

Grant-bio



**Orbital shaker-incubator
ES-20/80**

ES-20/80 shaker-incubator for biotechnological and pharmaceutical laboratories is a professional category equipment. The typical applications include - microbial and cell culture cultivation, protein expression, solubility studies, general mixing, as well as other various applications in the fields of biology and chemistry. The unit is equipped with a newly developed triple eccentric mechanism for platform motion that provides supreme balancing characteristics, superior reliability and quiet operation. The achieved stability of the unit during vigorous mixing allows for stacking installation of up to 3 units which enables to save space.

The new display and easy to use user interface provide a clear and intuitive control of parameters and allow data logging, storage and display over time. Additional features like out of balance sensor and automatic thermostat failure detection make this shaker-incubator an advanced and safe product. Bluetooth connectivity to PC allows for data management, data logging, parameter control and profiling in a dedicated software that can be requested separately.

A built-in heat-resistant brushless fan provides precise temperature distribution inside the chamber (from 5°C above ambient up to +80°C). Additionally, excellent sample temperature uniformity of ± 0.5 °C at 37 °C is achieved. The inner chamber is made of stainless steel. State-of-the-art motor, thermal insulation materials and parameter PID-control decrease the energy consumption and make the shaker-incubator highly energy efficient despite its relatively large size.

Specifications

The unit is designed for operation in cold rooms and closed laboratory rooms at ambient temperature from +4°C to +40°C in a non-condensing atmosphere and maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

Grant is committed to a continuous programme of improvement and reserves the right to alter design and specifications of the equipment without additional notice.

7.1. Temperature specification

Setting range	+25°C ... +80°C (increment 0.1°C)
Control range	5°C above ambient ... +80°C
Uniformity ¹	±0.3°C
Accuracy ¹	±0.1°C
Stability ¹	±0.1°C
Heat up time to +80°C inside the chamber	75 min

7.2. General specification

Speed control range.....	50 - 400 RPM (increment 10 RPM)
Digital time setting	1 min - 96 hrs (increment 1 min) / non-stop
Maximum continuous operation time ²	30 days
Maximum load	10.6 kg
Orbit 20 mm	
Display	TFT LCD
PC software	on request
Data transfer	Bluetooth
Dimensions	620x620x510 mm
Dimensions of the inner chamber.....	460x350x400 mm
Stacking.....	up to 3 units ³
Operating voltage/ power consumption	230 V, 50/60 Hz / 500 W (2.2 A)
Weight ⁴ 48 kg	

**Table 1. Recommended maximum speed for UP-168 platform
with fully loaded TR-21/50 or TR-44/15, depending on the set angle.**

Set angle	Speed, in RPM			
	200	250	350	400
0°	OK			
15°	OK			
30°	OK			
45°	OK			Not recommended
60°	OK		Not recommended	
75°	OK	Not recommended		

¹ Data for samples, at 37°C and 240 RPM
² Recommended interval between prolonged operations – not less than 8 hours
³ Only with the stacking kit installed. Base side-mounted leg parts are required for third level stacking
⁴ Accurate within ±10%

Ordering information

8.1. Models and versions available:

Model	Version	Description
ES-20/80	V.1GD	230 V, 50/60 Hz, no platforms

8.2.

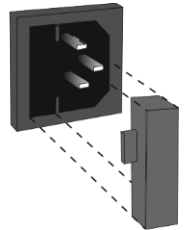
8.3. Optional accessories for **ES-20/80**:

Model	Description
HSP-30/100	Platform with clamps for 30 flasks of 100 ml
HSP-16/250	Platform with clamps for 16 flasks of 250 ml
HSP-9/500	Platform with clamps for 9 flasks of 500 ml
HSP-6/1000	Platform with clamps for 6 flasks of 1000 ml
PP-400	Flat platform with non-slip silicone mat. Working dimensions 360x400 mm
UP-168	Universal platform for different flasks
HSC-50	Clamp for 50 ml flask for UP-168 platform (ø 50 mm)
HSC-100	Clamp for 100 ml flask for UP-168 platform (ø 65 mm)
HSC-250	Clamp for 250 ml flask for UP-168 platform (ø 85 mm)
HSC-500	Clamp for 500 ml flask for UP-168 platform (ø 105 mm)
HSC-1000	Clamp for 1000 ml flask for UP-168 platform (ø 130 mm)
TR-21/50	Variable angle test tube rack for 21 tubes of 50 ml for UP-168 platform
TR-44/15	Variable angle test tube rack for 44 tubes of 15 ml for UP-168 platform
	Bluetooth adapter
	Stacking kit for two units
	Stacking kit for three units

9. Guarantee and service

- 9.1. **Guarantee.** When used in laboratory conditions and according to these working instructions, this product is guaranteed for TWO YEARS (excluding items mentioned in tables in Error! Reference source not found.) against faulty materials or workmanship.
- 9.2. **Service.** There are no user-serviceable parts inside the unit. For all maintenance and repairs (except as defined below) return to our service department in the UK or in other countries, our distributor.
- 9.3. **Cleaning and disinfection.**
- 9.3.1. Cleaning the outside parts. Use mild soap and water with a soft cloth or sponge for cleaning the exterior. Rinse remaining washing solution with distilled water. Wipe dry the excess water with clean, soft cloth or sponge.
- 9.3.2. Disinfecting the exterior plastic and metal parts. Use 75% ethanol or DNA/RNA removing solution (e.g., PDS-250). After disinfecting it is necessary to wipe the surfaces dry.
- 9.4. **Fuse replacement.** Disconnect the power cable from the mains. Disconnect the power cable from the socket on the rear of the unit. Open the fuse holder, located near the socket. Check and replace with a correct fuse if necessary, see table below:

Model & version	Fuse ¹
ES-20/80 V.1GD (230 V)	M 4 A



¹ Fuse type M - time lag Medium



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Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

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Please contact us if this literature doesn't answer all your questions.