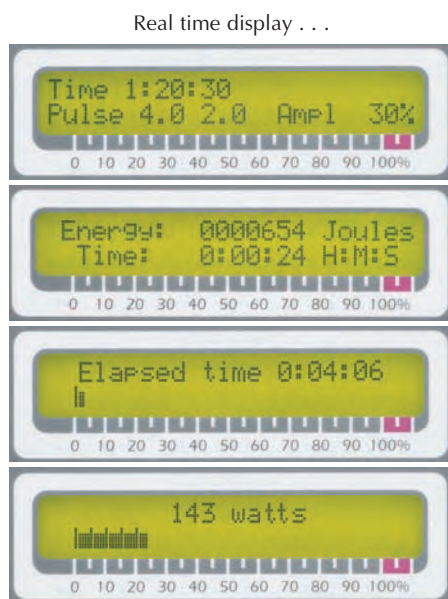


## ULTRASONIC PROCESSORS FOR SMALL AND MEDIUM VOLUME APPLICATIONS

500 and 750 Watt Ultrasonic Processor – 250 microliters to 1 liter\*



VC 505 – VC 750

- **Energy Monitor**  
Digitally displays the actual amount of energy in Joules (watts x seconds) that is being delivered to the probe.
- **Wattmeter**  
Digitally displays the actual amount of power in watts that is being delivered to the probe.
- **Automatic Tuning and Frequency Control**  
Eliminates the need for constant adjustment of the power supply.
- **Microprocessor Based and Programmable**  
Digital accuracy assures adherence to the most exacting protocol.
- **Automatic Amplitude Compensation**  
Ensures uniform probe amplitude regardless of the varying loading conditions encountered during the processing cycle.
- **On Demand Real Time Display**  
Provides a window on the process. No more assumptions. No more approximations. Pressing a button enables all set and run parameters to be continuously displayed on the screen, providing operating mode confirmation without process interruption.
- **Variable Power Output Control**  
Allows the ultrasonic vibrations at the probe tip to be set to any desired amplitude. Selected output level is clearly displayed on the screen.
- **Ten Hour Process Timer**  
Controls the processing time from 1 second to 10 hours.
- **Elapsed Time Indicator**  
Monitors both the elapsed time and the duration of processing.
- **Independent On/Off Pulser**  
Enables safe treatment of temperature-sensitive samples at high intensity, and provides mixing by repeatedly allowing the sample to settle back under the probe after each burst. Both on and off cycles are independently controllable from 1 second to 59 seconds.
- **User Friendly**  
Menu driven fill-in-the-blank prompts provide intuitive guidance through all functions.
- **Smallest Footprint In Its Class**  
Ultra-compact design eases emplacement and optimizes bench space. Only 7½" x 13½" (190 x 340 mm).

\*For larger volumes use continuous flow cell Part No. 630-0495 or VCX 1500. Laboratory stand and converter clamp are not included.

## SPECIFICATIONS

|                         |   |
|-------------------------|---|
| POWER SUPPLY            | Net power output: VC 505 - 500 Watts. VC 750 - 750 Watts. Frequency: 20 kHz<br>Remote actuation compatible.<br>Dimensions: (H x W x D) 9¼" x 7½" x 13½" (235 x 190 x 340 mm)<br>Weight: 15 lbs. (6.8 kg).   |
| SEALED CONVERTER        | Model CV 33. Piezoelectric lead zirconate titanate crystals (PZT)<br>Diameter: 2½" (63.5 mm)<br>Length: 7¼" (183 mm)<br>Weight: 2 lbs. (900 g)<br>Cable length: 6' (1.8 m)  |
| STANDARD PROBE          | Tip diameter: ½" (13 mm) with threaded end and replaceable tip Part No. 630-0220 or solid probe with non-replaceable tip Part No. 630-0219. Please specify.*<br>Processing capability: 10 ml to 250 ml.**<br>Length: 5⅝" (136 mm)<br>Weight: ¾ lb (340 g)<br>Titanium alloy Ti-6Al-4V |
| ELECTRICAL REQUIREMENTS | Unless otherwise requested, units are shipped wired for 117 volts, 50/60 Hz.<br>For export, please specify desired voltage option.  |

## ORDERING INFORMATION

|   | Part No. |
|---|----------|
| 500 Watt ultrasonic processor . . . . . | VC 505   |
| 750 Watt ultrasonic processor . . . . . | VC 750   |

Unless otherwise requested, shipped complete and ready for operation with a ½" (13 mm) probe with replaceable tip,\* tool kit and instruction manual

## OPTIONAL ACCESSORIES

For optional accessories, please refer to [pages 11 through 16](#).

\*Do not use a probe with replaceable tip when processing samples containing organic solvents or low surface tension liquids. See caution below.  
Use solid probe Part No. 630-0219 instead. Unless otherwise requested, the probe supplied will have a replaceable tip.

\*\*For other volumes please refer to probe and microtip listings on [pages 11 through 13](#). A different probe can be substituted for the standard probe.

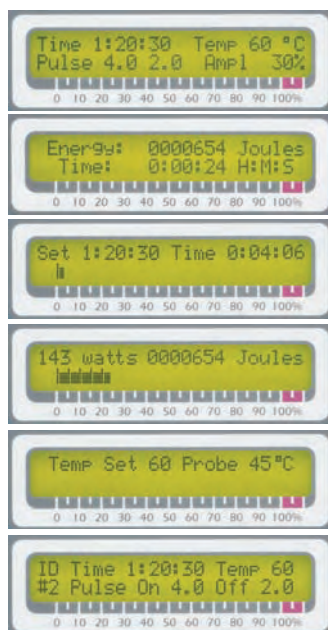
### CAUTION

All probes, including those with replaceable tips, are tuned to resonate at 20 kHz. If the replaceable tip is removed or isolated from the rest of the probe, that element will no longer resonate at 20 kHz and the power supply will go into an overload condition and shut down or fail. Organic solvents (e.g. methylene chloride) and low surface tension liquids will penetrate the interface between the probe and the replaceable tip, thus carrying the particulates into the threaded section and isolating the tip from the probe. When processing samples containing organic solvents or low surface tension liquids, ALWAYS use a solid probe or as an alternate a full wave 10" (254 mm) probe or an extender. NEVER use a probe with a replaceable tip.

## ULTRASONIC PROCESSORS FOR SMALL AND MEDIUM VOLUME APPLICATIONS

500 and 750 Watt Ultrasonic Processors – VCX Series – 250 microliters to 1 liter\*

Real time display . . .



VCX 500 – VCX 750

- **Exclusive Energy Setpoint**  
The energy setpoint continuously monitors the amount of energy in Joules (watts x seconds), that is being delivered to the probe, and terminates the ultrasonics when the desired amount of energy has been dispensed.
- **Wattmeter**  
Digitally displays the actual amount of power in watts that is being delivered to the probe.
- **Automatic Tuning and Frequency Control**  
Eliminates the need for constant adjustment of the power supply.
- **Integrated Temperature Controller**  
Precludes harmful overheating of the sample and guarantees process integrity by terminating the ultrasonics when the sample temperature reaches a predetermined limit. Allows process control and monitoring from 1°C to 100°C.
- **Consistent Reproducibility**  
Time saving memory stores up to ten procedures to facilitate protocol duplication, automate repetitive tasks, and eliminate technician-to-technician method variability.
- **Microprocessor Based – Programmable**  
Digital accuracy and repeatability assures adherence to the most exacting protocol.
- **Automatic Amplitude Compensation**  
Ensures uniform probe amplitude regardless of the varying loading conditions encountered during the processing cycle.
- **On Demand Real Time Display**  
Provides a window on the process. No more assumptions. No more approximations. Pressing a button enables all set and run parameters to be continuously displayed on the screen, providing operating mode confirmation without process interruption.
- **Variable Power Output Control**  
Allows the ultrasonic vibrations at the probe tip to be set to any desired amplitude. Selected output level is clearly displayed on the screen.
- **Ten Hour Process Timer**  
Controls the processing time from 1 second to 10 hours.
- **Elapsed Time Indicator**  
Monitors both the elapsed time and the duration of processing.
- **Independent On/Off Pulser**  
Enables safe treatment of temperature-sensitive samples at high intensity, and provides mixing by repeatedly allowing the sample to settle back under the probe after each burst. Both on and off cycles are independently controllable from 1 second to 59 seconds.
- **User Friendly**  
Menu driven fill-in-the-blank prompts provide intuitive guidance through all functions.
- **Smallest Footprint In Its Class**  
Ultra-compact design eases emplacement and optimizes bench space. Only 7½" x 13½" (190 x 340 mm).

\*For larger volumes use continuous flow cell Part No. 630-0495 or VCX 1500. Laboratory stand, converter clamp and temperature probe are not included.

## SPECIFICATIONS

|                                 |  |
|---------------------------------|--|
| POWER SUPPLY                    | Net power output: VCX 500 - 500 Watts. VCX 750 - 750 Watts. Frequency: 20 kHz<br>Remote actuation compatible<br>Dimensions (H x W x D) 9¼" x 7½" x 13½" (235 x 190 x 340 mm)<br>Weight: 15 lbs. (6.8 kg)   |
| SEALED CONVERTER                | Model CV 33. Piezoelectric lead zirconate titanate crystals (PZT)<br>Diameter: 2½" (63.5 mm)<br>Length: 7¼" (183 mm)<br>Weight: 2 lb. (900 g)<br>Cable length: 6' (1.8 m)  |
| STANDARD PROBE                  | Tip diameter: ½" (13 mm) with threaded end and replaceable tip Part No. 630-0220 or solid probe with non-replaceable tip Part No. 630-0219. Please specify.*<br>Processing capability: 10 ml to 250 ml.**<br>Length: 5⅝" (136 mm)<br>Weight: ¾ lb. (340 g)<br>Titanium alloy Ti-6Al-4V |
| TEMPERATURE PROBE<br>(Optional) | Allows sample temperature to be monitored up to 100°C.<br>Stainless steel.<br>Part No. 830-00060   |
| ELECTRICAL REQUIREMENTS         | Unless otherwise requested, units are shipped wired for 117 volts, 50/60 Hz.<br>For export, please specify desired voltage option.   |

## ORDERING INFORMATION

|   | Part No. |
|---|----------|
| 500 Watt ultrasonic processor . . . . . | VCX 500  |
| 750 Watt ultrasonic processor . . . . . | VCX 750  |

Unless otherwise requested, shipped complete and ready for operation with a ½" (13 mm) probe with replaceable tip,\* tool kit, and instruction manual.

## OPTIONAL ACCESSORIES

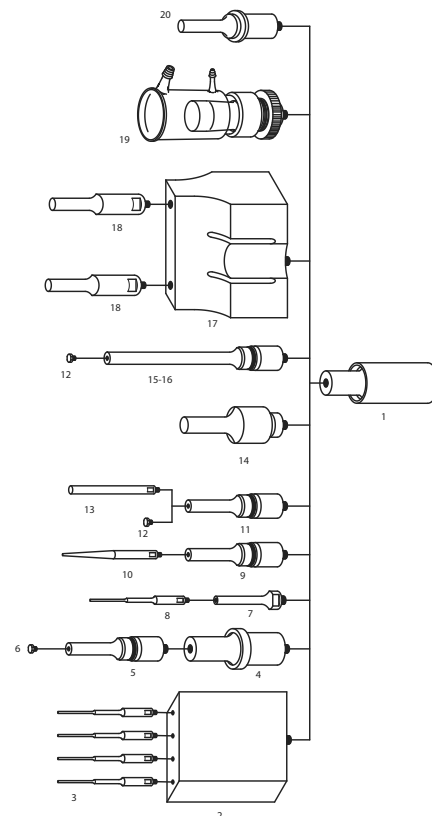
For optional accessories, please refer to [pages 11 through 16](#).

\* Do not use a probe with replaceable tip when processing samples containing organic solvents or low surface tension liquids. See caution on [page 8](#). Use solid probe Part No. 630-0219 instead. Unless otherwise requested, the probe supplied will have a replaceable tip.  
\*\* For other volumes please refer to probe and microtip listings on [pages 11 through 13](#). A different probe can be substituted for the standard probe.

## OPTIONAL ACCESSORIES FOR VC 505, VC 750, VCX 500 and VCX 750

The accessories and attachments described in this section are compatible with most 20 kHz ultrasonic processors. Please specify make, model, and connecting stud size ( $\frac{1}{2}$ " - 20 or  $\frac{3}{8}$ " - 24) when ordering.

| NO.   | DESCRIPTION   | PART NO.                    |
|-------|---|-----------------------------|
| 1*    | Converter Model CV33  | CV00033                     |
| 2     | Multi-element coupler   | See <a href="#">page 14</a> |
| 3     | $\frac{1}{8}$ " (3 mm) stepped microtip   | See <a href="#">page 14</a> |
| 4     | Booster   | BHNVC21                     |
| 5     | $\frac{1}{2}$ " (13 mm) solid probe   | 630-0219                    |
|       | $\frac{1}{2}$ " (13 mm) probe with threaded end and replaceable tip                         | 630-0220                    |
|       | $\frac{3}{4}$ " (19 mm) solid probe   | 630-0208                    |
|       | $\frac{3}{4}$ " (19 mm) probe with threaded and replaceable tip                             | 630-0207                    |
|       | 1" (25 mm) solid probe  | 630-0209                    |
|       | 1" (25 mm) probe with threaded and replaceable tip  | 630-0210                    |
| 6     | $\frac{1}{2}$ " (13 mm) replaceable tip   | 630-0406                    |
|       | $\frac{3}{4}$ " (19 mm) replaceable tip   | 630-0407                    |
|       | 1" (25 mm) replaceable tip  | 630-0408                    |
| 7     | Coupler   | 630-0421                    |
| 8     | $\frac{5}{16}$ " (2 mm) stepped microtip (150 ml - 5 ml)                                    | 630-0423                    |
|       | $\frac{1}{8}$ " (3 mm) stepped microtip   | 630-0422                    |
|       | $\frac{1}{4}$ " (6 mm) stepped microtip   | 630-0435                    |
| 9     | $\frac{1}{2}$ " (13 mm) with threaded end and replaceable tip                               | 630-0220                    |
| 10    | $\frac{1}{8}$ " (3 mm) tapered microtip   | 630-0418                    |
|       | $\frac{3}{16}$ " (5 mm) tapered microtip  | 630-0419                    |
|       | $\frac{1}{4}$ " (6 mm) tapered microtip   | 630-0420                    |
| 11    | Probe – solid or with threaded end and replaceable tip – same as 5                          |                             |
| 12    | Replaceable tip – same as 6   |                             |
| 13    | $\frac{1}{2}$ " (13 mm) half wave extender 5" (127 mm) long                                 | 630-0410                    |
|       | $\frac{3}{4}$ " (19 mm) half wave extender 5" (127 mm) long                                 | 630-0409                    |
|       | 1" (25 mm) half wave extender 5" (127 mm) long  | 630-0444                    |
|       | $\frac{3}{4}$ " (19 mm) full wave extender 10" (254 mm) long                                | 630-0518                    |
|       | 1" (25 mm) full wave extender 10" (254 mm) long   | 630-0519                    |
| 14    | $\frac{3}{4}$ " (19 mm) solid high gain probe   | 630-0306                    |
|       | 1" (25 mm) solid high gain probe  | 630-0310                    |
| 15-16 | $\frac{1}{2}$ " (13 mm) full wave probe solid 10" (254 mm) long                             | 630-0217                    |
|       | $\frac{1}{2}$ " (13 mm) full wave probe 10" (254 mm) long with threaded and replaceable tip | 630-0218                    |
| 17    | Aluminum coupler*   | 630-0562                    |
| 18    | $\frac{3}{4}$ " (19 mm) solid probe   | 630-0208                    |
| 19    | 1 $\frac{1}{2}$ " (38 mm) cup horn  | 630-0503                    |
|       | 2 $\frac{1}{2}$ " (64 mm) cup horn  | 630-0431                    |
|       | 3" (76 mm) cup horn   | 630-0496                    |
| 20    | $\frac{1}{2}$ " (13 mm) solid probe with flange at the nodal point                          | 630-0603                    |



\* Supplied with standard equipment unless otherwise specified.

**Caution:** Do not use a tapered microtip with a coupler. Do not use a stepped microtip without a coupler. Observe microtip amplitude limits. Do not use a probe with threaded end and replaceable tip when processing samples containing organic solvents or low surface tension liquids. Use a solid probe instead. See caution on [page 8](#).

## PROBES

Probes (sometimes referred to as horns) are one-half wavelength long tools that act as mechanical transformers to increase the amplitude of vibration generated by the converter. They consist of two sections each having different cross-sectional areas. When driven at its resonant frequency, the probe expands and contracts longitudinally about its center. However, no longitudinal motion occurs at the threaded nodal point (area of no activity), allowing accessories to be connected to the probe at that point. The greater the mass ratio between the upper section and the lower section, the greater the amplification factor. Probes with smaller tip diameters produce greater intensity of cavitation, but the energy released is restricted to a narrower, more concentrated field. Conversely, probes with larger tip diameters produce less intensity, but the energy is released over a greater area. The larger the tip diameter, the larger the volume that can be processed, but at lower intensity. High gain probes produce higher intensity than standard probes of the same diameter, and are usually recommended for processing larger volumes or difficult applications. Probes are fabricated from high grade titanium alloy Ti-6Al-4V because of its high tensile strength, good acoustical properties at ultrasonic frequencies, high resistance to corrosion, low toxicity, and excellent resistance to cavitation erosion. They are autoclavable, and available with threaded ends to accept replaceable tips, microtips and extenders.

## PROBES\*

| PART NO.                                 | 630-0220**    | 630-0219      | 630-0207**   | 630-0208    | 630-0210**    | 630-0209      |
|--|---------------|---------------|--------------|-------------|---------------|---------------|
| TIP DIAMETER                             | ½" (13 mm)    | ½" (13 mm)    | ¾" (19 mm)   | ¾" (19 mm)  | 1" (25 mm)    | 1" (25 mm)    |
| TYPE                                     | Threaded End  | Solid         | Threaded End | Solid       | Threaded end  | Solid         |
| INTENSITY                                | High          | High          | Medium       | Medium      | Low           | Low           |
| VOLUME (batch)                           | 10-250 ml     | 10-250 ml     | 25-500 ml    | 25-500 ml   | 50-1000 ml    | 50-1000 ml    |
| AMPLITUDE***<br>micrometers<br>(microns) | 124           | 124           | 61           | 61          | 35            | 35            |
| inches                                   | .0049         | .0049         | .0024        | .0024       | .0014         | .0014         |
| LENGTH†                                  | 5.5" (139 mm) | 5.5" (139 mm) | 5" (127 mm)  | 5" (127 mm) | 4.8" (122 mm) | 4.8" (122 mm) |

\* Connecting stud ½ - 20. Available with ¾ - 24 stud to enable connection to a 20 kHz converter manufactured by another company.

\*\* Do not use a probe with a replaceable tip when processing samples containing organic solvents or low surface tension liquids.

Use a solid probe instead. See caution on [page 8](#).

\*\*\* With the amplitude control set at 100%.

† Because ultrasonic probes are tuned to resonance, their length may vary slightly due to variations in the titanium's modulus of elasticity.

Note: With the amplitude control set at 100% the amplitude at the converter tip is 15 micrometers (.0006 inch).



## HIGH GAIN PROBES\*

| PART NO.                                 | 630-0306**    | 630-0310**    |
|--|---------------|---------------|
| TIP DIAMETER                             | ¾" (19 mm)    | 1" (25 mm)    |
| TYPE                                     | Solid         | Solid         |
| INTENSITY                                | High          | Medium        |
| VOLUME (batch)                           | 25-500 ml     | 50-1000 ml    |
| AMPLITUDE***<br>micrometers<br>(microns) | 89            | 71            |
| inches                                   | .0035         | .0028         |
| LENGTH†                                  | 5.4" (137 mm) | 5.2" (133 mm) |



\* Connecting stud ½ - 20. Available with ¾ - 24 stud to enable connection to a 20 kHz converter manufactured by another company.

\*\* Do not use with a booster.

\*\*\* With the amplitude control set at 100%.

† Because ultrasonic probes are tuned to resonance, their length may vary slightly due to variations in the titanium's modulus of elasticity.

Note: With the amplitude control set at 100% the amplitude at the converter tip is 15 micrometers (.0006 inch).

## DUAL PROBE

The dual probe assembly enables a single ultrasonic processor to process two (25-500 ml) samples simultaneously. The assembly consists of an aluminum coupler Part No. 630-0562 and two ¾" (19 mm) solid probes Part No. 630-0208\*. Power delivered to each probe is identical, and is half the total power delivered by the power supply. Center to center dimension between the probes is 4½" (114 mm).

Connecting stud ½ - 20.\*\* Part No. 630-0525

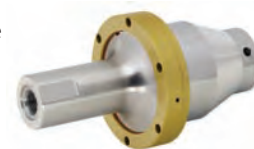
When used with a 750 watt ultrasonic processor, the dual probe is the only one in the industry capable of delivering up to 375 watts per probe, meeting all EPA requirements specified in SW-846 method 3550.



## BOOSTERS

Boosters are used to process difficult applications. When connected between the converter and the probe, the booster (also called amplitude transformer) acts as a mechanical amplifier that increases the amplitude of vibration at the probe tip. Do not use with a microtip, extender, dual probe, or high gain probe. Increases amplitude by 100%. Connecting stud ½ - 20.\*\*

Part No. BHNVC21.



\*Two ½" (13 mm) solid probes can be substituted for the two ¾" (19 mm) solid probes. Probes can also be supplied with threaded end and replaceable tip, however these probes should not be used when processing samples containing organic solvents or low surface tension liquids. See caution on [page 8](#).

\*\* Available with ¾ - 24 connecting stud to enable connection to a 20 kHz converter manufactured by another company.

## MICROTIPS

Two types of microtips are available to enable processing small samples at very high intensity – a tapered microtip and a stepped microtip.

The tapered microtip screws into the ½" (13 mm) threaded end probe in place of the replaceable tip.

The stepped microtip assembly consists of two parts, and screws into the converter in place of the probe. Capable of reaching into narrower vessels than the tapered microtip, the stepped microtip assembly can process volumes as small as 150 µl. Microtips are fabricated from titanium alloy Ti-6Al-4V and are autoclavable.

**CAUTION:** In order not to exceed the tensile limit of the titanium, do not operate the equipment beyond the maximum amplitude limits listed below when using a microtip. Ignoring this caution will cause the microtip to fracture.



| PART NO.                 | TAPERED MICROTIP* |             |               | STEPPED MICROTIP ASSEMBLY** |                              |                              |                              |
|--------------------------|-------------------|-------------|---------------|-----------------------------|------------------------------|------------------------------|------------------------------|
|                          | 630-0418          | 630-0419    | 630-0420      | COUPLER***<br>630-0421      | STEPPED MICROTIP<br>630-0423 | STEPPED MICROTIP<br>630-0422 | STEPPED MICROTIP<br>630-0435 |
| TIP DIAMETER             | ⅛" (3 mm)         | ⅜" (5 mm)   | ¼" (6 mm)     |                             | ⅝" (2 mm)                    | ⅛" (3 mm)                    | ¼" (6 mm)                    |
| INTENSITY                | Ultra high        | Very high   | High          |                             | Ultra high                   | Very high                    | High                         |
| VOLUME (batch)           | 1-10 ml           | 3-20 ml     | 5-50 ml       |                             | 150µl-5 ml                   | 250µl-10 ml                  | 10 ml - 50 ml                |
| MAXIMUM AMPLITUDE        | 40%               | 65%         | 75%           |                             | 60%                          | 100%                         | 100%                         |
| micrometers <sup>†</sup> | 228               | 203         | 203           |                             | 250                          | 210                          | 150                          |
| (microns)                |                   |             |               |                             |                              |                              |                              |
| inches <sup>†</sup>      | .0090             | .0080       | .0080         |                             | .0098                        | .0083                        | .0059                        |
| LENGTH <sup>#</sup>      | 6.3" (159 mm)     | 6" (155 mm) | 5.6" (142 mm) | 3.6" (9.2 mm)               | 4.5" (116 mm)                | 5.4" (136 mm)                | 4⅞" (113 mm)                 |

\* Screws into a ½" (13 mm) threaded end probe Part No. 630-0220 in place of the replaceable tip. Connecting stud ¼ - 20.

\*\* Consists of coupler and stepped microtip. Screws into the converter instead of the ½" (13 mm) probe.

\*\*\* Connecting stud ½ - 20.

† At maximum amplitude.

# Because microtips are tuned to resonance, their length may vary slightly due to variation in the titanium's modulus of elasticity.

## EXTENDERS

Extenders screw into threaded end probes of identical diameter in place of the replaceable tip. Recommended when working with tall narrow vessels such as Erlenmeyer flasks. Extenders are fabricated from titanium alloy Ti-6Al-4V and are autoclavable. Also available on special order with threaded ends to accept replaceable tips.\* Connecting stud ¼ - 20.

½" (13 mm) half wave extender - 5" (127 mm) long. Part No. 630-0410.

¾" (19 mm) half wave extender - 5" (127 mm) long. Part No. 630-0409.

1" (25 mm) half wave extender - 5" (127 mm) long. Part No. 630-0444.

½" (13 mm) full wave extender - 10" (254 mm) long. Part No. 630-0517.

¾" (19 mm) full wave extender - 10" (254 mm) long. Part No. 630-0518.

1" (25 mm) full wave extender - 10" (254 mm) long. Part No. 630-0519.



\*Do not use an extender with replaceable tip when processing samples containing organic solvents or low surface tension liquids. Use a solid extender instead. See caution on page 8.

Note: Because extenders are tuned to resonance, their length may vary slightly due to variations in the titanium's modulus of elasticity.

Longer extenders are available upon request.

## REPLACEABLE TIPS

Replaceable tips are fabricated from titanium alloy Ti-6Al-4V and are autoclavable.



### REPLACEABLE TIPS

|                 | ½" (13 mm) | ¾" (19 mm) | 1" (25 mm) |
|-----------------|------------|------------|------------|
| PART NO.        | 630-0406   | 630-0407   | 630-0408   |
| CONNECTING STUD | ¼-20       | ⅜-24       | ½-20       |

## MULTI-ELEMENT PROBES

The high throughput multi-element probes meet the needs of repetitive tasks by processing identically numerous deepwells simultaneously. They screw into the converter in place of the standard 1/2" (13 mm) probe, and can be used either manually or with automated systems. The energy delivered by each tip is uniform within 2%. With the four, eight, and twenty four-element probes, the spacing between the tips is 23/32" (18 mm) and the length is 10 1/4" (260 mm). Multi-element probes are fabricated from titanium alloy Ti-6Al-4V and are autoclavable.

Note: Custom formatted multi-element probes are available upon request.

### MULTI-ELEMENT PROBES\*

| PART NO. | DESCRIPTION   | ULTRASONIC PROCESSOR |
|----------|---|----------------------|
| 630-0559 | Four-element probe  | 500 watt             |
| 630-0598 | Consists of an aluminum coupler and four 1/8" (3 mm) special microtips.<br>Replacement microtip (250 µl – 10 ml) for four-element probe               | or<br>750 watt       |
| 630-0586 | Eight-element probe   | 500 watt             |
| 630-0598 | Consists of an aluminum coupler and eight 1/8" (3 mm) special microtips.<br>Replacement microtip (250 µl – 10 ml) for eight-element probe             | or<br>750 watt       |
| 630-0579 | Twenty-four-element probe   | 750 watt             |
| 630-0598 | Consists of an aluminum coupler and twenty-four 1/8" (3 mm) special microtips.<br>Replacement microtip (250 µl – 10 ml) for twenty-four-element probe |                      |

\*\*Connecting stud 1/2 - 20.



## HEAVY DUTY MULTI-ELEMENT PROBE SUPPORT ASSEMBLY

Supports the converter and multi-element probe with minimum deflection. Recommended when working with twenty-four element probes.  
Base: 10" x 10" (254 x 254 mm).  
Height: 29 1/2" (622 mm).  
Part No. 830-00320



## SOUND ABATING ENCLOSURE

Even though ultrasonic vibrations are above the human audible range, ultrasonic processing produces a high pitched noise in the form of harmonics which emanate from the vessel walls and the fluid surface. The sound abating enclosure permits extended processing without discomfort by reducing the sound by 35db. The probe/converter assembly is supported by the converter clamp, and the converter cable is fed through the 3/4" (19 mm) opening at the top. Side access ports accommodate the tubing delivering the coolant and the sample to the processing vessel while the door is closed. The unit is faced on the exterior with white laminate, and on the interior with white waterproof polyethylene noise abating material. The access door permits observation during treatment and protects the operator against accidental splashing. Support rod and light duty converter clamp are included.  
Outside dimensions (H x W x D): 30" x 14" x 14" (762 x 355 x 355 mm).  
Part No. 630-0427



## LABORATORY JACK

Provides adjustable elevation from 2 1/2" (64 mm) to 10" (254 mm).  
Top plate: 6" x 5" (152 x 127 mm).  
Part No. 830-00113



## NON-SLIP LABORATORY MAT

Holds beakers and microplates securely in place, and reduces noise by absorbing vibrations normally transmitted to the laboratory jack.  
4" x 7" (100 x 175 mm).  
Part No. 830-00119





## HIGH INTENSITY CUP HORNS

Cup horns can process samples in isolation without probe intrusion, precluding any possibilities of cross-contamination or airborne pollution. Especially useful when working with contagious materials.

Typical applications include: gentle disruption of cells, lysing of blood cells and platelets, shearing proteins and DNA, chromatin fragmentation, liposome preparation, and releasing cellular material from viruses.

The water-filled cup horn is screwed into the inverted converter in place of the probe. The test tube(s) containing the sample(s) is(are) placed inside the cup horn. The vibrations produced in the cup induce cavitation inside the tube(s). Inlet and outlet port enable water to be circulated within the cup, inhibiting heat build-up during extended operation. Ease of disassembly facilitates cleaning, and in contrast to polycarbonate cup horns with removable plastic fittings, these cup horns are 100% leakproof. The probe is fabricated from titanium alloy Ti-6Al-4V and is autoclavable. Supplied with floating microtube holder Part No. 830-00238 and splash shield. (Microtube holder is not available with Part No. 630-0503.)

Note: The intensity of cavitation within the test tube(s) is substantially less than with direct probe contact. To obtain comparable results when using the cup horn, multiply the processing time by 4. Connecting a booster Part No. BHNVC21 between the cup horn and the converter, will double the intensity of cavitation within the cup.\*



### HIGH INTENSITY CUP HORNS\*\*

| PART NO. | CUP COMPOSITION | OVERALL HEIGHT | OUTSIDE DIAMETER | INSIDE DIAMETER | PROBE RADIATING FACE |
|----------|-----------------|----------------|------------------|-----------------|----------------------|
| 630-0503 | Glass           | 5" (127 mm)    | 2" (51 mm)       | 1½" (38 mm)     | 1¼" (32 mm)          |
| 630-0431 |                 | 6" (152 mm)    | 3" (76 mm)       | 2¾" (70 mm)     | 2" (51 mm)           |
| 630-0496 |                 | 6½" (165 mm)   | 3 11/32" (85 mm) | 3" (76 mm)      | 2½" (64 mm)          |

\*When using a booster, always increase the power supply amplitude gradually to inhibit stalling.

\*\*Connecting stud ½ - 20. Available with ¾ - 24 stud to enable connection to a 20 kHz converter manufactured by another company.

Upper outlet port accommodates 0.5" (13 mm) inside diameter tubing.

Bottom inlet port accommodates 0.4" (10 mm) inside diameter tubing.

## FLOATING MICROTUBE HOLDER

The plastic microtube holder conveniently suspends 8 microtubes inside the 2¾" (70 mm) and 3" (76 mm) cup horn. Holder floats and keeps tubes immersed at a constant depth regardless of the fluctuation in water level.

Pressure plate holds tubes firmly in place and keeps tube caps closed. Autoclavable.

Part No. 830-00238

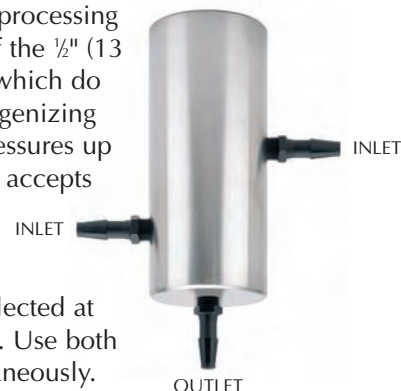


## LOW VOLUME CONTINUOUS FLOW CELL

The stainless steel continuous flow cell enables closed system operation and ensures safe processing when working with infectious materials. The flow cell screws onto the threaded portion of the ½" (13 mm) probe at the nodal point. Recommended for the treatment of low viscosity samples, which do not require extended exposure to ultrasonics. Designed primarily for dispersing and homogenizing one or two dissimilar materials simultaneously at rates up to 20 liters/hour. Suitable for pressures up to 40 psi (276 kPa/3 bar). Volume of liquid in chamber with probe in place: 65 ml. Fitting accepts ⅝" (8 mm) ID tubing. Stainless steel. Autoclavable.

Part No. 630-0495

Note: For most applications the sample should be fed through the lower side port and collected at the bottom port. However it is recommended that for cell disruption, the flow be reversed. Use both the upper side port and the lower side port when processing two different samples simultaneously.



## SEALED ATMOSPHERE TREATMENT CHAMBER

The stainless steel sealed atmosphere treatment chamber screws onto the threaded portion of the 1/2" (13 mm) probe at the nodal point. This accessory enables safe batch treatment of toxic, pathogenic, and biohazardous materials at high intensity. Ports located above the sample level permits purging with an inert gas, or capturing released gases. An integral cooling jacket, through which a suitable cooling liquid can be circulated, inhibits heat build up during extended operation. 50 ml capacity. Suitable for pressures up to 40 psi (276 kPa/3 bar). Autoclavable.  
Part No. 830-00086



## ROSETT GLASS COOLING CELLS

The Rosett cooling cell enables uniform treatment at low temperatures. The cell is placed in an ice bath. The ultrasonic energy forces the sample to circulate repeatedly under the probe and throughout the cooling arms.

30 ml Rosett cooling cell.  
Part No. 830-00003

300 ml Rosett cooling cell.  
Part No. 830-00001



## GLASS COOLING CELLS

10 ml cooling cell with water jacket.  
Part No. 830-00009

100 ml cooling cell with water jacket.  
Part No. 830-00010



10 ml



100 ml

## CONVERTER CLAMPS

The light duty converter clamp securely supports 2 1/2" (64 mm) diameter converters onto stands with 1/2" (13 mm) diameter support rod. Chemical-resistant reinforced plastic.  
Part No. 830-00116

Heavy duty converter clamp. Same as above but fabricated of aluminum. Recommended for industrial applications.  
Part No. 830-00105

Note: To support multi-element probes, use the heavy duty multi-element support assembly Part No. 830-00320. See [page 14](#) for details.



## SUPPORT STAND

Black enameled cast-iron base and zinc-plated rod.  
Base: 5 1/2" x 9" (140 x 229 mm).  
Rod: 1/2" (13 mm) diameter, 24" (610 mm) long.  
Part No. 830-00109

## FOOTSWITCH

For hands-free operation  
10' (3 m) cable with plug.  
Part No. 830-00004



## ADAPTING STUD

1/2"-20 to 3/8"-24  
Enables a 20 kHz probe with a 3/8" - 24 replaceable connecting stud not manufactured by Sonics to be connected to our converter.  
Part No. 631-0101

