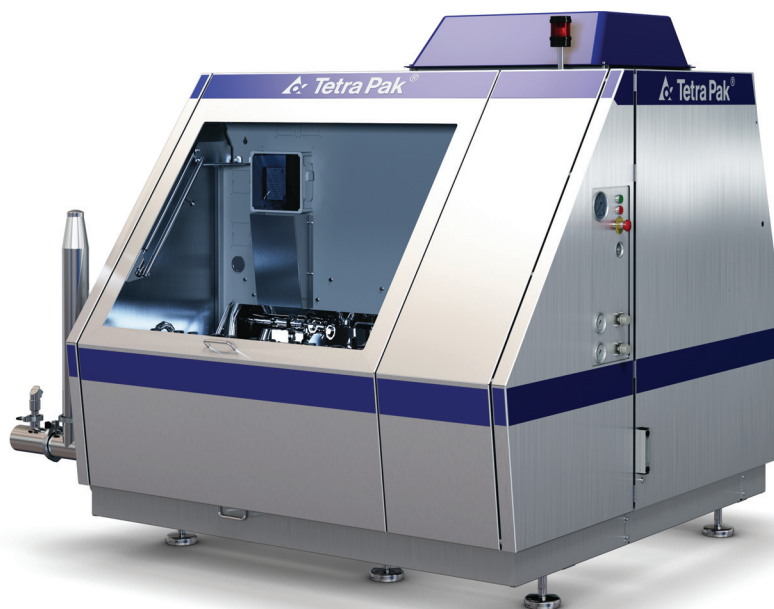




Tetra Pak® Homogenizer 400

Homogenizer or high pressure pump for liquid food applications



Highlights

- Efficient homogenization
- High uptime thanks to easy access
- Turnable parts for low service cost
- Hygienic design – built for cleanability

Application

High-pressure homogenization of emulsions and suspensions, aseptic or non-aseptic, high- or low-viscous products, including pasteurized milk, UHT milk, cream, yoghurt, condensed milk, ice cream mix, fruit juices, concentrates, purées, tomato products, dressings, ketchups, liquid egg, mayonnaise, sauces, gravies, etc.

Also available as a high-pressure pump, e.g. for feeding a spray dryer when producing powder.

Working principle

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

Design

Tetra Pak® Homogenizer 400 is a horizontally mounted 5-piston positive displacement pump with a built-in HD 100 homogenizing device. The seat and forcer disc are reversible for double 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 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 too high pressures.

Tetra Pak® Homogenizer 400

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 by easy-to-open hood, side and back doors. Front hood includes large inspection window.
- Hygienic design – separated wet- and drive-end and all parts inside the housing.
- Turnable parts – double lifetime of homogenizing device, valves and seats.
- Pressure-lubricated crankcase made in high-quality cast-iron.
- One-piece forged pump block – hygienic and durable with ten year warranty against cracks.
- Pulsation dampers and hygienic, heavy-duty clamp connections.
- Small footprint.
- Floating piston connection – self aligning.
- Serial piston cooling circuit – low water consumption.
- Premium efficiency IE3 electrical motor.

Options

- **2nd stage homogenizing device** – mounted after the first, to improve the homogenization effect.
- **Aseptic version** – piston seals and dampers adapted for aseptic use, aseptic condensers for steam production. An automated valve for changing from steam to water during CIP is standard for aseptic machines.
- **HD EnergyIQ** – advanced homogenizing device for improved homogenizing efficiency. Certain restrictions apply (consult your Tetra Pak representative).
- **Pneumatic cooling water valve** – less temperature-sensitive than standard electrical valves.
- **Various remote control functions** – for controlling homogenizing pressure from remote locations.
- **Machine control equipment** – optimizing cooling water to crankcase, and monitoring inlet pressure and the oil level in the crankcase.
- **Noise reduction** – further reduction of up to 4 dB.
- **Spare parts kit** – one set 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 the application.

Technical data

Capacity/pressure range

Pressure, bar (psi)	Max capacity L/h (gph)
630 (9 100)	12 500 (3 300)
400 (5 800)	19 600 (5 180)
315 (4 600)	25 100 (6 630)
250 (3 600)	31 300 (8 270)
200 (2 900)	41 300 (10 900)
160 (2 300)	52 300 (13 800)

Service media

	Non-aseptic	Aseptic
Cooling water (>300 kPa [40 psi], max 25°C [77°F], hardness < 10° dH)	535 L/h (122 gph)	1 125 L/h (310 gph)
Steam (>300 kPa [40 psi], dry and saturated)	-	50 kg/h (110 lbs/h)

Motor size

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

Dimensions

Depth (mm)	2 075
Width (mm)	1 950
Height (mm)	2 050
Service area (mm)	4 500 x 4 000
Service height (mm)	2 100

Environment

Consumption data	Non-aseptic	Aseptic
Energy consumption/1 000 L product (kWh)	4.6	8.2
Water consumption/1 000 L product (L)	10	36
Possible cooling water to recirculate (% of total)	70	100
Steam consumption/1 000 L product (kg/h)	N/A	1.6
Noise, dB (A)	79	79
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, distance 2 metres. CO₂ emissions are based on electricity production generating 0.5 kg CO₂/kWh (world average), and steam production from natural gas.

Shipping data

Motor type	Net weight
No motor	5 100 kg
160 kW/210 hp	5 950 kg
250 kW/330 hp	6 450 kg

Export packaging: add 800 kg
 Shipping volume: 15.5 m³