

7 Technical data

7.1 Specifications

7.1.1 Innova 2000

Tab. 7-1: Shaking

Speed	25 – 500 rpm
Control accuracy	±1 rpm
Indication	3-Digit LED, in 1 rpm increments
Stroke/Orbit	1.9 cm (¾ in)
Setpoint and control	Digital adjustment with PI microprocessor control and instantaneous visual feedback.
Operating ambient	0 – 60 °C, 90 % humidity, non-condensing. Up to 2000 m
Timer	Programmable shaking periods from 0.1 to 99.9 hours by a digital timer that shuts off at the end of period and energizes status light. Timer counts down and digital display indicates remaining time. Can be deactivated for continuous operation. Additionally, unit will display total accumulated running time for service information.
Alarms	Warning signal (audible and visual) indicates when shaking speed deviates more than 5 rpm from setpoint and when timed operation has expired. Audible alarm can be deactivated/activated by the operator.
LED display	Indicates speed, running time alarm conditions, and displays readout of internal clock (actual accumulated operating time).
Automatic restart	Automatic restart after power is restored, indicated by flashing display.
Setpoint retention	All setpoints and operating status are retained in non-volatile memory.
Drive	Triple-eccentric counterbalanced ball bearing drive.
Drive motor	1/20 hp 3-phase brushless ball bearing DC motor.
Electrical requirements	100 / 120 / 220 / 240 VAC, 50/60 Hz. 35 VA universal power entry system adapts to U.S. or international needs.
Electrical protection	Main fuses in power entry module. Control circuits provided with separate fuse.
Dimensions	Width: 35.5 cm (14 in) with knobs Depth: 37 cm (14 ½ in) Height: 13.7 cm (5 ⅜ in)
Platform	28 × 33 cm (11 × 13 cm) Interchangeable without tools.
Weight	Net: 15 kg (33 lb) Gross: 19 kg (41 lb)
Cabinet	Heavy gauge steel, phosphate coated and texture painted.
Remote monitoring (optional)	0 – 5 V chart recorder output for speed: 1 V per 100 rpm. Accuracy ±25 mV.
Temperature monitor (optional)	RTD digital temperature monitor displays individual flask or ambient temperature in 0.1 °C increments. Chart recorder output provided.



At 25 – 400 rpm, the unit will perform to specifications with up to ± 10 % line voltage fluctuation. To attain speed accuracy at 401 – 500, the line voltage cannot be lower than 5 % of the rated voltage.



The Innova 2000 can be upgraded to a larger capacity platform with a kit that converts this shaker to an Innova 2050. This kit can be installed in the field.

7.1.2 Innova 2050

Tab. 7-2: Shaking

Speed	25 – 500 rpm
Control accuracy	± 1 rpm
Indication	3-Digit LED, in 1 rpm increments
Stroke/Orbit	1.9 cm ($\frac{3}{4}$ in)
Setpoint and control	Digital adjustment with PI microprocessor control and instantaneous visual feedback.
Operating ambient	0 – 60 °C, 90 % humidity, non-condensing. Up to 2000 m
Timer	Programmable shaking periods from 0.1 to 99.9 hours by a digital timer that shuts off at the end of period and energizes status light. Timer counts down and digital display indicates remaining time. Can be deactivated for continuous operation. Additionally, unit will display total accumulated running time for service information.
Alarms	Warning signal (audible and visual) indicates when shaking speed deviates more than 5 rpm from setpoint and when timed operation has expired. Audible alarm can be deactivated/activated by the operator.
LED display	Indicates speed, running time alarm conditions, and displays readout of internal clock (actual accumulated operating time).
Automatic restart	Automatic restart after power is restored, indicated by flashing display.
Setpoint retention	All setpoints and operating status are retained in non-volatile memory.
Drive	Triple-eccentric counterbalanced ball bearing drive.
Drive motor	1/20 hp 3-phase brushless ball bearing DC motor.
Electrical requirements	100 / 120 / 220 / 240 VAC, 50/60 Hz. 35 VA universal power entry system adapts to U.S. or international needs.
Electrical protection	Main fuses in power entry module. Control circuits provided with separate fuse.
Dimensions	Width: 43.4 cm (17 in) with knobs Depth: 37 cm (14½ in) Height: 13.7 cm (5¾ in)
Platform	30.5 × 40.6 cm (12 × 16 in) Interchangeable without tools.
Weight	Net: 16 kg (35 lb) Gross: 19.5 kg (43 lb)

Cabinet	Heavy gauge steel, phosphate coated and texture painted.
Remote monitoring (optional)	0 – 5 V chart recorder output for speed: 1 V per 100 rpm. Accuracy ± 25 mV.
Temperature monitor (optional)	RTD digital temperature monitor displays individual flask or ambient temperature in 0.1 °C increments. Chart recorder output provided.



At 25 – 400 rpm, the unit will perform to specifications with up to ± 10 % line voltage fluctuation. To attain speed accuracy at 401 – 500 rpm, the line voltage cannot be lower than 5 % of the rated voltage.