USER MANUAL

Sonic Ruptor 400

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This product is warranted to be free from defects in material and workmanship for a period of ONE YEAR from the date of delivery. Revvity will repair or replace and return free of charge any part which is returned to its factory within said period, transportation prepaid by user, and which is found upon inspection to have been defective in materials or workmanship. This warranty does not include normal wear from use; it does not apply to any instrument or parts which have been altered by anyone other than an employee of Revvity nor to any instrument which has been damaged through accident, negligence, failure to follow operating instructions, the use of electric currents or circuits other than those specified on the plate affixed to the instrument, misuse, or abuse. Revvity reserves the right to change, alter, modify, or improve any of its instruments without any obligation whatever to make corresponding changes to any instrument previously sold or shipped.

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This product has been engineered for safety; however, basic safety precautions and common sense must always be demonstrated when using any electrical product.

- Use this product only for its intended purpose.
- Keep this product away from heated surfaces.
- **DO NOT** attempt to modify any part of this product.
- **DO NOT** allow the machine to be submerged in any liquid.
- **DO NOT** use in any setting other than an indoor laboratory.
- **DO NOT** use attachments not recommended by the manufacturer.
- **DO NOT** operate the product if it is damaged in any way.
- **DO NOT** operate the product with the safety ground disconnected.
- **DO NOT** modify the plug or cord that is provided.

WARNING: Reduce the risk of unintentional starting; make sure the machine is OFF before plugging into a power supply.
WARNING: Damaged or worn power cords should be repaired or replaced immediately by a qualified electrician.
WARNING: Improper connection of the equipment can result in a risk of electric shock.

Proper Equipment Operation
To reduce the risk of electric shock, do not remove the cover. No user serviceable parts are inside. Refer to qualified service personnel if help is required. Use this product only in the manner described in this manual. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

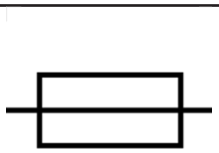
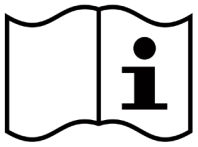
FCC
This device complies with part 15 of the FCC (United States Federal Communications Commission) Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

CE/UKCA
This device complies with all CE and UKCA rules and requirements.
Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Table of Contents

Table of Symbols

Symbol	Description	Symbol	Description
	Caution. Refer to the User documentation (ISO 7000-0434B)		On (power). (IEC 60417-5007)
	Hazardous voltage; risk of electric shock. (IEC 60417-6042)		Off (power). (IEC 60417-5008)
	Fuse. (IEC 60417-5016)		Consult Instructions for Use. (ISO 7000-1641)
	Alternating current. (IEC 60417-5032)		CE Compliance Mark
	UKCA Certification Mark		WEEE symbol (EN50419:2005)
	RoHS Certification Mark		KC Certification Mark

Specifications

Part Number	18-000-115 or 18-000-220
Input Voltage	18-000-115 - 100-115V, 50/60 Hz and 18-000-220 - 200-230V, 50/60 Hz
Weight	18 lbs. (8.2 kg)
Control Unit Dimensions	W: 11.1″ (28.2 cm), D: 9.6″ (24.4 cm), H: 6″ (78.7 cm)
Transducer Dimensions	W: 3″ (7.6 cm), H: 5.6″ (14.3 cm)
Power	400 Watts
Output Frequency	20 KHz
Timer	0-15 minutes
Standards Approval	CE and UKCA Approved

Site Requirements

Operating Environment
4°C to 40°C / 39°F to 104°F, Humidity: 5% to 95% RH

Ambient Air
The system must be located in an area where the ambient air is clean. No emission of solid particles or smoke in the air by adjacent equipment is allowed. The level of dust should be comparable to that of normal laboratory spaces.

External Fire Protection
External fire protection should be installed according to local regulations for equipment operating unattended.

Decontamination

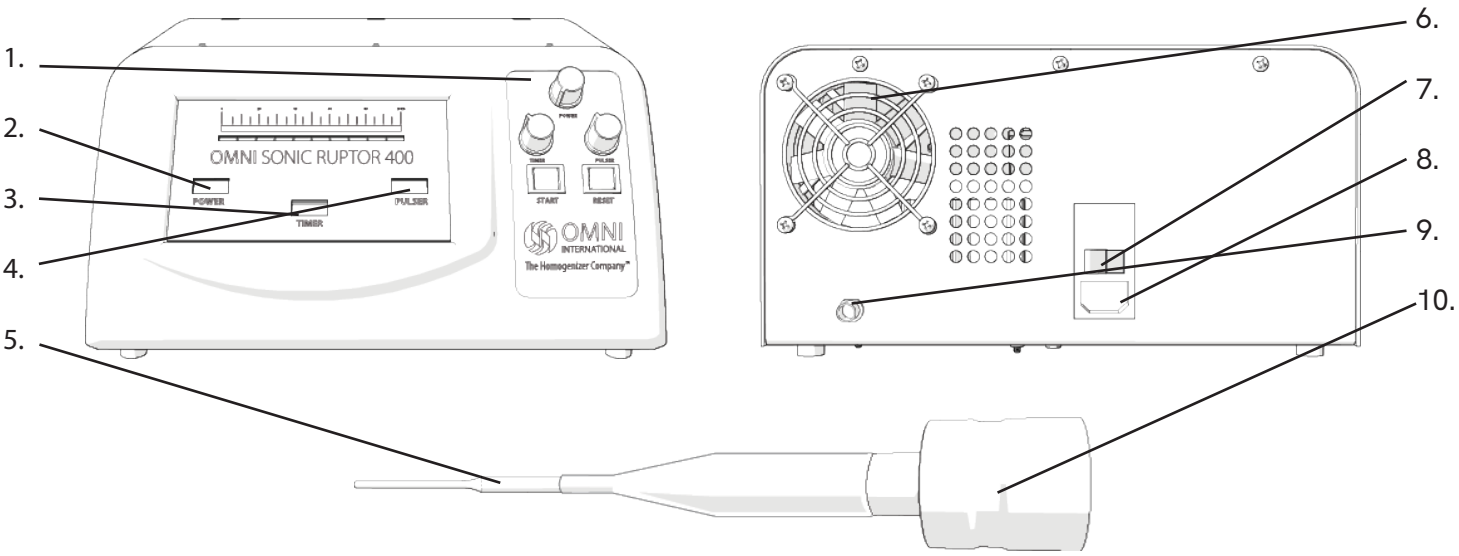
Should an instrument or component that has been used with radioactive or pathogenic material require factory or field service, comply with the following procedure to ensure the safety of service personnel:

- Clean the parts to be serviced of all encrusted material and decontaminate them. There must be no radioactivity detectable by survey equipment.
- Obtain a Decontamination Certificate from Revvity. Complete the certificate and attach to the instrument or parts being returned.

If no Decontamination Certificate is attached, and a potential radioactive or biological hazard is detected or suspected by Revvity the equipment will not be serviced until proper decontamination and certification is complete. The sender will be contacted for instructions as to the disposition of the equipment. Disposition costs will be borne by the sender.

WARNING: It is a violation of federal law to transport biologically hazardous or radioactive materials without proper packaging, labeling, and appropriate warnings.

System Overview

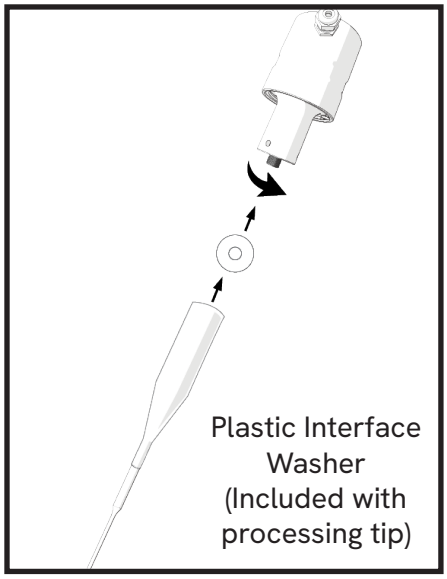


1. Control Panel
2. Power LED
3. Timer LED
4. Pulser LED
5. Processing Tip (Sold Separately)
6. Cooling Fan
7. On/Off Switch
8. Power Cord Port
9. Transducer Connector
10. Transducer

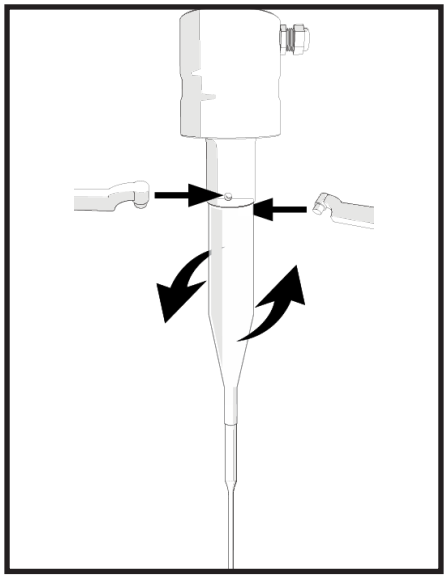
The Sonic Ruptor 400 Ultrasonic Homogenizer Consists of the following::

Description	Part Number	Quantity
Control Unit	18-001 (115v) or 18-002 (220V)	1
Transducer	OR-TRANS	1
Power Cord	LT710 (115V) or LT712 (220V)	1
2″ Pin Wrench	18-7-729-001	2
User Manual	03-254	1

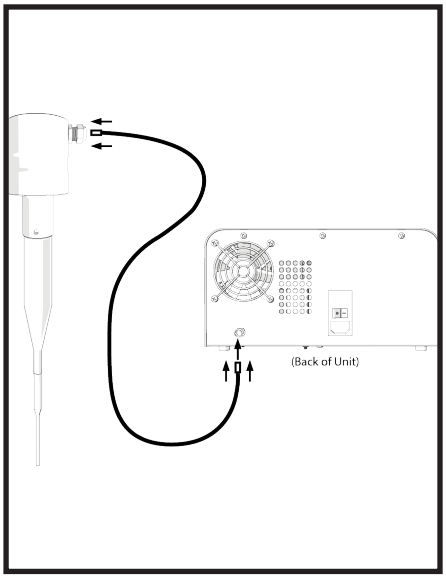
Ultrasonic Tips



1. Attach the processing tip to the transducer. Place the Plastic Interface Washer between the tip and the transducer.



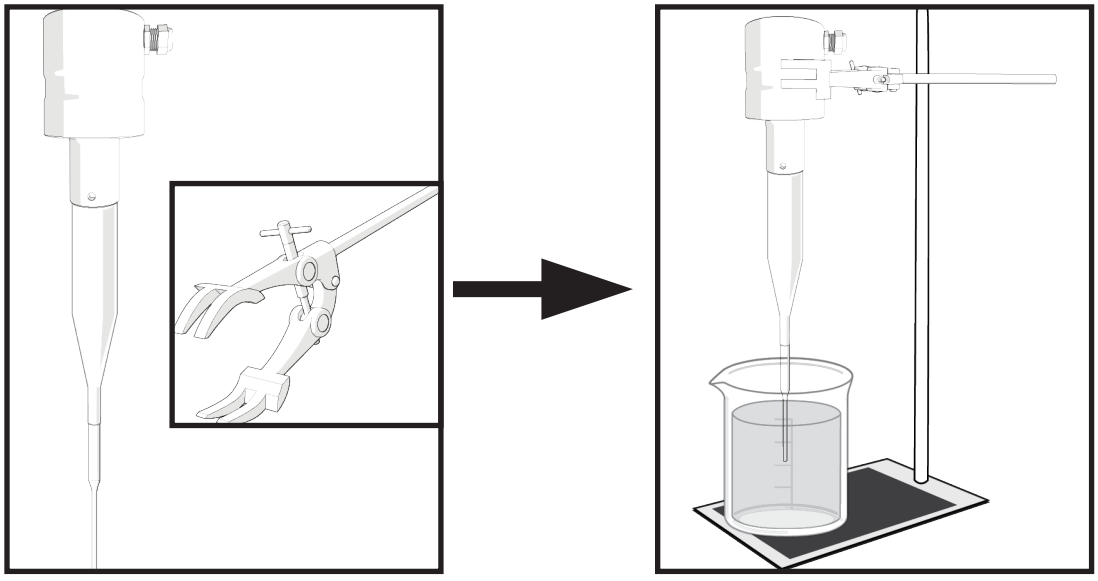
2. Tighten with 2″ pin wrenches.



3. Connect the transducer cable to the transducer and the control unit. Then connect the power cord to power cord port. Plug the power cord into grounded outlet.

WARNING: Use wrenches to twist the processing tip. Do not twist the Transducer.
NOTE: Use the wrenches to check the tightness of the probe periodically after processing.

Stand Mounting



Stand Clamp 18-205 Sold Separately

General Operation

- Adjust power level to desired setting (see probe instructions for max settings)
- Adjust timer setting for run duration
- Pulser settings
  Select from 10% - 90%
  Example 90% = 1.8 second pulse / 0.2 second dwell
  10% = 0.2 second pulse / 1.8 second dwell
- Constant Run Mode - Move Pulser setting to the off position.
- Immerse the Processing Tip into sample. Tip depth should be approximately 1.5 times the diameter of the processing tip.
- Press Start button to begin preset cycle
- Reset button interrupts the cycle and returns all settings to 0.
- Press Reset to terminate processing at any time.

NOTE: The Sonic Ruptor 400 Ultrasonic Homogenizer should not be operated at its maximum power level for more than fifteen (15) minutes. Long periods of operation will shorten the life of the electronic components due to the high temperature developed inside the unit. After operating the Sonic Ruptor 400 homogenizer for fifteen (15) minutes at the maximum power level, allow it to run for five (5) minutes in its idle state to cool the unit to approximately ambient temperature. When cycling the unit with large numbers of samples at maximum power level, observe the same precautions with respect to heat. Be sure to periodically allow the unit to cool down.

Accessories and Parts

Titanium Tips

Description	Size	Processing Range	Power limit	Part Number
5/32″ Micro Tip	Diameter: 5/32″ (3.8 mm) Length: 10.1″ (25.6 cm)	250 µL-10 mL	50%	OR-T-156
3/8″ Tip	Diameter: 3/8″ (9.5 mm) Length: 4″ (10.16 cm)	10 mL - 250 mL	80%	OR-T-375
1/2″ Tip	Diameter: 1/2″ (12.7 mm) Length: 5.38 (13.65 cm)	10 mL - 300 mL	100%	OR-T-500
3/4″ Tip	Diameter: 3/4″ (19 mm) Length: 4.1″ (10.5 cm)	10 mL - 500 mL	100%	OR-T-750
1.0″ Tip	Diameter: 1″ (25.4 mm) Length: 4.85″ (12.3 cm)	50 mL - 1L	100%	OR-T-1000

Troubleshooting

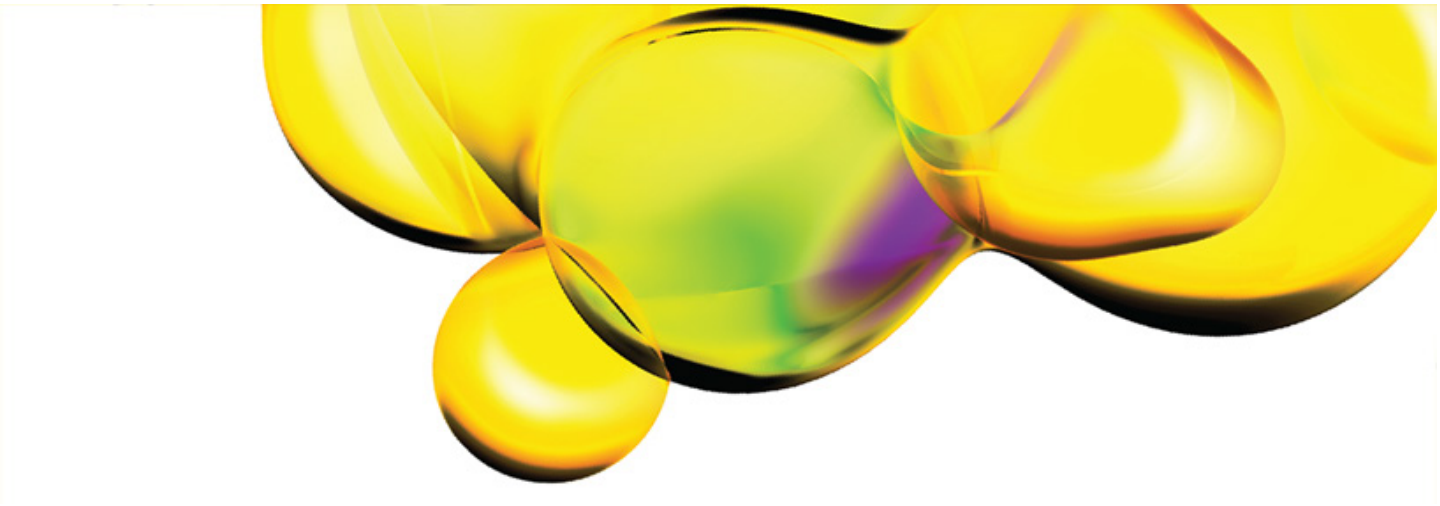
Problem	Cause	Corrective Action
Unit will not power On.	Control Unit is not plugged in.	▪ Ensure the unit is properly plugged in. ▪ Check that the voltage of the unit matches that being delivered by the main power supply.
	Transducer is not correctly connected to control unit.	▪ Check connection and secure properly.
	Fuse needs to be replaced.	▪ Check and replace fuse if necessary.
	No Power or incorrect voltage.	▪ Check main voltage. ▪ Check that the voltage of the unit matches. ▪ Make sure that the unit is plugged in properly.
Power Output is less than 20%.	Worn Washer.	▪ Turn off the unit. ▪ Use the wrenches to loosen the processing tip from the transducer. Be sure to twist the tip, not the transducer. ▪ Replace the washer.
	The probe is not properly secured.	▪ Turn off the unit. ▪ Use the wrenches to tighten the processing tip on the transducer.
Burning smell from the Transducer.	Transducer is overheating.	▪ Turn off the control unit. ▪ Wait 30 min before turning the unit back on. ▪ Reduce run time. ▪ Contact Technical Support if the problem persists.
Glass Sample Vessel Cracked or Shattered.	The processing tip is touching the side or bottom of the container.	▪ Do not allow the processing tip touch the sample vessel.
Loud or inconsistent sound coming from the processing tip.	The processing tip is not immersed in enough fluid.	▪ Turn off the unit. ▪ Check the depth of the tip in the sample liquid. ▪ Adjust the probe if necessary.
	The processing tip is fractured or damaged causing it to resonate at an incorrect frequency.	▪ Turn off the unit. ▪ Remove the damaged processing tip. ▪ Attach a new washer and tip.

WARNING: Any service must be performed by a qualified service technician. This can be either an Revvity Technician or an end user resource.

All parts need to be sourced from the Revvity service department.

Appendix

This equipment is marked with the crossed-out wheeled bin symbol, to indicate that this equipment may not be disposed of as unsorted municipal waste.
It's your responsibility to correctly dispose of your equipment at life-cycle end, by handing it over to an authorized facility for separate collection and recycling of waste equipment. It's also your responsibility to decontaminate your equipment in case of biological, chemical or radiological contamination, and so protect the persons involved in the disposal and recycling of the equipment from health hazards.
For more information about where you can dispose of your waste equipment, please contact your local dealer, from whom you purchased the equipment.
By doing so, you will help to preserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.



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