



Dairy. Food Processing & Ice Cream Industries.

Stability, uniformity, long shelf-life, digestibility, improved appearance, enhanced flavour. These are just some of the main benefits obtained using a homogenizer in the treatment of common food products. The results, both from a qualitative and economic standpoint, make the new technology offered by White Steel GmbH especially advantageous.

Some Of Food homogenization may be utilized:

Additives - Baby foods - Spices - Puddings - Caseinates - Fruit concentrates - Tomato concentrate - Cream for ice cream - Desserts - Milky liquids - gelatin - Gum arabic - Animal fats - Vegetable fats - Ketchup - Eggs - Yogurt - Milk - codensed milk - Almond milk - Rice milk - Soy milk - Soy milk - Milk for Yogurt - Reconstituted milk - Honey - Vegetable oils- Sauces - Syrups- Tomato juice - Fruit pulp and juices...

Cosmetic. Chemical. Pharmaceutical Industries

When used in the cosmetic industry, homogenization provides more stable, uniform emulsions with higher performance characteristics.

In the pharmaceutical industry, the primarily mechanical nature of the homogenization process provides direct access to enzymes, proteins, liposomes and intracellular active substances without having to utilize chemical lysis of the membrane.

Other effects are seen in the preparation of stable solutions of products with different physical characteristics (proteins, creams, solutions of active principles, oils, vitamins).

The increase in the surface area of the micronized particles is also of interest to the chemical

and petrochemical industries because of the resulting enhancement of transformation reactions.

This also creates further advantages, such as:

- noticeable reduction of catalysing substances
- intensification of pigment colour
- enhanced use and reduced quantity of additives
- viscosity control of finished products

Crushing of active principle particles generates an increase in surface area, thus enhancing preparation assimilation.

Some Of Pharmaceutical and chemical homogenization may be utilized:

Adhesives - Straches - Antibiotics - Cellulose and derivatives - Waxes - Colorants - cosmetics - Beauty creams - Toothpaste - Detergents - Emulsifying disinfectants - Emulsions - Greases - Inks - Latex - Liposome suspensions - Lotions - Shoe polish - Emulsifiable oils -- Pigments - Perfumes - Proteins - Resins - Soaps - Syrups - Paints - Vitamins...



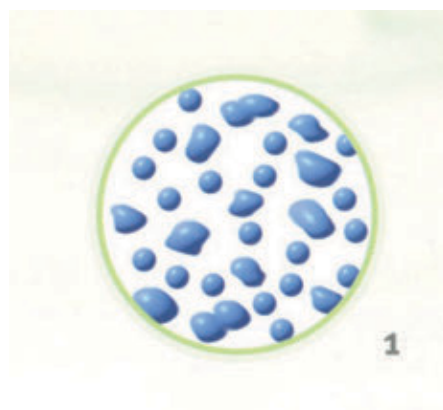
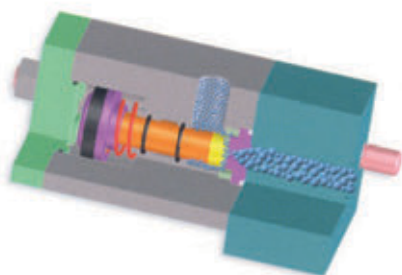
The Homogenizing Principle

In order to permanently mix one or more substances in a liquid, a homogenizer must be used that makes it possible to micronize and disperse the suspended particles in the fluid, rendering it highly stable even during successive treatments and storage. The product reaches the homogenizing valve at low speed and at high pressure (the result of the small space between the passage head and the impact head). As it passes, it is subject to various forces that cause the micronization of the particles: violent acceleration followed by immediate deceleration causes cavitation with explosion of the globules, intense turbulence together with high-frequency vibrations, impact deriving from the laminar passage between the homogenizing valve surfaces and consequent collision with the impact ring.

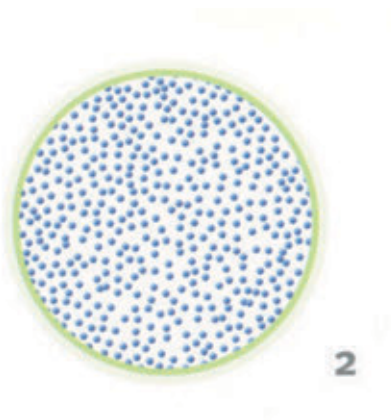
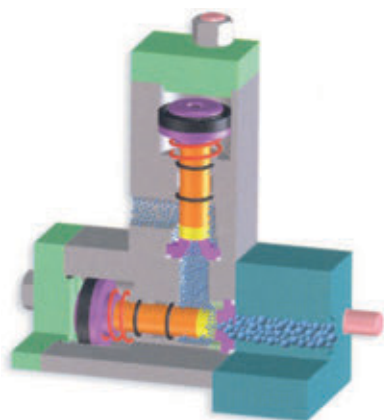
Homogenization can occur with the use of a single homogenizing valve (suitable for dispersion treatment), or double valves (recommended for use with emulsions and for viscosity control when requested). To guarantee problem-free, precise functioning, the homogenizing valves are servo assisted from a special hydropneumatic unit



Single Phase Homogenization phase valve ¹:



Double Phase Homogenization Phase valve ²:

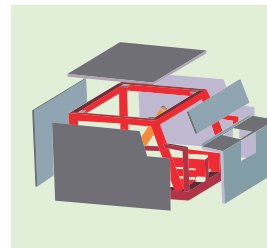


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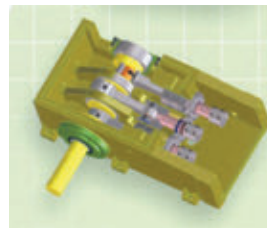
Frame

The frame has been designed to guarantee optimum internal hygiene of the machine, thanks to its open structure of completely closed box section tube. The robust framework is fully covered by removable satin-finish stainless steel panels.



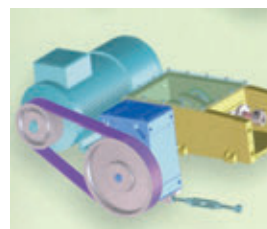
Pump unit

The pump unit, often overlooked during maintenance because it is enclosed within the frame, is the component on which the working life of the entire machine often depends. The high quality of the materials employed, precision engineering and design for use under demanding conditions are its guarantee over time.



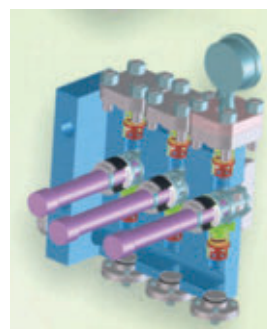
Transmission

The transmission of power from the electric motor to the crankshaft incorporates two reduction phases, each with its own distinct characteristics. The first reduction stage is a pair of V-belt pulleys, while the second utilizes a parallel-axis reduction gearbox. These combine to provide a smooth, play-free, reliable transmission with very low noise levels and low-cost easy maintenance.



Compression head

The compression head is built with steel blocks to our own specifications. Each is forged and checked using ultrasound technology. The heads can use pumping pistons of differing diameters to adjust a machine's capacity, at reduced cost. Special guide rings control the reciprocating motion of the bearing pistons, which are hard chrome, tungsten carbide or all-ceramic coated. This means that the seats of the pumping pistons are spared this task, thus assuring a longer working life.



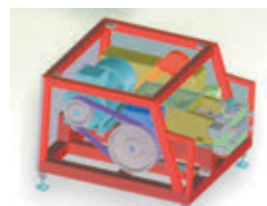
Homogenizing valve

Thanks to our years of experience, our homogenizing valves guarantee a high standard of homogenization and treated product dispersion. All homogenizing valves in this new line are servo-assisted by a special hydraulic unit designed to provide a constant pressure and absorb any kickback. In addition, it has a maximum pressure (or safety) valve designed to prevent irregular or dangerous overpressure situations during the homogenization phase.



Assembly

Stringent production & quality controls, thorough research into materials and component design, combine to give high reliability, durability, low noise and easy maintenance. These are all features of the Millennium Series.



Homogenization

2021 Series Homogenizers

Millennium Series homogenizers conform to CE standards and are available with output capacities ranging from 50 to 50,000 litres per hour, with homogenization pressures up to 2,000 bar.

Models choices include:



- * Sanitary.
- * Aseptic, for UHT installations.
- * Two-stage homogenization.
- * Standard, for processing products such as milk, yoghurt, cream, etc.
- * Abrasive, for processing products such as fruit, ice cream, ketchup, etc

Several options are available to fully customized machines



- * Electrical system for operation at a fixed capacity.
- * Electrical systems for duties requiring variable flowrates.
- * Electrical system for use at two fixed capacities
- * Partial automation of the machine for control either manually or by a control system.
- * Pulsation compensators on the product inlet and outlet.
- * Pressure transducer with digital display of homogenization pressure.
- * Partial homogenization systems.
- * Automatic homogenization pressure cutout, to protect the machine from in-feed errors.

Ultra-High Pressure Homogenizers



The 2021 Series ultra-high pressure homogenizers are the result of lengthy in-depth research and experimentation in this specific field. The special materials and innovative engineering methods utilized on these machines, make it possible to run continuous cycles with homogenization pressures of up to 2,000 bar. These machines may be used in all fields requiring extremely high micronization standards, either in the area of Research & Development or during normal production, including novel products, 'typically unstable emulsions and cell rupturing.



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Homogenization

2021 Series Homogenizer Table :

Capacity	130 bar	150 bar	180 bar	200 bar	230 bar	250 bar
(lph)	(Model - Kw)	(Model - Kw)	(Model - Kw)	(Model - Kw)	(Model - Kw)	(Model - Kw)
5000	WS-H022 22	WS-H030 30	WS-H030 30	WS-H037 37	WS-H037 37	WS-H045 45
5500	WS-H025 22	WS-H030 30	WS-H030 30	WS-H037 37	WS-H045 45	WS-H047 45
6000	WS-H030 30	WS-H030 30	WS-H037 37	WS-H037 37	WS-H045 45	WS-H055 55
6500	WS-H030 30	WS-H030 30	WS-H037 37	WS-H045 45	WS-H055 55	WS-H055 55
7000	WS-H030 30	WS-H037 37	WS-H045 45	WS-H045 45	WS-H055 55	WS-H055 55
7500	WS-H030 30	WS-H037 37	WS-H045 45	WS-H047 45	WS-H055 55	WS-H075 75
8000	WS-H037 37	WS-H037 37	WS-H047 45	WS-H055 55	WS-H075 75	WS-H075 75
9000	WS-H037 37	WS-H045 45	WS-H055 55	WS-H055 55	WS-H075 75	WS-H075 75
10000	WS-H045 45	WS-H055 55	WS-H055 55	WS-H075 75	WS-H075 75	WS-H090 90
11000	WS-H047 45	WS-H055 55	WS-H075 75	WS-H075 75	WS-H090 90	WS-H090 90
12000	WS-H055 55	WS-H055 55	WS-H075 75	WS-H075 75	WS-H090 90	WS-H110 110
13000	WS-H055 55	WS-H075 75	WS-H075 75	WS-H090 90	WS-H110 110	WS-H110 110
14000	WS-H055 55	WS-H075 75	WS-H90 90	WS-H090 90	WS-H110 110	WS-H110 110
15000	WS-H075 75	WS-H075 75	WS-H90 90	WS-H110 110	WS-H110 110	WS-H130 132
16000	WS-H075 75	WS-H075 75	WS-H90 90	WS-H110 110	WS-H132 132	WS-H132 132
18000	WS-H075 75	WS-H090 90	WS-H110 110	WS-H110 110	WS-H132 132	WS-H160 160
20000	WS-H090 90	WS-H110 110	WS-H110 110	WS-H132 132	WS-H160 160	WS-H170 160
22000	WS-H090 90	WS-H110 110	WS-H132 132	WS-H160 160	WS-H160 160	WS-H200 200
24000	WS-H110 110	WS-H110 110	WS-H132 132	WS-H160 160	WS-H200 200	WS-H200 200
25000	WS-H110 110	WS-H132 132	WS-H160 160	WS-H160 160	WS-H200 200	WS-H200 200
26000	WS-H110 110	WS-H132 132	WS-H160 160	WS-H160 160	WS-H200 200	WS-H200 200
28000	WS-H130 132	WS-H132 132	WS-H160 160	WS-H200 200	WS-H200 200	WS-H250 250
30000	WS-H132 132	WS-H160 160	WS-H200 200	WS-H200 200	WS-H250 250	WS-H250 250
32000	WS-H132 132	WS-H160 160	WS-H200 200	WS-H200 200	WS-H250 250	WS-H250 250
34000	WS-H160 160	WS-H170 160	WS-H200 200	WS-H250 250		
36000	WS-H160 160	WS-H200 200	WS-H200 200	WS-H250 250		
40000	WS-H170 160	WS-H200 200	WS-H250 250			
45000	WS-H200 200	WS-H250 250				
50000	WS-H200 200	WS-H250 250				

- Homogenization pressures given refer to actual machine working pressures
- For higher homogenization pressures (from 300 to 2000 bar), please contact our engineering / sales service.



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