

DIGITAL DISRUPTOR GENIE® Cell Disruptor

OPERATING INSTRUCTIONS

Models SI-DD38 through SI-DD98

Models SI-DD36 through SI-DD96 (1.5 ml tubes only)

Models SI-DD37 through SI-DD97 (2.0ml tubes only)



70 Orville Drive, Bohemia, NY 11716 U.S.A.
(631) 567-4700 • Fax: (631) 567-5896 • Toll Free: 888-850-6208
Customer Service: custsvc@scientificindustries.com
www.scientificindustries.com

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

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

Cell Disruption Using Glass or Zirconia-Silica Beads

The DIGITAL 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 DIGITAL 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-DD38 through SI-DD98 holds twelve 1.5ml or 2.0ml microtubes. Models SI-DD36 through SI-DD96 hold twelve 1.5ml snap-top microtubes and models SI-DD37 through SI-DD97 holds twelve screw-cap 2.0ml microtubes.

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.

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	0.5 mm	Borosilicate glass	3 to 4 min / full speed
Trypsinized cultures, Cyanobacteria		Zirconia-silica	1.5 to 2 min / full speed

Sample Temperature

During cell disruption, friction inside the sample tubes will generate heat. The DIGITAL 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

We recommend that you retain your original packaging for 90 days in case you need to return the product for any reason to your distributor or Scientific Industries.

- 1.0 Place the DIGITAL DISRUPTOR GENIE® on a sturdy, level work surface.
- 1.1 Connect the power cord to a properly grounded three-pronged receptacle.
- 1.2 Load up to twelve microtubes in the tube holder. Space them evenly if using less than twelve tubes.
- 1.3 Close the cover, making sure that the stem of the tube holder goes into the cap in the cover.
- 1.4 The DIGITAL DISRUPTOR GENIE is now ready for use.

MODES OF OPERATION

2.0 - The DIGITAL DISRUPTOR GENIE has the following modes of operation:

2.1 - "TIMED"

Press the UP/DOWN arrow button beneath the **TIME** window to set the desired cycle time from 1 minute to 99 minutes. Next, set the speed control by pressing the UP/DOWN arrow beneath the **SPEED** window to any value between 1000 and 3000 (2850 for 50hz models). A setting of 1000 is the least vigorous mixing and 3000 the most vigorous. Press the **START/STOP** button to begin the mixing action. The mixer will run until the set time has elapsed. To stop the cycle before the set time has elapsed, press the **START/STOP** button. To initiate a new timed cycle, press the **START/STOP** button again.

2.2 - "TIMED with SPEED ALARM"

Set the **TIME** and **SPEED** as described in 2.1. Press the **SPEED ALARM** button. The mixer will toggle between **SPEED ALARM** OFF and ON and the **SPEED** display will flash. Set the speed control by pressing the UP/DOWN arrow beneath the **SPEED** window. It is recommended to set the **SPEED ALARM** a minimum of 100 RPM slower than the mixer speed. Should the mixer not be able to maintain the speed within the ALARM SPEED setting, the mixer will beep.

2.3 - "CONTINUOUS"

The "Continuous" mode allows for unattended operation that will continue indefinitely until you stop the cycle by pressing the **START/STOP** button. To initiate the "Continuous" mode, press the DOWN arrow button beneath the **TIME** window until the illuminate display reaches "-". Upon pressing the **START/STOP** button, the mixer will start and continue to run, unattended, until you once again press the **START/STOP** button. To restart the cycle, press the **START/STOP** button again.

2.4 - "CONTINUOUS with SPEED ALARM"

Set the "Continuous" **TIME** as described in 2.3. Set the **SPEED** as described in 2.1. Set the **SPEED ALARM** as described in 2.2.

2.5 - "SLEEP"

The mixer will automatically go into a "SLEEP" mode if the mixer is plugged in but not used for 10 minutes. The **TIME** and **SPEED** illuminated displays will go blank and the **ON** or **OFF** illuminated display will blink. Press the **START/STOP** button to "WAKE UP" the mixer.

⚠ CAUTION! Do not lift your DIGITAL DISRUPTOR GENIE® by its head.

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

Care and Handling

Your DIGITAL 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. Keep the unit clean by immediately blotting any spills. Replacement parts are available through your laboratory equipment distributor. Refer to "Parts Assembly List".

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

SPECIFICATIONS

The DIGITAL DISRUPTOR GENIE is classified as "Installation Category 2"
Environmental: 0°C – 38°C (32°F-100°F), 95% Humidity max.

MODEL	POWER	AMPS
SI-DD38/SI-DD36/SI-DD37	120V	0.65
SI-DD48/SI-DD46/SI-DD47	230V	0.5
SI-DD88/SI-DD86/SI-DD87	100V	1.0

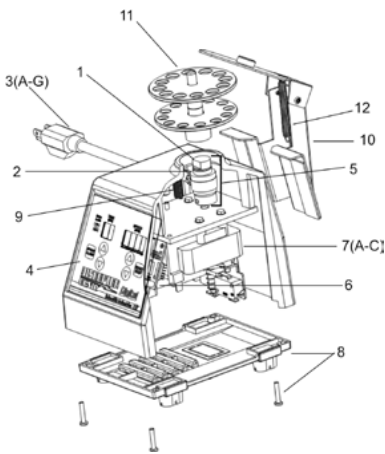


Weight: 4.3 Kg (9.5 lbs.) - Cast metal base with vibration damping feet.
Base Dimensions (DxWxH): 165x122x190mm, (6.5x4.8x7.5in.)
Time Range: 0-99 minutes or continuous
Speed Range: 1000-3000 RPM (2850 RPM for 50hz models)

PARTS ASSEMBLY LIST

To order parts for the DIGITAL DISRUPTOR GENIE:

Contact your local distributor or visit 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	240V Line Cord, without Plug
3C	0K-0256-901	240V Line Cord, European Plug
3D	0K-0266-901	240V Line Cord, British Plug
3E	0K-0276-901	240V Line Cord, Swiss Plug
3F	0K-0286-901	100V Line Cord
3G	ECP0021	Australian Plug (only)
4	EL-DD36-575	Keypad, Digital Disruptor Genie
5	0K-0236-904	Eccentric with Clamp Assembly
6	EB-DD36-500	Digital Timer Board
7A	0K-DD36-915	Motor 120V Assembly
7B	0K-DD46-915	Motor 240V Assembly
7C	0K-DD86-915	Motor 100V Assembly
8	0K-0236-408	Bottom Closure with Feet Kit
9	566-0028-00	Spring, Extension, Eccentric
10	0A-D236-010	Mounting Bracket Assembly
11	SI-0565	Universal Microtube Holder
--	0A-0563-010	Tube Holder Assembly (1.5ml Snap-top tubes)
--	0A-0563-011	Tube Holder Assembly (2.0ml Screw-top tubes)
12	SPP0001	Spring