HIGH-PRESSURE HOMOGENIZER

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High-pressure Homogenizer I Product Features

Structural Features: Single ceramic plunger drive, precise control of discharge flow rate. Optional plunger lubrication device for longer sealing lifespan.
Homogenization Pressure: Maximum design pressure of 2000 bar/200MPa/29000psi, with optional sanitary-grade digital diaphragm pressure gauge.
Homogenization Flow Rate: Minimum sample volume of 15ml, especially suitable for expensive drug production. Automatic material suction, no need for feeding equipment.
Component Technology: Homogenization valve seat components can be made of materials such as tungsten carbide, stainless steel, diamond, and Stellite, with single/double-sided processing and dual-sided usage for doubled lifespan. Secondary valve for dispersion and emulsification, ensuring more uniform material distribution.
Energy-saving Technology: Equipment with frequency conversion control, can be operated using 220V power supply, imported brand components for more stability, lower energy consumption, and higher energy efficiency ratio.

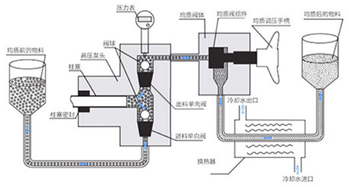
Operating Principle

As the high-pressure material passes through the homogenization valve assembly, the following three homogenization responses occur:

Shearing action: The gap between the homogenization valve seat and the valve core is very small, which shears the material particles.

Cavitation response: The high-speed extruded material experiences an instant pressure drop, resulting in uniform material distribution.

Collision action: The high-speed extruded material impacts the collision ring at extremely high speed, causing impact fragmentation.



Application Range

1. Preparation of lipid nanoparticles, drug-loaded emulsions, liposomes, nano-suspensions, and microcapsules in the pharmaceutical industry.
2. Cell disruption, extraction, and homogenization of intracellular and extracellular substances in biotechnology products.
3. Production and preparation of fine chemicals, carbon nanotubes, graphene, conductive pastes, and resistive pastes.
4. Homogenization dispersion of lipid nanoparticles in personal care products.
5. Homogenization and emulsification of food and industrial products to improve product stability.
6. Plastics, polymers: PE, PS, textiles, resins, etc.

Product Introduction

High-pressure homogenization is a process that micronizes and homogenizes dispersed particles in a suspension (or emulsion) system. This treatment simultaneously reduces the particle size of the dispersed material and improves its uniform distribution.

Technical Parameters

Model	LHP-5H	LHP-15H	LHP-30H
Design Flow Rate (L/H)	5~9	12~15	25~30
Design Maximum Pressure (MPa/bar/psi)	200/2000/29000	200/2000/29000	120/1200/17400
Voltage (V)	220	220	220
Number of plungers	1	1	2
Power (kW)	1.5	2.2	3
Main Functions	Homogenization, Cell Disruption, Refinement (Optional cooling unit for temperature control)		
Minimum Processing Volume	15ml	25ml	50ml
Product Process Viscosity	2000cp		
Maximum Feed Particle Size	<300μm		
Working Pressure Display	Digital Pressure Gauge		
Control Method	Manual Operation		
Maximum Product Inlet Temperature	90°C		
Weight	110kg	120kg	120kg

*Note: Optional secondary homogenization valve.