

SONICATOR®



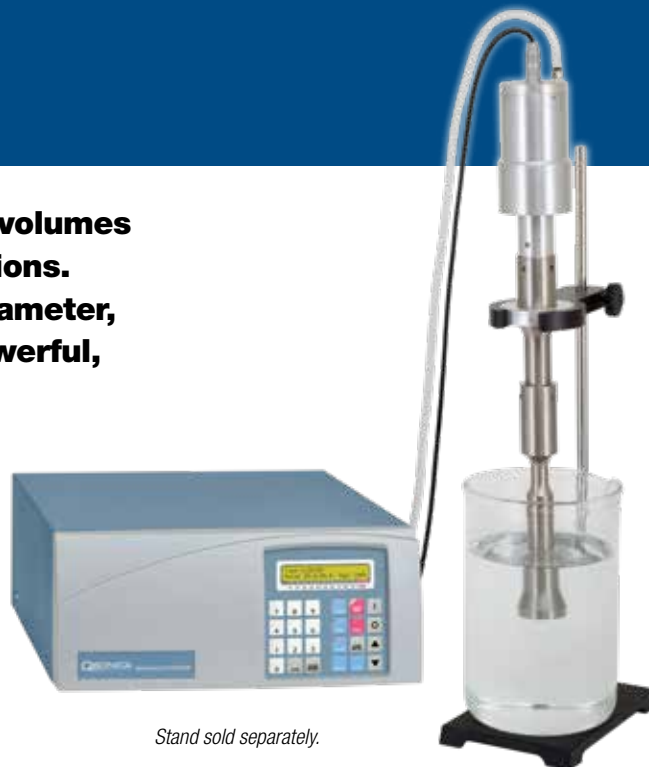
Ultrasonic Liquid Processors

QSONICA
SONICATORS

Q2000 Sonicator

The Q2000 offers the ability to process large volumes in individual batches or flow through applications. This model includes a high amplitude, 1.5" diameter, 10" long probe and booster. The Q2000 is powerful, durable and customizable.

The Q2000 Sonicator allows the user to program processing times and a full range of intensity settings. Processing time can be set from 1 second to 10 hours. A pulsing feature is also included. Pulsing can reduce the amount of heat generated by sonication when processing temperature sensitive samples. A temperature monitoring probe option is also available.



Stand sold separately.

FEATURES:

Programmable operation

Set time and amplitude for hands free operation

Pulse mode

Prevent heat buildup in temperature sensitive samples

Digital amplitude / intensity control

Output intensity can be set from 20-100%

Elapsed time indicator

Displays duration of sonication

Display of wattage and joules

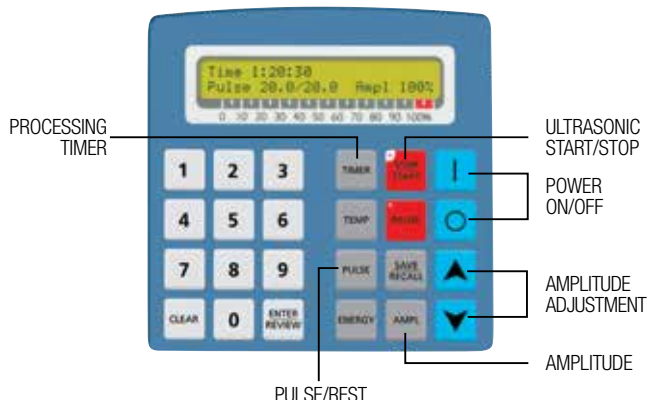
Real-time energy monitoring

Overload protection

Prevents damage to circuitry if a fault occurs

Temperature protection

Prevents overheating of samples



PART NO. Q2000 INCLUDES:

- Generator
- Converter
- Booster
- Converter cable
- Power cable
- Wrench set
- #4777

TECHNICAL SPECIFICATIONS:

Power Rating:	2,000 watts
Frequency:	20kHz
Programmable Timer:	10 hours
Adjustable Pulse On/Off:	1 second to 1 minute
Dimensions (H x W x D):	7 x 15 x 18.25 in. (178 x 380 x 463 mm)
Voltage:	230V, 50/60 Hz

High Volume Batch Processing

The powerful 2,000 watt generator delivers high amplitude sonication to a wide variety of sample types. High viscosity samples (such as oils, slurries, emulsions, etc.) require more power than traditional sonicators are capable of supplying. The Q2000 is a reliable solution for many applications.



Replacement Probes



The #4777 comes standard with the Q2000 System. The two additional probes are available as options to accommodate other sample volumes.

Part #	Tip Diameter	Processing Volume	Amplitude
4777	1.5" (38mm)	5 - 20L	100µm
4697	1" (25mm)	1 - 5L	100µm
4776	0.5" (12mm)	50 - 400ml	100µm

Note: Processing volumes are application specific. There are many variables (viscosity, concentration, etc.) that can affect the min/max processing volumes and processing times. Stirring may be beneficial to viscous samples. Contact us for assistance.

Optional Accessories



#4474



#461



#4060

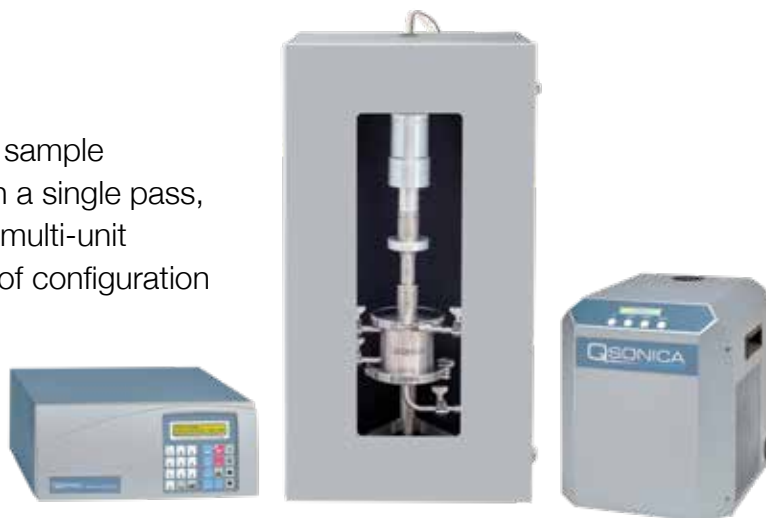
Part #	Description
4474	Sound Enclosure (H x W x D) 36 x 16 x 16 in. (914 x 406 x 406 mm)
461	Support Stand and Converter Clamp
4060	Temperature Probe

**Stand and clamp can be used inside of enclosure.*

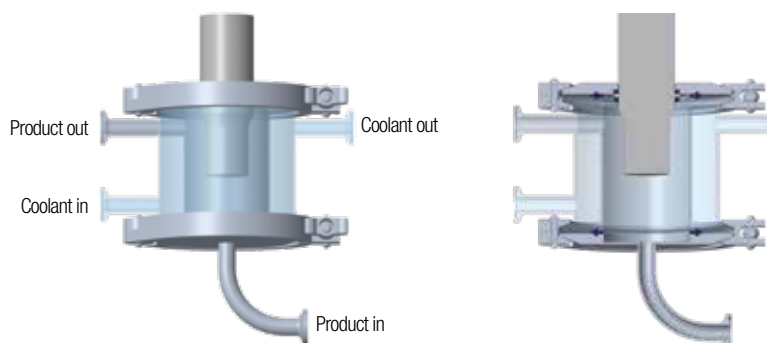
High Volume In-Line Processing

Flocells offer inline/continuous, large volume, sample processing. The sample may be processed in a single pass, recirculated through multiple times or have a multi-unit configuration for faster processing. The type of configuration and actual flow rate are dependent on the individual application, sample type and desired end result.

The liquid sample is pumped into the Floccell through the inlet at the bottom of the unit. As the sample passes through the cavitation field, it is processed. The processed liquid exits the unit through an outlet port. The degree of processing can be controlled by adjusting the intensity of sonication as well as flow rate.



Sound Enclosure and Chiller sold separately.



The unit is recommended for processing volumes of 10L or larger. Routine applications include emulsification, cell lysis, degassing, homogenization, solubilizing, deagglomerating and dispersing.

The Floccell is compatible with the Q2000 system. It is equipped with 1/2" sanitary connections and includes the #4676 probe. An integral water jacket is used to regulate both the system and the sample temperature for efficient operation. An optional recirculating Chiller (#4906) is available to cool the Floccell's water jacket. Use of a Sound Enclosure (#4475) is always recommended.

Part #	Description
Q2000F	Q2000 (without standard probe) Including High Volume Floccell (#4678)
4678	High Volume Floccell <ul style="list-style-type: none"> Includes #4676 Probe Material: 316L Stainless Steel 1/2" (13mm) Sanitary connections Internal volume: 250mL Water jacketed for cooling Maximum flow rate: 20L/min.
4676	Floccell Probe 1.5" (38mm) diameter
4475	Sound Enclosure 16.5 x 31 x 14 in. (419 x 787 x 356 mm)
4906	Recirculating Chiller 13 x 11 x 13 in. (320 x 344 x 234 mm)

Note: Pump system and compressed air source are not included.

Frequently Asked Questions

Relationship between Sample Volume and Probe Size

Selecting the proper size probe is extremely important. Each probe has a recommended sample volume range.

Small volumes require a small tip to fit inside the sample tube. Small tips (microtips) are recommended for processing samples inside small, thin vessels and never samples larger than 50mL.

Larger volumes require a larger probe for effective processing. For example, a 1" probe will process 1 liter more quickly than a ¾" probe.

Tip Diameter	Processing Volume Range
1/16" (2mm)	200ul - 2mL
1/8" (3mm)	1mL - 15mL
1/4" (6mm)	10mL - 50mL
1/2" (12mm)	20mL - 250mL
3/4" (19mm)	50mL - 500mL
1" (25mm)	100mL - 1,000mL
1" with booster	500mL - 1,500mL
Floccell	Continuous flow

Replaceable vs. Solid Tips

Replaceable tip probes are used with aqueous samples. Replaceable tip probes have threaded ends and when the tip is worn out it can be unscrewed and replaced.

If you are processing a sample containing solvents or low surface tension liquids you must use a solid tip probe. Solid tip probes can be used for any type of sample.



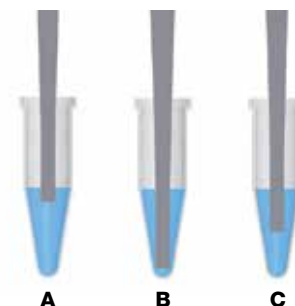
Replaceable

Solid

Tip Depth

Probes/tips must be submerged properly. If the tip is not submerged enough the sample will foam or bubble. If the tip is too deep it will not circulate the sample effectively.

Figure C indicates the correct set up and will achieve good results in the shortest processing time.



A

B

C

For more detailed information on the above topics, as well as the topics below, visit the Literature section of www.Sonicator.com.

- Nanomaterials and Probe Size
- Controlling Temperature
- Power vs. Intensity
- Vessel Shape and Size
- Cooling the Converter
- How to Determine Energy Delivered
- Amplitude and Time Settings
- Booster Horn

In addition, you will also find example protocols, publications, product manuals and warranty information on the site.

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