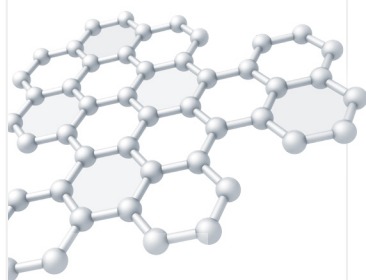
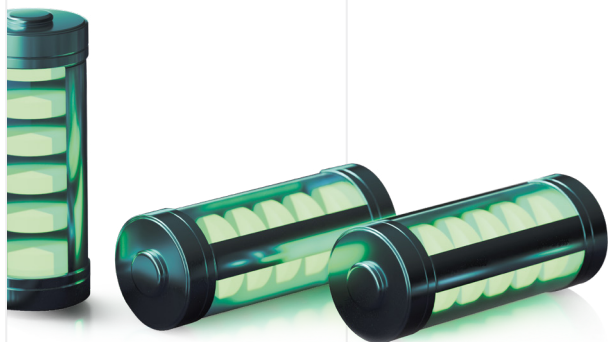


FUST Lab.

DEBREX

Chemical / Battery Industry



Manufactured by FUST Lab. distributed in the UK and Ireland by **analytik**.

NANO Dispersion by DEBREX

DEBREX is an advanced ultrasonic device designed for **high-performance nano scale-dispersion**. This equipment is capable of handling materials that are challenging to-disperse as well.

- > High-precision, high-performance dispersion
- > Achieves highly uniform nano-dispersion
- > Dispersant-free nano dispersion
- > In-line continuous production process

High-Performance Precision Dispersion

- > Enables high-performance, uniform dispersion of challenging samples
- > Optimal for dispersing SWCNT, MXene, and more
- > Adjustable power and frequency for precise dispersion control

Capable of producing highly uniform Nano-dispersions

- > Uniform nano-dispersion of various materials
- > Carbon-based nanomaterials
- > Emerging advanced materials

Dispersant-free formulation possible

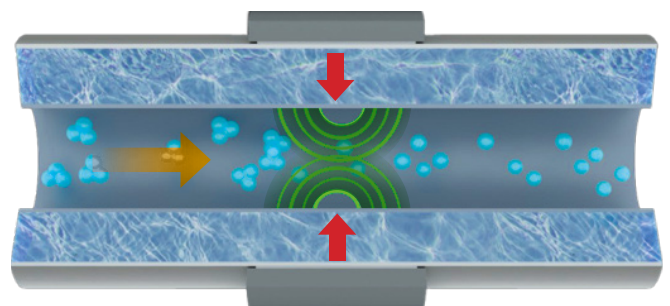
- > Achieving uniform dispersion without relying on surfactants (dispersants/emulsifiers)

Maximized Production Efficiency:

- > **Adjustable power** rates ensures precise dispersion and emulsification
- > **Automated cleaning function** for user convenience
- > **Real-time frequency detection** and maintenance minimize the need for real time monitoring and staffing
- > **Continuous production system** with minimized loss rate and high production efficiency
- > **Temperature control** allows continuous operation of up to 30 days

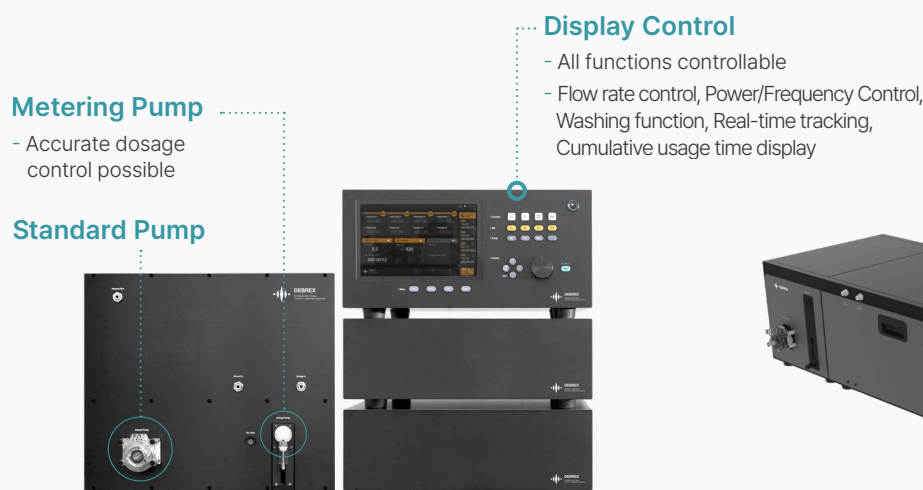
The Principle behind DEBREX's Ultrasonic Technology

FUST Lab's cylindrical ultrasonic processor concentrates energy at the center for uniform emulsification and dispersion under a controlled flow rate. The surrounding cooling system stabilizes temperature, preventing overheating and protecting the sample.



DEBREX-Only Precision Control Features

- > Consistent reproducibility through real-time resonant frequency detection and maintenance
- > Accurate power and frequency controls adjustments
- > Temperature regulator with integrated cooling system
- > Efficient operation and maintenance with built-in cleaning function
- > Real-time operation status tracking function, monitors system performance and their corresponding parameters
- > All functions are visible and monitored through a single display interface



DEBREX LAB Lab Scale Equipment (Specialized in Dispersion/Emulsion Formulation Development)

Dimensions & Weight

Focused Ultrasonic Processor	512mm(W) * 362mm(D) * 470mm(H) 42kg
Generator	461mm(W) * 420mm(D) * 342mm(H) 34kg
Display Controller	461mm(W) * 420mm(D) * 241mm(H) 19kg

Performance Specification

Power	<ul style="list-style-type: none"> • Controller Input Voltage : AC100V ~ 240V, 50/60Hz • Generator Input Voltage : AC220V, 50/60Hz • Power Consumption : AC220V(1.1kW) • Current : AC220V(5.0A) • Power Type : Single-phase
Operating Frequency	350kHz ~ 420kHz
Output Power	MAX 100W
Solvent Pump	Flow Rate : 0~100mL/min(resolution: 5mL/min)
Syringe Pump & Syringe	<ul style="list-style-type: none"> • Input Flow Rate : 0.5 ~ 5.0mL/min (resolution: 0.1mL/min) • Output Flow Rate : 0.3 ~ 5.0 mL/min (resolution 0.1mL/min) • Syringe Volume: 5mL
Cooling System	External Cooling Circulator Required

DEBREX SS Pilot Scale Production Basic Specification

Specification Details

Dimensions & Weight	<ul style="list-style-type: none"> • Focused Ultrasonic Processor - 915mm(W) * 520mm(D) * 340mm(H), 42kg • Generator_V2 - 915mm(W) * 520mm(D) * 340mm(H), 42kg • Controller_V2 - 485mm(W) * 530mm(D) * 230mm(H), 19kg
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Performance Specification

Power Specifications	<ul style="list-style-type: none"> • Input Voltage: AC100V ~ 240V, 50/60Hz • Power Consumption: 880W(AC220V), 700W(AC100V) • Current: 4A(AC220V), 7A(AC100V) • Power Type: Single-phase
Operating Frequency	350kHz ~ 420kHz
Output Power	MAX 100W
Solvent Pump	<ul style="list-style-type: none"> • Flow Rate: 0~500mL/min
Syringe Pump & Syringe	<ul style="list-style-type: none"> • Input Flow Rate: 0.5 ~ 500mL/min • Output Flow Rate: 0.5 ~ 100mL/min • Syringe Volume: 50mL
Cooling System	External Cooling Circulator Required, see specifications

DEBREX PX Production Scale Equipment



DEBREX PX Production Scale Equipment

Basic Specification



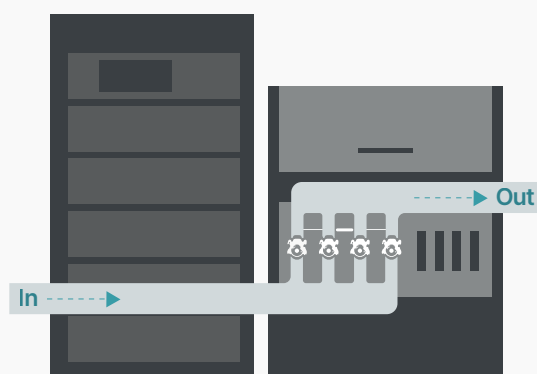
Specification	Details
Dimensions & Weight	<ul style="list-style-type: none"> Focused Ultrasonic Processor <ul style="list-style-type: none"> - 1250mm(W)* 900mm(D) * 1530mm(H)(Door Open: 2200mm(H)). 313kg Control RACK : 700mm(W) * 900mm(D) * 1820mm(H), 1SET(260kg) <ul style="list-style-type: none"> - Generator_V2 : 580mm(W) * 530mm(D) * 230mm(H), 25kg * 4SET - Controller_V2 : 580mm(W) * 530mm(D) * 230mm(H), 19kg * 1SET - Power Supply : 580mm(W) * 530mm(D) * 125mm(H), 12kg * 1SET

Performance Specification

Specification	Details
Power Specifications	<ul style="list-style-type: none"> Input Voltage : AC100V ~ 240V, 50/60Hz Power Consumption : 3.5kw(AC220V), 2.9kw(AC100V) Current : 16A(AC220V), 29A(AC100V) Power Type : Single-phase
Operating Frequency	350kHz ~ 420kHz
Output Power	MAX 100W
Solvent Pump	<ul style="list-style-type: none"> Flow Rate : 0~500mL/min Solvent Pump : 4ea
Syringe Pump & Syringe	<ul style="list-style-type: none"> Input Flow Rate : 0.5 ~ 500mL/min Output Flow Rate : 0.5 ~ 100mL/min Syringe Volume : 50mL Syringe Pump : 4ea
Cooling System	External Cooling Circulator Required, see specifications

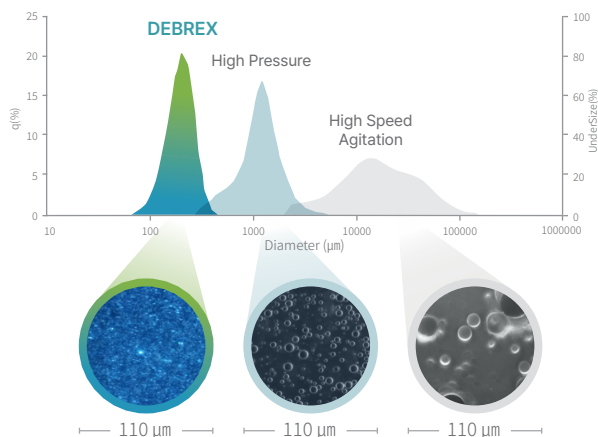
Equipment Applications

- > Can be seamlessly connected to an existing batch production line
- > Optimization can seamlessly transition to operate as a part of a continuous flow

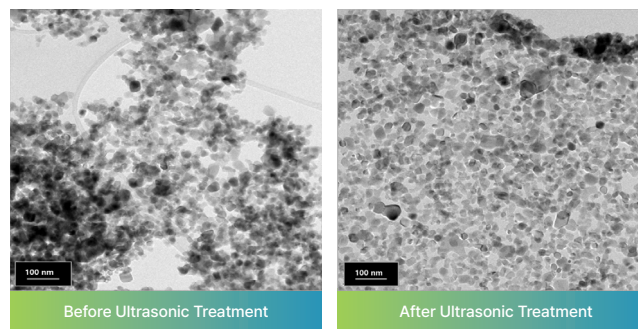


Chemical / Battery Application

Uniform Nano-dispersion



Surfactant free nano-dispersion



SWCNT for Secondary Battery

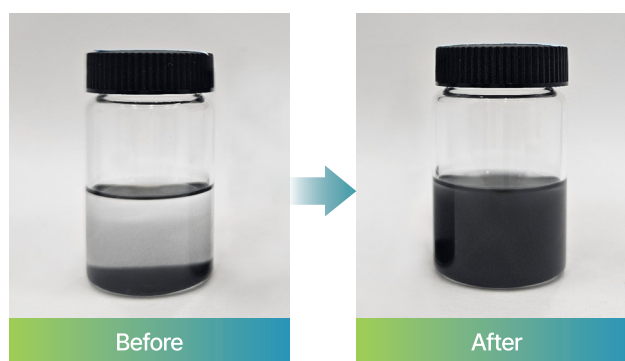
- > **SWCNT** dispersion test using different dispersion technology
- > Test condition : **SWCNT (1%) / WATER (97%) / THICKNER(2%)**



Metal Powder Uniform Dispersion

- > Stable Nickel dispersion for replacement of MLCC's high-cost silver

Nickel Powder Dispersion



High-Performance Dispersion Technology drives the development of advanced materials.

- > Dispersion-emulsification technology plays a crucial role in the development of various chemical materials, directly impacting the performance of the final product.
- > DEBREX is a cutting-edge dispersion-emulsification technology that utilizes high dispersion forces to evenly disperse poorly dispersible materials into **nano-scale-without the need to add** dispersants—ensuring effective dispersion.

Sales Representative



Our sales team go beyond simply selling equipment—we strive to be a true partner to our customers. By deeply understanding our clients' needs and leveraging our technical expertise, we help maximize the performance and impact of our technology, ensuring the best possible outcomes together.

Application Team



With years of accumulated expertise and research experience, we actively contribute to formulation development across various industries. We are committed to continuous R&D, always striving to exceed customer expectations.

Equipment Team



Our dedication to innovation drives Equipment Team to develop increasingly advanced equipment with ongoing updates and improvements for our clients.

Quality Assurance and Manufacturing



Through a rigorous quality control and assurance system led by experienced QC & QA professionals, we maintain full transparency in our manufacturing process and uphold strict quality standards. We are committed to delivering equipment with the highest level of reliability and stability.

PARTNERS & CUSTOMERS

