



Homogenizers and high-pressure pumps

Tetra Pak® Product Portfolio

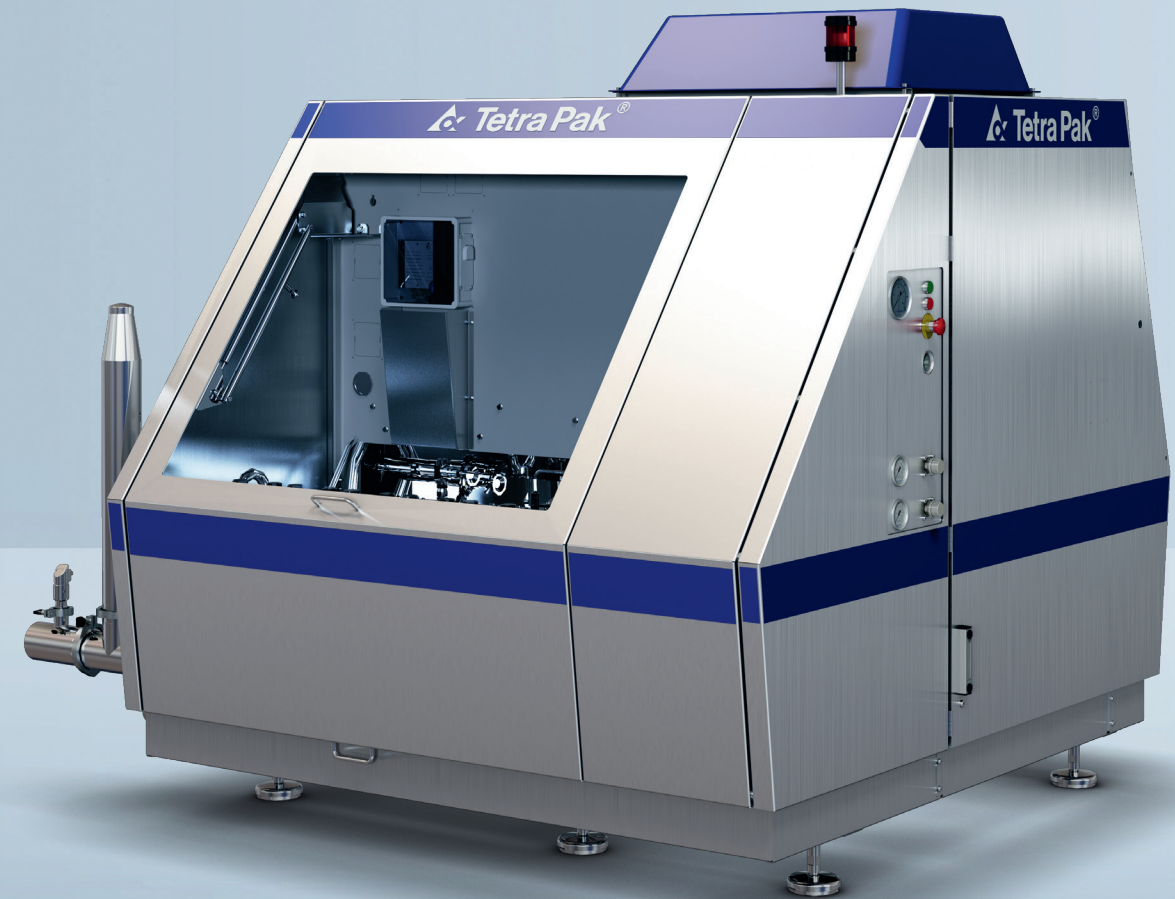
Pioneering design for high profitability

We deliver reliable homogenization solutions which enable you to meet your customers' demands on high food quality and safety.

Our homogenizers are configurable to meet any requirement, sold as a standard unit with additional customizable options to fit all applications, as well as meet your process and automation needs.

Our homogenizers are extremely durable and can last for 25-30 years. This is because they are built with only the finest steel and highest quality materials.

The Tetra Pak® Homogenizers combine high performance with cost efficiency and low environmental impact.



The range of Tetra Pak® Homogenizers and high-pressure pumps is the result of more than 80 years of pioneering design – durable, efficient and flexible technical solutions inside a functional and compact state-of-the-art exterior. They are available for any capacity need, from laboratory scale to high-capacity food processing. All homogenizers are available in non-aseptic and aseptic versions.

High-pressure pumps

Tetra Pak® Homogenizers work both as a homogenizer and as a high-pressure pump, for prepared food and powder applications. The homogenizer is classified as a high-pressure pump when the product outlet is above 60 bar, and then equipped with a line pressure relief valve (LPRV). A high-pressure pump can also include one or two homogenizing stages.

Get the most at the best price

The HD100, homogenizing device's design, offers the possibility to get the same end product quality at a lower homogenizing pressure than a conventional device. This design has a direct impact on power consumption and on the machine sizing. The HD100 design can help you downsize the machine with the same performance.

Food safety and guaranteed quality of the end products

Tetra Pak Homogenizers have a unique design based on two parts – the drive end and the wet end – that are separate. This is a design we have pioneered to eliminate any product contamination to ensure food safety, and to guarantee the quality of your end product, through our efficient homogenizing device HD100.

As homogenization is a process that distributes fat globules or particles evenly in the product, it is key to product quality, mouth-feel, shelf life and other attributes. Homogenization efficiency is especially crucial in milk, juice, yogurt, and ketchup production – and many other segments.

Environmental advantages

Our homogenizers are environmentally friendly and can thereby help you save money. The design reduces both energy usage and water consumption.

Power consumption, reduced by up to 30%

The HD100 device has a unique design that reduces energy usage. It allows you to lower the pressure needed to achieve optimal homogenizing efficiency, in comparison to a conventional design. This high level of efficiency is achieved in both full stream and partial homogenization of pasteurized consumption milk.

Cooling water consumption control

Our homogenizer pistons are water lubricated in serial instead of traditional parallel cooling, reducing water consumption and saving money. Together with the automatic thermostat control, we keep the cooling water consumption at a minimum.

Steam consumption

Regardless of machine type, the steam provided by the plant has the same temperature. The Tetra Pak Homogenizer keeps the condensate temperature between 85°C - 125°C.

Flexibility – older machines as new

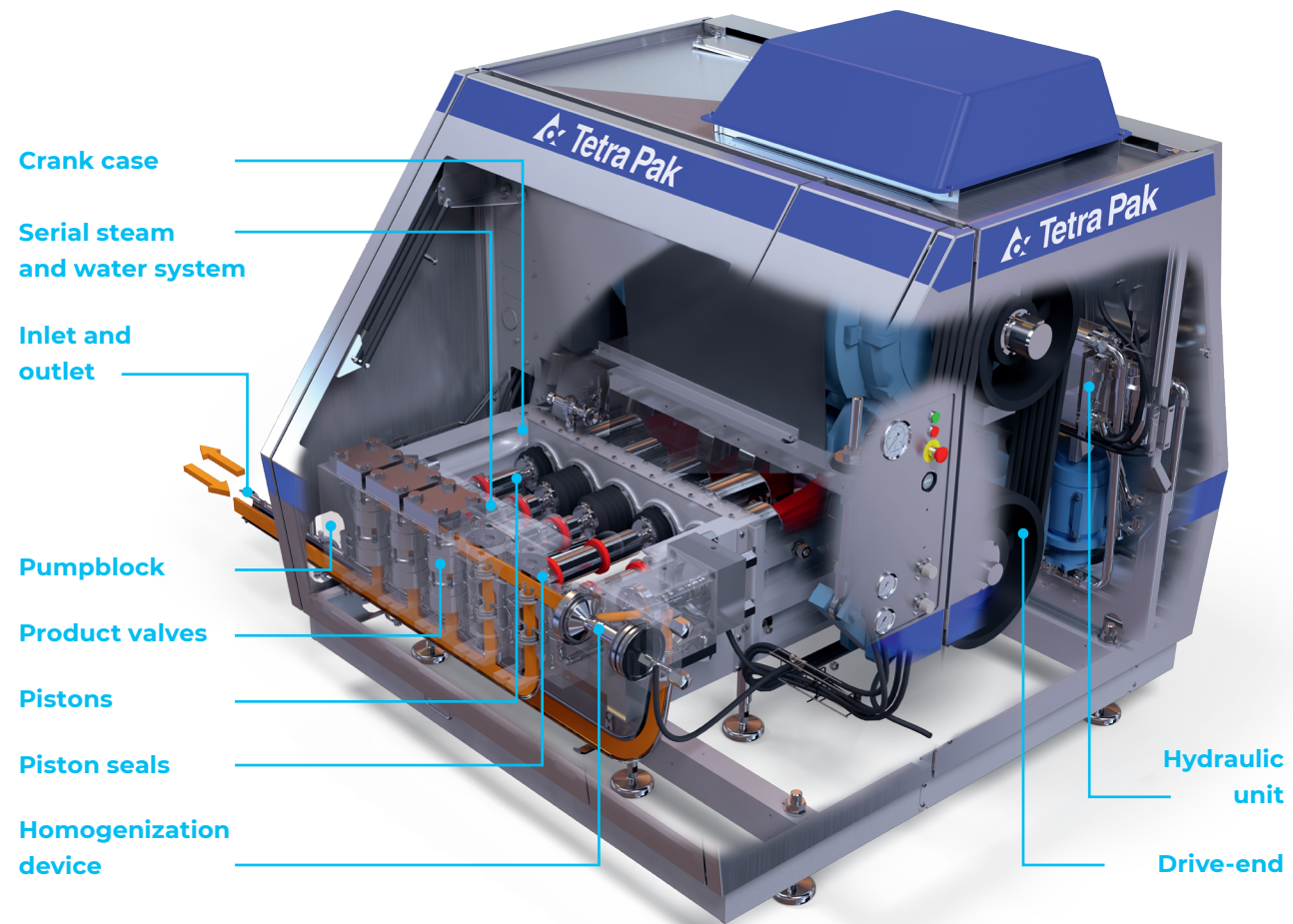
Tetra Pak Homogenizers are backwards-compatible, meaning they are made to handle changes, are easy to rebuild, and easy to upgrade for new duties. Along with high quality hardware, this means a life cycle for our homogenizers of 25-30 years. With Tetra Pak Homogenizers, you can continue to grow and develop your business even if conditions are changing.

Reliable operation

Tetra Pak has a global presence in more than 80 countries and that gives us one of the biggest worldwide service coverage. On top of that, Tetra Pak Homogenizers have 98% availability for spare parts.

We have been making homogenizers for nearly 80 years and have a global installed base of more than 7,700 units. We are a long-term partner and our offer includes everything from the units to product, application support, commissioning, installation support as well as maintenance. Rapid-response service is a prerequisite for our continuous growth over the years.

Range of applications



	Fat globules size reduction	Reduce particle sizes	Increase viscosity	Product stability	Reduce sedimentation	Reduce creaming	Improve mouthfeel	Improve visual impression
Baby food	●	●		●			●	●
Coconut milk	●			●				
Condensed milk	●			●		●		
Concentrates e.g. soft drinks	●							
Cream	●		●	●		●		
Desserts	●	●	●	●	●	●	●	●
Dressings	●	●	●	●	●	●	●	●
Flavoured milk	●	●		●	●	●		●
Fruit juices		●	●	●	●		●	●
Hummus		●					●	●
Ice cream mix	●			●			●	●
Ketchup		●	●	●			●	●
Mayonnaise	●		●	●				●
Milk for fermented products e.g. yogurt	●		●	●		●	●	●
Pasteurized and ESL milk	●			●		●		●
Plant-based beverages (e.g. rice, nuts, grains, soy)	●	●		●	●	●	●	●
Purées		●	●	●			●	●
Recombined milk	●			●		●		
Sauces and gravies	●	●	●	●	●	●	●	●
Spreadables	●			●			●	●
UHT milk	●			●		●		

*High pressure pumps are used most of the time to feed a spray dryer

Homogenizers and high-pressure pumps

For sound performance

Tetra Pak® Homogenizers work both as a homogenizer and as a high-pressure pump, for prepared food and powder applications. The homogenizer is classified as a high-pressure pump when the product outlet is above 60 bar, and then equipped with a line pressure relief valve (LPRV). A high-pressure pump can also include one or two homogenizing stages.

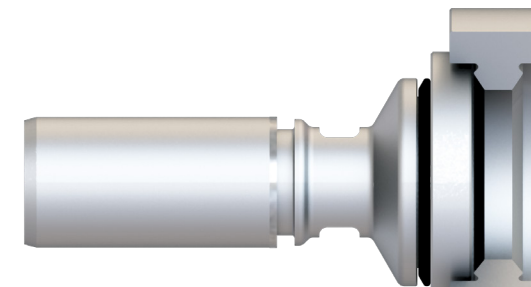
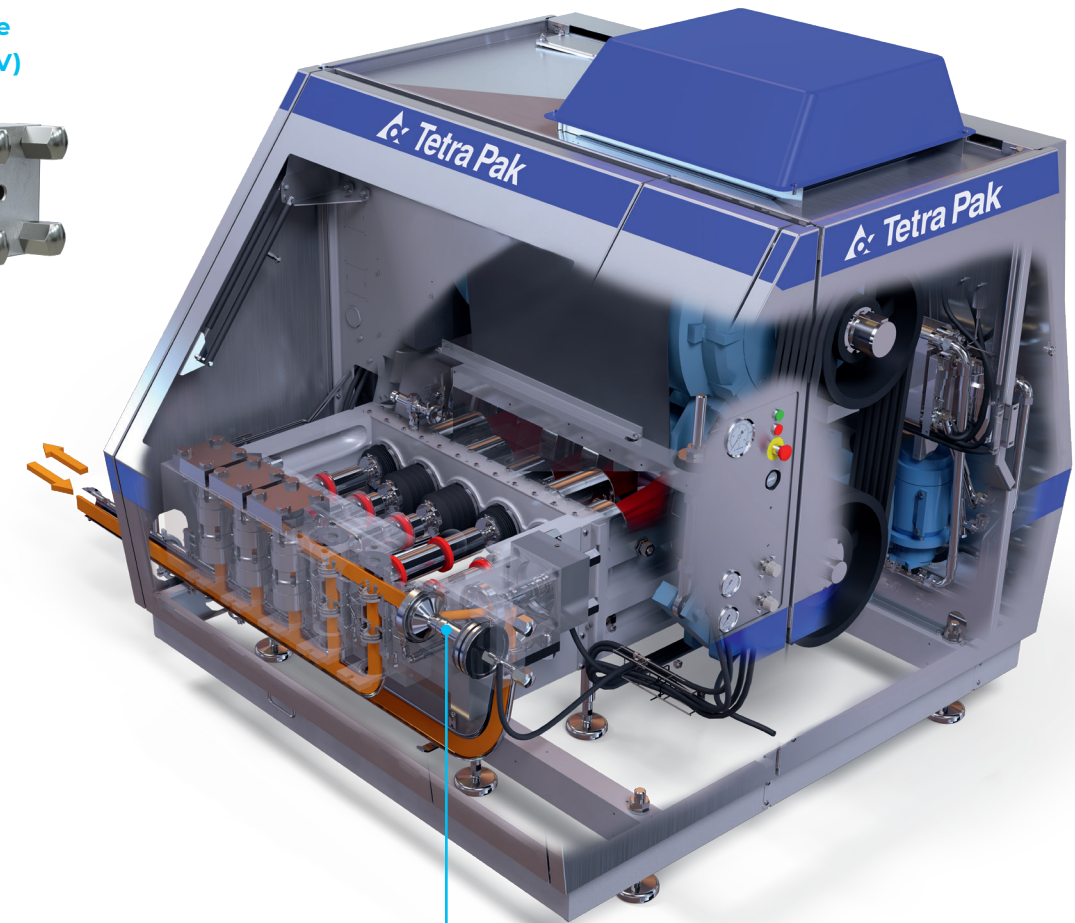
With or without homogenization device

A high-pressure pump has the same design as a homogenizer where a LPRV, line pressure relief valve is installed on the outlet. The high-pressure pump can be equipped without or with 1 or 2 homogenization devices.

Three-piece device for high performance and low cost

- Seat and forcer disc in cobalt carbide for high performance
- Forcer in stainless steel for lower cost
- Also available in wide gap and sintered carbide for abrasive products

The low-pressure relief valve (LPRV)



Homogenization device

Three-piece device for high performance and low cost. Designed for high efficiency.

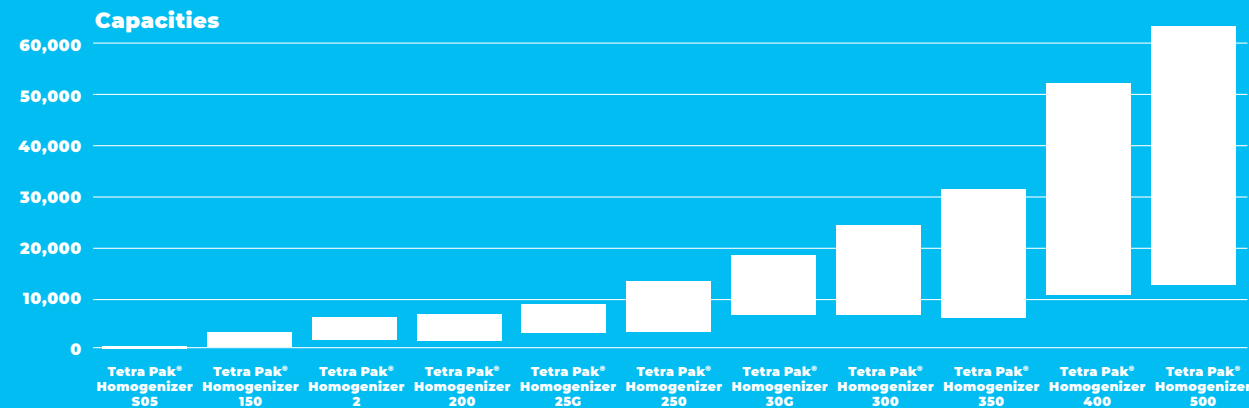
Homogenizers for all capacities

Application

Tetra Pak® Homogenizers handle high-pressure homogenization of emulsions and suspensions. They are 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. For most models they are also available as a high-pressure pump – ideal for feeding a spray dryer when producing powder for example.

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.

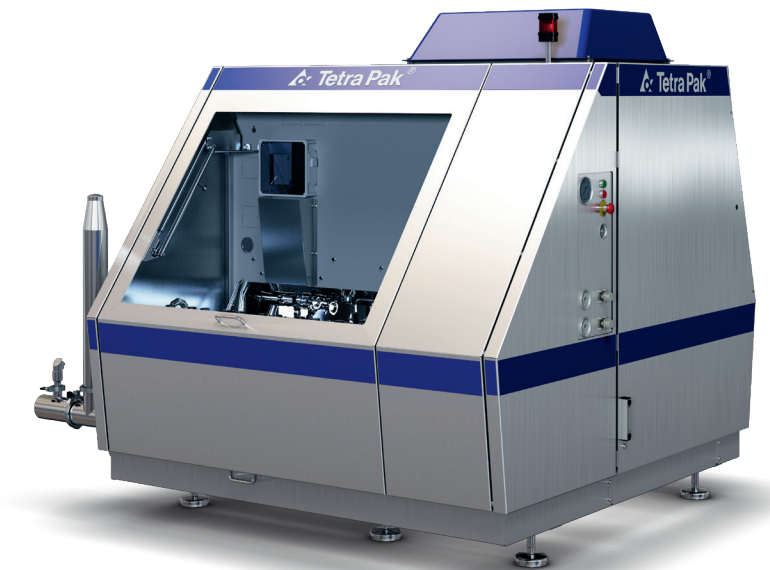


from
55
and up to

63,600
litres of product per hour

We have equipment to meet all capacities and application needs

- 1- or 2 stage homogenization
- Including LPRV (line pressure relief valve)
- Up to 630 bar
- 2 versions
- Homogenizer
- High-pressure pump
- 55 litres – 63,600 litres of product per hour



Our range

Homogenizers

The Tetra Pak® Homogenizer offers a wide capacity and homogenization pressure range from 55 to 63,600 l/h, and up to 630 bars. A fully customizable portfolio to fit with any application, from dairy to beverage, as well as ice cream and food products, with the best performance.

Capacity in litre/hour

Total homogenizing pressure	S05	M150	M2'	M200	M25G	M250	M30G	M300	M350	M400	M500
630 Bars		730		1 600		3 400		5 900	7 700	12 500	18 800
500 Bars						4 300		7 500	10 000	15 500	23 600
400 Bars	270	1 300		3 400	3 579	5 400	7 500	9 300	12 700	19 600	30 200
315 Bars		1 600		4 300	4 430	6 800	9 300	11 500	15 800	25 100	37 700
250 Bars	500	2 200		5 500	5 700	8 500	11 800	14 700	19 600	31 300	50 000
200 Bars		2 800	5 000	6 800	7 150	10 800	15 000	18 600	25 300	41 300	63 600
160 Bars		3 500	6 500	6 800	9 000	13 700	18 900	24 600	31 600	52 300	63 600

* Single speed only

High-pressure pumps

The Tetra Pak Homogenizer® used as a high-pressure pump offers a wide capacity and pressure range from 140 to 63,600 l/h and up to 630 bars. A fully customizable portfolio to fit with any application, from dairy powder applications to other food products.

Capacity in litre/hour

Total homogenizing pressure	M150	M200	M250	M300	M350	M400	M500
630 Bars	730	1 600	3 400	5 900	7 700	12 500	18 800
500 Bars			4 300	7 500	10 000	15 500	23 600
400 Bars	1 300	3 400	5 400	9 300	12 700	19 600	30 200
315 Bars	1 600	4 300	6 800	11 500	15 800	25 100	37 700
250 Bars	2 200	5 500	8 500	14 700	19 600	31 300	50 000
200 Bars	2 800	6 800	10 800	18 600	25 300	41 300	63 600
160 Bars	3 500	6 800	13 700	24 600	31 600	52 300	63 600



Available options

Configurable to meet any requirements

Standard

The Tetra Pak® Homogenizer is configured to meet any requirements. You can select either the homogenizer or high-pressure pump.

The standard unit includes:

- Pump block suitable for non-aseptic and aseptic
- Parts for commissioning

Options to fit your application

- Homogenizing device
- Homogenizing device split head on request
- Piston material
- Piston seal
- Product valve

Process & automation options

- Transmitter for inlet pressure
- High pressure outlet
- Homogenization pressure control
 - Remote homogenizing pressure on one or the two heads
 - Remote on/off or continuous setting
- Machine control equipment
 - Oil temperature sensor
 - Level switch for oil level
 - Cooling water pressure sensor and/or regulator valve
- IO-box
- PLC (only available for 2 models)
- Starter and control panel
- AC unit
- Noise reduction
- Oil type

Tetra Pak® Homogenizers handle high-pressure homogenization of emulsions and suspensions



The homogenization device

There are three different homogenization devices to choose from. All homogenization devices are hydraulically operated, ensuring stability and an instantaneous start-up, with a consistent gap height.

HD100

Unique and well proven design

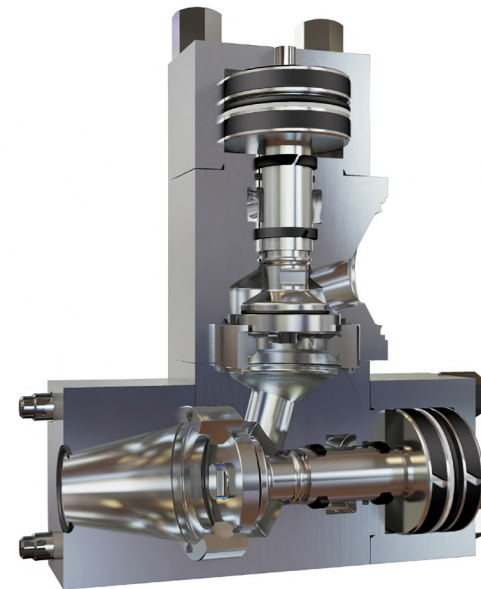
- Designed for efficiency
- Turnable parts for low operating cost
- No impact ring, ensures food safety
- Fewer parts for faster service

Wide application window

- Dairy, beverage, tomato, ice cream, sauces, etc.
- Up to 630 bar

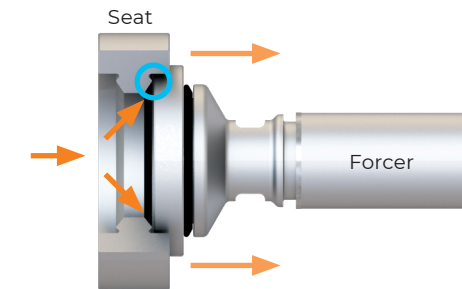
Designed for high efficiency

- HD100 has a larger diameter than conventional designs which allows lower pressure and energy use.

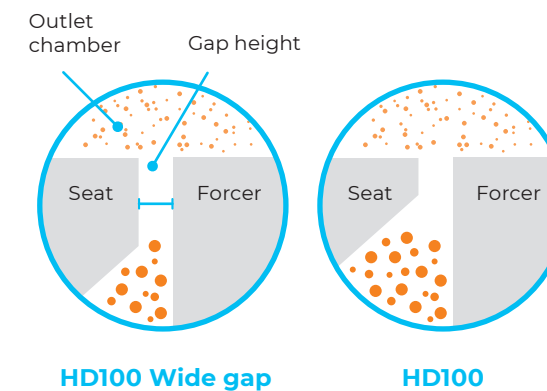


HD100 Wide gap

- The HD100 Wide gap is more durable against wear, and can be used for abrasive products, such as chocolate milk.

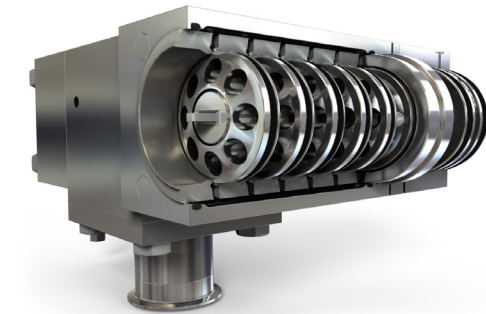


- Unhomogenized product
- Homogenized product

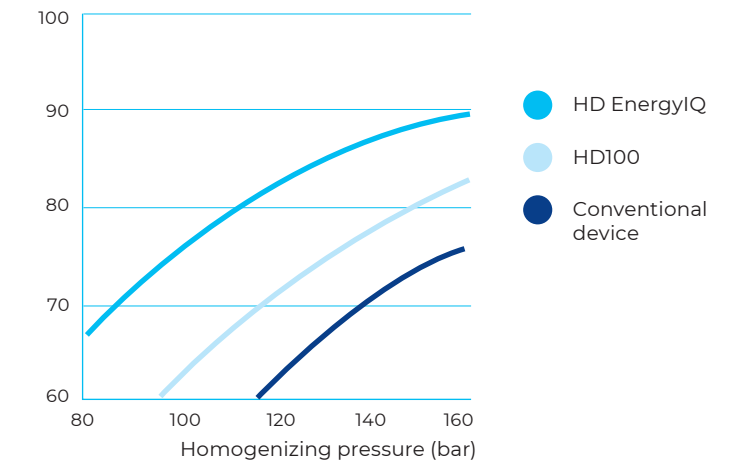


HD EnergyIQ

- Requires less pressure – cuts costs and environmental impact
- Variable pressure and capacity for great flexibility
- Up to 40% longer service intervals on pistons, seals and bearings

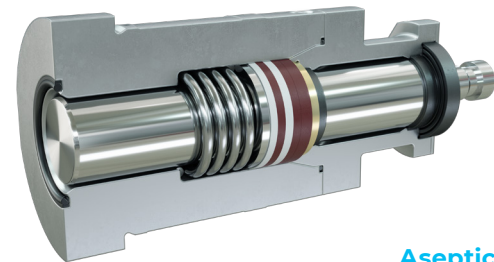


Homogenizing efficiency NIZO (%)

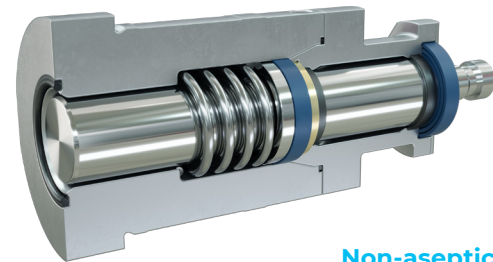


5 piston materials to meet all applications

	Low abrasive product	Semi-abrasive product	Abrasive product	Highly abrasive product
Stainless steel	●			
Chromium plated A lot of wear resistance for a low cost	●	●		
Case hardened Low pH resist Heat treated – no coating		●	●	
Tungsten carbide Sensitive to low pH		●	●	
Solid ceramic			●	●



Aseptic

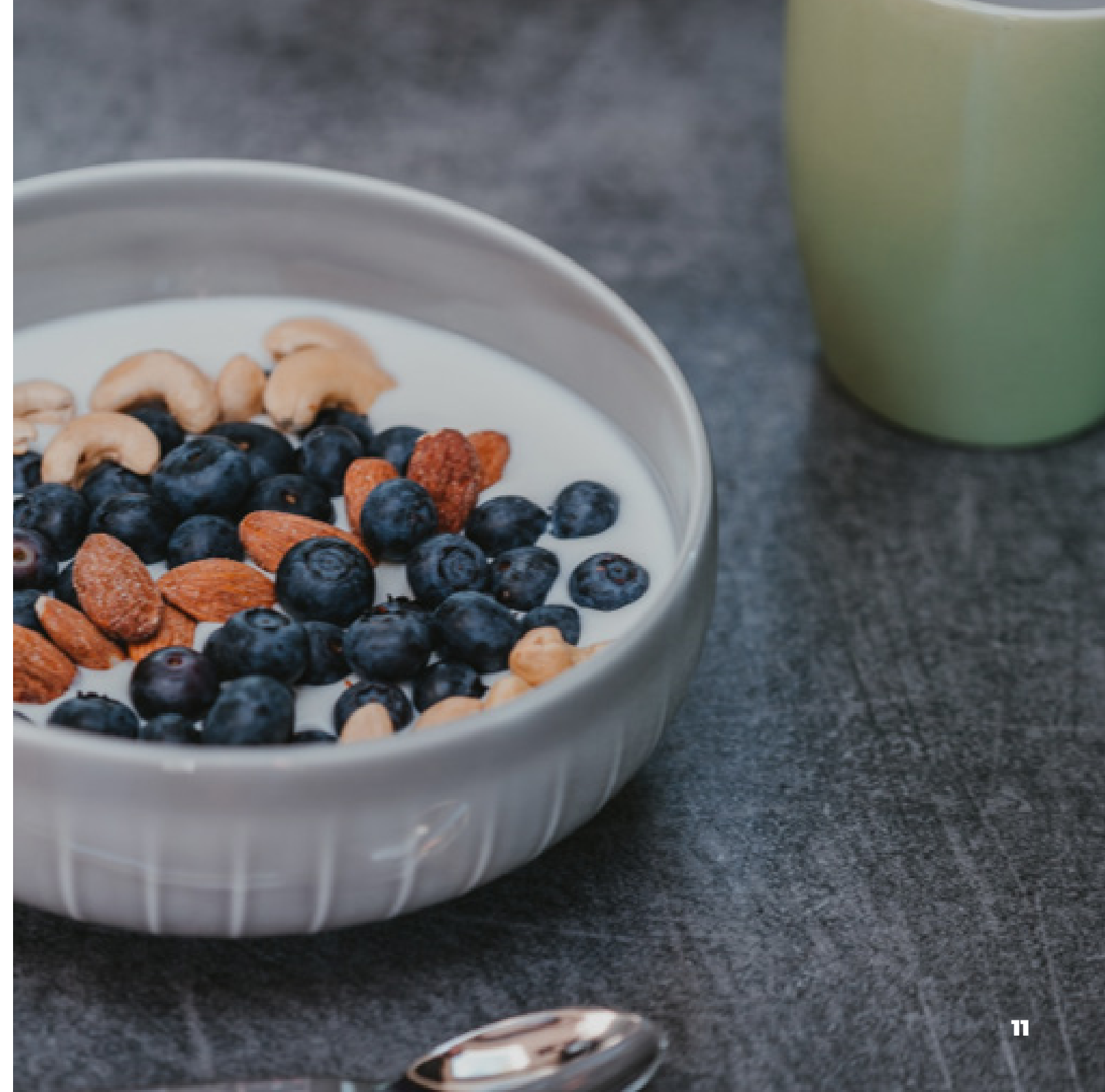


Non-aseptic



4 product valves to meet all applications

	Low viscosity	Medium viscosity	High viscosity
Mushroom valve Valve in cobalt carbide Seat in stainless steel*	●	●	●
Turnable disc valve Turnable disc, double lifetime Disc and seat in cobalt carbide For abrasive products	●	●	●
Ball valve Ball and seat in cobalt carbide For abrasive products		●	●
Cone valve Valve in cobalt carbide Seat in stainless steel*	●		



* Seat in cobalt carbide is available as an option



Great features

Serial steam/ water system
Cost saving
Food safety

Product valves
Easy and quick to change

Pumpblock
One-piece forged stainless steel
10 years warranty

Pistons
Floating connection ensures long uptime

Piston seals
Handles high temperatures
Long lifetime

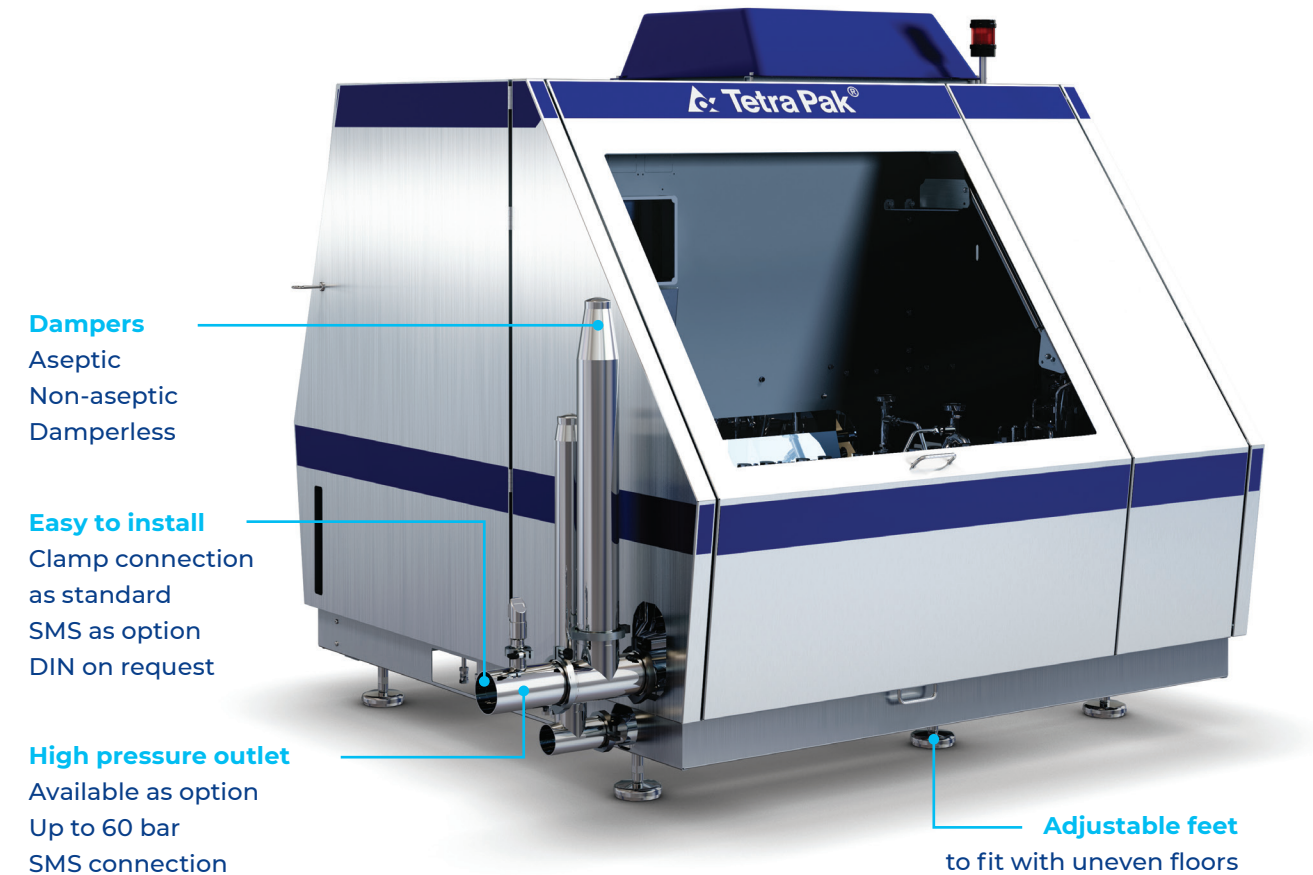
Homogenization device
Unique design for higher efficiency

Hydraulic unit
Accurate and steady pressure

Drive-end
Wet end separate for food safety



Plug and play design



All motors, cables, homogenization device, etc. are all located inside the homogenizer

Technical overview

	S05	M150	M2*	M200	M25G	M250	30G	M300	M350	M400	M500
Service media aseptic											
Cooling water*, l/h (gph)	275 (75)	340 (90)	100	430 (114)	585 (155)	565 (149)	740 (195)	625 (165)	1117 (295)	1125 (297)	1440 (380)
Piston lubrication water* including steam**, kg/h (lbs/h)	20 (5)	25 (55)		25 (55)		25 (55)	25 (55)	25 (55)	50 (110)	50 (110)	50 (110)
Service media non aseptic											
Cooling water*, l/h (gph)	N/A	75 (20)	N/A	140 (37)	220 (58)	200 (53)	340 (63)	300 (79)	460 (122)	535 (141)	800 (211)
Piston lubrication water*	N/A	35	N/A	35	60	55	90	84	131	160	160
Motor size at 250 bars***											
kW/hp	4	18.5/24.5		37/ 30	45/ 60	75/45	110/100	132/125	200/200	315/300	450/450
Weight, kg											
Hydraulic motor size, kW	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Lubrication motor size, kW								0.55	2.2	2.2	2.2
Connections											
Inlet, mm	16	38		51	76.1	63.5	101.6	101.6	101.6	101.6	125
Outlet, mm	16	25		38	51	51	76.1	76.1	76.1	76.1	101.6
Dimensions											
Depth, mm	866	1535	1435	1535	1410	1780	1720	2072	2075	2075	2180
Width, mm	543	1250	1280	1310	2240	1430	2680	1737	1950	1950	2630
Height, mm	1020	1535	1390	1680	1080	1750	1250	1979	2050	2050	2200
Service area, mm	2700 x 2500	3200 x 2850	2600 x 2200	3200 x 2900	3900 x 3000	4000 x 3500	4300 x 3300	4300 x 4000	4500 x 4000	4500 x 4000	4900 x 4800
Service height, mm	1500	2200	1840	2200	1500	2000	1700	2100	2100	2100	3200
Shipping data											
Net weight No motor, kg	300	1040	1250****	1070	1695	1800	2855	4025	4500	5100	6900
	+150	+450			+500	+500	+500	800	+800	+800	+800
Shipping volume, m ³	16	6.5			9.2	9	11.9	15.5	15.5	15.5	19

* water quality **steam quality/specifications *** put calculation of motor power **** including 37 kW motor

Offering you innovation excellence

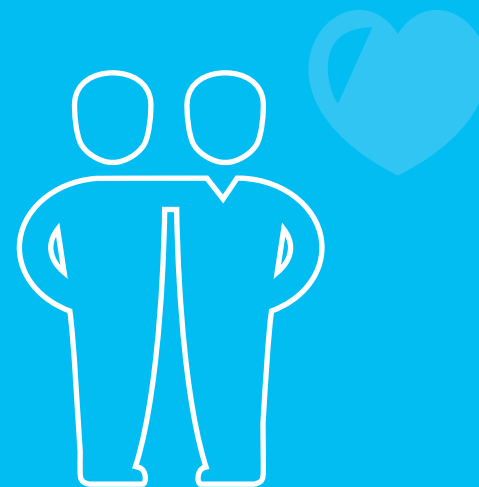
With more than 300 years of combined homogenization experience in our technical department, Tetra Pak® is a market leader in technical innovation and a source of exceptional food know-how.

Your success – at the heart of everything we do

We dedicate ourselves to understanding your needs using our global presence and proven application expertise to help you fulfil your performance targets.

The Tetra Pak® portfolio enables you to operate with excellent performance and support throughout the whole lifecycle.

With Tetra Pak® as a partner, you get the portfolio, people, support and service to achieve your business ambitions.



A world of expertise with a reliable portfolio

Superior level of support

- Expertise & presence
- Everywhere at anytime
- Global & Local Service support
- Best Product selection based on application
- Support throughout the product's entire lifecycle

One portfolio

- Wide portfolio manufactured by Tetra Pak
- Components sourced from leading suppliers
- Get value in sourcing components in single, bundled or complex orders

Reliable & high quality

- Trustworthy partnership with reliable products
- Support throughout the product's entire lifecycle



CONTACT



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