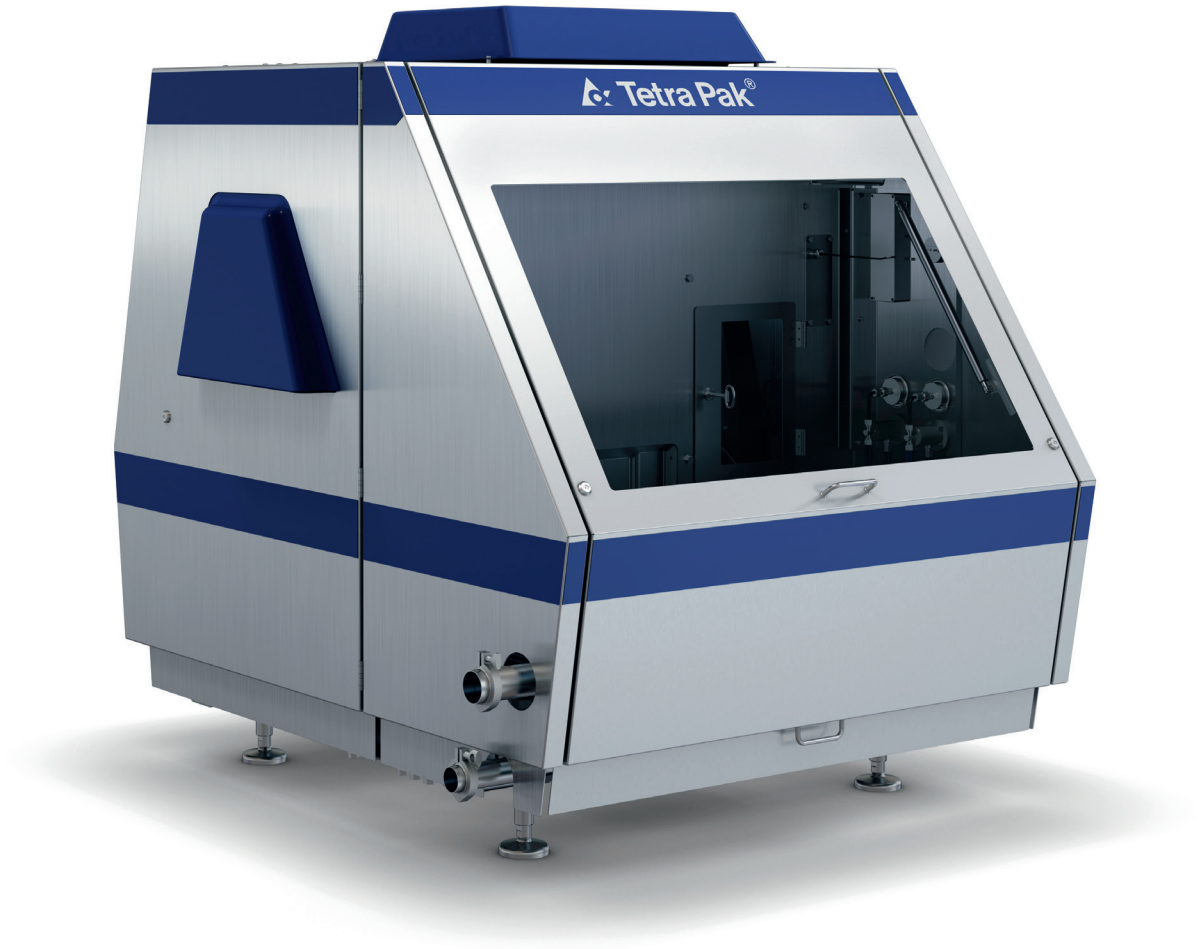

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