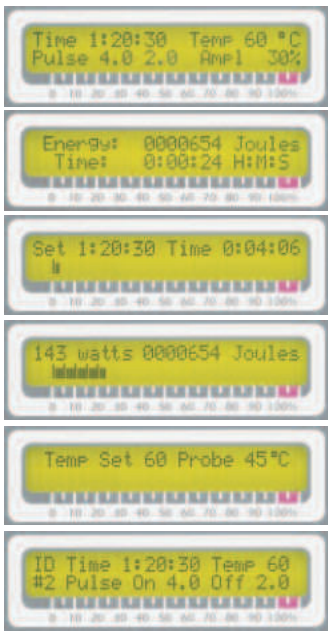
500 and 750 Watt Ultrasonic Processors – VCX Series – 250 microliters to 1 liter*

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. Enables process control and monitoring from 1°C to 100°C.
- **Consistent Reproducibility**
  Time-saving user-programmed presets store 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 guarantee 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 instant 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 medium volume continuous flow cell Part No. 630-0651 or VCX 1500. Laboratory stand, converter clamp and temperature probe are not included.

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SPECIFICATIONS

POWER SUPPLY	Net power output: VCX 500 - 500 Watts. VCX 750 - 750 Watts. Frequency: 20 kHz Remote actuation compatible Dimensions (H x W x D) 9¼" x 7½" x 13½" (235 x 190 x 340 mm) Weight: 15 lbs. (6.8 kg)
SEALED CONVERTER*	Part No. CV 334. Piezoelectric lead zirconate titanate crystals (PZT) Diameter: 2½" (63.5 mm) Length: 7¼" (183 mm) Weight: 2 lbs. (900 g)
CONVERTER CABLE	Cable length: 6' (1.8 m). Part No. 201-0300
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** Processing capability: 50 ml to 250 ml.*** Length: 5⅜" (136 mm) Weight: ¾ lb. (340 g) Titanium alloy Ti-6Al-4V
TEMPERATURE PROBE (Optional)	Allows sample temperature to be monitored up to 100°C. Stainless steel. Part No. 830-00060
TOOL KIT	Supplied with one open end wrench Part No. 888-00026, and one blue spanner wrench Part No. 888-00041 for the converter and one red spanner wrench Part No. 888-00042 for the probe.
ELECTRICAL REQUIREMENTS	Unless otherwise requested, units are shipped wired for 117 volts, 50/60 Hz. For export, please specify desired voltage option.

ORDERING INFORMATION

	Model 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 catalog.

* The converter incorporates two plugs which can be removed and replaced with barb fittings, to enable air cooling when the converter is operated at high amplitude for prolonged durations.

** Do not use a probe with replaceable tip when processing samples containing organic solvents or low surface tension liquids. See caution in catalog. 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 ½" (13 mm) probe.

PROBES FOR VC505, VC750, VCX500 AND VCX750

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, and the greater the peak-to-peak excursion at the tip of the probe. 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 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)	50-250 ml	50-250 ml	50-500 ml	50-500 ml	100-1000 ml	100-1000 ml
AMPLITUDE*** micrometers (microns)	114	114	58	58	35	35
inches	.0045	.0045	.0022	.0022	.0014	.0014
LENGTH†	5½" (139 mm)	5½" (139 mm)	5" (127 mm)	5" (127 mm)	4 13/16" (122 mm)	4 13/16" (122 mm)

* Connecting stud ½ - 20. Available with ⅜ - 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.
*** 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 .0006 inch (16.5 micrometers).

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)	50-500 ml	100-1000 ml
AMPLITUDE*** micrometers (microns)	120	70
inches	.0048	.0027
LENGTH†	5 13/32" (137 mm)	5 3/16" (133 mm)

* Connecting stud ½ - 20. Available with ⅜ - 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 .0006 inch (16.5 micrometers).

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.

* Custom three and four-element probes are available upon request.
** 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 liquids containing organic solvents or low surface tension liquids. See caution in catalog.
*** Available with ⅜ - 24 connecting stud to enable connection to a 20 kHz converter manufactured by another company.

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.* Connecting stud ½ - 20. Length: 5" (129 mm). Part No. BHNVC21. Increases the amplitude by a factor of 2.

*Do not use with a microtip, extender, dual probe, ½" (13 mm) step probes Part No. 630-0220 or 630-0219, or high gain probe.

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

MICROTIPS

Two types of microtips are available to enable processing samples in small vessels 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/probe assembly which consists of two parts, the coupler (standard or reverse) and the microtip or probe*, 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.

*Sold separately.

CAUTION: ***In order not to exceed the tensile limit of the titanium, and causing the microtip to fracture, observe the maximum amplitude limits listed below.***

TAPERED MICROTIP

(see catalog)

STEPPED MICROTIP ASSEMBLY

COUPLER

STEPPED MICROTIP

(see catalog)

MICROTIPS

	TAPERED MICROTIP*			STEPPED MICROTIP/PROBE ASSEMBLY**			
PART NO.	630-0418	630-0419	630-0420	COUPLER*** 630-0421	STEPPED MICROTIP 630-0423	STEPPED MICROTIP 630-0422	PROBE 630-0435
TIP DIAMETER	⅛" (3 mm)	3/16" (5 mm)	¼" (6 mm)		1/16" (2 mm)	⅛" (3 mm)	¼" (6 mm)
INTENSITY	Ultra high	Very high	High		Ultra high	Very high	High
VOLUME (batch)	1-15 ml	3-20 ml	10-50 ml		0.2 ml -5 ml	0.5 ml-15 ml	5 ml - 50 ml
MAXIMUM AMPLITUDE	40%	65%	75%		40%	40%	40%
micrometers† (microns)	160	212	180		89	105	75
inches†	.0060	.0083	.0070		.0035	.0040	.0030
LENGTH#	6 11/16" (171 mm)	5 29/32" (150 mm)	5 19/32" (142 mm)	3¾" (95 mm)	4½" (116 mm)	5 13/32" (136 mm)	4 7/16" (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. To process a sample below 20% use low amplitude tapered microtip Part No. 630-0718.

** Consists of coupler and stepped microtip or probe. Screws into the converter instead of the ½" (13 mm) probe. To process a sample below 20% use with reverse coupler Part No. 630-0613. The coupler and microtip are sold separately.

*** Connecting stud ½ - 20.

† With the amplitude control set at the maximum amplitude listed above.

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.

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

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.

MULTI-ELEMENT PROBES

The high throughput multi-element probes increase productivity and minimizes repetitive tasks by processing identically numerous samples simultaneously. They screw into the converter in place of the standard ½" (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 (center to center) is 22/32" (18 mm) and the length of the special microtips is 5 7/16" (139 mm). With the twelve-element probe the spacing between tips (center to center) is 1" (25 mm) and the length of the probe is 5 13/32" (113 mm). With the ninety-six element probe, spacing between the tips (center to center) is 11/32" (9 mm) and the length of the mini microtips is 11/16" (17 mm). With the four, eight and twenty four-element probes, the diameter of the special microtips is ⅛" (3 mm). With the twelve-element probe, the diameter of the probe is ¼" (6 mm). With the ninety-six element probe the diameter of the mini microtip is 5/64" (2 mm). Multi-element probes are fabricated from titanium alloy Ti-6Al-4V and are autoclavable. Connecting stud ½ - 20. Available with ⅜ - 24 adapting stud to enable connection to a 20 kHz converter not manufactured by Sonics.

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

MULTI-ELEMENT PROBES

PART NO.	DESCRIPTION	ULTRASONIC PROCESSOR
630-0559 630-0660	Four-element probe Consists of an aluminum coupler and four ⅛" (3 mm) special microtips. Replacement microtip (250 µl – 10 ml) for four-element probe	500 watt or 750 watt
630-0586 630-0660	Eight-element probe Consists of an aluminum coupler and eight ⅛" (3 mm) special microtips. Replacement microtip (250 µl – 10 ml) for eight-element probe	500 watt or 750 watt
630-0646 630-0435	Twelve-element probe Consists of an aluminum coupler and twelve ¼" (6 mm) probes. Replacement probe (10 – 50 ml) for twelve-element probe	500 watt or 750 watt
630-0579 630-0660	Twenty-four-element probe* Consists of an aluminum coupler and twenty-four ⅛" (3 mm) special microtips. Replacement microtip (250 µl – 10 ml) for twenty-four-element probe	750 watt
630-0611 630-0599	Ninety-six-element probe* Consists of an aluminum coupler and ninety-six 11/16" (17 mm) mini microtips. Replacement mini microtip (1 – 2 ml) for ninety-six-element probe	500 watt or 750 watt

*For use with 2 ml well microplates. Not recommended for use with microplate wells smaller than 1 ml.

HEAVY DUTY MULTI-ELEMENT PROBE SUPPORT ASSEMBLY

Supports the converter and multi-element probe with minimum deflection.
Recommended when working with twenty-four and ninety-six element probes.
Base: 10" x 10" (254 x 254 mm). Height: 24" (610 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 ¾" (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 transparent 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).
Inside dimensions: (H x W x D) 27" x 11" x 11" (686 x 280 x 280 mm).
Part No. 630-0427

LABORATORY JACK

Provides adjustable elevation from 2½" (64 mm) to 10" (254 mm).
Top plate: 6" x 5" (152 x 127 mm).
Part No. 830-00113

NON-SLIP VIBRATION ISOLATING MAT

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

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HIGH INTENSITY CUP HORNS*

The cup horns can process samples in isolation without probe intrusion, precluding any possibilities of cross-contamination or aerosolization. Especially useful when working with infectious materials.

Typical applications include: cell disruption, liposome preparation, protein shearing, and releasing cellular components including DNA and RNA.

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 ports enable cooling 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. The cup is fabricated from glass. Supplied with floating microtube holder Part No. 830-00238 to enable 8 samples to be processed simultaneously with identical parameters, and splash shield. Note: Because 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.***

PART NO.	OVERALL HEIGHT	OUTSIDE DIAMETER	INSIDE DIAMETER	PROBE DIAMETER	REPLACEMENT PROBE PART NO.	REPLACEMENT CUP PART NO.
630-0431	6" (152 mm)	3" (76 mm)	2¾" (70 mm)	2" (51 mm)	630-0457	630-0438

* Connecting stud ½ - 20. Available on special order with ⅜ - 24 stud to enable connection to a 20 kHz converter manufactured by another company.
** Water inlet connects to ⅜" (9.5 mm) I.D. tubing. Water outlet connects to ½" (13 mm) I.D. tubing.
*** When using a booster, always increase the power supply amplitude gradually to inhibit stalling.

FLOATING MICROTUBE HOLDER

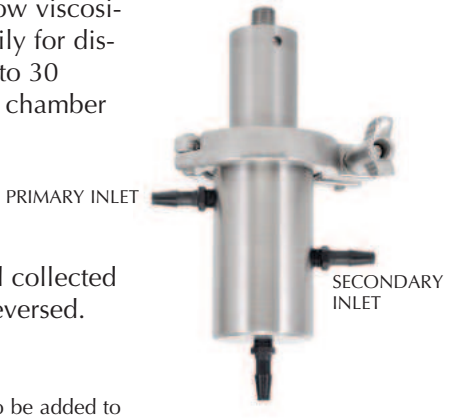
The plastic microtube holder conveniently suspends eight 1.5 ml microtubes inside the high intensity cup horn. Holder floats and keeps tubes immersed at a constant depth regardless of the fluctuation in water level. Pressure plate holds tubes firmly in place and keeps tube caps closed. Autoclavable. Microtubes not included.

Part No. 830-00238

MEDIUM VOLUME CONTINUOUS FLOW CELL*

The stainless steel continuous flow cell enables closed system operation and ensures safe processing when working with infectious materials. Recommended for the treatment of low viscosity samples, which do not require prolonged exposure to ultrasonics. Designed primarily for dispersing and homogenizing one or two dissimilar materials simultaneously at rates up to 30 liters/hour. Suitable for pressures up to 100 psi (690 kPa/6.9 bar). Volume of liquid in chamber with probe in place: 65 ml. Fittings require 5/16" (8 mm) ID tubing. Stainless steel. Autoclavable. Probe is included.

Part No. 630-0651



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 inlets when processing two different materials simultaneously.

* Must be used with probe Part No. 630-0644.
Note: Inlet and outlet flow can be reversed if needed. The secondary inlet enables functionalizing agents to be added to the formation during processing, or used for monitoring the pressure

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The chemical effects of ultrasound are diverse and include dramatic improvements in both stoichiometric and catalytic reactions. In some cases, ultrasonic irradiation can increase reactivities by nearly a million-fold. It does so through the process of acoustic cavitation; the formation, growth and implosive collapse of bubbles in a liquid.

During cavitational collapse, intense heating of the bubbles occurs. The localized hot spots have temperatures in the range of 5000°C, pressures approaching 500 atmospheres, lifetimes of a few microseconds, and heating and cooling rates greater than 109 K/s.* Of special interest for sonochemistry research, is the fact that cavitation generates highly reactive free radicals that greatly enhance chemical reactions.

Applications for chemical reactions exist in both homogeneous liquids and in liquid-solid systems. Of special synthetic use is the ability of ultrasound to create clean, highly reactive surfaces on metals. Ultrasound has also been found to be beneficial for the initiation or enhancement of catalytic reactions, in both homogeneous and heterogeneous cases.

RECOMMENDED ULTRASONIC PROCESSOR

VC 505, VC 750, VCX 500 or VCX 750. Please see catalog for detailed description.

SONOCHEMICAL REACTION VESSELS

The adapter Part No. 830-00014 screws onto the special probe Part No. 630-0217 at the nodal point. The glass chamber slides onto the adapter and is secured in place as the bushing is screwed into the chamber compressing the O-ring. Moving the glass chamber up or down on the adapter allows the portion of the probe protruding out of the adapter to be immersed at the optimum depth into the sample.

4-10 ml reaction vessel.** Two 14/20 side necks. Supplied with bushing and O-ring. Glass chamber height: 4⅞" (123 mm). Part No. 830-00011.

10-50 ml reaction vessel.** Bottom well capacity: 10 ml. Main body capacity: 50 ml. Two 14/20 side necks. Supplied with bushing and O-ring. Glass chamber height: 4¾" (120 mm). Part No. 830-00012.

40-250 ml reaction vessel.** Three 14/20 side necks. Supplied with bushing and O-ring. Glass chamber height: 6⅜" (162 mm). Part No. 830-00013.

SPECIAL PROBE

½" (13 mm) special 10" (254 mm) long full wave solid probe. Used with the adapter below. Titanium alloy Ti-Al-4V. Autoclavable Part No. 630-0217.

ADAPTER

5" (127 mm long). Stainless steel. Internally threaded. Screws onto a full wave 10" (254 mm) long ½" (13 mm) probe at the nodal point. Part No. 830-00014.

* From an article by Dr. Kenneth Suslick, Professor of Chemistry and Beckman Institute Professor, University of Illinois Urbana/Champaign.
** Must be used with the adapter Part No. 830-00014 and probe Part No. 630-0217 listed above.

3-10 ml Vessel
830-00011

10-50 ml Vessel
830-00012

40-250 ml Vessel
830-00013

Adapter
830-00014

OPTIONAL ACCESSORIES FOR VC 505, VC 750, VCX 500 AND VCX 750

CONVERTER CLAMPS

The converter clamp securely supports 2½" (64 mm) diameter converters onto stands with ½" (13 mm) diameter support rod. Chemical-resistant reinforced plastic.
Part No. 830-00116

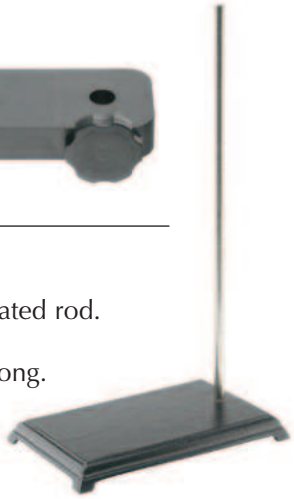
TEMPERATURE PROBE*

Enables temperature monitoring from 1° to 100° C.
Part No. 830-00060

*for VCX models only.

SUPPORT STAND

Black enameled cast-iron base and zinc-plated rod.
Base: 5½" x 9" (140 x 229 mm).
Rod: ½" (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

HANDHELD FREQUENCY METER

Check the frequency of energized probes, converters and boosters.
Frequency range: 10.00 kHz - 80.00 kHz
Part No. 833-00012

ADAPTING STUD

⅜-24 to ½-20
Enables a 20 kHz probe not manufactured by Sonics to be connected to our converter.
The ⅜-24 connecting stud is removed from the probe and replaced with the adapting stud.
Part No. 631-0101

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 ¾" (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 transparent 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).
Inside dimensions: (H x W x D) 27" x 11" x 11" (686 x 280 x 280 mm).
Part No. 630-0427

LABORATORY JACK

Provides adjustable elevation from 2½" (64 mm) to 10" (254 mm).
Top plate: 6" x 5" (152 x 127 mm).
Part No. 830-00113

NON-SLIP VIBRATION ISOLATING MAT

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

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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

*Inlet and outlet require ⅜" (9.5 mm) I.D. tubing.