

M-710 Microfluidizer® Materials Processor

Electric-Hydraulic Microfluidizer Processor For High Shear Fluid Processing – 100 HP

M-710 Production Scale Microfluidizer Processor

This 100 HP high shear fluid processor is recommended for industries that require:

- Stable Solids-in-Liquid Dispersions
- Stable Microemulsions
- Submicron Particles (Nanoparticles)
- Deagglomeration

The new Model M-710 is a 100 HP high shear fluid processor capable of producing flow rates anywhere from 2 gpm (7.6 l/m) at 40,000 psi (2760 bar) to more than 15 GPM (57 l/m) at 5,000 psi (345 bar). The dual synchronous intensifier pumping system develops high velocities through the patented fixed geometry interaction chambers. This action creates shear forces that reduce particles and droplets to sub-micron sizes with narrow and uniform distribution, usually in a single pass.

The lightweight longer lasting Zirconia (ceramic) plungers within the intensifier pumps ensure long life for high- pressure seals. This, coupled with the interaction chamber's abrasion-resistant ceramic or diamond wear surfaces, keeps maintenance and repair costs to a minimum. Because the interaction chamber employs no moving parts, no disassembly is required for cleaning. All these features contribute to the M-710 Microfluidizer processor's low cost of ownership.



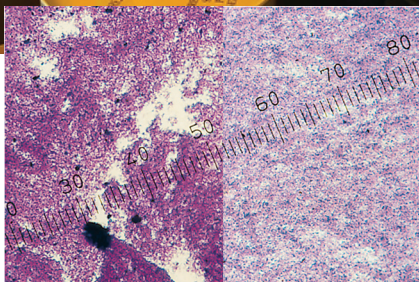
The M-710 Series Microfluidizer processors use ultra high shear to achieve superior, scalable results with easy handling and cleaning

Key benefits:

- Repeatable, uniform results with guaranteed scaleup from your lab or pilot results
- Broad range of throughput – continuous or batch mode; the model M-710 is designed to meet your specific flow requirements.

Key features:

- Dual synchronous intensifier pump provides near-constant pressure for repeatable results
- Patented, wear-resistant interaction chamber technology maximizes energy per unit volume of product
- Highest shear rates of all available mixers and homogenizers
- Easy in-line cleaning and simple maintenance



*Patented
Microfluidizer
processors
produce stable
emulsions
and uniform
dispersions with
submicron size
particles*

Operating Principle

Each M-710 series machine contains an on-board electric-hydraulic module providing power to dual synchronous intensifier pumps. The pumps amplify the hydraulic pressure to the selected level which, in turn, imparts that pressure to the product stream. Process pressures range from 2,500 to 40,000 psi, resulting in high velocity, high shear process streams.

The intensifier pumping system is designed to supply the desired pressure at a constant rate to the product stream, driving the product at near constant pressure through the interaction chamber. Within the chamber are specially designed, fixed geometry micro-channels through which the product accelerates to high velocities creating shear and impact forces within the product stream, bringing about the desired results.

Upon exiting the interaction chamber, the product may be directed through an optional heat exchanger, recirculated through the system for further processing or directed externally to the next step in the process.

The M-710 machine comes standard with ultra-clean-in-place (UCIP) which enables cleaning fluids to achieve minimum velocities of 5 ft/sec so that no disassembly is required.

All standard M-700 Series options and accessories are compatible with the M-710 processor.



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M-710 Specifications

Sample Size	1 gallon to continuous
Power Requirements	3 phase electric service, 208/230/460V 100 HP
Utility Requirement	Cooling water for hydraulic oil heat exchanger and optional process product heat exchanger, compressed air (50-100 psi, 1scfm pressure dew point of 0-35°F)
Dimensions	102" x 52" x 76" (LxWxH) (259 x 132 x 193 cm)
Weight	7000 lbs (6000 lbs without oil) [3182 kg (2727 kg without oil)]

Operating Pressure (psi)	*Nominal Flow Rate (gpm)
5K	15
10K	9
20K	4.4
30K	3
40K	2.3

*water

Available Options

- Chamber Sets - diamond or ceramic optimized for your product and process
- Hazardous environments - compliant to NEC 500 or CE-ATEX
- Pressure transducer and display
- CIP and SIP for sanitary and/or sterile manufacturing requirements
- Automated processes with PLC and/or PC control options
- Integration with process automation DCS or SCAD available
- Validatable under Part II, CFR 21 for US FDA regulated environments

Microfluidics reserves the right to change specifications without notice.

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