

High Pressure Homogenizers

From small scale R&D to large scale manufacturing equipment, BEE homogenizers provide unparalleled fluid processing capabilities for particle size reduction, cell disruption, and creating stable nanoemulsions & dispersions.

The modular design of our advanced homogenization technology allows for additional formulation manipulation to shorten development time and achieve superior end product results.

Engineered with scalability in mind

The heart of each unit is our unique Emulsifying Cell which accomplishes in one pass what other techniques can only achieve in multiple passes. These versatile cells are customizable and provide users with the ability to control the amount of shear, cavitation, and impact forces during processing in order to achieve unprecedented results for a variety of mixing challenges.

BEE high-pressure homogenizers expand mixing/blending/grinding process capabilities for particle size reduction and cell rupture applications

The Nano DeBEE Gen II Laboratory Homogenizer

The highest processing energy in a benchtop unit for your product formulations. Suitable for laboratory experimentation for a broad range of applications, including; emulsification, particle size reduction, dispersions, suspensions, cell lysis and liposomal encapsulation.

Features:

Operating pressure:

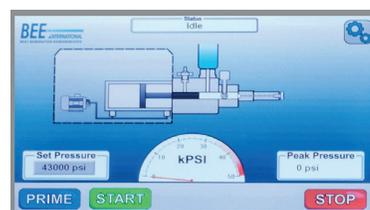
15,000– 45,000 PSI (1,000–3,100 bar)

Flow rate:

Nano DeBEE 45-2: 2 LPH (33 mLPM or .5 GPH)

Nano DeBEE 45-6: 6 LPH (100 mLPM or 1.5 GPH)

- Modular Emulsifying Cell (EC)- more experimentation options than any other equipment
- PLC control and monitoring for easy operation
- Results scale to manufacturing
- Minimum sample size as low as 12 ml



The Micro DeBEE Laboratory Homogenizer

The Micro DeBEE laboratory homogenizer is an air powered unit with the same level of experimentation capabilities as our electro hydraulic units. Proven to achieve industry leading results for cell lysis, nanoemulsions and dispersions, and particle size reduction.

Features:

Operating pressure:

2,000– 30,000 PSI (150–2,000 bar)

Flow rate:

15 LPH (4 GPH)

- Easy cleaning and maintenance with no disassembly required
- Requires: clean, dry air; 0-35F dew point - 50 SCFM @ 100 psi for 30,000 psi (2,000 bar) max
- Minimum sample size as low as 12ml



The Mini DeBEE Laboratory Homogenizer

Regarded as the perfect crossover between R&D and pilot scale, the Mini DeBEE provides unparalleled formulation discovery and experimentation capabilities at increased flow capacities for direct scalability.



Features:

Operating pressure:

Available in either 2,000 - 30,000 PSI or 2,000 - 45,000 PSI (2000 Bar /3100 Bar)

Flow rate:

Up to 4.0 GPH (15 LPH) at 45,000 KPSI

Up to 5.3 GPH (20 LPH) at 30,000 KPSI

- More process options than any other homogenizer
- Considered a “workhorse” the Mini crosses over R&D work to small scale production
- PLC control and monitoring for easy operation
- Highest process intensity in the industry
- Easy cleaning and maintenance
- Low cost replacement parts

Serving pharmaceutical, biotech, cannabis, chemical, food and beverage industries worldwide.



The DeBEE 2000 Pilot & Production Scale Homogenizer

DeBEE 2000 systems combine a variety of mixing tools into one versatile instrument capable of advanced process customization as well as increased production capacity. The guaranteed scalability of BEE equipment allows users to take a proven product with established processing protocols and replicate results to accommodate business growth and development.

Features:

Max Operating pressure:

Systems available for 45,000 PSI
(1380–3,100 bar)

Flow rates:

Systems available from 30 - 120 LPH (7.9 - 31 GPH)

The DeBEE 2000 product line also offers a long list of available options to suit your particular process and automation requirements including: automated feed solutions, dual feed /inline preprocessing, multi-pass automation, CIP (Clean In Place), validation packages, hazardous environment protection, additional process monitoring, data gathering and reporting capabilities, digital temperature control, and many more.

- Customizable emulsifying cell to meet your product needs
- PLC control with touchscreen digital display
- Constant flow and pressure for uniform results
- Data storage capabilities
- Easy cleaning and maintenance
- Low-cost replacement parts



DeBEE 4000 Manufacturing Scale Homogenizer

The DeBEE 4000 is our top-of-the-line series, offering manufacturing scale capacity, the highest level of process controls and automation, as well as full plant integration and compliance with CFR 21 part 11.

Utilizing innovative synchronization of multiple intensifier pumps, combined with a flexible modular system design, this series offers a very wide range of production capabilities and levels of automation. The DeBEE 4000 combines decades proven off the shelf robust industrial components, with state of the art computerized controls for unparalleled reliability.

DeBEE 4000 models are suitable for a wide range of applications, from abrasive slurries in the chemical industry to injectable drugs. All with the highest levels of regulatory compliance and data harvesting.

To achieve the best results most efficiently, DeBEE 4000 systems include:

Operating pressure & flow rate: DeBEE 4000 units are custom designed solutions for specific manufacturing requirements.

Features:

Max Operating pressure:

Systems available for 10K PSI to 45K PSI

Flow rates:

Systems available from 250 LPH to 1000 LPH (66 to 265 GPH)

- Process scaled from R&D to produce same results
- Proprietary synchronized pumping system for a constant process and a tighter distribution of end product results
- Hydraulically driven vertical intensifier pumps with slow stroke rates provide:
 - Higher pressure capability
 - Higher process intensity
- Lower maintenance cost



Pion stands behind the science

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Specifications subject to change without notice

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