

Tetra Alex[®] 400

Homogenizer or high-pressure pump
for liquid food applications



Tetra Alex 400 homogenizer. The machine is equipped with optional equipment.

Application

High-pressure homogenization of emulsions and suspensions. Available also as high-pressure pump.

Dairy. Pasteurised milk, UHT milk, cream, yoghurt, condensed milk, ice cream mix, etc.

Beverages. Fruit juices, concentrates, purées, tomato products, etc.

Prepared food. Dressings, ketchups, liquid egg, mayonnaises, sauces, gravies, etc.

Working Principle

The product is pumped under high pressure into the homogenizing device. In the device the product is forced through a small annular gap where the pressure transforms into high velocity. Extreme turbulence and cavitation effectively reduce the size of liquid droplets and solid particles.

Design

Tetra Alex 400 is basically a horizontally mounted 5-piston positive displacement pump with built-in homogenizing device.

Drive system. Power transmission from the motor via V-belts and pulleys through external shaft mounted reduction gearbox.

Crank case. High-quality cast iron housing. Forced lubrication circuits for gearbox and crankhouse with separate filters and oil coolers.

High-pressure pump block. One piece forged stainless steel block with quick change piston seal cartridge system, fully replaceable suction- and discharge valve seats. Pistons of hardened stainless steel and piston seals for working temperatures up to 85°C. Mushroom valves. Closed cooling water system. The pump block is designed for aseptic processing. Pulsation dampers are included. Hygienic heavy duty clamp connections.

A warranty of 5 years on the block against cracking.

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Homogenizing device

Homogenization with hydraulic pressure setting. The seat with impact ring and the forcer disc are reversible for double lifetime. The wear resistant parts are made of Cobalt carbide (stellite).

Control system

Hydraulic pressure actuation unit fitted within frame. Safety valves included. Hydraulic valves for pressure setting and analogue pressure indication on side panel. On/off push buttons and emergency switch. Terminal box. Cooling water valve (solenoid) actuated with drive motor. HL/LL transmitters for oil level in the crank case. High temperature transmitters for oil in crank case and gearbox. Low temperature transmitters for oil in the crank case and gearbox. High-pressure transmitters for clogged oil filters.

Housing

Stainless steel covers. Easy-to-open front hood for easy service access to product wetted parts. Back hood for inspection and service of drive end.

High-pressure pump

The machine is delivered with a rupture disc on the product outlet as safety device. At too high pressure the disc breaks, releasing the pressure.

Technical Data

Capacity/pressure range

Pressure, bar (psi)	Max, capacity, l/h (gph)
400 (5 800)	17 200 (4 540)
315 (4 600)	22 000 (5 810)
250 (3 620)	27 400 (7 250)
200 (2 900)	36 200 (9570)
160 (2 300)	45 800 (12 100)

Service media

	Non aseptic	Aseptic
Cooling water (>300 kPa (40 psi), max 25°C (77°F), hardness < 10° dH)	400* (105)**	1 100* (290)**
Steam (>300 kPa (40 psi), dry and saturated)	-	50 kg/h (110 lbs/h)

* l/h **gph

Motor size

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

Dimensions

Overall dimensions, mm: 2 075 x 1 950 x 2 005

Service area, mm: 4 500 x 4 000

Service height, mm: 3 00

Environment

Consumption data	Non aseptic	Aseptic
Energy consumption/1 000 l product (kWh)	4.6	8.2
Water consumption/1 000 l product (l/h)	12	54
Steam consumption/1 000 l product (kg/h)	N/A	2.4
Noise, dB(A)	82	81

Data based on:

Non aseptic design: pasteurised white milk, 75% of max capacity at 140 bar

Aseptic design: UHT, white consumption milk, 75% of max capacity at 250 bar

Optional Equipment

- 2nd stage homogenizing device
- piston seals for aseptic homogenization or high-pressure
- cooling water valve, pneumatic
- aseptic condenser, solenoid or pneumatic steam valve
- wear parts in other design and material adapted to the application
- various remote control functions
- automatic cooling water regulation
- alarm panel
- UPS (Uninterrupted Power Supply)
- noise reduction
- spare part kit

Shipping Data

No motor	160 kW/210 hp	250 kW/330 hp
5 100 kg	5 950 kg	6 450 kg

Export packing add 800 kg. Shipping volume 15.5 m³.

