

# DISRUPTOR GENIE® Cell Disruptor

## OPERATING INSTRUCTIONS

Models SI-D236 through SI-D296 (1.5ml tubes)

Models SI-D237 through SI-D297 (2.0ml tubes)



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U.S. PATS 4,781,487  
5,707,861

The Scientific Industries Disruptor Genie® is a vigorous mechanical cell disruption device. Applications include cell disruption of yeast, bacteria, plant and animal tissue and for cell re-suspension for DNA mini-preps. The Disruptor Genie may be used in a cold room.

### Cell Disruption Using Glass or Zirconia-Silica Beads

The Disruptor Genie consists of a Vortex Genie® Mixer base with a unique and patented accessory attached directly to the shaft eccentric of the mixer. The Disruptor Genie dramatically increases the disruption efficiency of the disruption beads, glass or zirconia-silica, because of the unique and patented design of the sample holder.

Models SI-D236 through SI-D296 holds twelve 1.5ml micro tubes and models SI-D237 through SI-D297 holds twelve 2.0ml micro tubes in a ring that is an integral part of the shaft. A second ring, below the first ring, is not attached to the shaft. The second "Floating" Ring is free to move up and down and concentrically around the shaft with ample clearance between the ring and the shaft of the Disruptor Genie patented accessory attachment.

Twelve sample tubes are placed in the Upper Ring of the attachment and allowed to project through corresponding holes in the "Floating" Ring below. The holes in the "Floating" Ring are smaller than the orbit path of the shaft. Therefore, as each of the twelve tubes travel in an orbit corresponding in size with the orbit path of the shaft, the bottoms of the tubes repeatedly and vigorously collide within the confines of the holes in the "Floating" Ring. This action, in combination with the action of the disruption beads used inside the sample tubes, results in a significant increase in the impact frequency and force. The disruption efficiency is increased dramatically.

The Disruptor Genie is designed to run at full speed. It has a timer that may be set for the required disruption time or a switch position that allows for continuous operation until manually stopped.

### Disruption Bead Selection

Selection of bead size and material is important. Use either glass or zirconia-silica beads. The following guide is for **reference** only. It is strongly suggested that you use this guide only as a starting point to determine the optimum conditions for the particular cell disruption operation that you wish to perform. The reference to **Typical Run Time** should result in a yield of 85 - 90% release of the cellular material for each of the conditions noted. Normally, 1 part of glass or zirconia-silica beads to 2 parts of total liquid bio-mass is the minimum condition recommended for effective cell disruption. You can use more beads i.e. 4 parts of beads to 3 parts of bio-mass providing that adequate agitation of the slurry is possible. Generally, the more beads that are used, the faster the disruption of cells.

Type of Cell	Bead Size	Bead Material	Typical Run Time
Bacteria/Spores	0.1 mm	Borosilicate glass	2 to 3 min / full speed
		Zirconia-silica	1 to 2 min / full speed
Yeast, Mycelia, Microalgae Trypsinized cultures, Cyanobacteria	0.5 mm	Borosilicate glass	3 to 4 min / full speed
		Zirconia-silica	1.5 to 2 min / full speed

### Sample Temperature

During cell disruption, friction inside the sample tubes will generate heat. The Disruptor Genie® is capable of being operated in a cold room or an environmental chamber. In most short runs, 3 minutes or less, it is feasible that if you refrigerate the sample tubes, beads and sample before the disruption run, you will be able to perform the disruption at room temperature. The small size of the micro tubes may allow sufficient heat to dissipate so that sample integrity is not impaired. The operator must make the decision based on the type of beads, the sample content and size and the length of time of the run. In any event, it is advisable to keep the tubes, beads and sample chilled before each run.

### OPERATING INSTRUCTIONS

- Place the Disruptor Genie on a sturdy, level work surface.
- Connect the power cord to a properly grounded three-pronged receptacle. 120V for the SI-D236 and SI-D237 models; 230V for the SI-D246 and SI-D247 models; 100V for the SI-D286 and SI-D287 models.
- Load up to (12) 1.5ml Snap-top or (12) 2.0ml Screw-top micro tubes in the tube holder. Space them evenly if using less than 12 tubes.
- Close the cover, making sure that the stem of the tube holder goes into the cap in the cover.
- The Disruptor Genie is now ready for use. Turning the timer knob clock-wise starts the mixer. It will run for up to 15 minutes, depending on how far you turn the dial. Turn the dial back counter-clockwise to stop the unit before the time has expired, otherwise the Disruptor Genie will turn itself off after the amount of time set. Alternatively, turning the timer knob firmly counter clock-wise from the "off" position until a click is heard, will turn on the Disruptor Genie in untimed mode. Firmly turn the timer knob clock-wise back to the "off" position to stop the unit. At room temperature, do not operate the mixer for more than three (3) hours continuously.
- Accessory Tube Holders may be ordered separately and used on the Disruptor Genie. (Part No. 0A-0563-010 - 1.5ml Snap-top Tube Holder and Part No. 0A-0563-011 - 2.0ml Screw-top Tube Holder) To remove and replace the Tube Holder, **first...make sure the Disruptor Genie is turned off**. Pop off the Tube Holder by inserting your fingers under the top disk and lift the Tube Holder with a prying motion. Align the flat surface of the Disruptor Genie mixing shaft with the flat surface of the shaft receptacle on the under side of the new Tube Holder. Press downward until the new Tube Holder snaps into place. The Disruptor Genie is now ready for use with the new Tube Holder.

**⚠ CAUTION! Failure to follow operating instructions can compromise the user's safety.**

**⚠ CAUTION! Unplug from power before cleaning. Do not immerse.**

### Care and Handling

Your Disruptor Genie should be given the care normally required for any electrical appliance. Avoid wetting or unnecessary exposure to fumes. The finish can be washed with water (after unplugging) and soap or detergents, using a cloth or sponge. Replacement parts are available through your laboratory equipment distributor. Refer to "Parts Assembly List" and enclosed multi-fold brochure.

### SPECIFICATIONS

MODEL	POWER REQUIRED	AMPS
SI-D236 / SI-D237	120V/60Hz	0.65
SI-D246 / SI-D247	230V/50Hz	0.5
SI-D286 / SI-D287	100V/50-60Hz	1.0

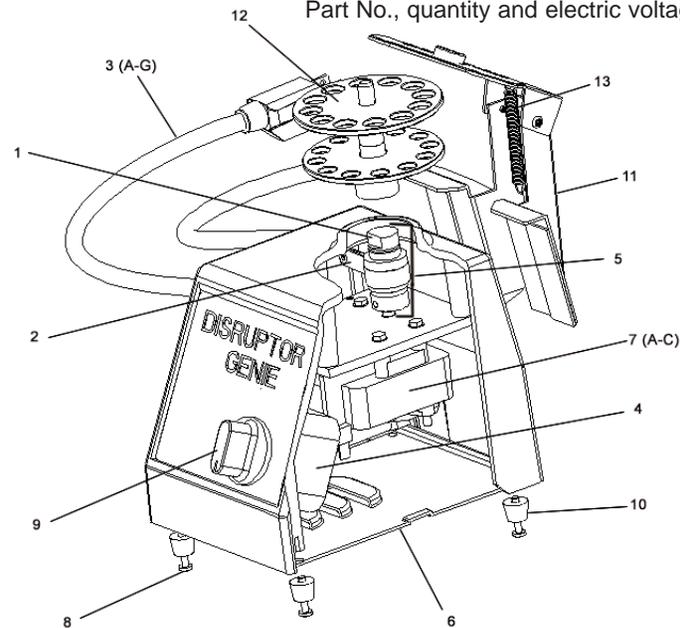
ETL Listed  
Conforms to UL Std. 3101-1  
Certified to CAN/CSA C22.2



# DISRUPTOR GENIE®

## PARTS ASSEMBLY LIST

To order parts for the Disruptor Genie:  
Contact your local distributor or visit  
[www.scientificindustries.com](http://www.scientificindustries.com). Please specify  
Part No., quantity and electric voltage.



Indicator No.	Part No.	Description
1	0K-0236-902	Bearing Retainer Kit
2	0K-0236-903	Eccentric Clamp
3A	318-0510-02	120V Line Cord
3B	0K-0246-901	230V Line Cord, without Plug
3C	0K-0256-901	230V Line Cord, European Plug
3D	0K-0266-901	230V Line Cord, British Plug
3E	0K-0276-901	230V Line Cord, Swiss Plug
3F	0K-0286-901	100V Line Cord
3G	ECP0021	Australian Plug (only)
4	EPP0008	Timer On/Off
5	0K-0236-904	Eccentric with Clamp Assembly
6	0M-0236-210	Bottom Closure
7A	0A-D236-021	Motor 120V Assembly
7B	0A-D246-021	Motor 230V Assembly
7C	0A-D286-021	Motor 100V Assembly
8	SCP0030	Screws, Bottom Closure (4)
9	0M-D236-400	Knob
10	0K-0236-907	Feet with Screws (4)
11	0A-0553-010	Mounting Bracket Assembly
12	0A-0563-010	Tube Holder Assembly (1.5ml Snap-top tubes)
	0A-0563-011	Tube Holder Assembly (2.0ml Screw-top tubes)
13	SPP0001	Spring