



Advanced Ultra High Pressure Homogenizer



STANDARDS

ASTM A240
ASTM A240M
IEC 61010-1
IEC 61326-1
ISO 12100

Advanced Ultra High Pressure Homogenizer - QualiHG™ UHPA

Advanced Ultra High Pressure Homogenizer is a benchtop Homogenizer built for cell disruption and fine homogenization in lab and pilot-scale workflows. It uses controlled ultra-high pressure and a precision homogenizing valve to generate strong cavitation, impact, and shear forces for repeatable emulsification, dispersion, and disruption.

The platform supports temperature-managed processing by connecting to an external thermostatic bath, helping protect heat-sensitive samples during longer runs. It is positioned for biological laboratories and small-scale production where space, control, and throughput matter.

QualiHG™ UHPA Series is engineered to deliver consistent results by controlling pressure, flow rate, and processing time across different sample types. The system supports fast, repeatable homogenization for applications that need smaller particle sizes and stable emulsions.

A compact benchtop form factor supports university labs, R&D centers, and small production suites that need high pressure capability without a floor-standing footprint. Typical performance targets include up to 15 L/h throughput, up to 1800 bar operating pressure, and handling feed particles up to 500 µm, depending on the configuration.

APPLICATIONS

Advanced Ultra High Pressure Homogenizer - QualiHG™ UHPA

Applications

- Bioengineering
 - Microbial and algal cell disruption supports downstream protein, enzyme, and metabolite studies. Controlled homogenization conditions also help teams evaluate how processing parameters influence plant protein functionality and other bio-based formulations.
- Food and Beverage Engineering
 - High-pressure homogenization can improve dispersion and stability in liquids while supporting non-thermal processing approaches for certain formulations. Parameter control helps evaluate how pressure and time affect physicochemical properties, mouthfeel, and stability in beverages and emulsions.
- Materials and Cosmetics
 - Ultra-fine grinding and dispersion can improve uniformity in pigments, dyes, and functional suspensions. It also supports nanoparticle emulsions and liposome-based cosmetic formulations where particle size distribution and stability are key outputs.
- Biopharmaceutical and Formulation R&D
 - The system supports preparation of fat emulsions, nano-suspensions, lipid nanoparticles, and liposome-type systems where controlled size reduction improves consistency. It can also support extraction and preparation workflows where uniform dispersion improves process repeatability.



Standards

- IEC 61010-1: Safety for laboratory electrical equipment
- IEC 61326-1: EMC for measurement/control/lab equipment
- ISO 12100: Machinery risk assessment and risk reduction
- ASTM A240/A240M: Stainless material reference for wetted metal components (when 316L is specified)

FEATURES

Advanced Ultra High Pressure Homogenizer - QualiHG™ UHPA Key Features

- Ultra-high pressure processing for demanding samples: Designed for efficient cell disruption and material homogenization under controlled pressure and flow conditions.
- Parameter control for repeatability: Pressure, flow behavior, and processing time are managed to maintain consistent run-to-run outcomes.
- Temperature-management ready: Cooling circulation interface supports connection to a thermostatic bath to limit heat rise during processing.
- Compact benchtop footprint: Built for biological labs and small-scale production environments where space is limited.
- Broad sample coverage: Suitable for biological samples and a range of industrial dispersions and suspensions.
- Hygienic construction approach: 316L stainless construction is referenced for applications aligned with food and pharma expectations.

THEORY & METHOD

Theory and Method

Sample is drawn into a high-pressure chamber through a one-way valve, then pressurized by a reciprocating plunger. The pressurized stream is released through a fixed-width flow-limiting gap, forming a high-velocity micro-jet that strikes the homogenizing valve. This produces cavitation, impact, and shear effects that drive emulsification, dispersion, and cell disruption.

TECHNICAL SPECIFICATIONS

Advanced Ultra High Pressure Homogenizer - QualiHG™ UHPA Technical Specification

Parameter	QualiHG™ UHPA
Maximum design pressure	2070 bar / 207 MPa / 30015 psi
Maximum working pressure	1800 bar / 180 MPa / 26100 psi
Maximum sample processing capacity	15 L/h
Minimum sample processing capacity	15 ml
Material residual volume	0 ml
Motor power	3.0 kW
Maximum feed particle size	≤ 500 μm
Flow control	Freely adjustable flow rate
Screen / display	10-inch industrial-grade touch screen; integrated pressure & temperature; digital display + real-time pressure curve

Parameter	QualiHG™ UHPA
Data export	USB
Instrument net weight	91 kg
Dimensions (L × W × H)	940 × 320 × 540 mm



ADVANCED TESTING TECHNOLOGIES

USA | CANADA | UAE | GCC | EU | INDIA | APAC | AFRICA | LATIN AMERICA

Connect with us

Contact our **QualiTeam** today to find out how we can help your organization **select the most suitable testing solution** for your application, requirements, and budget.

Qualitest USA (Corporate Sales Office)

Toll-Free: 1.877.884.TEST (8378) | Fax: 954.697.8211
E-mail: info@qualitest-inc.com
Address: 8201 Peters Rd., #1000,
Plantation, FL 33324, USA.

Qualitest Canada & International

Tel: +1.905.944.9825 | Fax: +1.905.944.0304
E-mail: sales@qualitest-inc.com
Address: 70 East Beaver Creek Rd., #9, Richmond Hill,
Ontario L4B 3B2, Canada.

Qualitest Latin America (Mexico and LATAM Region)

E-mail: ventas@qualitest-inc.com

Qualitest KSA (Regional Office)

Tel: +966 11 500 6659
Address: Level 7, 3.09, District 3, King Abdullah
Financial District, Riyadh, Saudi Arabia

Qualitest Singapore (ASIA PACIFIC Regional Office)

Tel: +65 6393 5480 | E-mail: singapore@qualitest-inc.com
Address: 50 Raffles Place, Singapore Land Tower,
Level 46, Singapore, 048623.

Qualitest Indonesia (Representative Office)

Tel: +62 21 2985 9522 | Fax: +62 21 2985 9889
E-mail: indonesia@qualitest-inc.com
Address: One Pacific Place Level 11, Jl. Jend. Sudirman,
Kav. 52-53, SCBD Area, Jakarta 12190, Indonesia.

Qualitest FZE (Regional GCC/ME Office)

Tel: +971 4 8819252 | Fax: +971 4 8819262
Email: gcc@qualitest-inc.com
Address: Jafza One, BB 1610, Jebel Ali Free Zone,
PO Box 261440, Dubai, UAE.

Qualitest India

E-mail: india@qualitest-inc.com
Address: 15th Floor, Dev Corpora, Pokhran Road No.1,
Eastern Express Highway, Thane, Maharashtra,
Mumbai, 400601, India

