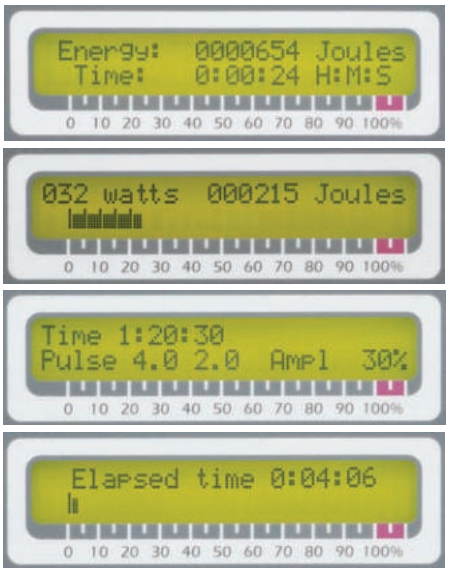
ULTRASONIC PROCESSORS FOR SMALL VOLUME APPLICATIONS

130 Watt Ultrasonic Processor with Timer and Pulser – 150 microliters to 150 milliliters

Real time display . . .



6 mm probe*

VCX 130

□ Energy monitor □ Digital wattmeter □ Automatic tuning □ Automatic amplitude compensation
□ Microprocessor based – programmable □ Ten hour timer □ 1-59 second independent ON/OFF pulser
□ Elapsed time indicator □ Variable power output control

SPECIFICATIONS

POWER SUPPLY	Net power output: 130 Watts. Frequency: 20 kHz Dimensions: (H x W x D) 4½" x 9¾" x 12½" (115 x 250 x 320 mm) Weight: 7 lbs. (3 kg.) Timer: Variable from 1 second to 10 hours Pulser: On and Off cycle are independently controllable from 1 second to 59 seconds Remote actuation compatible. Footswitch compatible.**
CONVERTER	Part No. CV 18. Piezoelectric lead zirconate titanate crystals (PZT) Part No. CV 187. Same as CV 18 but with fittings for air cooling Diameter: 1¼" (32 mm) Length: 5¾" (146 mm) Weight: ¾ lb. (340 g) Cable length: 5′ (1.5 m)
STANDARD PROBE	Tip diameter: ¼" (6 mm). Processing capability: 10 ml to 50 ml.* Length: 4½" (113 mm). Titanium alloy Ti-6Al-4V. Autoclavable. Part No. 630-0435
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.
130 Watt ultrasonic processor	VCX 130

Shipped complete and ready for operation with a ¼" (6 mm) probe, tool kit, and instruction manual.

OPTIONAL ACCESSORIES

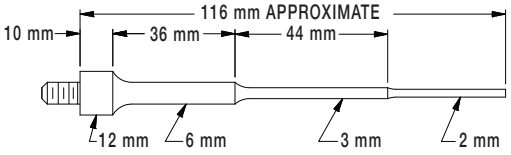
For optional accessories, please refer to pages 5 and 6.

** A different probe can be substituted for the ¼" (6mm) probe. For other volumes, please refer to probe and microtip listings on page 5.
** Footswitch Part No. 830-00004.

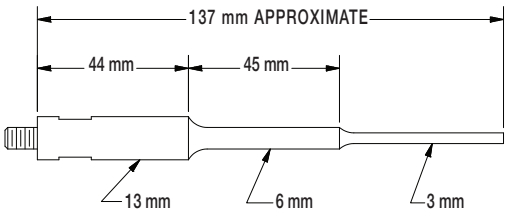
STEPPED MICROTIPS AND PROBES

Microtips and probes amplify and radiate the ultrasonic energy into the sample. Smaller diameter tips produce greater intensity of cavitation, but the energy released is restricted to a narrower, more concentrated field. Conversely, larger diameter tips produce lower intensity, but the energy is released over a greater area permitting larger volume to be processed. Connecting stud ¼ - 20. Microtips and probes are fabricated from titanium alloy Ti-6Al-4V and are autoclavable.

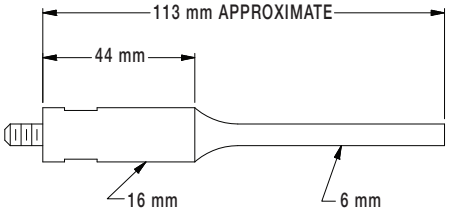
5/64" (2 mm) stepped microtip
Part No. 630-0423



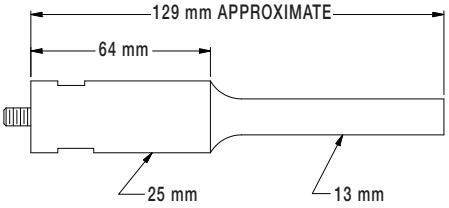
⅛" (3 mm) stepped microtip
Part No. 630-0422



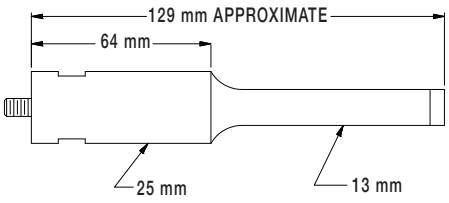
¼" (6 mm) probe
Part No. 630-0435



½" (13 mm) probe
Part No. 630-0561



½" (13 mm) probe with replaceable tip*
Part No. 630-0560



	STEPPED MICROTIPS			PROBES
PART NO.	630-0423	630-0422	630-0435	630-0561 630-0560**
TIP DIAMETER	5/64" (2 mm)	⅛" (3 mm)	¼" (6 mm)	½" (13 mm)
INTENSITY	Ultra high	Very high	High	Medium
VOLUME (batch)	0.2 ml-5 ml	0.5 ml-10 ml	5-50 ml	50-150 ml
AMPLITUDE* micrometers (microns)	135	160	114	76
inches	.0050	.0060	.0045	.0030

*With the amplitude control set at 100%.
Note: With the amplitude control set at 100% the amplitude at the converter tip is 20 micrometers (.0008 inch). **With replaceable tip.

EIGHT-ELEMENT PROBE

The eight-element probe increases productivity and minimizes repetitive tasks by processing identically 8 samples simultaneously. Consists of an aluminum coupler and eight ⅛" (3 mm) mini microtips. Processing capabilities: 250 µl-2ml.
Spacing between tips: 11/32" (9 mm).
Mini microtip length: 11/16" (17 mm).
Part No. 630-0602

REPLACEABLE TIP

The replaceable tip for probe Part No. 630-0560 is fabricated from titanium alloy Ti-6Al-4V and is autoclavable.
Diameter: ½" (13 mm). Thread: ¼ - 20
Part No. 630-0406

LOW VOLUME CONTINUOUS FLOW CELL**

The continuous flow cell screws into the converter in place of the probe. Recommended only for the treatment of low viscosity samples which do not require prolonged exposure to ultrasonics. Designed primarily for dispersing and homogenizing at rates up to 15 liters/hour. The cup is fabricated from glass. The probe and processing chamber are fabricated from titanium alloy Ti-6Al-4V and are autoclavable. Ease of disassembly facilitates cleaning.
Volume of liquid with probe in place: 35 ml.
Connecting stud: ¼ - 20
Replacement glass chamber. Part No. 630-0565
Replacement probe. Part No. 630-0563
For low pressure applications only.
Part No. 630-0566

NOTE: All probes and replaceable tips are fabricated from high grade titanium alloy Ti-6Al-4V and are autoclavable.
Because ultrasonic probes are tuned to resonance, their length may vary slightly due to variations in the titanium's modulus of elasticity.
* Do not use this probe with replaceable tip when processing samples containing organic solvents or low surface tension liquids. Us solid probe Part No. 630-0561 instead. See caution in catalog.
** Outlet connects to ½" (13 mm) I.D. tubing. Inlet connects to ⅜" (9.5 mm) I.D. tubing.

OPTIONAL ACCESSORIES FOR VCX 130 AND VCX 130 PB

ROSETT COOLING CELL

The Rosett cooling cell enables uniform treatment at low temperatures. The cell is placed in a cooling 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

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.

LOW VOLUME CONTINUOUS FLOW CELL**

The continuous flow cell screws into the converter in place of the probe. Recommended only for the treatment of low viscosity samples which do not require prolonged exposure to ultrasonics. Designed primarily for dispersing and homogenizing at rates up to 15 liters/hour. The cup is fabricated from glass. The probe and processing chamber are fabricated from titanium alloy Ti-6Al-4V and are autoclavable. Ease of disassembly facilitates cleaning. Volume of liquid with probe in place: 35 ml.
Connecting stud: ¼ - 20
Replacement glass chamber. Part No. 630-0565
Replacement probe. Part No. 630-0563
For low pressure applications only.
Part No. 630-0566

**Outlet connects to ½" (13 mm) I.D. tubing. Inlet connects to ⅜" (9.5 mm) I.D. tubing.

MICRO CUP HORNS*

The micro cup horns can process small 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, protein extraction, liposome preparation, protein shearing and releasing cellular components including DNA and RNA.

The water-filled micro cup horn screws into the inverted converter in place of a probe. The test tube containing the sample is placed inside the cup horn. The vibrations produced in the cup induce cavitation inside the tube. 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 poly-carbonate cup horns with removable plastic fittings, is 100% leakproof. Supplied with splash shield.

Note: Because the intensity of cavitation within the test tube is substantially less than with direct probe contact, to obtain comparable results when using the cup horn, multiply the processing time by 4.
Probe: Titanium alloy Ti-6Al-4V. Connecting stud: ¼ - 20. Diameter 25/32" (20 mm)
Glass vessel Inside diameter 1½" (38 mm).
Part No. 630-0608

*Water inlet connects to ⅜" (9.5 mm) I.D. tubing. Water outlet connects to ½" (13 mm) I.D. tubing.

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OPTIONAL ACCESSORIES FOR VCX 130 AND VCX 130PB

CONVERTER CLAMP

Securely supports 1¼" (32 mm) diameter converter on support stand with ½" (13 mm) diameter support rod. Chemical-resistant reinforced plastic.
Part No. 830-00118

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

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 liquid surface. The sound abating enclosure permits extended processing without discomfort by reducing the sound by 35 db. 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 lined 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 converter clamp are included.
Outside dimensions: (H x W x D) 20" x 12" x 12" (510 x 300 x 300 mm).
Inside dimensions: (H x W x D) 17" x 9" x 9½" (432 x 229 x 240 mm).
Part No. 630-0451

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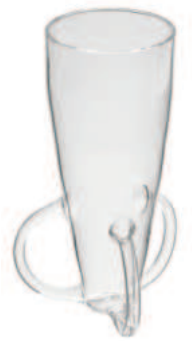
ROSETT GLASS COOLING CELLS

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



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.