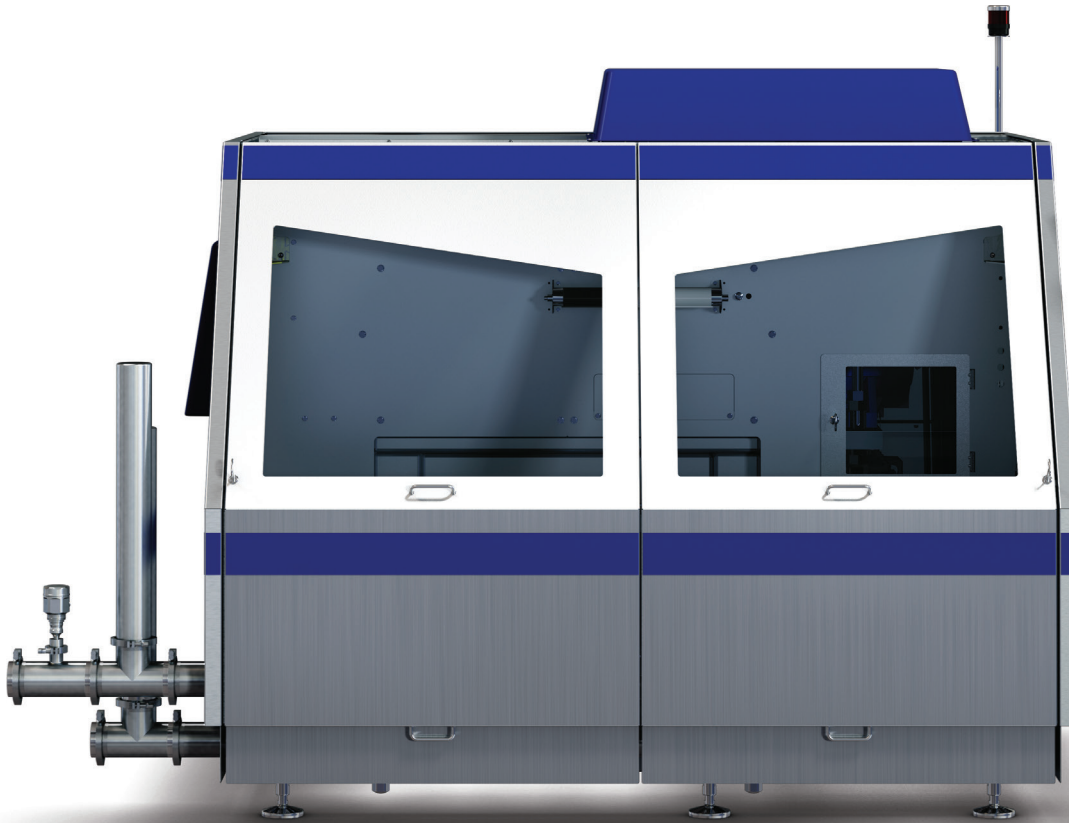




TETRA PAK® HOMOGENIZER 500

Homogenizer or high pressure pump for liquid food applications



APPLICATION

Our Tetra Pak® Homogenizer 500 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, plant based 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.

HIGHLIGHTS

- Efficient homogenization
- Highest capacity homogenizer – up to 63 600 L/h
- Lowest total cost of ownership
- Highest homogenizing efficiency
- Lowest operational costs – low water, steam and energy consumption
- Low wear for high uptime and long lifetime

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

The Tetra Pak® Homogenizer 500 is a horizontally mounted 5-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 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.

Machine control equipment is standard, enabling an optimized cooling water flow for crankcase and gearbox, and monitors inlet pressure as well as oil temperature and level in crankcase.

The model is equipped with an integrated starter panel functionality and a stand-alone frequency converter.

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 windows 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
- Pressure-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 – 5.75 m²
- Floating piston connection – self-aligning
- Serial piston-cooling circuit – low water consumption
- Premium efficiency IE3 electrical motor
- Built in starter panel functionality

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.
- **Automation with or without Tetra Pak Operator Panel** – allows information access wherever you are
- **Various remote control functions** – for controlling homogenizing pressure from remote locations.
- **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)	19 000 (5 020)
500 (7 251)	24 000 (6 340)
400 (5 800)	31 000 (8 190)
315 (4 600)	38 000 (10 040)
250 (3 600)	50 000 (13 200)
200 (3 000)	63 600 (16 800)
160 (2 300)	63 600 (16 800)

Service media

	Non-aseptic	Aseptic
Cooling water (>300 kPa [40 psi], max 25°C [77°F], hardness < 10° dH)	800 L/h (211 gph)	1 440 L/h (380 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)	2 180
Width (mm)	2 630
Height (mm)	2 200
Service area (mm)	4 900 x 4 800
Service height (mm)	3 200

Environment

Consumption data	Non-aseptic	Aseptic
Energy consumption/1 000 L product (kWh)	4.2	7.5
Water consumption/1 000 L product (L)	13	29
Possible cooling water to recirculate (% of total)	75	100
Steam consumption/1 000 L product (kg/h)	N/A	1
Noise, dB (A)	78	78
Carbon footprint/1 000 L product (kg CO ₂)	1.8	3.2

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.

Shipping data

Motor type	Net weight
No motor	6 900 kg
450 kW/600 hp	9 400 kg
355 kW/476 hp	8 900 kg

Export packaging: add 800 kg
Shipping volume: 19 m³

