M-110P Microfluidizer® Materials Processor

M-110P Laboratory Unit For Continuous High Shear Fluid Processing

M-110P "Plug and Play" Laboratory Unit for Continuous High Shear Flow Processing

M-110P Microfluidizer Processor

- Achieves process pressure to 30,000 psi
- Produces flow rate range of 110-155 ml/min at any process pressure
- Powered by standard 18 amp, single phase "household" electrical outlet
- Requires no compressed air and no cooling water
- Fits in standard laboratory chemical hood
- Incorporates PLC for all on-board system functions
- Offers options for external controls e.g., automated alarms, auto shut down
- Offers options for monitoring external or internal conditions e.g., temperatures, pressure, etc.
- CE Compliant

Utilizing Microfluidics' fixed geometry diamond interaction chamber technology, and a ceramic (Zirconia) plunger, the M-110P is capable of processing a wide variety of fluids such as simple oil-in-water emulsions, solids-in-liquid suspensions, and cell disruptions, including the most difficult yeasts and plant cells, in 1-2 passes. What's more, the process is repeatable and is guaranteed to scaleup to pilot and/or production volumes.

Revolutionary M-110P Microfluidizer Bench-top Processor Recommended for:

- Production of stable nano-dispersions and nano-emulsions
- Cell Disruption (yeast, E.Coli, etc.)
- Microencapsulation in polymers, liposomes and oils
- Deagglomeration

The M-110P has been designed to reliably achieve continuous operating pressures up to 30,000 psi. This processor maximizes the energy-per-unit fluid volume, resulting in uniform submicron particles.

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The M-110P contains an on-board 2 horsepower (1.5 kw) electric-hydraulic module that powers a single acting intensifier pump. The intensifier pump amplifies the hydraulic pressure to the selected level which, in turn, imparts that pressure to the product stream. Process pressures ranging from 2000 to 30,000 psi may be selected with the simple turn of a knob.

The intensifier pump is designed to supply the desired pressure at a constant rate to the product stream. As the pump travels through its pressure stroke, it drives the product at constant pressure through the interaction chamber. Within the chamber are specially designed fixed-geometry micro-channels through which the product stream will accelerate to high velocities. This creates high shear and impact forces that bring about the desired results as the high velocity product stream impinges on itself and on wear-resistant surfaces.

As the intensifier pump completes its pressure stroke, it reverses direction and draws in a new volume of product. At the end of the intake stroke, it reverses direction and again drives the product at constant pressure, repeating the process.

Upon exiting the interaction chamber, the product flows through an external heat exchanger which regulates the product to a desired temperature. At this point the product may be recirculated through the system for further processing or directed externally to the next step in the process.

M-110P Specifications

Pressure Range	2,000 to 30,000 psi (138-2069 bar)
Flowrate Range	110-155 ml/min (approximately)
Feed Temperature Range	to 165°F (74° C)
Power Requirement	60 Hz, 120 VAC, 18 amps
Sample Size	50 ml and up
Dimensions	31.38"W x 22"D x 19" H (78cm x 56 cm x 48cm)
Weight	265 lbs (120 kg)

M-110P Standard Features

- Diamond interaction chamber
- Ceramic (Zirconia) plunger for extended seal life
- Stainless steel enclosure
- Electric-hydraulic power unit
- Gauges for measuring process pressure, hydraulic drive pressure, and hydraulic oil level and temperature
- Flow rates to 110-155 ml/min
- Minimum sample size is 50 ml
- Feed temperature to 165°F (74°C)

M-110P Available Options

- Monitoring operating conditions
- External controls
- 2 liter reservoir
- 2 gallon pressure-type feed tank
- 2 liter pressure-type reservoir
- Solvent seal quench system
- Sanitary flush diaphragm pressure transducer with digital readout
- Additional interaction chamber set
- Auxiliary Processing Module

Microfluidics reserves the right to change specifications without notice.

Microfluidics

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