

Section 2 General Specifications

Model number	All Analog "A" Series units	All Analog "A" Series units	All Digital "E" Series units	All Digital "E" Series units
Exterior Unit Dimensions				
Length	32" (81.3 cm)	32" (81.3 cm)	32" (81.3 cm)	32" (81.3 cm)
Width	22.5" (57.2 cm)	22.5" (57.2 cm)	22.5" (57.2 cm)	22.5" (57.2 cm)
Height	22" (55.9 cm)	22" (55.9 cm)	22" (55.9 cm)	22" (55.9 cm)
Electrical - Standard Temperature				
Voltage AC	120	220-240	120	220-240
Amperage	5.0	3.0	5.0	2.5
Wattage	625	725	625	625
Frequency	60	50/60	60	50/60
High Temperature				
Voltage AC	120	220-240	120	220-240
Amperage	9.0	5.0	9.0	4.5
Wattage	1100	1200	1100	1100
Frequency	50/60	50/60	50/60	50/60
Refrigerated				
Voltage AC	120	220-240	120	220-240
Amperage	14.0	7.0	14.0	7.0
Wattage	1500	1500	1500	1500
Frequency	60	50	60	50

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Model number	All Analog "A" Series units	All Analog "A" Series units	All Digital "E" Series units	All Digital "E" Series units
Speed Accuracy	40 to 400 rpm, ±10 rpm	40 to 400 rpm, ±10 rpm	15 to 500 rpm, ±1 rpm	15 to 500 rpm, ±1 rpm
Timer	Continuous or timed operation from 1-60 min.	Continuous or timed operation from 1-60 min.	Continuous or timed operation 0.1-999 hours or 0.1-999 mins.	Continuous or timed operation 0.1-999 hours or 0.1-999 mins.
Display	3 individual LED displays indicate temperature in 1°C increments. Analog tachometer displays speed in rpm.	3 individual LED displays indicate temperature in 1°C increments. Analog tachometer displays speed in rpm.	3 individual LED displays indicate temperature, time and speed simultaneously. 3 characters height 1/2 inch (1.27 cm)	3 individual LED displays indicate temperature, time and speed simultaneously. 3 characters height 1/2 inch (1.27 cm)
Mutable Alarms	None	None	Audible portion of the alarm can be silenced for a period of 1 hour without deactivating the actual alarm condition by depressing any key.	Audible portion of the alarm can be silenced for a period of 1 hour without deactivating the actual alarm condition by depressing any key.
Motor	Permanent Magnet DC	Permanent Magnet DC	Solid State Brushless DC	Solid State Brushless DC
Soft Start Feature	None	None	Software algorithms prevent sudden start/stops.	Software algorithms prevent sudden start/stops.
RS232 Interface *	None	None	Monitor speed, temperature in °C and time with a computer.	Monitor speed, temperature in °C and time with a computer.
Recorder Output *	None	None	10 mv/°C output monitors temperature with external chart recorder.	10 mv/°C output monitors temperature with external chart recorder

Intended Use

Orbital shakers are designed to provide increased aeration in a stable temperature environment.

Unintended Use

- 1) Not intended for use in Class I or II applications as defined in 21 CFR
- 2) Not intended for mixtures of flammable materials

Model number	All Analog "A" Series units	All Analog "A" Series units	All Digital "E" Series units	All Digital "E" Series units
Speed	None	None	Audible with flashing LED indicate when speed deviates more than 10% of set point.	Audible with flashing LED indicate when speed deviates more than 10% of set point
Speed Shut off	None	None	When speed deviates 10% of set point, unit will shut down immediately.	When speed deviates 10% of set point, unit will shut down immediately.
Timer	None	None	Beeps twice when time has expired. Shaking motion stops.	Beeps twice when time has expired. Shaking motion stops.
Unbalanced Load	None	None	If the unit is running in an unbalanced condition, an alarm will sound and the shaker will stop until the end user corrects the condition. The speed display will flash "bAL" on speed panel LED.	If the unit is running in an unbalanced condition, an alarm will sound and the shaker will stop until the end user corrects the condition. The speed display will flash "bAL" on speed panel LED.

Optional Platform Dimensions - in. (cm)	
Catalog Number	L xW
30110	Universal 18" x 18" (45.7 x 45.7 cm)

The MaxQ 4000 series of bench top, incubated and refrigerated shakers are available in either analog or digital control configurations:

- A-Class shakers: SHKA4000, SHKA4000-1CE, SHKA4000-5, SHKA4000-6CE, SHKA4000-7, SHKA4000-8CE: control temperature by a Proportional/Integral/Derivative (PID) microprocessor-based controller. Solid-state control maintains time and speed and is adjustable with rotary dials. Analog tachometer displays speed in RPM, verifying accuracy of speed setting. Refrigerated units feature environmentally safe CFC free insulation and coolant.
- E-Class shakers: SHKE4000, SHKE4000-1CE, SHKE4000-5, SHKE4000-6CE, SHKE4000-7, SHKE4000-8CE: control temperature, time and speed by a Proportional/Integral/Derivative (PID) microprocessor-based controller that is adjustable with switches on a keypad in 1 rpm increments. Refrigerated units feature environmentally safe CFC free insulation and coolant. Flashing display indicates power interruption. Pressing any key will clear display. Non-volatile memory maintains speed and time set points in the event of a power interruption. Speed and time set points are automatically reactivated after power is restored.
- Temperature range and accuracy follow. All units have a uniformity of $\pm 0.5^{\circ}\text{C}$ at 37°C in flask:

Standard Temperature: SHKA4000, SHKA4000-1CE, SHKE4000, SHKE4000-1CE,
 10°C above ambient to 60°C , $\pm 0.1^{\circ}\text{C}$ at 37°C in flask.

High Temperature: SHKA4000-5, SHKA4000-6CE, SHKE4000-5, SHKE4000-6CE,
 10°C above ambient to 80°C , $\pm 0.1^{\circ}\text{C}$ at 37°C in flask.

Refrigerated: SHKA4000-7, SHKA4000-8CE, SHKE4000-7, SHKE4000-8CE,
 15°C below ambient to 60°C , $\pm 0.1^{\circ}\text{C}$ at 37°C in flask. Refrigeration system needs to be turned off whenever the set point is at or above 32°C .

In addition, all versions offer:

- Space efficient tubular heaters.
- Drive interrupt halts shaking action when lid is opened.
- All set points are retained by non-volatile memory that automatically reactivates after power is restored.
- Visual, user adjustable over-temperature safety signal with independent thermostat controls the heat if main controller fails.
- 3/4 inch (1.9 cm) triple eccentric orbital drive.
- 6 permanently lubricated ball bearings.
- 50 lb (22.7 kg) platform load capacity at safe speeds less than 400 rpm for A-Class shakers and less than 500 rpm for E-Class shakers.

Environmental Operating Conditions

Pollution Degree 2**

Installation Category II**

Altitude 2000 meters MSL (Mean Sea Level)

Relative Humidity . . .20% to 80% maximum, non-condensing

Electrical Supply 120 VAC or 240 VAC

Voltage Tolerance +10% of normal rated line

Temperature 15°C to 32°C

Product Usage Indoor use only

***Refer to IEC 664-1*

Caution Operation of the shaker in a CO₂ enriched atmosphere is not recommended. The formation of carbonic acid could cause electrical failures. ▲