



YES Solutions

Mixing / Dispersing
Powder Refinement Technology

HIGH PRESSURE HOMOGENIZER



We offer you
One thing first and foremost:
An open range of possibilities.

ELECTRONICS



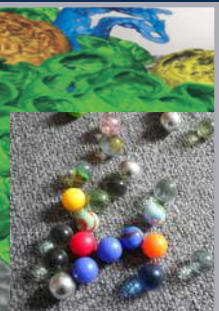
ENERGY



INDUSTRIAL



LIFE SCIENCE



Suflux[®] HIGH PRESSURE HOMOGENIZER NLM100(LAB)



Like all Suflux[®] products, the new, digitally controlled, NLM100 has the outstanding performance efficiently converting high fluid pressures to the intensive shear forces. NLM100 high pressure homogenizer ensures that all materials in your company undergoes exactly the same treatment yielding consistently reliable results that include homogeneous particle size reduction, emulsions and cell disruption.

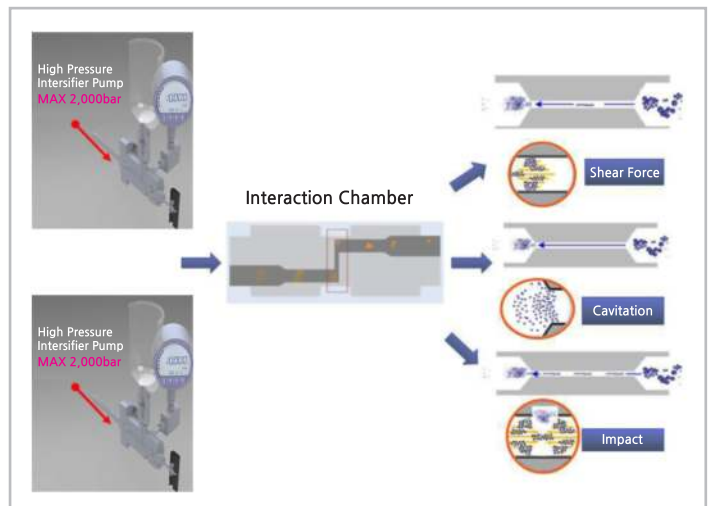
■ The Areas of Application

- Carbon
- CNT
- Liposomes
- Cell
- Fine particle deagglomeration

■ Inside Interaction Chamber

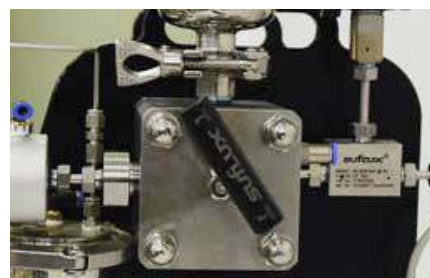
This device offers the guaranteed process scale up from the small amount of sample laboratory samples to production volumes. Our innovative structure converts pressure into shear forces more efficiently than other technologies, delivering superior performance. NLM100's motorized plunger supplies the desired pressure at a constant rate to your materials, driving them through precisely defined, fixed-geometry tubing within the interaction chamber.

The sample stream accelerates to extremely high velocities, making shear rates that are orders of magnitude greater than any other conventional method.





Ball screw housing Driven by motor



Air vent valve



Adjustable pressure by motor speed



Cooling tank after process

Configuration

- Operates at pressure up to 1,500 bar (21,755 psi) ,workable designed pressure : 2,000 bar (29,000 psi)
- Requires a minimum sample amount, 300 ml
- Is suitable for laboratory and R&D purpose
- Achieves successful size reduction/disruption performance
- Cooling coil prevents from the sample temperature rise during processing
- Ensuring minimal heat denaturation of the sensitive materials
- Save on development time in pilot/production with linear volumetric scale up
- Provides enhanced repeatability with easy-to-use pressure control
- Has a compact design
- Reservoir
- Diamond interaction chamber(standard)
- Cooling coil and chilled bath assembly
- Process pressure gauge
- Solvent-resistant gasket materials

Data Details

Operating Pressure	Max. 1500 bar (Design pressure : 2,000 bar)
Flow Rate	Max. 100 mml/min
Pump system	Motor driven type(220 V, 1 Ph, 50 ~ 60 Hz, 1 HP)
Inlet Reservoir	300 ml
Dimensions	490(D) x 450(W) x 300(H) mm
Weight	Approx. 50 kg

Suflux[®] HIGH PRESSURE HOMOGENIZER NH500(PILOT)



Utilizing NM500 Suflux[®] fixed geometry interaction chamber technology and a ceramic(zirconia) plunger, the NH500 processes a wide variety of fluids such as simple oil-in-water emulsions, solids-in-liquid suspensions and cell disruptions. Most remarkably, the process is repeatable and is guaranteed to scale up to production volumes.

■ The Areas of Application

- Immiscible Liquid Emulsions
- Solid-in-Liquid Suspensions
- Submicron Particle Size Reduction
- Deagglomeration and Dispersion

■ Inside Machine

The NH500 contains an on-board 3.7 kw (5 HP) electric-hydraulic module that powers a single acting intensifier pump.

This pump amplifies the hydraulic pressure to the selected level which in turn, impacts that pressure to the product stream.



Interaction chamber and fittings



Cooling tank after process



Protective case



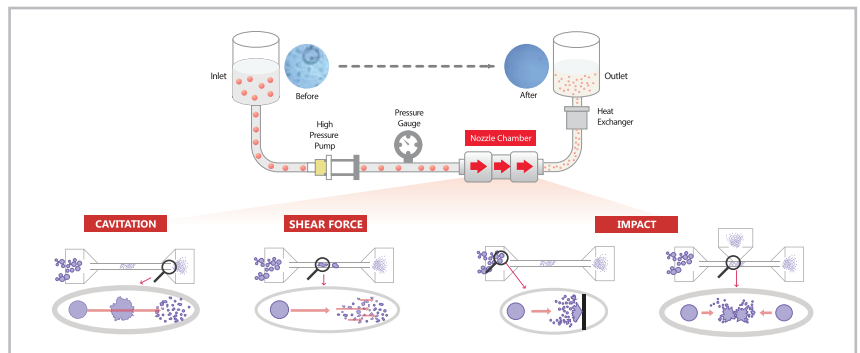
Adjustable pressure by hydraulic unit



Back flushing system

Configuration

- Handles minimum sample size as small as 1liter
- Achieves processing pressures up to 1,500bar(21,755psi) workable designed pressure : 2,000bar(29,000psi)
- Guarantees scale up to production
- Features an installed cooling coil for the consistent discharge product temperature
- Is designed for Clean-in Place(CIP) with no disassembly required
- Is available with Steam-in Place(SIP) option
- Is available with optional explosion-proof design
- Meets CE compliance standard
- Wear-resistant diamond interaction chamber(no moving parts)
- Ceramic(zirconia) plunger for extended seal life
- Stainless steel enclosure
- Gauge for measuring process pressure, hydraulic oil level and temperature
- Temperature range : 16 °C ~ 75 °C
- Easy maintenance
- Safe and easy to use
- Reservoir
- Interaction chamber cooling bath
- Explosion-proof design



3 FORCES OF HOMOGENIZING : CAVITATION / SHEAR FORCE / IMPACT

Data Details

Operating Pressure	Max. 1500 bar (Design pressure : 2,000 bar)
Flow Rate	Max. 500 mml/min
Pump system	Hydraulic unit system, 5 HP
Inlet Reservoir	2,000 ml
Dimensions	1,075(D) x 1,512(W) x 995(H) mm
Weight	Approx. 300 kg

Suflux[®] HIGH PRESSURE HOMOGENIZER NH4000(PRODUCTION)



NH4000 device allows itself to cover a very wide range of applications, including carbon, pharmaceutical, biotechnology, chemical, coating, inks, cosmetics and food additives. Utilizing Suflux[®] technology, this delivers the finest and most homogeneous distribution of submicron particle size at the highest shear rates available. NH4000 can match our results, the high sheared level. Emulsions and suspensions are more stable and the performance of your final products is outstanding.

■ The Areas of Application

- Immiscible Liquid Emulsions
- Solid-in-Liquid Suspensions
- Submicron Particle Size Reduction
- Deagglomeration and Dispersion

■ Inside Machine

The NH4000 machine has been designed for total quality control and in order to guarantee an high number of customized solutions and full traceability. The multi-slotted fixed-geometry interaction chambers impact identical high sheared rates to product formulations as are performed on lab scale interaction chamber. NH4000 generates up to 1,500 bar (21,744 psi) operating pressure for premium results at an affordable cost.



Cooling line on the high pressure part

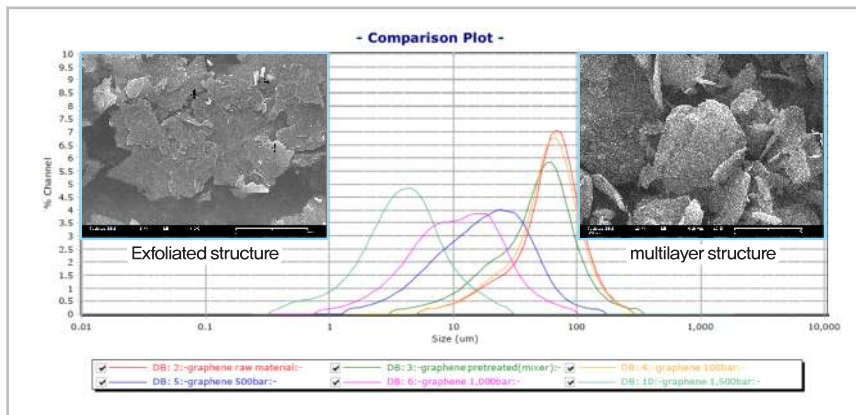


Back flushing system

Advanced technology for the unparalleled levels and results in homogeneous nanomolecules, carbons, cell disruption and homogeneous particle size reduction,

Suflux® high-pressure device is capable of generating the high sheared levels that are easily usable for different types of applications. Our equipment consistently achieves unrivaled results substantially greater particle size reductions and the best homogeneous particle size distributions.

If you are looking for nanotechnology for innovative products in a million properties and undeniable benefits over your competition, rely on Suflux® for high pressure homogenizer for the best quality of your products.



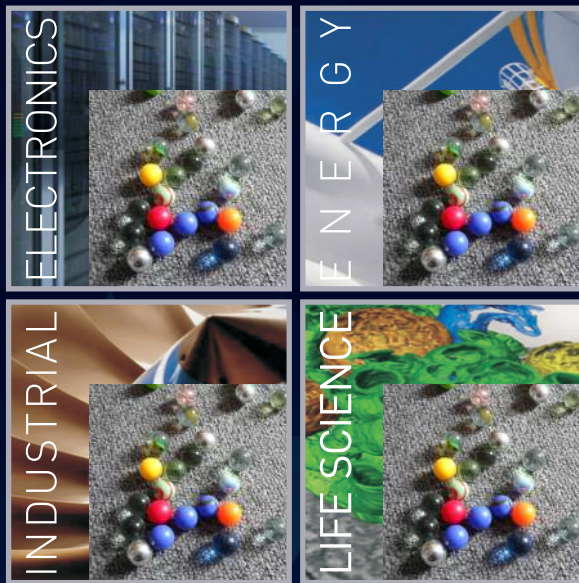
Exfoliation Test with HPH

■ Configuration

- Repeatable, uniform particle size results to submicron distributions with guaranteed scale up from R&D to full production
- Broad range of throughput in continuous or batch mode ; the machine can process at a wide range of pressure and flows
- Operates at pressures up to 1,500bar(21,755psi) ; designed pressure : 2,000bar, 29,000psi)
- Proven to be highly reliable at operating pressures up to 1,500bar in pilot and production environments
- Steam-in Place(SIP) for aseptic manufacturing
- In-line cleaning with no disassembly required
- Automatic operations, PLC controller
- Explosion-proof configuration for hazardous environment

■ Data Details

Operating Pressure	Max. 1500 bar (Design pressure : 2,000 bar)
Flow Rate	Max. 4,000 mml/min
Pump system	Hydraulic unit system 40 HP
Inlet Reservoir	10 liter
Dimensions	2,780(D) x 1,719(W) x 1,000(H) mm
Weight	Approx. 1.9 ton



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