

7 Technical data

7.1 Specifications

7.1.1 Innova 2300

Tab. 7-1: Shaking

Speed	• 25 rpm – 500 rpm	• 25 rpm – 300 rpm
Motion	• 25.4 mm (1 in) diameter circular orbit	• 50.8 mm (2 in) diameter circular orbit
Indication	<ul style="list-style-type: none"> • LED digital electric display • 1 rpm increments 	
Setpoint and control	<ul style="list-style-type: none"> • Digital adjustment with PI microprocessor control and instantaneous visual feedback 	
Accuracy	• ±1 rpm	



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.

Drive	• Eccentric counterbalanced ball bearing drive
Keypad timer	<ul style="list-style-type: none"> • Programmable shaking periods from 0 hr 1 min – 99.9 hr by a digital timer • Timer shuts off at the end of shaking period and energizes status light • Timer counts down and digital display indicates remaining time • Can be deactivated for continuous operation • Unit will display total accumulated running time for service information
Operating ambient environment	<ul style="list-style-type: none"> • 0 °C – 60 °C • Up to 90 %, non-condensing • Up to 2000 m
Self-diagnostic status	<ul style="list-style-type: none"> • Warning signal (audible and visible) indicates when shaking speed deviates more than 5 rpm • Warning signal (audible and visible) indicates when timer operation has expired • Audible alarm can be deactivated/reactivated by the operator
Remote speed monitoring (optional)	<ul style="list-style-type: none"> • Chart recorder output for speed 0.5 V, 1 V per 100 rpm • Accuracy ±25 mV
Automatic restart	<ul style="list-style-type: none"> • Unit will automatically restart after undesired power interruption • Setpoints are maintained by non-volatile memory • Interruption is indicated by a flashing LED
Motor	<ul style="list-style-type: none"> • 1/8 HP • 3 phase • Brushless ball bearing DC motor
Electrical service	<ul style="list-style-type: none"> • 100 V, 120 V, 220 V, 240 V • All voltages 50/60 Hz 150 VA • Universal power entry system adapts to U.S. or international requirements
Electrical protection	<ul style="list-style-type: none"> • Main fuse(s) in power entry module • Control circuits provided with separate fuse

Construction	<ul style="list-style-type: none"> • Heavy gauge steel • Phosphate coated • Textured painted frame 	
Weight	Net	• 49 kg (108 lb)
	Gross	• 66 kg (145 lb)

Dimensions	
Width	74 cm (29 in)
Depth	56.5 cm (22 1/4 in)
Height	17 cm (6 3/8 in)

Platform dimensions	
Width	46 cm (18 in)
Depth	76 cm (30 in)

7.1.2 Innova 2350

Tab. 7-2: Shaking

Speed	• 25 rpm – 400 rpm	• 25 rpm – 300 rpm
Motion	• 25.4 mm (1 in) diameter circular orbit	• 50.8 mm (2 in) diameter circular orbit
Indication	<ul style="list-style-type: none"> • LED digital electric display • 1 rpm increments 	
Setpoint and control	• Digital adjustment with PI microprocessor control and instantaneous visual feedback	
Accuracy	• ± 1 rpm	



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.

Drive	• Eccentric counterbalanced ball bearing drive
Keypad timer	<ul style="list-style-type: none"> • Programmable shaking periods from 0 hr 1 min – 99.9 hr by a digital timer • Timer shuts off at the end of shaking period and energizes status light • Timer counts down and digital display indicates remaining time • Can be deactivated for continuous operation • Unit will display total accumulated running time for service information
Operating ambient environment	<ul style="list-style-type: none"> • 0 °C – 60 °C • 90 % • Non-condensing • Up to 2000 m

Self-diagnostic status	<ul style="list-style-type: none"> • Warning signal (audible and visible) indicates when shaking speed deviates more than 5 rpm • Warning signal (audible and visible) indicates when timer operation has expired • Audible alarm can be deactivated/reactivated by the operator 	
Remote speed monitoring (optional)	<ul style="list-style-type: none"> • Chart recorder output for speed 0.5 V, 1 V per 100 rpm • Accuracy ± 25 mV 	
Automatic restart	<ul style="list-style-type: none"> • Unit will automatically restart after undesired power interruption • Setpoints are maintained by non-volatile memory • Interruption is indicated by a flashing LED 	
Motor	<ul style="list-style-type: none"> • 1/8 HP • 3 phase • Brushless ball bearing DC motor 	
Electrical service	<ul style="list-style-type: none"> • 100 V, 120 V, 220 V, 240 V • All voltages 50/60 Hz 150 VA • Universal power entry system adapts to U.S. or international requirements 	
Electrical protection	<ul style="list-style-type: none"> • Main fuse(s) in power entry module • Control circuits provided with separate fuse 	
Construction	<ul style="list-style-type: none"> • Heavy gauge steel • Phosphate coated • Textured painted frame 	
Weight	Net	• 51 kg (112 lb)
	Gross	• 68 kg (150 lb)

Dimensions	
Width	91 cm (36 in)
Depth	61 cm (24 in)
Height	17 cm (6 3/8 in)
Platform dimensions	
Width	61 cm (24 in)
Depth	91 cm (36 in)

7.2 Platform capacity

Universal platforms have multiple holes enabling you to mount an assortment of flask clamps or other accessories on a single platform. The capacities shown in this section represent the maximum number of flasks in a given size that will fit on the platform in a balanced pattern. Universal platform, clamps and accessories are sold separately.

When just one size flask will be used on the shaker (i.e. 250 mL flasks), dedicated platforms come with flask clamps already mounted. Dedicated platforms generally will hold a greater number of flasks than the universal platform, but do not offer the versatility.

7.2.1 Innova 2300 platform capacities

For **universal** platforms that measure 46 cm (18 in) × 76 cm (30 in):

Description	Amount
10 mL flask	183
25 mL flask	92
50 mL flask	92
125 mL flask	39
250 mL flask	30
500 mL flask	18
1 L flask	12
2 L flask	8
2.8 L flask	6
4 L flask	6
5 L flask	6
6 L flask	4
Large TT rack	7
Medium TT rack	9
Small TT rack	9
Microplate rack (stack)	16
Microplate rack (1 layer)	4

For **dedicated** platforms that measure 46 cm (18 in) × 76 cm (30 in):

Description	Amount
50 mL flask	108
125 mL flask	60
250 mL flask	40
500 mL flask	24
1 L flask	15
2 L flask	12
2.8 L flask	6
4 L flask	6
6 L flask	4

7.2.2 Innova 2350 platform capacities

For **universal** platforms that measure 61 cm (24 in) × 91 cm (36 in):

Description	Amount
125 mL flask	75
250 mL flask	50
500 mL flask	30
1 L flask	24
2 L flask	15
2.8 L flask	12
4 L flask	10
5 L flask	10
6 L flask	8
Large TT rack	12
Medium TT rack	13
Small TT rack	18
Microplate rack (stack)	27
Microplate rack (1 layer)	8

For **dedicated** platforms that measure 61 cm (24 in) × 91 cm (36 in):

Description	Amount
125 mL flask	96
250 mL flask	70
500 mL flask	40
1 L flask	24
2 L flask	15
2.8 L flask	12
4 L flask	12
6 L flask	6