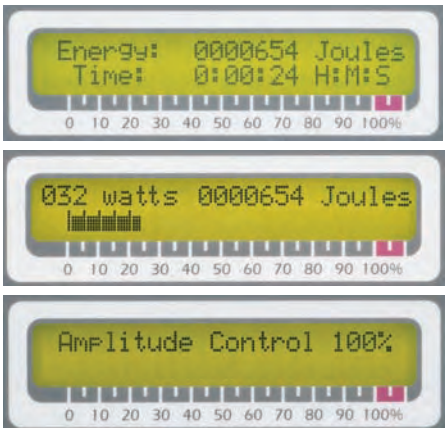
ULTRASONIC PROCESSORS FOR SMALL VOLUME APPLICATIONS

130 Watt Ultrasonic Processor with Thumb Actuated Pulser – 150 microliters to 150 milliliters

Real time display . . .



3 mm probe

VCX 130 PB – VCX 130 FSJ

□ Energy monitor □ Digital wattmeter □ Automatic tuning □ Automatic amplitude compensation
□ Microprocessor based □ Thumb actuated 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: 6.5 lbs. (3 kg) Can be run continuously or in a pulsing mode.*
CONVERTER	Piezoelectric lead zirconate titanate crystals (PZT) Model CV 188 with pulsing button. Compatible with VCX 130 PB* Model CV 18 without pulsing button. Compatible with VCX 130 FSJ Diameter: 1¼" (32 mm) Length: 5¾" (146 mm) Weight: ¾ lb. (340 g) Cable length CV 18: 5‘ (1.5 m) Cable length CV 188: 6' (1.8 m)
STANDARD PROBE	Tip diameter: ⅛" (3 mm). Processing capability: 250 µl to 10 ml.** Length: 5⁷⁄₁₆" (138 mm). Titanium alloy Ti-6Al-4V. Autoclavable. Part No. 630-0422
ELECTRICAL REQUIREMENTS	Unless otherwise requested, units are shipped wired for 117 volts, 50/60 Hz. For export, please specify desired voltage option.

ORDERING INFORMATION

	Part No.
130 Watt ultrasonic processor with pulsing button	VCX 130 PB*
130 Watt ultrasonic processor with footswitch jack	VCX 130 FSJ

Shipped complete and ready for operation with a ⅛" (3 mm) probe,** tool kit, and instruction manual.

OPTIONAL ACCESSORIES

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

* Model VCX 130 PB does not have a footswitch jack. Model VCX 130 FSJ has a footswitch jack but the converter does not incorporate a pulsing button.
** For other volumes, please refer to probe and microtip listings on page 5. A different probe can be substituted for the standard probe.

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 jack
CONVERTER	Model CV 18. Piezoelectric lead zirconate titanate crystals (PZT) Model 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

	Part 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.

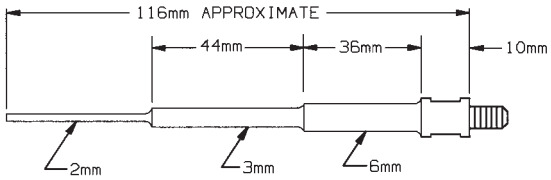
* For other volumes, please refer to probe and microtip listings on page 5. A different probe can be substituted for the standard probe.

OPTIONAL ACCESSORIES FOR VCX 130, VCX 130 PB AND VCX 130 FSJ

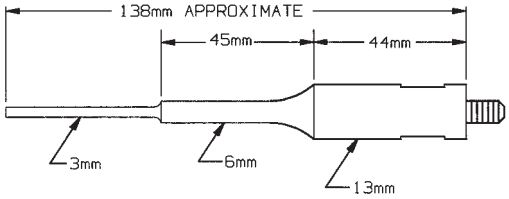
STEPPED MICROTIPS AND PROBES

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.

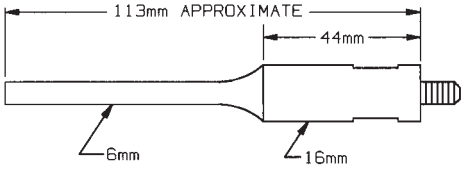
5/64" (2 mm) stepped microtip
Part No. 630-0423



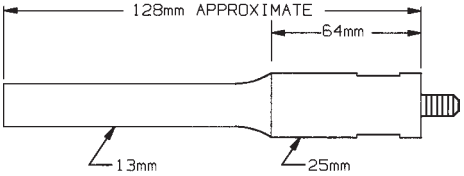
⅛" (3 mm) stepped microtip
Part No. 630-0422



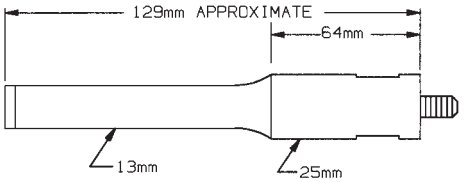
¼" (6 mm) probe
Part No. 630-0435



½" (13 mm) probe
Part No. 630-0561



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



	STEPPED MICROTIPS AND 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)	150 µl-5 ml	250 µl-10 ml	10-50 ml	50-150 ml
AMPLITUDE* micrometers (microns)	207	182	123	75
inches	.0081	.0071	.0048	.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).

EIGHT-ELEMENT PROBE

The high throughput eight-element probe meets the needs of 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 is 23/64" (9 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

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 extended exposure to ultrasonics. Designed primarily for dispersing and homogenizing at rates up to 15 liters/hour.
The vessel 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
For low pressure applications only.
Part No. 630-0566

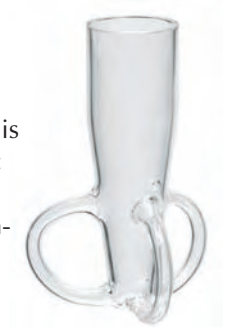
NOTE: All probes and replaceable tips are fabricated from high grade titanium alloy Ti-6Al-4V and are autoclavable.
Because ultrasonic probes are tuned to resonance, their length may vary slightly due to variations in the titanium's modulus of elasticity.

*Do not use this probe with replaceable tip when processing samples containing organic solvents or low surface tension liquids. Use solid probe Part No. 630-0561 instead. See caution on page 8.

**Supplied individually or in sets of five.

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



10 ml

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
(see page 16 for photo)

MICRO CUP HORNS

The micro cup horns can process a sample 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, liposome preparation, and releasing cellular material from viruses.

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 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, is 100% leakproof.

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
Inside diameter 1" (25 mm). Probe radiating face $^{25}/_{32}$" (20 mm): Part No. 630-0447
Inside diameter 1½" (38 mm). Probe radiating face $^{25}/_{32}$" (20 mm): Part No. 630-0608

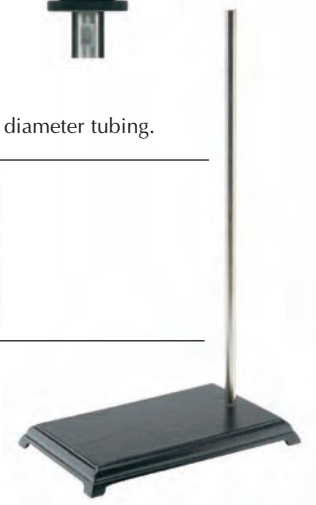
*Bottom inlet port accommodates 0.4" (10 mm) inside diameter tubing. Upper outlet port accommodates 0.5" (13 mm) inside diameter tubing.

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 5½" x 9" (140 x 229 mm) cast-iron base and ½" (13 mm) diameter, 24" (610 mm) long zinc-plated rod.
Part No. 830-00109



FOOTSWITCH

For hands-free operation. Compatible with VCX 130 and VCX 130 FSJ only. 10′ (3 m) cable with plug.
Part No. 830-00004

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 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 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).
Part No. 630-0451