



Lab Equipment Products



Ingenuously Practical

Asia Pacific

OHAUS Corporation

Headquartered in Parsippany, NJ, OHAUS Corporation manufactures an extensive line of high-precision electronic and mechanical balances and scales that meet the weighing needs of virtually every industry. We are a global leader in the laboratory, industrial, and education channels as well as a host of specialty markets, including the food preparation, pharmacy and jewelry industries. An ISO 9001:2015 manufacturer, OHAUS products are precise, reliable and affordable, and are backed by industry-leading customer support. For additional information, visit www.ohaus.com.



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A female scientist with blonde hair in a ponytail, wearing safety glasses and a white lab coat over a red and white striped shirt, is working in a laboratory. She is wearing blue nitrile gloves and is adjusting a white shaker machine. The machine has a digital display and several buttons. In the background, there is a blue rack with test tubes and a window showing greenery outside.

Open Air Shakers

Light Duty Orbital Shakers

Extreme Environment Shakers

Heavy Duty Orbital Shakers

Rocking & Waving Shakers

Reciprocating Shakers

Open Air Shakers Selection Guide

Product Family	Light Duty Orbital Shakers			
Model	SHLD0415AL	SHLD0403DG	SHLD0415DG	SHLDMP03DG
				
Speed Range	40 to 300 rpm	100 to 1200 rpm	40 to 300 rpm	100 to 1200 rpm
Timer	N/A	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours
Motion	Orbital	Orbital	Orbital	Orbital
Orbit	15 mm	3 mm	15 mm	3 mm
Max Weight Capacity	3.6 kg(8 lbs)	3.6 kg(8 lbs)	3.6 kg(8 lbs)	4 microplates / 2 micro-tube racks
Audible Alarm	—	●	●	●
Load Sensor	—	—	—	—
Motor Type	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor
CO ₂ Environment	●	●	●	●
Overload Protection	—	●	●	●
User Calibration (Speed)	—	—	—	—
RS232 Interface	—	—	—	—
Included Tray (L × W)	11.75 × 8.75"	11.75 × 8.75"	11.75 × 8.75"	11 × 7.75"
Tray / Platform Options (L × W)	N/A	Adjustable Platform	Adjustable Platform	N/A

Product Family	Extreme Environment Shakers	Heavy Duty Shaker		
Model	SHEX1619DG	SHHD1619AL	SHHD1619DG	SHHD2325AL
				
Speed Range	15 to 500 rpm	25 to 500 rpm	15 to 500 rpm	25 to 500 rpm
Timer	1 second to 160 hours	1 to 120 minutes	1 second to 160 hours	1 to 120 minutes
Motion	Orbital	Orbital	Orbital	Orbital
Orbit	19 mm	19 mm	19 mm	25 mm
Max Weight Capacity	16 kg(35 lbs)	16 kg(35 lbs)	16 kg(35 lbs)	23 kg(50 lbs)
Audible Alarm	●	—	●	—
Load Sensor	●	—	●	—
Motor Type	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor
CO ₂ Environment	●	●	●	●
Overload Protection	●	—	●	—
User Calibration (Speed)	●	—	●	—
RS232 Interface	●	—	●	—
Included Tray (L × W)	11 × 13"	11 × 13"	11 × 13"	18 × 24"
Tray / Platform Options (L × W)	11 × 13", 13 × 13", 18 × 18", 18 × 24" Adjustable Platform Separatory Funnel Platform	11 × 13", 13 × 13", 18 × 18", 18 × 24" Adjustable Platform Separatory Funnel Platform	11 × 13", 13 × 13", 18 × 18", 18 × 24" Adjustable Platform Separatory Funnel Platform	18 × 24", 18 × 30" Adjustable Platform Large Vessel Carrier Platform

Open Air Shakers Selection Guide

Product Family	Heavy Duty Orbital Shaker				
Model	SHHD2325DG	SHHD4525DG	SHHD4550DG	SHHD6825DG	SHHD6850DG
					
Speed Range	20 to 500 rpm	15 to 500 rpm	15 to 300 rpm	15 to 500 rpm	15 to 300 rpm
Timer	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours
Motion	Orbital	Orbital	Orbital	Orbital	Orbital
Orbit	25 mm	25 mm	51 mm	25 mm	51 mm
Max Weight Capacity	23 kg(50 lbs)	45 kg(100 lbs)	45 kg(100 lbs)	68 kg(150 lbs)	68 kg(150 lbs)
Audible Alarm	●	●	●	●	●
Load Sensor	●	●	●	●	●
Motor Type	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor
CO ₂ Environment	●	●	●	●	●
Overload Protection	●	●	●	●	●
User Calibration (Speed)	●	●	●	●	●
RS232 Interface	●	●	●	●	●
Included Tray (L × W)	18 × 24"	24 × 24"	24 × 24"	24 × 36"	24 × 36"
Tray / Platform Options (L × W)	18 × 24", 18 × 30" Adjustable Platform Large Vessel Carrier Platform	24 × 24" Large Vessel Carrier Platform	24 × 24" Large Vessel Carrier Platform	24 × 36" Large Vessel Carrier Platform	24 × 36" Large Vessel Carrier Platform

Product Family	Rocking Shaker		Waving Shaker		Reciprocating Shaker
Model	SHRK04DG	SHRK07AL1	SHWV02DG	SHWV02AL	SHRC0719DG
					
Speed Range	1 to 50 rpm*	1 to 75 rpm*	1 to 30 rpm*	1 to 75 rpm*	20 to 300 rpm
Timer	1 second to 160 hours	1 minute to 120 minutes	1 second to 160 hours	1 minute to 120 minutes	1 second to 160 hours
Motion	Rocking	Rocking	Waving	Waving	Reciprocating
Orbit	Tilt Angle: 0 to 15°	Tilt Angle: 0 to 15°	Tilt Angle: 0 to 20° *	Tilt Angle: 0 to 16°	Stroke: 19 mm
Max Weight Capacity	4.5 kg(10 lbs)**	7.2 kg(16 lbs)**	2.3 kg(5 lbs)**	2.3 kg(5 lbs)**	6.8 kg(15 lbs)
Audible Alarm	●	—	●	—	●
Load Sensor	—	—	—	—	●
Motor Type	Stepper Motor	Stepper Motor	Stepper Motor	Stepper Motor	Brushless DC Motor
CO ₂ Environment	●	—	●	—	●
Overload Protection	●	—	●	—	●
User Calibration (Speed)	—	—	—	—	●
RS232 Interface	—	—	—	—	●
Included Tray (L × W)	12.75 × 10"	14 × 11"	11.75 × 8.75"	14 × 11"	11 × 13"
Tray / Platform Options (L × W)	Stacking Tray	Stacking Tray	Stacking Tray	—	11 × 13", 13 × 13", 18 × 18", 18 × 24" Separatory Funnel Platform

● Yes * Maximum speed/tilt angle may vary with heavy or unbalanced loads. ** Centered on tray.

Light Duty
Orbital Shakers

Light Duty Orbital Shakers



Light Duty Shakers are designed for applications with loads under 3.6kg. Choose from two orbits and speed ranges to optimize your sample mix. Microprocessor-controlled and available as an analog model with basic speed control, two digital models which include a non-slip mat that can be removed to mount flask clamps and tube racks directly onto the tray, and a digital Microplate Shaker model which can hold up to 4 microplates or 2 microtube racks.

- Microprocessor-Controlled for Consistent Shaking Action
- Triple Eccentric Drive Provides Reliable Service and Continuous Duty Operation
- Safety Features Include Speed Ramping and Overload Protection

Light Duty Orbital Shakers



CE

- Variable speed microprocessor control
- Low profile design
- 15 mm orbit

The OHAUS Light Duty Analog Shaker is an economical shaker designed for educational labs or basic shaking applications.

Operating Features:

Low Profile Design: Takes up less space and easily fits into most hoods and incubators.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

Adjustment Knob: Basic speed knob with dial settings from 1 to 10.

Safety Features:

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from 0 to 40°C (32 to 104°F), maximum 80% relative humidity, non-condensing.

Applications:

Blotting techniques, staining/destaining, and general shaking procedures.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Units are also supplied with an 29.9 × 22.2 cm (11.75 × 8.75") non-skid rubber mat.



Specifications

Speed Range	40 to 300 rpm
Orbit	15 mm (0.6")
Maximum Weight Capacity	3.6 kg (8 lbs)
Tray Material	Aluminum
Tray Dimensions (L × W)	29.9 × 22.2 cm (11.75 × 8.75")
Overall Dimensions (L × W × H)	41.3 × 25.4 × 10.2 cm (16.3 × 10.0 × 4.0")
Ship Weight	11.3 kg (25 lbs)

Description	Model	Item Number	County Code
Analog Light Duty Orbital Shaker	SHLD0415AL	30391893	VN, MY, SG, ID, IN
Analog Light Duty Orbital Shaker	SHLD0415AL	30391894	AU, NZ
Analog Light Duty Orbital Shaker	SHLD0415AL	30391896	TH, PH

Light Duty Orbital Shakers



Triple Eccentric Drive

Specifications

Speed Range	SHLD0403DG SHLD0415DG	100 to 1200 rpm 40 to 300 rpm
Speed Accuracy		+/-2% above 100 rpm +/-2 rpm below 100 rpm
Timer		1 second to 160 hours
Orbit	SHLD0403DG SHLD0415DG	3 mm (0.12") 15 mm (0.6")
Maximum Weight Capacity		3.6 kg (8 lbs)
Tray Material		Aluminum
Tray Dimensions (L x W)		29.9 x 22.2 cm (11.75 x 8.75")
Overall Dimensions (L x W x H)		41.3 x 25.4 x 10.2 cm (16.3 x 10.0 x 4.0")
Ship Weight		11.3 kg (25 lbs)

- General purpose shaker
- LED displays for speed and time
- 3 mm or 15 mm orbit

The OHAUS Digital Light Duty Orbital Shaker is ideal for a wide variety of shaking applications. Tray includes a non-skid rubber mat. Remove the mat to mount a variety of optional flask clamps or test tube racks directly onto the tray.

Operating Features:

Low Profile Design: Takes up less space and easily fits into most hoods and incubators.

Microprocessor Control: The variable speeded microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Units can be run in cold rooms, incubators, and CO₂ environments.

SHLD0403DG: -10 to 60°C (14 to 140°F)

SHLD0415DG: -10 to 40°C (14 to 104°F)

Maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, immunoassays, and protein studies.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Units are also supplied with an 29.9 x 22.2 cm (11.75 x 8.75") non-skid rubber mat.

Description	Model	Item Number	Country Code
Digital Light Duty Orbital Shaker 3 mm Orbit	SHLD0403DG	30391900	VN, MY, SG, ID, IN
Digital Light Duty Orbital Shaker 3 mm Orbit	SHLD0403DG	30391901	AU, NZ
Digital Light Duty Orbital Shaker 3 mm Orbit	SHLD0403DG	30391903	TH, PH
Digital Light Duty Orbital Shaker 15 mm Orbit	SHLD0415DG	30391914	VN, MY, SG, ID, IN
Digital Light Duty Orbital Shaker 15 mm Orbit	SHLD0415DG	30391915	AU, NZ
Digital Light Duty Orbital Shaker 15 mm Orbit	SHLD0415DG	30391917	TH, PH

Light Duty Orbital Shakers



CE

- Holds up to 4 microplates or 2 micro-tube racks
- Accepts deep well plates
- Timer with audible alarm

The OHAUS Microplate Shaker is ideal for immunoassays and general microplate shaking, and is designed to be used in a variety of environmental conditions.

Operating Features:

Low Profile Design: Takes up less space and easily fits into most hoods and incubators. Base offers durability and added stability.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

ELISA assays and DNA studies.

Ordering Information:

Units include a detachable, 3-wire cord and plug.



Specifications

Speed Range	100 to 1200 rpm
Speed Accuracy	± 2%
Timer	1 second to 160 hours
Orbit	3 mm (0.12")
Maximum Weight Capacity	4 microplates or 2 micro-tube racks
Tray Material	Aluminum
Tray Dimensions (L x W)	27.9 x 19.7 cm (11 x 7.75")
Overall Dimensions (L x W x H)	41.3 x 25.4 x 10.2 cm (16.3 x 10.0 x 4.0")
Ship Weight	11.3 kg (25 lbs)

Description	Model	Item Number	Country Code
Light Duty Microplate Shaker	SHLDMP03DG	30391907	VN, MY, SG, ID, IN
Light Duty Microplate Shaker	SHLDMP03DG	30391908	AU, NZ
Light Duty Microplate Shaker	SHLDMP03DG	30391910	TH, PH

Extreme Environment Shakers



Extreme Environ-
ment Shakers



Ideal for applications that require CO₂ and humidity for optimal cell growth, our Extreme Environment Shakers are designed for use in extreme environments such as CO₂ incubators. A remote controller (that magnetically attaches to the outside of most incubators) allows for external control of settings, and the shaker base is placed inside of the incubator. Microprocessor control ensures consistent shaking while safely ramping to the set speed.

- Patented Accu-Drive Shaking System Ensures Accuracy and Speed Control
- Control Settings Externally without Disturbing the Incubator Atmosphere
- Touchpad Control With Independent LED Displays for Speed and Time

Extreme Environment Shakers



CE

- Designed for use in CO₂ Incubators
- Can withstand extreme environments up to 100% humidity
- Remote controller magnetically attaches to most incubators

The OHAUS Extreme Environment Orbital Shaker is designed for a wide range of applications including cell cultures that require CO₂ and humidity for optimal cell growth. The microprocessor control provides consistent uniform shaking while safely ramping to the set speed.

Operating Features:

Accu-Drive Shaking System: The Accu-Drive Shaking System delivers exceptional speed control, accuracy, and durability.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

Remote Controller: The control module is designed to sit outside of the incubator. Settings can be easily viewed or changed from outside of the incubator without disturbing the incubator's atmosphere. The thin ribbon cable is 5.5 feet long and easily passes underneath an incubator door via incubator's utility port. Controller magnetically attaches to most incubator doors or can sit on a lab bench.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

RS232 Interface: Provides two-way communication for data logging and unit control.

Speed Calibration Mode: Allows user to automatically recalibrate speed display.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), up to 100% humidity.

Applications:

Cell cultures, solubility studies, and extraction procedures.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug. Unit is also supplied with an 27.9 x 33 cm (11 x 13") non-skid rubber mat.



The remote controller can be attached to the incubator housing with a built-in magnet.

Specifications

Speed Range	15 to 500 rpm	
Speed Accuracy	above 100 rpm $\pm$ 1% of set speed below 100 rpm $\pm$ 1 rpm	
Timer	1 second to 160 hours	
Orbit	19 mm (0.75")	
Maximum Weight Capacity	16 kg (35 lbs)	
Tray Material	Aluminum	
Tray Dimensions (L x W)	27.9 x 33 cm (11 x 13")	
Overall Dimensions (L x W x H)	Shaker	29.4 x 35.5 x 14.9 cm (11.6 x 14.0 x 5.9")
	Remote	15.0 x 35.6 x 11.2 cm (5.5 x 14.0 x 4.4")
Ship Weight	22.2 kg (49 lbs)	

Description	Model	Item Number	Country Code
Extreme Environment Shaker	SHEX1619DG	30391816	VN, MY, SG, ID, IN
Extreme Environment Shaker	SHEX1619DG	30391817	AU, NZ
Extreme Environment Shaker	SHEX1619DG	30391819	TH, PH

Heavy Duty Orbital Shakers



Heavy Duty
Orbital Shakers



With load capacities from 16 to 68 kg and over 70 accessory options, OHAUS Heavy Duty Shakers are designed to handle a range of applications. Available as analog or digital models with microprocessor control to provide variable speed and consistent shaking, while ramping to the set speed. Microprocessor displays the last set-point and will restart if power is interrupted. Built-in tray and non-slip rubber mat included with all models.

- Patented Accu-Drive Shaking System Ensures Accuracy and Speed Control
- Touchpad Control With Independent LED Displays for Speed/Time on Digital Models
- Safety Features Include Speed Ramping and Load Sensor

Heavy Duty Orbital Shakers



CE

- Microprocessor controls
- Continuous or timed operation
- 16 kg weight capacity

The OHAUS 16 kg Capacity Analog Heavy Duty Orbital Shaker is designed for a wide range of applications that require basic shaking control. Shaker provides reproducible motion that is evenly distributed throughout the entire surface of the tray.

Operating Features:

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. The shaker will automatically restart after a power interruption.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

Adjustment Knobs: Basic speed and time knobs with dial settings from 1 to 10.

Safety Features:

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from 0 to 40°C (32 to 104°F), maximum 80% relative humidity, non-condensing.

Applications:

Bacterial suspensions, staining/destaining, and general mixing.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug. Unit is also supplied with an 27.9 × 33 cm (11 × 13") non-skid rubber mat.



Specifications

Speed Range	25 to 500 rpm
Timer	1 minute to 120 minutes
Orbit	19 mm (0.75")
Maximum Weight Capacity	16 kg (35 lbs)
Tray Material	Aluminum
Tray Dimensions (L × W)	27.9 × 33 cm (11 × 13")
Overall Dimensions (L × W × H)	41.3 × 35.5 × 14.9 cm (16.3 × 14.0 × 5.9")
Ship Weight	22.2 kg (49 lbs)

Description	Model	Item Number	Country Code
16 kg Capacity Analog Heavy Duty Orbital Shaker	SHHD1619AL	30391802	VN, MY, SG, ID, IN
16 kg Capacity Analog Heavy Duty Orbital Shaker	SHHD1619AL	30391803	AU, NZ
16 kg Capacity Analog Heavy Duty Orbital Shaker	SHHD1619AL	30391805	TH, PH

Heavy Duty Orbital Shakers



- Exceptional speed control, accuracy and durability
- LED displays for speed and time
- Calibration mode for speed

The OHAUS 16 kg Capacity Digital Heavy Duty Orbital Shaker is designed for a wide range of applications, including cell cultures, that require accurate and repeatable results. The microprocessor control provides consistent uniform shaking while safely ramping to the set speed.

Operating Features:

Accu-Drive Shaking System: The exclusive patented Accu-Drive Shaking System delivers exceptional speed control, accuracy, and durability. The shaking system continuously monitors shaking speed and maintains set-point, even under changing loads. When unit is set to a speed above 100 rpm, the speed accuracy is $\pm 1\%$ of set speed. When set under 100 rpm, speed accuracy is ± 1 rpm.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

RS232 Interface: Provides two-way communication for data logging and unit control.

Speed Calibration Mode: Allows user to automatically recalibrate speed display.

Safety Features:

Load Sensor: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, solubility studies, and extraction procedures.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug. Unit is also supplied with an 27.9 x 33 cm (11 x 13") non-skid rubber mat.

Specifications

Speed Range	15 to 500 rpm
Speed Accuracy	above 100 rpm $\pm 1\%$ of set speed below 100 rpm ± 1 rpm
Timer	1 second to 160 hours
Orbit	19 mm (0.75") orbit
Maximum Weight Capacity	16 kg (35 lbs)
Tray Material	Aluminum
Tray Dimensions (L x W)	27.9 x 33 cm (11 x 13")
Overall Dimensions (L x W x H)	41.3 x 35.5 x 14.9 cm (16.3 x 14.0 x 5.9")
Ship Weight	22.2 kg (49 lbs)

Description	Model	Item Number	Country Code
16 kg Capacity Digital Heavy Duty Orbital	SHHD1619DG	30391811	VN, MY, SG, ID, IN
16 kg Capacity Digital Heavy Duty Orbital	SHHD1619DG	30391812	AU, NZ
16 kg Capacity Digital Heavy Duty Orbital	SHHD1619DG	30391814	TH, PH

Heavy Duty Orbital Shakers



CE

- Microprocessor controls
- Continuous or timed operation
- 23 kg weight capacity

The OHAUS Analog 23 kg Capacity Heavy Duty Orbital Shaker is designed for applications with heavy duty loads. Shaker provides reproducible motion that is evenly distributed throughout the entire surface of the tray.

Operating Features:

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. The shaker will automatically restart after a power interruption.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

Adjustment Knobs: Basic speed and time knobs with dial settings from 1 to 10.

Safety Features:

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from 0 to 40°C (32 to 104°F), maximum 80% relative humidity, non-condensing.

Applications:

Bacterial suspensions, staining/destaining, and general mixing.

Ordering Information:

Units include a 3-wire cord and plug. Units are also supplied with an 45.7 × 61 cm (18 × 24") non-skid rubber mat.



Specifications

Speed Range	25 to 500 rpm
Timer	1 minute to 120 minutes
Orbit	25 mm (1")
Maximum Weight Capacity	22.7 kg (50 lbs)
Tray Material	Aluminum
Tray Dimensions	45.7 × 61 cm (18 × 24")
Overall Dimensions (L × W × H)	61.0 × 67.8 × 14.9 cm (24.0 × 26.7 × 5.9")
Ship Weight	49.5 kg (109 lbs)

Description	Model	Item Number	Country Code
Analog 23 kg Capacity Heavy Duty Orbital Shaker	SHHD2325AL	30391837	VN, MY, SG, ID, IN
Analog 23 kg Capacity Heavy Duty Orbital Shaker	SHHD2325AL	30391838	AU, NZ
Analog 23 kg Capacity Heavy Duty Orbital Shaker	SHHD2325AL	30391840	TH, PH

Heavy Duty Orbital Shakers



- Patented Accu-Drive Shaking System
- LED displays for speed and time
- 23 kg weight capacity

The OHAUS Digital 23 kg Capacity Heavy Duty Orbital Shaker is designed for a wide range of applications with larger or heavier loads that require accurate and repeatable results.

Operating Features:

Accu-Drive Shaking System: The exclusive patented Accu-Drive Shaking System delivers exceptional speed control, accuracy, and durability. The shaking system continuously monitors shaking speed and maintains set-point, even under changing loads. When unit is set to a speed above 100 rpm, the speed accuracy is $\pm 1\%$ of set speed. When set under 100 rpm, speed accuracy is ± 1 rpm.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

RS232 Interface: Provides two-way communication for data logging and unit control.

Speed Calibration Mode: Allows user to automatically recalibrate speed display.

Safety Features:

Load Sensor: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, solubility studies, and extraction procedures.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Units are also supplied with an 45.7 × 61 cm (18 × 24") non-skid rubber mat.

Specifications	
Speed Range	20 to 500 rpm
Speed Accuracy	above 100 rpm $\pm 1\%$ of set speed below 100 rpm ± 1 rpm
Timer	1 second to 160 hours
Orbit	25 mm (1")
Maximum Weight Capacity	22.7 kg (50 lbs)
Tray Material	Aluminum
Tray Dimensions	45.7 × 61 cm (18 × 24")
Overall Dimensions (L × W × H)	61.0 × 67.8 × 14.9 cm (24.0 × 26.7 × 5.9")
Ship Weight	49.5 kg (109 lbs)

Description	Model	Item Number	Country Code
Digital 23 kg Capacity Heavy Duty Orbital Shaker	SHHD2325DG	30391844	VN, MY, SG, ID, IN
Digital 23 kg Capacity Heavy Duty Orbital Shaker	SHHD2325DG	30391845	AU, NZ
Digital 23 kg Capacity Heavy Duty Orbital Shaker	SHHD2325DG	30391847	TH, PH

Heavy Duty Orbital Shakers



- Patented Accu-Drive Shaking System
- 45 kg weight capacity
- Available with either 25mm or 51mm orbit

The OHAUS Digital 45 kg Capacity Orbital Shaker is a large capacity shaker. They have a more powerful drive mechanism and larger orbits for optimal shaking of large vessels.

Operating Features:

Accu-Drive Shaking System: The exclusive patented Shaking System delivers exceptional speed control, accuracy, and durability. The shaking system continuously monitors shaking speed and maintains set-point, even under changing loads. When unit is set to a speed above 100 rpm, the speed accuracy is $\pm 1\%$ of set speed. When set under 100 rpm, speed accuracy is ± 1 rpm.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

RS232 Interface: Provides two-way communication for data logging and unit control.

Speed Calibration Mode: Allows user to automatically recalibrate speed display.

Safety Features:

Load Sensor: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Units can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, solubility studies, and extraction procedures.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Units are also supplied with a 61 × 61 cm (24 × 24") non-skid rubber mat.



Specifications

Speed Range	SHHD4525DG	15 to 500 rpm
	SHHD4550DG	15 to 300 rpm
Speed Accuracy	above 100 rpm	$\pm 1\%$ of set speed
	below 100 rpm	± 1 rpm
Timer		1 second to 160 hours
Orbit	SHHD4525DG	25 mm (1")
	SHHD4550DG	51 mm (2")
Maximum Weight Capacity		45.4 kg (100 lbs)
Tray Material		Aluminum
Tray Dimensions (L × W)		61 × 61 cm (24 × 24")
Overall Dimensions (L × W × H)		72.9 × 67.8 × 17.0 cm (28.7 × 26.7 × 6.7")
Ship Weight		90.8 kg (200 lbs)

Description	Model	Item Number	Country Code
Digital 45 kg Capacity Heavy Duty Orbital Shaker 1" Orbit	SHHD4525DG	30391865	VN, MY, SG, ID, IN
Digital 45 kg Capacity Heavy Duty Orbital Shaker 1" Orbit	SHHD4525DG	30391866	AU, NZ
Digital 45 kg Capacity Heavy Duty Orbital Shaker 1" Orbit	SHHD4525DG	30391868	TH, PH
Digital 45 kg Capacity Heavy Duty Orbital Shaker 2" Orbit	SHHD4550DG	30391872	VN, MY, SG, ID, IN
Digital 45 kg Capacity Heavy Duty Orbital Shaker 2" Orbit	SHHD4550DG	30391873	AU, NZ
Digital 45 kg Capacity Heavy Duty Orbital Shaker 2" Orbit	SHHD4550DG	30391875	TH, PH

Heavy Duty Orbital Shakers



- Patented Accu-Drive Shaking System
- Available with either 25mm or 51mm orbit
- Calibration mode for speed

The OHAUS Digital 68 kg Capacity Orbital Shakers is the largest capacity shakers designed for the heaviest of loads. They have the most powerful drive mechanism of all the shakers and large orbits for optimal shaking of larger vessels.

Operating Features:

Accu-Drive Shaking System: The exclusive patented Accu-Drive Shaking System delivers exceptional speed control, accuracy, and durability. The system continuously monitors shaking speed and maintains set-point, even under changing loads. When unit is set to a speed above 100 rpm, the speed accuracy is $\pm 1\%$ of set speed. When set under 100 rpm, speed accuracy is ± 1 rpm.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

RS232 Interface: Provides two-way communication for data logging and unit control.

Speed Calibration Mode: Allows user to automatically recalibrate speed display.

Safety Features:

Load Sensor: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Units can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, solubility studies, and extraction procedures.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Units are also supplied with a 61 × 91 cm (24 × 36") non-skid rubber mat.

Specifications

Speed Range	SHHD6825DG	15 to 500 rpm
	SHHD6850DG	15 to 300 rpm
Speed Accuracy		above 100 rpm $\pm 1\%$ of set speed below 100 rpm ± 1 rpm
Timer		1 second to 160 hours
Orbit	SHHD6825DG	25 mm (1")
	SHHD6850DG	51 mm (2")
Maximum Weight Capacity		68 kg (150 lbs)
Tray Material		Aluminum
Tray Dimensions (L × W)		61 × 91 cm (24 × 36")
Overall Dimensions (L × W × H)		74.4 × 91.4 × 17.0 cm (29.3 × 36.0 × 6.7")
Ship Weight		104.4 kg (230 lbs)

Description	Model	Item Number	Country Code
Digital 68 kg Capacity Heavy Duty Orbital Shaker 1" Orbit	SHHD6825DG	30391879	VN, MY, SG, ID, IN
Digital 68 kg Capacity Heavy Duty Orbital Shaker 1" Orbit	SHHD6825DG	30391880	AU, NZ
Digital 68 kg Capacity Heavy Duty Orbital Shaker 1" Orbit	SHHD6825DG	30391882	TH, PH
Digital 68 kg Capacity Heavy Duty Orbital Shaker 2" Orbit	SHHD6850DG	30391886	VN, MY, SG, ID, IN
Digital 68 kg Capacity Heavy Duty Orbital Shaker 2" Orbit	SHHD6850DG	30391887	AU, NZ
Digital 68 kg Capacity Heavy Duty Orbital Shaker 2" Orbit	SHHD6850DG	30391889	TH, PH



Rocking & Waving Shakers

Rocking & Waving Shakers



OHAUS Rocking and Waving Shakers are designed for use in a range of lab applications in a variety of environmental conditions. Rocking Shakers provide a seesaw-like motion, while Waving Shakers offer a smooth, low-foaming, 3D wave motion for precise speed control. Available in microprocessor-controlled digital models and more economical analog models. All models include a non-slip mat, and most models are available with a stacking tray option.

- Microprocessor Control Provides Precise Control
- Tilt angle and speed adjustments can be made while unit is running
- Safety Features Include Speed Ramping and Overload Protection

Rocking & Waving Shakers



- Variable control for speed, tilt and time
- 7.3 kg capacity
- Two-tier model doubles workable capacity

The OHAUS Analog Rocking Shaker is an easy and economical option for all of your rocking needs. The Rocking Shaker is ideal for cell culture and blotting applications and is designed to be used in a variety of environmental conditions. Rocker is supplied with an 35.6 × 27.9 cm (14 × 11") non-skid rubber mat.

Operating Features:

Low Profile Design: Takes up less bench space and fits into most hoods and incubators. Two-tier option increases the capacity with the same footprint and provides a 3.5" (8.9 cm) clearance between platforms. Cast aluminum base offers durability and added stability.

Microprocessor Control: The microprocessor control provides tilt adjustment which allows user to easily adjust rocking angle from 0 to 15° while unit is operating. Smooth speed control with low speed rocking motion.

Independent Control Knobs: Independent control knobs for speed, tilt, and time, allow for easy adjustments.

Safety Features:

Overload Protection: Audible signal will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Timer: Timer will automatically stop rocking motion when timer reaches zero.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

Staining and destaining gels, hybridization procedures, hematology, and blotting techniques.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Units are also supplied with a 35.6 × 27.9 cm (14 × 11") non-skid rubber mat. Two-tier models include a 2nd tray, non-skid mat and hardware.

Specifications

Speed Range		1 to 75 rpm*
Tilt Angle		0 to 15°*
Timer		1 minute to 120 minutes
Maximum Weight Capacity		7.3 kg (16 lbs)**
Tray Material		Aluminum
Tray Dimensions (L × W)		35.6 × 27.9 cm (14 × 11")
Overall Dimensions (L × W × H)	1 Tier	42.5 27.9 14.0 cm (16.8 × 11.0 × 5.5")
	2 Tier	42.5 × 27.9 × 24.1 cm (16.8 × 11.0 × 9.5")
Ship Weight		7 kq (15.5 lbs)

* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

** Centered on tray.

Description	Model	Item Number	Country Code
Analog Rocking Shaker 1 Tier	SHRK07AL1	30391954	VN, MY, SG, ID, IN
Analog Rocking Shaker 1 Tier	SHRK07AL1	30391955	AU, NZ
Analog Rocking Shaker 1 Tier	SHRK07AL1	30391957	TH, PH
Analog Rocking Shaker 2 Tier	SHRK07AL2	30391961	VN, MY, SG, ID, IN
Analog Rocking Shaker 2 Tier	SHRK07AL2	30391962	AU, NZ
Analog Rocking Shaker 2 Tier	SHRK07AL2	30391964	TH, PH

Rocking & Waving Shakers



- Electronic tilt adjustment from 0 to 15° while unit is operating
- Displays for speed, tilt angle and time
- Timer with audible alarm

The OHAUS Digital Rocking Shaker is ideal for cell culture work and is designed to be used in a variety of environmental conditions.

Operating Features:

Low Profile Design: Takes up less space and easily fits into most hoods and incubators. Cast aluminum base offers durability and added stability.

Microprocessor Control: The microprocessor control provides electronic tilt angle adjustment which allows user to easily adjust rocking angle from 0 to 15° while unit is operating. Precise speed control provides smooth, low-speed rocking motion down to 1 rpm.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and tilt angle, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

Staining and destaining gels, hybridization procedures, hematology, and blotting techniques.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Units are also supplied with a 32.4 × 25.4 cm (12.75 × 10") non-skid rubber mat.

Specifications

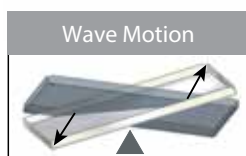
Speed Range	1 to 50 rpm*
Speed Accuracy	± 1 rpm
Tilt Angle	0 to 15°*
Timer	1 second to 160 hours
Maximum Weight Capacity	4.5 kg (10 lbs)**
Tray Material	Aluminum
Tray Dimensions (L × W)	32.4 × 25.4 cm (12.75 × 10")
Overall Dimensions (L × W × H)	42.5 × 25.4 × 14.0 cm (16.8 × 10.0 × 5.5")
Ship Weight	7 kg (15.5 lbs)

* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

** Centered on tray.

Description	Model	Item Number	Country Code
Digital Rocking Shaker 1 Tier	SHRK04DG	30391989	VN, MY, SG, ID, IN
Digital Rocking Shaker 1 Tier	SHRK04DG	30391990	AU, NZ
Digital Rocking Shaker 1 Tier	SHRK04DG	30391992	TH, PH

Rocking & Waving Shakers



- Variable control for speed, tilt and time
- 2.3 kg capacity
- Large 36 × 28 cm Tray

The OHAUS Analog Waving Shakers are an easy and economical option for all of your waving needs. Ideal for cell culture and blotting applications, and is designed to be used in a variety of environmental conditions.

Operating Features:

Low Profile Design: Takes up less space and easily fits into most hoods and incubators. Cast aluminum base offers durability and added stability.

Microprocessor Control: Provides tilt adjustment which allows user to easily adjust waving angle from 0 to 16° while unit is operating. Smooth speed control with low speed waving motion.

Independent Control Knobs: Independent control knobs for speed, tilt and time allow for easy adjustments.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Timer: Timer, if engaged, will automatically stop waving motion when timer reaches zero.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

Staining and destaining gels, hybridization procedures, hematology, and blotting techniques.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Units are also supplied with a 35.6 × 27.9 cm (14 × 11") non-skid rubber mat.

Specifications

Speed Range	1 to 75 rpm*
Tilt Angle	0 to 16°*
Timer	1 minute to 120 minutes
Maximum Weight Capacity	2.3 kg (5 lbs)**
Tray Material	Aluminum
Tray Dimensions (L × W)	35.6 × 27.9 cm (14 × 11")
Overall Dimensions (L × W × H)	42.5 × 27.9 × 16.5 cm (16.8 × 11 × 6.5")
Ship Weight	7 kg (15.5 lbs)

* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

** Centered on tray.

Description	Model	Item Number	Country Code
Analog Waving Shaker	SHWV02AL	30391968	VN, MY, SG, ID, IN
Analog Waving Shaker	SHWV02AL	30391969	AU, NZ
Analog Waving Shaker	SHWV02AL	30391971	TH, PH

Rocking & Waving Shakers



- Electronic tilt adjustment from 0 to 20° while unit is operating
- Displays for speed and tilt angle, and time
- Timer with audible alarm

The OHAUS Digital Waving Shaker provides precise speed control and a smooth, low foaming, three dimensional, "wave" motion. Ideal for use in a wide range of laboratory applications and designed to be used in a variety of environmental conditions. Tray includes a non-skid rubber mat that is suitable for holding Petri dishes.

Operating Features:

Low Profile Design: Takes up less space and easily fits into most hoods and incubators. Cast aluminum base offers durability and added stability.

Microprocessor Control: The microprocessor control provides electronic tilt angle adjustment which allows user to easily adjust waving angle from 0 to 20° while unit is operating. Precise speed control provides smooth, low-speed waving motion down to 1 rpm.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and tilt angle, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last settings, even after power has been turned off.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

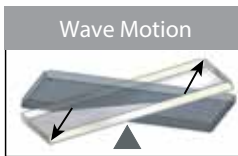
Unit can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

Blood samples, DNA extractions, blotting techniques, and general mixing of various size tubes.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Units are also supplied with an 29.9 × 22.2 cm (11.75 × 8.75") non-skid rubber mat.



Specifications

Speed Range	1 to 30 rpm*
Speed Accuracy	± 1 rpm
Tilt Angle	0 to 20°*
Timer	1 second to 160 hours
Maximum Weight Capacity	2.3 kg (5 lbs)**
Tray Material	Aluminum
Tray Dimensions (L × W)	29.9 × 22.2 cm (11.75 × 8.75")
Overall Dimensions (L × W × H)	41.3 × 25.4 × 16.5 cm (16.3 × 10.0 × 6.5")
Ship Weight	7.3 kg (16 lbs)

* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

** Centered on tray.

Description	Model	Item Number	Country Code
Digital Waving Shaker	SHWV02DG	30391949	VN, MY, SG, ID, IN
Digital Waving Shaker	SHWV02DG	30391950	AU, NZ
Digital Waving Shaker	SHWV02DG	30391952	TH, PH

Reciprocating

Reciprocating
Shakers

OHAUS Reciprocating Shakers are designed for a range of applications including cell cultures and extraction procedures that require accurate, repeatable results. Our shakers are microprocessor-controlled to provide consistent, uniform shaking action. The back-and-forth reciprocating motion has a 19 mm stroke length. Permanently lubricated ball bearings & maintenance-free, brushless DC motor provide reliable service and continuous duty operation.

- Touchpad Control With Independent LED Displays for Speed and Time
- Safety Features Include Speed Ramping and Load Sensor
- Overload Protection System Detects Obstructions and Tray Overloading

Reciprocating



- Exceptional speed control, accuracy and durability
- LED displays for speed and time
- Calibration mode for speed

The OHAUS Digital Reciprocating Shakers are designed for a wide range of applications, including cell cultures, that require accurate and repeatable results. The microprocessor control provides consistent uniform shaking while safely ramping to the set speed.

Operating Features:

The shaking system in both models continuously monitors shaking speed and maintains set-point, even under changing loads. When unit is set to a speed above 100 rpm, the speed accuracy is $\pm 1\%$ of set speed. When set under 100 rpm, speed accuracy is ± 1 rpm.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

Single Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation. **LED Display:** Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

RS232 Interface: Provides two-way communication for data logging and unit control.

Speed Calibration Mode: Allows user to automatically recalibrate speed display.

Safety Features:

Load Sensor: A built-in load sensor detects unbalanced conditions and automatically reduces rpm to a safe speed to protect samples.

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

Spill-Resistant Design: Channels fluids away from internal components.

Operating Conditions:

Unit can be run in cold rooms, incubators, and CO₂ environments from -10 to 60°C (14 to 140°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, solubility studies, and extraction procedures.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug. Unit is also supplied with an 27.9 × 33 cm (11 × 13") non-skid rubber mat.



Specifications

Speed Range	20 to 300 rpm
Speed Accuracy	above 100 rpm $\pm 1\%$ of set speed below 100 rpm ± 1 rpm
Timer	1 second to 160 hours
Stroke	19 mm (0.75")
Maximum Weight Capacity	6.8 kg (15 lbs)
Tray Material	Aluminum
Tray Dimensions (L × W)	27.9 × 33 cm (11 × 13")
Overall Dimensions (L × W × H)	41.3 × 35.5 × 14.6 cm (16.3 × 14.0 × 5.8")
Ship Weight	22.2 kg (49 lbs)

Description	Model	Item Number	Country Code
Digital Reciprocating Shaker	SHRC0719DG	30391830	VN, MY, SG, ID, IN
Digital Reciprocating Shaker	SHRC0719DG	30391831	AU, NZ
Digital Reciprocating Shaker	SHRC0719DG	30391833	TH, PH



A photograph of a male scientist in a white lab coat working in a laboratory. The lab coat has a red logo on the left chest. In the background, there is a laboratory bench with various glassware, including beakers and a large white bottle with a red cap. A red overlay box is positioned on the right side of the image, containing white text. The overall scene is brightly lit, suggesting a clean and professional environment.

Incubating & Incubating Cooling Shakers

Incubating Cooling Thermal Shakers
Incubating Light Duty Orbital Shakers
Incubating Cooling Orbital Shakers
Incubating Rocking & Waving Shakers

Incubating & Incubating Cooling Selection Guide

Product Family	Incubating Cooling Thermal Shakers	Incubating Light Duty Orbital Shakers	
Model	ISTHBLCTS ISTHBLHTS	ISLD04HDG	ISLDMPHDG, ISLDMPHDGL
			
Temperature Range	17 below ambient to 100°C / ambient +4 to 100°C	Ambient +5° to 65°C	Ambient +5° to 65°C
Speed Range	300 to 3000 rpm	100 to 1200 rpm	100 to 1200 rpm
Timer	1 minute to 99 hours, 59 min	1 second to 160 hours	1 second to 160 hours
Motion	Orbital	Orbital	Orbital
Orbit	3 mm	3 mm	3 mm
Max Weight Capacity	1 Block	3.6 kg(8 lbs)	4 Microplates / 2 Micro-Tube Racks
Audible Alarm	●	●	●
Load Sensor	●	—	—
Drive System	—	Triple Eccentric	Triple Eccentric
Motor Type	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor
Set-Point Retention	● Displays Last Setting	● Displays Last Setting	● Displays Last Setting
Restart/Power Out	●	●	●
Ramp to Speed	●	●	●
Temperature Overshoot Protection	●	—	—
Overload Protection	●	●	●
User Calibration (Temperature)	●	●	●
User Calibration (Speed)	●	—	—
Interface	USB	—	—
Overall Dimensions (L × W × H)	10.25 × 9.75 × 5.2"	17 × 11 × 10.5"	17 × 11 × 7.75"
Included Tray (L × W)	N/A	11 × 7.75"	11 × 7.75"
Platform Options (L × W)	N/A	N/A	N/A



Yes

* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

** Centered on tray.

Incubating & Incubating Cooling Selection Guide

Product Family	Incubating Cooling Light Duty Orbital Shakers	Incubating Rocking & Waving Shakers	
Model	ISICMBCDG	ISRK04HDG	ISWV02HDG
			
Temperature Range	10°C Below Ambient to 65°C	Ambient +5° to 65°C	Ambient +5° to 65°C
Speed Range	100 to 1200 rpm	1 to 50 rpm	1 to 30 rpm
Timer	1 second to 160 hours	1 second to 160 hours	1 second to 160 hours
Motion	Orbital	Rocking	Waving
Orbit	3 mm	Tilt Angle: 0 to 15° *	Tilt Angle: 0 to 20° *
Max Weight Capacity	2 Microplates 2 Modular Blocks	4.5 kg(10 lbs)**	2.3 kg(5 lbs)**
Audible Alarm	●	●	—
Load Sensor	—	—	—
Drive System	Triple Eccentric	Cable	Cable
Motor Type	Brushless DC Motor	Stepper Motor	Stepper Motor
Set-Point Retention	● Displays Last Setting	● Displays Last Setting	● Displays Last Setting
Restart/Power Out	●	●	—
Ramp to Speed	●	●	—
Temperature Overshoot Protection	—	—	—
Overload Protection	●	●	—
User Calibration (Temperature)	—	—	—
User Calibration (Speed)	—	—	—
Interface	—	—	—
Overall Dimensions (L × W × H)	17.9 × 11 × 10.5"	17 × 11 × 10.5"	17 × 11 × 10.5"
Included Tray (L × W)	N/A	10 × 7.5"	9.25 × 7.25"
Platform Options (L × W)	N/A	N/A	N/A



Yes

* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

** Centered on tray.

Incubating Cooling Thermal Shakers

Incubating Cooling
Thermal Shakers

Thermal Shakers are designed for applications that require consistent and precise high-speed shaking with temp. control to 100°C. With heating & shaking capabilities, our shakers use interchangeable blocks to accommodate tubes & microplates. Intuitive LCD touchscreen allows the user to save & track progress of 5 user-defined programs, each with 5 individual steps. Enhanced electronics provide dependable temp. settings across the operating range.

- Program Control for Five, 5-Step Programs
- Enhanced Electronics Provide Accurate Temperatures Across the Range
- Store and Transfer Data Easily With the Multi-Functional USB

Incubating Cooling Thermal Shakers



- 4.3" color LCD touch screen display provides an intuitive interface
- Rapid heating, cooling and high speed shaking ability
- Internal memory stores five separate 5-step programs, unlimited with USB

The OHAUS Thermal Shakers and Cooling Thermal Shakers are designed for applications that require consistent and precise results. With heating, cooling and shaking capabilities. The Thermal Shake Touch and Cooling Thermal Shake Touch uses interchangeable blocks to accommodate a wide variety of tubes and microplates. The easy-to-use, 4.3", color, LCD touch screen allows the user to save and visibly track progress through the live status bar for five user defined programs, each with five individual steps. The unit's enhanced electronics and dual temperature sensors provide accurate, dependable temperature settings across the operating range.



Operating Features:

Low Profile Design: The low profile design minimizes the unit's footprint on the bench.

LCD Touch Screen: Enables faster setting of temperature, speed, and time which can all be viewed at once. Display features on-screen help topics with operational tips available in six languages. Touch screen is compatible with rubber gloves used in labs. USB port can transfer information to a flash drive for data logging, program storage and software updates.

Program Control: Program control capabilities allow user programmable operation for automated use and memory. Storage for five separate 5-step programs, or unlimited number of programs with the use of the USB.

Temperature ramp rate: Adjustable temperature ramp rate feature separately defines the heating and cooling rate in increments of 0.5°C/min.

Single Point Calibration Mode: For maximum temperature accuracy, the single point calibration procedure allows the user to calibrate up to 6 different user defined temperatures.

Pulse Mode Feature: The unit is equipped with a pulse mode feature for quick vortex applications.

Safety Features:

Cool Touch Housing: Constructed from a high-quality, heat and chemical resistant polymer. The unit's housing remains cool to the touch throughout normal operating temperatures.

Maximum Temperature Limiting Function: Ensures the temperature will not exceed preset limits, allowing the user control of temperature sensitive samples.

Hot Top Indicator: A hot top warning light will illuminate when the temperature reaches 40°C, and will remain lit until the unit is sufficiently cooled.

Audible Alarm: In timed mode, an alarm will sound when the time reaches zero or set-point temperature is reached. Additionally, the heat function will automatically shut off if the unit recognizes an internal issue.

Operating Conditions:

Unit can operate in conditions from 5 to 35°C (41 to 95°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, DNA, RNA, and protein studies.

Ordering Information

Unit includes a detachable, 3-wire cord and plug. Unit is also supplied with a 1.5 mL block, clear rack, and cover.

Specifications

Temperature Range	
Thermal Shaker	4°C above ambient to 100°C
Cooling Thermal Shaker	17°C below ambient to 100°C
Temperature Accuracy	
Thermal Shaker	± 1°C between 20°C and 45°C ± 2°C above 45°C
Cooling Thermal Shaker	± 0.5°C between 20°C and 45°C ± 2°C below 20°C and above 45°C
Speed Range	300 to 3000 rpm
Speed Accuracy	± 2%
Timer	1 minute to 99 hours, 59 minutes
Orbit	3 mm (0.12")
Cooling Rate	above ambient 2-3°C/min below ambient 0.5-1.0°C/min
Heating Rate	5°C/min
Overall Dimensions (L × W × H)	26 × 24.8 × 13.2 cm (10.25 × 9.75 × 5.2")
Ship Weight	5.4 kg (11.9 lbs)

Description	Model	Item Number	Country Code
Thermal Shaker	ISTHBLHTS	30392005	VN, MY, SG, ID, IN
Thermal Shaker	ISTHBLHTS	30392006	AU, NZ
Thermal Shaker	ISTHBLHTS	30392008	TH, PH
Cooling Thermal Shaker	ISTHBLCTS	30391998	VN, MY, SG, ID, IN
Cooling Thermal Shaker	ISTHBLCTS	30391999	AU, NZ
Cooling Thermal Shaker	ISTHBLCTS	30392001	TH, PH

Incubating Cooling Thermal Shakers Modular Blocks



Microplate Block

Sample Type	Well Size	Well Depth	Dimensions (L × W × H)	Item Number
Microplate Thermal Block with Lid	10.7 × 7.1 × 0.25 cm (4.21 × 2.81 × 0.1")	2.3 cm (0.9")	11.9 × 16.3 × 7.6 cm (4.7 × 6.4 × 3.0")	30400126
Sample Type	Well Diameter	Well Depth	Dimensions (L × W × H)	Item Number
384 Well PCR Plate Thermal Block with Lid	0.4 cm (0.16")	0.81 cm (0.32")	11.9 × 16.3 × 7.6 cm (4.7 × 6.4 × 3.0")	30400127
0.2 mL PCR Plate/Tube Thermal Block with Lid	0.64 cm (0.25")	1.27 cm (0.50")	11.9 × 16.3 × 7.6 cm (4.7 × 6.4 × 3.0")	30400128

Tube Blocks

Sample Type	No. of Wells	Well Diameter	Well Depth	Dimensions (L × W × H)	Item Number
0.5 mL Microtubes*	30	0.79 cm (0.31")	2.46 cm (0.97")	10.2 × 14.2 × 4.6 cm (4.0 × 5.6 × 1.8")	30400129
1.5 mL Microtubes*	24	1.11 cm (0.44")	3.53 cm (1.39")	10.2 × 14.2 × 5.3 cm (4.0 × 5.6 × 2.1")	30400130
2.0 mL Microtubes*	24	1.15 cm (0.45")	3.53 cm (1.39")	10.2 × 14.2 × 5.3 cm (4.0 × 5.6 × 2.1")	30400131

* Supplied with clear rack and cover

Cryo Tube Block

Sample Type	No. of Wells	Well Diameter	Well Depth	Dimensions (L × W × H)	Item Number
2.0 mL Cryo Tubes	24	1.26 cm (0.50")	3.6 cm (1.42")	10.2 × 14.2 × 5.6 cm (4.0 × 5.6 × 2.2")	30400133

Conical Tube Blocks

Sample Type	No. of Wells	Well Diameter	Well Depth	Dimensions (L × W × H)	Item Number
5 mL Eppendorf Tube Block	9	1.68 cm (0.66")	4.9 cm (1.93")	10.4 × 14.5 × 7.1 cm (4.1 × 5.7 × 2.8")	30400134
Block For 9 X 15 mL Conical Tubes	9	1.73 cm (0.68")	10.44 cm (4.11")	10.7 × 14.7 × 12.7 cm (4.2 × 5.7 × 5.0")	30400135
50 mL Conical Tubes	4	3.0 cm (1.18")	10.09 cm (3.97")	10.2 × 14.5 × 12.2 cm (4.0 × 5.7 × 4.8")	30400136



Incubating Light
Duty Orbital Shakers

Incubating Light Duty Orbital Shakers



OHAUS Incubating Light Duty Shakers are designed to incubate samples from 10° below ambient to 65°C depending on the model. The Incubating Mini Shaker has an 3.6 kg (8 lb) capacity while the Incubating Microplate Shaker can hold up to four standard or deep well plates. Incubating-Cooling Mini Shaker is designed to hold two microplates or two optional modular tube blocks. All models feature LED displays with touchpad controls.

- Microprocessor-Controlled for Consistent Shaking Action
- Triple Eccentric Drive Provides Reliable Service and Continuous Duty
- Safety Features Include Speed Ramping and Overload Protection

Incubating Light Duty Orbital Shakers



- LED displays for temperature, speed and time
- Timer with audible alarm
- Calibration mode for temperature

The OHAUS Incubating Light Duty Orbital Shakers are designed to heat and shake a variety of samples.

Operating Features:

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

PID Temperature Controller: Maintains precise temperature control from ambient +5°C to 65°C. Easy-to-use controls allow users to adjust temperature in 1°C increments.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

LED Display: Touch pad controls with easy-to-read, independent LED displays for temperature, speed and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Temperature Calibration Mode: Allows user to calibrate unit to an external temperature device.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero.

Caution Hot Indicator: Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

Spill-Resistant Design: Channels fluids away from internal components.

Polycarbonate Lid: Permits viewing of samples without disturbing internal temperature.

Operating Conditions:

Unit can be run in conditions from 5 to 40°C (41 to 104°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, bacterial suspensions, and hybridizations.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug.

Specifications

Temperature Range	Ambient +5°C to 65°C
Temperature Uniformity	± 0.5°C at 37°C
Speed Range	100 to 1200 rpm
Speed Accuracy	± 2% of set speed
Timer	1 second to 160 hours
Orbit	3 mm (0.12")
Maximum Weight Capacity	3.6 kg (8 lbs)
Tray Material	Aluminum
Tray Dimensions (L x W)	27.9 x 19.7 cm (11 x 7.75")
Interior Dimensions (L x W x H)	28.7 x 21.1 x 14.5 cm (11.3 x 8.3 x 5.7")
Overall Dimensions (L x W x H)	43.2 x 27.9 x 27 cm (17 x 11 x 10.7")
Ship Weight	13.6 kg (30 lbs)

Description	Model	Item Number	Country Code
Incubating Light Duty Orbital Shaker	ISLD04HDG	30391919	VN, MY, SG, ID, IN
Incubating Light Duty Orbital Shaker	ISLD04HDG	30391920	AU, NZ
Incubating Light Duty Orbital Shaker	ISLD04HDG	30391922	TH, PH

Incubating Light Duty Orbital Shakers



- LED displays for temperature, speed and time
- Timer with audible alarm
- Available with opaque lid for light sensitive samples

The OHAUS Incubating Microplate Shakers are optimized for shaking microplates, deep-well plates, or micro-tubes.

Operating Features:

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

PID Temperature Controller: Maintains precise temperature control from ambient +5°C to 65°C. Easy-to-use controls allow users to adjust temperature in 1°C increments.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

LED Display: Touch pad controls with easy-to-read, independent LED displays for temperature, speed, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Temperature Calibration Mode: Allows user to calibrate unit to an external temperature device.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero.

Caution Hot Indicator: Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

Spill-Resistant Design: Channels fluids away from internal components.

Polycarbonate Lid: Clear lid permits viewing of samples without disturbing internal temperature. Opaque lid prohibits light exposure to light sensitive samples.

Operating Conditions:

Unit can be run in conditions from 5 to 40°C (41 to 104°F), maximum 80% relative humidity, non-condensing.

Applications:

Immunoassays and hybridizations.

Ordering Information:

Units include a detachable, 3-wire cord and plug.



Specifications

Temperature Range	Ambient +5°C to 65°C
Temperature Uniformity	± 0.5°C at 37°C
Speed Range	100 to 1200 rpm
Speed Accuracy	± 2%
Timer	1 second to 160 hours
Orbit	3 mm (0.12")
Maximum Weight Capacity	4 microplates or 2 micro-tube racks
Tray Material	Aluminum
Tray Dimensions (L × W)	27.9 × 19.7 cm (11 × 7.75")
Overall Dimensions (L × W × H)	43.2 × 27.9 × 19.7 cm (17 × 11 × 7.75")
Ship Weight	13.6 kg (30 lbs)

Description	Model	Item Number	Country Code
Incubating Microplate Shaker	ISLDMPHDG	30391933	VN, MY, SG, ID, IN
Incubating Microplate Shaker	ISLDMPHDG	30391934	AU, NZ
Incubating Microplate Shaker	ISLDMPHDG	30391936	TH, PH
Incubating Microplate Shaker with Opaque Lid	ISLDMPHDGL	30391926	VN, MY, SG, ID, IN
Incubating Microplate Shaker with Opaque Lid	ISLDMPHDGL	30391927	AU, NZ
Incubating Microplate Shaker with Opaque Lid	ISLDMPHDGL	30391929	TH, PH

Incubating Cooling Orbital Shakers



Incubating Cooling
Orbital Shakers



OHAUS Incubating Cooling Orbital Shakers are designed to incubate samples from 10° below ambient to 65°C. Incubating Cooling Mini Shaker is designed to hold two microplates or two optional modular tube blocks in a variety of configurations. All models feature touchpad controls with easy-to-read, independent LED displays for temperature, speed and time. Microprocessor control provides consistent uniform shaking action.

- Microprocessor-Controlled for Consistent Shaking Action
- Triple Eccentric Drive Provides Reliable Service and Continuous Duty
- Safety Features Include Speed Ramping and Overload Protection

Incubating Cooling Orbital Shakers

- Heats to 65°C and cools to 10°C below ambient
- LED displays for temperature, speed and time
- Calibration mode for temperature

The OHAUS Incubating/Cooling Orbital Shaker is microplate ready without the need for any additional accessories. Optional modular blocks can accommodate micro-tubes, centrifuge tubes, vials, or culture tubes. Unit holds microplates or modular blocks with a 12.7 cm (5") tall interior capacity. Ideal for analyses that require a stable, controlled temperature.

Operating Features:

Microprocessor Control: The variable speed microprocessor control provides consistent uniform shaking action. Microprocessor will display last set-point and will restart if power is interrupted.

PID Temperature Controller: Maintains precise temperature control from 10°C below ambient to 65°C. Easy-to-use controls allow users to adjust temperature in 1°C increments.

Triple Eccentric Drive: Permanently lubricated ball bearings and maintenance free, brushless DC motor provide reliable service and continuous duty operation.

LED Display: Touch pad controls with easy-to-read, independent LED displays for temperature, speed, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Temperature Calibration Mode: Allows user to calibrate unit to an external temperature device.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero. Alarm has optional mute function which can be set from the touch pad control.

Caution Hot Indicator: Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

Spill-Resistant Design: Channels fluids away from internal components.

Polycarbonate Lid: Permits viewing of samples without disturbing internal temperature.

Operating Conditions:

Unit can be run in conditions from 5 to 40°C (41 to 104°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell and bacterial cultures, hybridizations, and enzyme reactions.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug. Units are also supplied with an adapter bracket to hold optional modular blocks. See page 35-36 for block options.



Specifications

Temperature Range	10°C below ambient to 65°C
Temperature Uniformity	± 0.5°C at 37°C
Speed Range using Microplates	100 to 1200 rpm
Speed Range using Modular Blocks	100 to 600 rpm
Speed Accuracy	± 2%
Timer	1 second to 160 hours
Orbit	3 mm (0.12")
Maximum Weight Capacity	2 microplates or 2 modular blocks
Overall Dimensions (L × W × H)	45.5 × 27.9 × 26.7 cm (17.9 × 11 × 10.5")
Ship Weight	15.4 kg (34 lbs)

Description	Model	Item Number	Country Code
Incubating Cooling Light Duty Shaker	ISICMBCDG	30391940	VN, MY, SG, ID, IN
Incubating Cooling Light Duty Shaker	ISICMBCDG	30391941	AU, NZ
Incubating Cooling Light Duty Shaker	ISICMBCDG	30391943	TH, PH

Incubating Light Duty Orbital Shakers Modular Blocks



Modular Blocks

Modular Blocks are constructed from a solid anodized aluminum block. The close contact of tubes to block walls allow for maximum temperature transfer.

Block dimensions (L × W × H): 9.5 × 7.6 × 5.1 cm (3.75 × 3 × 2")

Applications: Cell cultures, hybridizations, and extraction procedures

OHAUS modular blocks also fit in the OHAUS Dry Block Heaters.

Constructed of anodized aluminum, this material is ideal for its temperature conducting and corrosion resistant properties.

Microcentrifuge Tube Blocks

Single block

Sample Type	No. of Wells	Well Diameter	Well Depth	Item Number
0.5 mL tube	30	7.9 mm	27.6 mm	30400157
1.5 mL tube	20	11.1 mm	39.1 mm	30400159
2 mL tube	20	11.5 mm	38.1 mm	30400191



Conical-Bottom Centrifuge Tube Blocks

Single block

Sample Type	No. of Wells	Well Diameter	Well Depth	Item Number
15 mL tube	12	17.1 mm	44.5 mm	30400172
50 mL tube	5	29.0 mm	47.6 mm	30400168



Incubating Light Duty Orbital Shakers Modular Blocks

Standard Test Tube Blocks

Single block

Sample Type	No. of Wells	Well Diameter	Well Depth	Item Number
6 mm tube	30	8.3 mm	48.4 mm	30400158
10 mm tube	24	10.7 mm	48.4 mm	30400151
12/13 mm tube	20	13.9 mm	48.4 mm	30400152

Centrifuge Tube Combination Block

Single block

These blocks have been designed for variable sized samples.

Sample Type	No. of Wells	Well Diameter	Well Depth	Item Number
Test Tube Combination				
6 mm	6	8.3 mm	48.4 mm	30400156
12/13 mm	5	13.8 mm	48.4 mm	
25 mm	3	26.2 mm	48.4 mm	
Centrifuge Tube Combination				
1.5 mL	4	11.1 mm	39.1 mm	30400193
15 mL	3	17.1 mm	44.5 mm	
50 mL	2	29.0 mm	47.6 mm	
Micro-Tube Combination				
0.5 mL	6	7.9 mm	27.6 mm	30400194
1.5 mL	10	11.1 mm	39.1 mm	
2 mL	5	11.5 mm	38.1 mm	

Vial Blocks

Single block

Designed for sample/serum and scintillation vials.

Sample Type	No. of Wells	Well Diameter	Well Depth	Item Number
12 mm vial	20	12.7 mm	30 mm	30400182
15 mm vial	20	15.8 mm	35 mm	30400183
16 mm vial	15	16.4 mm	45 mm	30400190
17 mm vial	12	17.8 mm	45 mm	30400184
19 mm vial	12	19.7 mm	45 mm	30400185
21 mm vial	9	21.7 mm	45 mm	30400186
23 mm vial	8	23.8 mm	45 mm	30400187
25 mm vial	8	25.8 mm	45 mm	30400188
28 mm vial	6	28.8 mm	45 mm	30400189



Incubating Rocking & Waving Shakers

Incubating Rocking
& Waving Shakers

OHAUS Incubating Rocking and Waving Shakers are designed to incubate samples from 5° above ambient to 65°C to provide accurate and repeatable results. Rocking shakers provide a see-saw like motion, while waving shakers offer a smooth, low-foaming three-dimensional “wave” motion. All models feature LED displays with touchpad controls. Both models include safety features that protect both the user and samples.

- Independent LEDs and Touchpad Control for Temperature, Speed/Tilt Angle and Time
- Microprocessor Control with PID Temperature Control for Precise Control
- Electronic tilt adjustment while unit is operating

Incubating Rocking & Waving Shakers



- Electronic tilt adjustment from 0 to 15° while unit is operating
- LED displays for temperature, speed and tilt angle, and time
- Timer with audible alarm

The OHAUS Incubating Rocking Shaker combines smooth rocking motion and general purpose incubation in one compact bench top unit.

Operating Features:

Microprocessor Control: The microprocessor control provides electronic tilt angle adjustment which allows user to easily adjust rocking angle from 0 to 15° while unit is operating. Precise speed control provides smooth, low-speed rocking motion down to 1 rpm.

PID Temperature Controller: Maintains precise temperature control from ambient +5°C to 65°C. Easy-to-use controls allow users to adjust temperature in 1°C increments.

LED Display: Touch pad controls with easy-to-read, independent LED displays for temperature, speed and tilt angle, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero.

Caution Hot Indicator: Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

Spill-Resistant Design: Channels fluids away from internal components.

Polycarbonate Lid: Permits viewing of samples without disturbing internal temperature.

Operating Conditions:

Unit can be run in conditions from 5 to 40°C (41 to 104°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, staining and destaining gels, hybridization procedures, and blotting techniques.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug.



Specifications

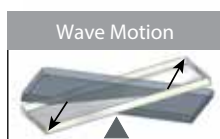
Temperature Range	Ambient +5°C to 65°C
Temperature Uniformity	± 0.5°C at 37°C
Speed Range	1 to 50 rpm *
Speed Accuracy	± 1 rpm
Tilt Angle	0 to 15° *
Timer	1 second to 160 hours
Maximum Weight Capacity	4.5 kg (10 lbs) **
Tray Material	Aluminum
Tray Dimensions (L x W)	25.4 x 19.1 cm (10 x 7.5")
Interior Dimensions (L x W x H)	27.3 x 19.7 x 9.7 cm (10.75 x 7.75 x 3.8")
Overall Dimensions (L x W x H)	43.2 x 27.9 x 26.7 cm (17 x 11 x 10.5")
Ship Weight	10 kg (22 lbs)

* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

** Centered on tray.

Description	Model	Item Number	Country Code
Incubating Rocking Shaker	ISRK04HDG	30391975	VN, MY, SG, ID, IN
Incubating Rocking Shaker	ISRK04HDG	30391976	AU, NZ
Incubating Rocking Shaker	ISRK04HDG	30391978	TH, PH

Incubating Rocking & Waving Shakers



- Electronic tilt adjustment from 0 to 20° while unit is operating
- LED displays for temperature, speed and tilt angle, and time
- Timer with audible alarm

The OHAUS Incubating Waving Shaker combines the unique vertical and horizontal “wave” motion with general purpose incubation in one compact bench top unit.

Operating Features:

Microprocessor Control: The microprocessor control provides electronic tilt angle adjustment which allows user to easily adjust waving angle from 0 to 20° while unit is operating. Precise speed control provides smooth, low-speed waving motion down to 1 rpm.

PID Temperature Controller: Maintains precise temperature control from ambient +5°C to 65°C. Easy-to-use controls allow users to adjust temperature in 1°C increments..

LED Display: Touch pad controls with easy-to-read, independent LED displays for temperature, speed and tilt angle, and time allow operator to view all settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Safety Features:

Overload Protection: Audible and visual signals will activate when system detects an obstruction or overload of the tray.

Speed Ramping Feature: Slowly increases speed to desired set-point to avoid splashing.

Audible Alarm: In timed mode, alarm will sound when the time reaches zero.

Caution Hot Indicator: Symbol illuminates when the temperature of the air in the chamber reaches 40°C and remains lit until temperature cools down.

Spill-Resistant Design: Channels fluids away from internal components.

Polycarbonate Lid: Permits viewing of samples without disturbing internal temperature.

Operating Conditions:

Unit can be run in conditions from 5 to 40°C (41 to 104°F), maximum 80% relative humidity, non-condensing.

Applications:

Cell cultures, hybridization procedures, and blotting techniques.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug.

Specifications

Temperature Range	Ambient +5°C to 65°C
Temperature Uniformity	± 0.5°C at 37°C
Speed Range	1 to 30 rpm *
Speed Accuracy	± 1 rpm
Tilt Angle	0 to 20° *
Timer	1 second to 160 hours
Maximum Weight Capacity	2.3 kg (5 lbs) **
Tray Material	Aluminum
Tray Dimensions (L x W)	23.5 x 18.4 cm (9.25 x 7.25")
Interior Dimensions (L x W x H)	27.3 x 19.7 x 8.6 cm (10.75 x 7.75 x 3.4")
Overall Dimensions (L x W x H)	43.2 x 27.9 x 26.7 cm (17 x 11 x 10.5")
Ship Weight	10 kg (22 lbs)

* Maximum speed/tilt angle may vary with heavy or unbalanced loads.

** Centered on tray.

Description	Model	Item Number	Country Code
Incubating Waving Shaker	ISWV02HDG	30391982	VN, MY, SG, ID, IN
Incubating Waving Shaker	ISWV02HDG	30391983	AU, NZ
Incubating Waving Shaker	ISWV02HDG	30391985	TH, PH

Open Air and Incubating & Incubating Cooling Shakers Accessories

Universal Platforms

Allows for mounting of flask clamps, test tube racks, and bottle clamps. Platform slides over top of included tray and is tightened with adjustment screws. Optional accessories screw directly into mounting point openings. The two-tier braces allow stacking of platforms with a 10" clearance (available for select sizes). An optional non-skid rubber mat can be placed on the platform for an added non-slip surface. The platform is constructed of type 304 stainless steel.

Universal Platforms



Description	Used on Shakers	Item Number
28 x 33 cm (11 x 13") Universal Platform	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400052
33 x 33 cm (13 x 13") Universal Platform	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400053
46 x 46 cm (18 x 18") Universal Platform*	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400054
61 X 46 cm (24 X 18") Universal Platform*	Analog/ Digital 16 kg & 23 kg shakers and Reciprocating Shakers	30400056
61 x 61 cm (24 x 24") Universal Platform	Digital 45 kg shakers	30400057
76 X 46 cm (30 X 18") Universal Platform*	Analog/Digital 23 kg Shakers	30400058
91 x 61 cm (36 x 24") Universal Platform	Digital 68 kg Shakers	30400059
Two-Tier Braces (set of 4)	Analog/ Digital 16 kg & 23 kg shakers	30400051

Rubber Mats

Description	Used on Shakers	Item Number
33 x 33 cm (13 x 13") Rubber Mat	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400061
46 x 46 cm (18 x 18") Rubber Mat	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400062
61 x 61 cm (24 x 24") Rubber Mat	Digital 45 kg shakers	30400064
61 x 91 cm (24 x 36") Rubber Mat	Digital 68 kg shakers	30400065

Culture Platforms

Ideal for slow speed applications; Petri dishes, culture flasks, and other flat bottom, low profile vessels. The two-tier braces (available for both sizes) allow stacking of platforms with a 10" clearance. The platform is constructed of type 304 stainless steel. The platform has a non-skid rubber surface.

Culture Platforms



Description	Used on Shakers	Item Number
46 x 46 cm (18 x 18") Culture Platform*	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400066
46 X 61 cm (18 X 24") Culture Platform*	Analog/ Digital 16 kg & 23 kg shakers and Reciprocating Shakers	30400067
Two-Tier Braces (set of 4)	Analog/ Digital 16 kg & 23 kg shakers	30400051

Adjustable Platforms

Adjustable clamping bars accommodate various vessel types. Constructed of stainless steel. The base tray has a non-skid rubber surface.

Adjustable Platforms



Description	Bar Size	Overall Dimensions	Used on Shakers	Item Number
2-bar Adjustable Platform	21.8 cm (8.6")	22 x 30 cm (8.75 x 11.75")	Digital 4 kg Shakers	30400121
4-bar Adjustable Platform	45.7 cm (18")	46 x 46 cm (18 x 18")	Analog/ Digital 16 kg shakers	30400068
4-bar Adjustable Platform	45.7 cm (18")	61 x 46 cm (24 x 18")	Analog/ Digital 23 kg shakers	30400069

Replacement Parts

Description	Used with Platforms	Item Number
22 cm (8.6") adjustable bar (with mounting hardware)	30400121	30400122
46cm (18") adjustable bar (with mounting hardware)	30400068 & 30400069	30400073

Open Air and Incubating & Incubating Cooling Shakers Accessories

Dedicated Platforms

Pre-mounted flask clamps for maximum utilization of platform space for flasks of all one size. The two-tier braces allow stacking of platforms with a clearance (available for select sizes). Platform is constructed of type 304 stainless steel. Flask clamps are constructed of PVC. Ideal for polycarbonate flasks.

Dedicated Platforms



Description	Flask Capacity	Used on Shakers	Item Number
33 × 33 cm (13 × 13") Dedicated Platform / 125 mL Flask Clamp	16	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400075
33 × 33 cm (13 × 13") Dedicated Platform / 250 mL Flask Clamp	12	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400076
33 × 33 cm (13 × 13") Dedicated Platform / 500 mL Flask Clamp	8	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400077
33 × 33 cm (13 × 13") Dedicated Platform / 1 L Flask Clamp	4	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400078
46 × 46 cm (18 × 18") Dedicated Platform / 125 mL Flask Clamp*	27	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400079
46 × 46 cm (18 × 18") Dedicated Platform / 250 mL Flask Clamp*	20	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400080
46 × 46 cm (18 × 18") Dedicated Platform / 500 mL Flask Clamp*	13	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400081
46 × 46 cm (18 × 18") Dedicated Platform / 1 L Flask Clamp	9	Analog/ Digital 16 kg shakers and Reciprocating Shakers	30400082
Two-Tier Braces (set of 4)		Analog/ Digital 16 kg shakers	30400051

Large Vessel Carrier Platforms

Ideal for large sample containers like carboys, jugs, and bottles. The platforms' high side walls secure samples, has a heavy-duty design and is constructed of stainless steel. The base tray has a non-skid rubber surface.

Large Vessel Carrier Platforms



Replacement Part	Used with Carrier	Item Number
46 cm (18") adjustable bar (with mounting hardware)	30400070	30400073
61 cm (24") adjustable bar (with mounting hardware)	30400071 & 30400072	30400074

Description	Bar Size	Overall Dimensions (L × W × H)	Used on Shakers	Item Number
4-bar Large Vessel Carrier Platform	45.7 cm (18")	76.4 × 45.9 × 35.3 cm (30.1 × 18.1 × 13.9")	Analog/Digital 23 kg Shakers	30400070
4-bar Large Vessel Carrier Platform	61 cm (24")	61.9 × 61.7 × 36.0 cm (24.4 × 24.3 × 14.2")	Digital 45 kg Shakers	30400071
5-bar Large Vessel Carrier Platform	61 cm (24")	93.7 × 61.7 × 36.0 cm (36.9 × 24.3 × 14.2")	Digital 68 kg Shakers	30400072

Microplate Clamp

Can hold one standard microplate or deep-well plate. Constructed of type 304 stainless steel.

Microplate Clamp



Description	Used on Shakers	Item Number
Microplate Clamp	Analog/Digital 16 kg, 23 kg, 45 kg, & 68 kg Shakers	30400104

Platform Capacities for Microplate Clamps

Platform Size	Platform Item Number	Microplate Clamps
11 × 13	30400052	4
13 × 13	30400053	6
18 × 18	30400054	12
18 × 24	30400056	18
18 × 30	30400057	21
24 × 24	30400058	24
24 × 36	30400059	36

Open Air and Incubating & Incubating Cooling Shakers Accessories

Separatory Funnel Platform

Holds 3 funnels at once on an 45.7 × 45.7 cm (18 × 18") platform. Platform can accommodate 500 mL to 2 L separatory funnels and is constructed of stainless steel. Includes platform, clamps and hardware to secure 3 funnels.

Description	Used on Shakers	Item Number
46 x 46 cm(18 X 18") adjustable bar (with mounting hardware)	Analog/Digital 16 kg shakers and Reciprocating Shakers	30400083



Universal Harness

Attaches to tray to secure low profile plates.

Description	Used on Shakers	Item Number
Universal Harness	Digital 4 kg Open Air Orbital Shakers	30400123



Dimpled Mat

Designed to hold centrifuge tubes, vials, culture tubes, and micro-tubes securely in place. Mat can easily be removed for cleaning and transporting of tubes from bench to tray.

Description	Used on Shakers	Item Number
Dimpled Mat, 32.4 × 25.4 cm (12.75 × 10")	Digital Rocking Shaker	30400140
Dimpled Mat, 29.9 × 22.2 cm (11.75 × 8.75")	Digital waving Shaker	30400142
Dimpled Mat, 23.5 × 18.4 cm (9.25 × 7.25")	Incubating Waving Shaker	30400143
Dimpled Mat, 22 × 30 cm (8.75 × 11.75")	Open Air 4 kg Orbital Shaker	30400124
Dimpled Mat, 35.6 × 27.9 cm (14 × 11")	Analog Rocking & Waving Shaker	30400144



Stacking Tray

Easily attaches to the units' included tray to add a second tier for higher capacity applications. Second tier tray mounts 8.9 cm (3.5") above lower tray. The tray includes hardware and a rubber mat.

Description	Used on Shakers	Item Number
Stacking Tray, 32.4 × 25.4 cm (12.75 × 10")	Digital Rocking Shaker	30400137
Stacking Tray, 29.9 × 22.2 cm (11.75 × 8.75")	Digital Waving Shaker	30400138
Stacking Tray, 35.6 × 27.9 cm (14 × 11")	Analog Rocking Shaker	30400139



Dilution Cup Tray

Constructed of type 304 stainless steel. Holds 24 × 28 mm dilution vials.

Description	Used on Unit	Item Number
Stacking Tray, 32.4 × 25.4 cm (12.75 × 10")	Digital 4 kg Open Air Orbital Shakers	30400125



Micro-Tube Rack

Optional 1.5 to 2 mL Micro-Tube Rack attaches to tray to hold up to 70 × 1.5 mL or 2 mL micro-tubes. Tray can accommodate up to 2 micro-tube racks.

Description	Used on Unit	Item Number
1.5 to 2 mL Micro-Tube Rack	Digital Open Air and Incubating Microplate Shaker	30400114



Open Air and Incubating & Incubating Cooling Shakers Accessories

Stainless Steel Flask Clamps

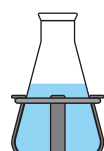
Designed to hold Erlenmeyer flasks from 10 mL to 6 L. Constructed of type 302 and 304 stainless steel. Includes hardware for easy attachment to platforms. Flask clamps 50 mL and higher are supplied with a spring to hold the flask in place. The 2.8 L clamp is designed to hold a Fernbach flask. Media bottle clamps feature the same details as flask clamps.

Media Bottle Flask Clamps



Erlenmeyer Flask Clamps



Clamp Style	10 mL Erlenmeyer Flask Clamp	25 mL Erlenmeyer Flask Clamp	50 mL Erlenmeyer Flask Clamp	125 mL Erlenmeyer Flask Clamp	250 mL Erlenmeyer Flask Clamp	500 mL Erlenmeyer Flask Clamp	1 L Erlenmeyer Flask Clamp	2 L Erlenmeyer Flask Clamp
								
Material	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Item Number	30400084	30400085	30400086	30400087	30400088	30400089	30400090	30400091
Tray or Platform	Number of Flask Clamps per Tray or Platform							
29.9 x 22.2 cm (11.75 x 8.75")								
Open Air Digital 4 kg Shakers	35	20	15	12	6	4	N/A	N/A
27.9 x 19.7 cm (11 x 7.75")								
Incubating 4 kg Shakers	35	20	12	8	5	N/A	N/A	N/A
27.9 x 33 cm (11 x 13")								
Analog/Digital 16 kg Shakers	60	25	13	10	9	7	4	N/A
Digital Reciprocating Shakers	60	25	13	10	9	7	4	N/A
33 x 33 cm (13 x 13")								
Analog/Digital 16 kg Shakers	60	30	15	12	12	8	4	3
Digital Reciprocating Shakers	60	30	15	12	12	8	4	3
45.7 x 45.7 cm (18 x 18")								
Analog/Digital 16 kg Shakers	113	64	32	20	20	13	8	5
Digital Reciprocating Shakers	113	64	32	20	20	13	8	5
45.7 x 61 cm (18 x 24")								
Analog/Digital 16 kg Shakers	158	88	44	28	28	20	12	6
Digital Reciprocating Shakers	158	88	44	28	28	20	12	6
Analog/Digital 23 kg Shakers	158	88	44	28	28	20	12	6
45.7 x 76.2 cm (18 x 30")								
Analog/Digital 23 kg Shakers	203	112	56	36	36	26	15	8
61 x 61 cm (24 x 24")								
Digital 45 kg Shakers	221	121	61	41	41	25	16	9
61 x 91.4 cm (24 x 36")								
Digital 63 kg Shakers	336	160	94	61	64	40	24	14

*All units require a universal platform for mounting flask clamps or test tube racks with the exception of the Digital open air and incubating 4 kg shakers

Open Air and Incubating & Incubating Cooling Shakers Accessories

PVC Flask Clamps

Constructed of one piece, molded PVC. Autoclavable. Will not scratch or mark flask like other clamps. Includes hardware for easy attachment to universal platforms. The attachment and removal of flasks is quick and easy. Ideal for polycarbonate flasks.



2.8 L & 3 L Fernbach Flask Clamp	4 L Erlenmeyer Flask Clamp	6 L Erlenmeyer Flask Clamp	500 mL Media Bottle Clamp	1 L Media Bottle Clamp	125 mL Erlenmeyer Flask Clamp	250 mL Erlenmeyer Flask Clamp	500 mL Erlenmeyer Flask Clamp	1 L Erlenmeyer Flask Clamp	2 L Erlenmeyer Flask Clamp
Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	PVC	PVC	PVC	PVC	PVC
2.8L-30400092 3L-30400093	30400094	30400096	30400097	30400098	30400099	30400100	30400101	30400102	30400103

Number of Flask Clamps per Tray or Platform

N/A	N/A	N/A	3	N/A	12	6	4	N/A	N/A
N/A	N/A	N/A	N/A	N/A	8	4	N/A	N/A	N/A
N/A	N/A	N/A	5	2	10	8	5	2	N/A
N/A	N/A	N/A	5	2	10	8	5	2	N/A
1	1	1	6	5	12	10	6	4	3
1	1	1	6	5	12	10	6	4	3
2	4	2	16	10	20	18	12	8	4
2	4	2	16	10	20	18	12	8	4
3	4	3	20	13	28	25	16	10	6
3	4	3	20	13	28	25	16	10	6
3	4	3	20	13	28	25	16	10	6
3	6	4	28	18	36	33	20	14	8
5	5	5	25	18	41	35	24	13	9
7	9	7	40	30	61	55	38	22	13

Open Air and Incubating & Incubating Cooling Shakers Accessories

Test Tube Racks

Half Size, Stationary

Racks constructed of PVC coated steel. Includes hardware for easy attachment to platforms.

Dimensions:

12.7 L × 17.8 W × 10.2 cm H (5 × 7 × 4") / Micro-Tube Rack: 4.3 cm H (1.7").

Test Tube Racks
Half-Size, Stationary



Test Tube Style	1.5 to 2 mL Micro-Tube Rack Half Size, Stationary	10 to 13 mm Test Tube Rack Half Size, Stationary	14 to 16 mm Test Tube Rack Half Size, Stationary	18 to 20 mm Test Tube Rack Half Size, Stationary	22 to 25 mm Test Tube Rack Half Size, Stationary	15 mL Centrifuge Tube Rack Half Size, Stationary	50 mL Centrifuge Tube Rack Half Size, Stationary
							
Tube Capacity	70	63	48	35	24	35	12
Item Number	30400114	30400115	30400116	30400117	30400118	30400119	30400120
Tray or Platform	Number of Test Tube Racks per Tray or Platform						
29.9 × 22.2 cm (11.75 × 8.75")							
Digital Open Air 4 kg Shakers	2	2	2	2	2	2	2
27.9 × 19.7 cm (11 × 7.75")							
Incubating 4 kg Shakers	2	1	1	N/A	N/A	1	1
Digital Open Air 4 kg Shakers	2	N/A	N/A	N/A	N/A	N/A	N/A
Incubating Microplate Shakers	2	N/A	N/A	N/A	N/A	N/A	N/A
27.9 × 33 cm (11 × 13")							
Analog/Digital 16 kg Shakers	2	2	2	2	2	2	2
Digital Reciprocating Shakers	2	2	2	2	2	2	2
33 cm × 33 cm (13 × 13")							
Analog/Digital 16 kg Shakers	2	2	2	2	2	2	2
Digital Reciprocating Shakers	2	2	2	2	2	2	2
45.7 × 45.7 cm (18 × 18")							
Analog/Digital 16 kg Shaker	4	4	4	4	4	4	4
Digital Reciprocating Shakers	4	4	4	4	4	4	4
45.7 × 61 cm (18 × 24")							
Analog/Digital 16 kg Shakers	6	6	6	6	6	6	6
Digital Reciprocating Shakers	6	6	6	6	6	6	6
Analog/Digital 23 kg Shakers	6	6	6	6	6	6	6
45.7 × 76.2 cm (18 × 30")							
Analog/Digital 23 kg Shakers	8	8	8	8	8	8	8
61 × 61 cm (24 × 24")							
Digital 45 kg Shakers	8	8	8	8	8	8	8
61 × 91.4 cm (24 × 36")							
Digital 63 kg Shakers	7	7	7	7	7	7	7

* All units require a universal platform for mounting flask clamps or test tube racks with the exception of the Digital open air and incubating 4 kg shakers

Open Air and Incubating & Incubating Cooling Shakers Accessories

Test Tube Racks

Full Size, Stationary

Racks constructed of PVC coated steel. Includes hardware for easy attachment to platforms.

Dimensions

9.5 L × 41.9 W × 10.2 cm H (3.75 × 16.5 × 4")

Full Size, Pivoting

Has adjustable angle, custom tilt. Stainless steel holder includes removable plastic rack. Rack is easily removed to transport from work area to shaker.

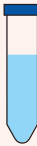
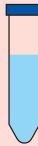
Inside pivoting rack dimensions:

12.9 × 27.4 × 9.9 cm (5.1 × 10.8 × 3.9")

Outside stationary rack dimensions:

12.7 × 27.6 × 12.7 cm (5.0 × 10.9 × 5")

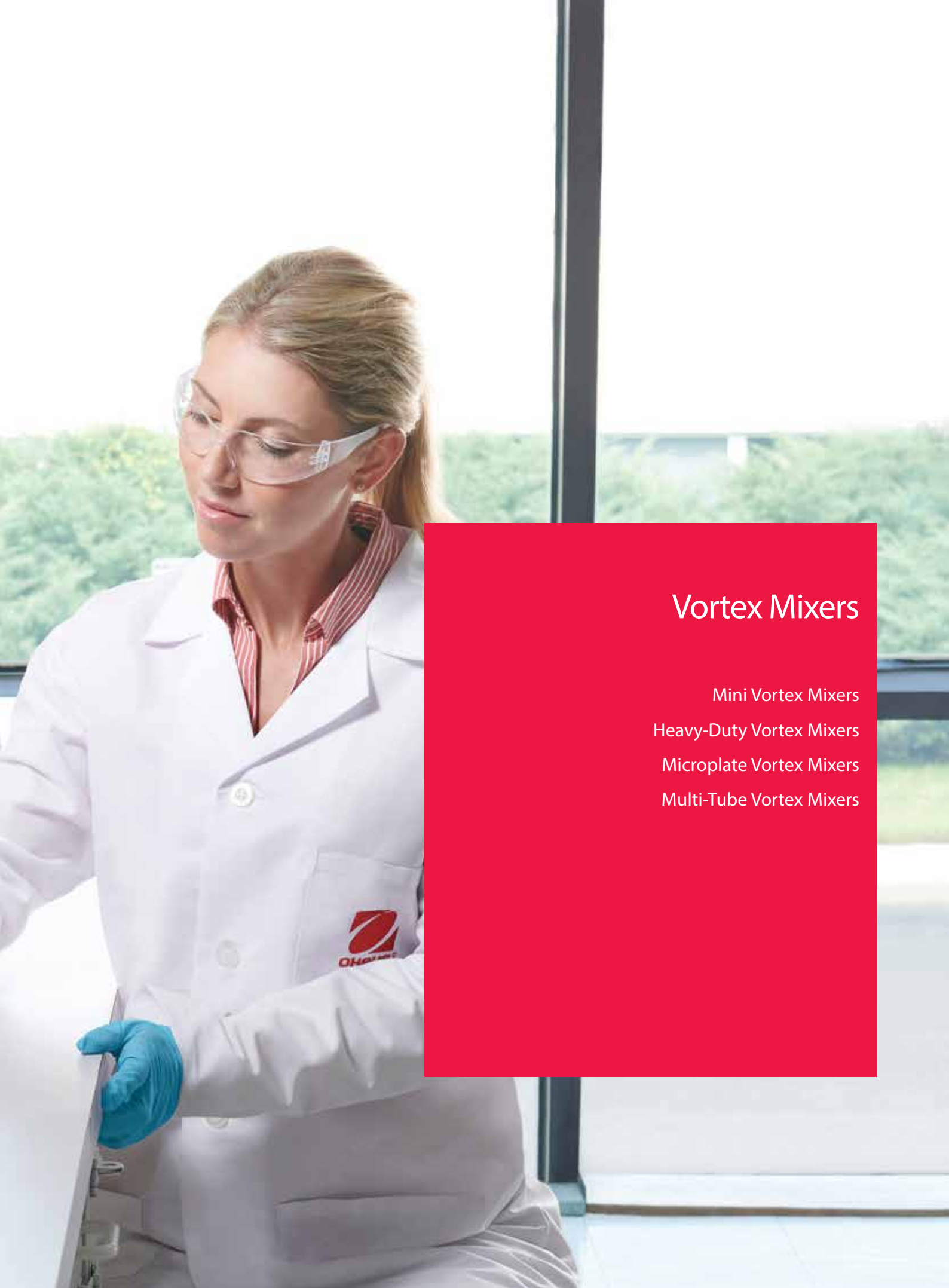


10 to 14 mm Test Tube Rack	16 to 20 mm Test Tube Rack	21 to 25 mm Test Tube Rack	50 mL Centrifuge Tube Rack	13 mm Test Tube Rack	16 mm Test Tube Rack	20 mm Test Tube Rack	25 mm Tube Rack	30 mm Tube Rack
Full Size, Stationary	Full Size, Stationary	Full Size Stationary	Full Size, Stationary	Full Size, Pivoting	Full Size, Pivoting	Full Size, Pivoting	Full Size, Pivoting	Full Size, Pivoting
								
48	33	21	17	90	60	40	24	21
30400110	30400111	30400112	30400113	30400105	30400106	30400107	30400108	30400109

Number of Test Tube Racks per Tray or Platform

N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	1	1	1	1	1
N/A	N/A	N/A	N/A	1	1	1	1	1
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	5	5	5	3	3	3	3	3
5	5	5	5	3	3	3	3	3
5	5	5	5	3	3	3	3	3
6	6	6	6	4	4	4	4	4
7	7	7	7	4	4	4	4	4
5	5	5	5	6	6	6	6	6





Vortex Mixers

Mini Vortex Mixers

Heavy-Duty Vortex Mixers

Microplate Vortex Mixers

Multi-Tube Vortex Mixers

Mini Vortex Mixers



Mini Vortex
Mixers



Four Mini Vortex Mixer models for gentle to high-speed mixing are available. Analog model offers variable speed control, and digital model allows input of the exact speed and time to achieve reproducible results. Pulsing model features a unique pulse action that reduces heat generation, while providing more effective mixing and cell disruption. Fixed speed model offers one-touch, high-speed mixing.

- Select from Two Modes of Operation—Touch or Continuous
- Variable Speed Models Offer Low RPM Start Up to High-Speed Mixing
- Fixed Speed Models Provide Full RPM for Vigorous Mixing

Fixed Speed Vortex Mixer

- Sturdy design
- Fixed high speed mixing
- Touch mode operation

Built sturdy to provide stable and reliable vortexing action. Starts mixing when the cup head is pressed down. Speed is fixed at full rpm to provide vigorous vortexing of samples.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Ordering Information:

Units include a 3-wire cord and plug. Includes both cup head and 3" head with cover.

This product includes:

Description	Item Number
Cup Head	30400235
7.6 cm (3") Head	30400236
7.6 cm (3") Rubber Head Cover	30400237



Specifications

Speed Range 120V 230V	3200 rpm 2800 rpm
Orbit	4.9 mm (0.19")
Controls	None
Duty Rating	Intermittent duty
Dimensions (L x W x H)	21.1 x 12.2 x 16.5 cm (8.3" x 4.8" x 6.5")
Ship Weight	4.5 kg (10 lbs)

Description	Model	Item Number	Country Code
Fixed Speed Vortex Mixer	VXMNFS	30392110	VN, MY, SG, ID, IN
	VXMNFS	30392111	AU, NZ
	VXMNFS	30392113	TH, PH

Analog Vortex Mixer

- Sturdy design
- Variable, analog speed control
- Continuous or touch mode operation

Built sturdy to provide stable and reliable vortexing action. Control allows low rpm startup for gentle shaking or high speed mixing for vigorous vortexing of samples. Two modes of operation; continuous mode when using accessory attachments or touch mode which activates mixing when depressing the cup head.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Ordering Information:

Units include a 3-wire cord and plug. Includes both cup head and 3" head with cover. Additional accessories can be found on pages 52-53.

This product includes:

Description	Item Number
Cup Head	30400235
7.6 cm (3") Head	30400236
7.6 cm (3") Rubber Head Cover	30400237



Description	Model	Item Number	Country Code
Analog Vortex Mixer	VXMNAL	30392117	VN, MY, SG, ID, IN
	VXMNAL	30392118	AU, NZ
	VXMNAL	30392120	TH, PH

Specifications

Speed Range* 120V 230V	300 to 3200 rpm 300 to 2800 rpm
Orbit	4.9 mm (0.19")
Controls	Auto/Off/On Rocker Switch, Speed Knob: Variable 1 to 10 Dial Marks
Duty Rating	Intermittent duty
Dimensions (L x W x H)	21.1 x 12.2 x 16.5 cm (8.3" x 4.8" x 6.5")
Ship Weight	4.5 kg (10 lbs)

* Maximum speed will vary depending on accessory used.

Digital Vortex Mixer



- Sturdy design
- LED displays for speed and time
- Continuous or touch mode operation

Built sturdy to provide stable and reliable vortexing action. Ideal for applications that demand repeatable results. Microprocessor control maintains set speed for strong, consistent mixing action. Timer will display elapsed time or, when programmed to user defined time limit, the unit will shut off when time reaches zero. Two modes of operation; continuous mode when using accessory attachments or touch mode which activates mixing when depressing the cup head.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Ordering Information:

Units include a 3-wire cord and plug. Includes both cup head and 3" head with cover. Additional accessories can be found on pages 52-53..

This product includes:

Description	Item Number
Cup Head	30400235
7.6 cm (3") Head	30400236
7.6 cm (3") Rubber Head Cover	30400237



Description	Model	Item Number	Country Code
Digital Vortex Mixer	VXMNDG	30392124	VN, MY, SG, ID, IN
	VXMNDG	30392125	AU, NZ
	VXMNDG	30392127	TH, PH

Specifications

Speed Range* 120V	500 to 3000 rpm
230V	500 to 2800 rpm
Timer	1 second to 160 hours
Orbit	4.9 mm (0.19")
Controls	Auto/Standby/On Rocker Switch, LED Displays for Speed/Time, Up/Down Buttons for Set-Point Control
Duty Rating	Intermittent duty
Dimensions (L x W x H)	21.1 x 12.2 x 16.5 cm (8.3" x 4.8" x 6.5")
Ship Weight	4.5 kg (10 lbs)

* Maximum speed will vary depending on accessory used.

Pulsing Vortex Mixer

- Sturdy design
- LED displays for time and speed
- Glass bead cell disruption/homogenization

Built sturdy to provide stable and reliable vortexing action. Powerful pulsing vortex action produces excellent cell disruption for glass bead procedures. Capable of complete cell disruption of samples in only minutes. Unique pulsing action reduces heat generation while providing more effective mixing and disruption.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Ordering Information:

Units include a 3-wire cord and plug. Includes cup head, 3" head with cover, and an easy-to-load 1.5 mL to 2 mL Micro-Tube Holder. Holder has a built-in cup head. Additional accessories can be found on pages 52-53.

This product includes:

Description	Item Number
Cup Head	30400235
7.6 cm (3") Head	30400236
7.6 cm (3") Rubber Head Cover	30400237
Stainless Steel Tube Holder	30400206



Description	Model	Item Number	Country Code
Pulsing Vortex Mixer	VXMNPS	30392131	VN, MY, SG, ID, IN
	VXMNPS	30392132	AU, NZ
	VXMNPS	30392134	TH, PH

Specifications

Speed Range* 120V	500 to 3000 rpm
230V	500 to 2800 rpm
Timer	1 second to 160 hours
Orbit	2.5 mm (0.098")
Controls	Auto/Standby/On Rocker Switch, LED Displays for Speed/Time, Up/Down Buttons for Set-Point Control Pulse Button
Duty Rating	Intermittent duty
Dimensions (L x W x H)	21.1 x 12.2 x 16.5 cm (8.3" x 4.8" x 6.5")
Ship Weight	4.5 kg (10 lbs)

* Maximum speed will vary depending on accessory used.



Mini Vortex Mixer Accessories

Micro-Tube Holder

Mixes (48) 0.25 to 2 mL micro-tubes.
Requires Insert Retainer.

Description	Item Number
Micro-Tube Holder (2 pack)	30400232
Insert Retainer	30400227



9 to 13 mm Tube Holder

Ideal for mixing 5 mL culture tubes and micro-vials. Requires Insert Retainer.

Description	Item Number
9 to 13 mm Tube Holder (2 pack)	30400229
Insert Retainer	30400227



14 to 19 mm Tube Holder

Ideal for mixing up to (8) 15 mL centrifuge tubes. Requires Insert Retainer.

Description	Item Number
14 to 19 mm Tube Holder (2 pack)	30400230
Insert Retainer	30400227



20 to 25 mm Tube Holder

Ideal for mixing up to (8) 50 mL centrifuge tubes. Requires Insert Retainer.

Description	Item Number
20 to 25 mm Tube Holder (2 pack)	30400231
Insert Retainer	30400227



Vessel Harness

Mixes Erlenmeyer flasks and media bottles. Requires Insert Retainer.

Description	Item Number
Vessel Harness (2 pack)	30400228
Insert Retainer	30400227



Cup Head

Designed for mixing 1 tube at a time.

Description	Item Number
Cup Head	30400235



3" Rubber Head Cover and 3" Head

Designed for mixing irregular shaped objects.

Description	Item Number
7.6 cm (3") Rubber Head Cover	30400237
7.6 cm (3") Rubber Head	30400236
8 cm (3") Head with Rubber Cover	30400196



Microplate Holder

Ideal for mixing 96-well plates or deep well blocks. Requires Insert Retainer.

Description	Item Number
Microplate Holder (2 pack)	30400233
Insert Retainer	30400227



Flat Foam Insert

Ideal for custom applications. Can be cut or drilled to fit your specifications. Requires Insert Retainer.

Description	Item Number
Flat Foam Insert (2 pack)	30400234
Insert Retainer	30400227



Ampule Tube Holder

Mixes up to 4 storage vials and test tubes.

Description	Item Number
15 to 17 mm Ampule Tube Holder	30400207
10 to 17 mm Ampule Tube Holder	30400208



Stainless Steel Microtube Holder

Mixes up to (12) 1.5 to 5 mL tubes. Stainless steel construction.

Description	Item Number
Microtube Holder	30400206



Micro-Tube and Microplate Holder Kit

Includes:

- 1 Micro-Tube Holder
- 1 Microplate Holder
- 1 Insert Retainer

Description	Item Number
Micro-Tube & Microplate Holder Kit	30400198



Tube Holder Kit

Includes:

- (1) 9 to 13 mm Tube Holder
- (1) 14 to 19 mm Tube Holder
- (1) 20 to 25 mm Tube Holder
- 1 Flat Foam Insert
- 2 Vessel Harnesses
- 1 Insert Retainer

Description	Item Number
Tube Holder Kit	30400197



Mini Vortex Mixer Accessories

Single Tube Holder

Single tube, hands free mixing. Easily attaches to the top of any Vortex Mixer with the use of a strong magnetic base. Accepts tubes from 6.4 to 11.4 cm (2.5 to 4.5") in length. Minimum tube diameter of 19 mm (0.75").



Description	Item Number
Single Tube Holder	30400202

Adapter for Vortex-Genie® Mixer*

Adapter plate easily adheres to the Vortex-Genie® Mixer housing so Single Tube Holder (sold separately) can be attached.



Description	Item Number
Adapter plate	30400203

* The Vortex-Genie® Mixer is a registered trademark of Scientific Industries, Inc.

Single Tube Holder Accessories

(Requires Single Tube Holder)

0.5 mL Micro-Tube Holder

Mixes (24) 0.5 mL micro-tubes.
For use with Single Tube Holder.



Description	Item Number
Micro-Tube Holder (0.5 mL)	30400204

1.5 mL to 2.0 mL Micro-Tube Holder

Mixes (18) 1.5 to 2 mL micro-tubes.
For use with Single Tube Holder.



Description	Item Number
Microtube Holder (1.5 mL to 2.0 mL)	30400205



Heavy-Duty
Vortex Mixers

Heavy-Duty Vortex Mixers



Heavy-Duty Vortex Mixers feature a heavy-duty design and efficient motor to permit continuous duty operation, and the ability to handle accessory components over the entire speed range. Analog variable speed models or microprocessor-controlled digital models offer exact speed control when applications demand repeatable results. A wide range of accessories are available for microtubes, microplates and a variety of tube sizes from 0.5 to 50 ml.

- Accessory Adapter's Unique Mode of Attachment Allows for Secure Mixing
- Touchpad Control & Independent LED Displays for Speed/Time on Digital Models
- Variable Speed Analog Model Offers an Economical Alternative to Digital Model

Heavy-Duty Vortex Mixers



CE

- Designed for continuous duty
- LED displays for speed and time
- Includes foam insert for 1.5 mL to 2.0 mL microtubes

The OHAUS Digital Heavy-Duty Vortex Mixer is ideal for applications that demand repeatable results. Mixer features touchpad controls and LED displays for accurate speed (rpm) and time (minutes and seconds) results. The heavy-duty design and efficient motor allow this mixer to operate in continuous duty and handle all accessories over the entire speed range. Choose from two modes of operation: "Touch" mode for mixing tubes when cup head or Universal Holder with cover is depressed, or "On" mode when using any of the accessory attachments for continuous operation. Microprocessor control maintains set speed for strong, consistent mixing action. Timer will display elapsed time or, when programmed to user defined time limits, the unit will shut off when time reaches zero.

Operating Features:

Microprocessor Control: The variable speed microprocessor control provides consistent uniform mixing action.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Ordering Information:

Mixer includes a cup head, universal holder with cover, foam microtube insert for (38) 1.5 to 2.0 mL microtubes, and a detachable, 3-wire cord and specified plug. Additional accessories can be found on page 60.

Specifications

Speed Range	On Mode Touch Mode	300 to 2500 rpm 300 to 3500 rpm
Timer		1 second to 160 hours
Orbit		4.9 mm (0.19")
Controls		Touch/Standby/On Rocker Switch, LED Displays for Speed/Time, Up/Down Buttons for Set-Point Control
Capacity		1.1 kg (2.5 lbs)
Duty Rating		Continuous duty
Dimensions (L x W x H)		24.1 x 16.8 x 16 cm (9.5 x 6.6 x 6.3")
Ship Weight		6.8 kg (15 lbs)

This product includes:

Description	Item Number
Cup Head	30400210
Universal Holder	30400226
Universal Holder Cover	30400225
Foam Insert (1.5 to 2.0 microtubes)	30400217



Description	Model	Item Number	Country Code
Digital Heavy Duty Vortex Mixer	VXHDDG	30392136	VN, MY, SG, ID, IN
Digital Heavy Duty Vortex Mixer	VXHDDG	30392137	AU, NZ
Digital Heavy Duty Vortex Mixer	VXHDDG	30392139	TH, PH

Heavy-Duty Vortex Mixers

- Designed for continuous duty
- Includes foam insert for 1.5 mL to 2.0 mL microtubes
- Heavy-duty design

The OHAUS Analog Heavy-Duty Vortex Mixer is a variable speed analog mixer that is designed for continuous duty. The heavy-duty design and efficient motor allow this mixer to operate in continuous duty and handle all accessories over the entire speed range. Choose from two modes of operation: "Touch" mode for mixing tubes when cup head or Universal Holder with cover is depressed, or "On" mode when using any of the accessory attachments for continuous operation.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Ordering Information:

Mixer includes a cup head, universal holder with cover, foam microtube insert for (38) 1.5 to 2.0 mL microtubes, and a detachable, 3-wire cord and specified plug. Additional accessories can be found on page 60.

This product includes:

Description	Item Number
Cup Head	30400210
Universal Holder	30400226
Universal Holder Cover	30400225
Foam Insert (1.5 to 2.0 microtubes)	30400217



Specifications

Speed Range	On Mode	300 to 2500 rpm
	Touch Mode	300 to 3500 rpm
Orbit		4.9 mm (0.19")
Controls		Analog
Capacity		1.1 kg (2.5 lbs)
Duty Rating		Continuous duty
Dimensions (L x W x H)		24.1 x 16.8 x 16 cm (9.5 x 6.6 x 6.3")
Ship Weight		6.8 kg (15 lbs)

Description	Model	Item Number	Country Code
Analog Heavy Duty Vortex Mixer	VXHDAL	30392141	VN, MY, SG, ID, IN
Analog Heavy Duty Vortex Mixer	VXHDAL	30392142	AU, NZ
Analog Heavy Duty Vortex Mixer	VXHDAL	30392144	TH, PH

Microplate Vortex Mixers



Microplate
Vortex Mixers



Microplate Vortex Mixers are designed specifically for continuous duty throughout the speed range. Analog variable speed models or microprocessor-controlled digital models offer exact speed control for applications that demand repeatable results. The high-speed and small orbit of these mixers make them optimal for effectively mixing microplates. Cup head for mixing single tubes is also included.

- Microplate Adapter's Unique Mode of Attachment Allows for Secure Mixing
- Touchpad Control & Independent LED Displays for Speed/Time on Digital Models
- Variable Speed Analog Model Offers an Economical Alternative to Digital Model

Microplate Vortex Mixers



- Designed for continuous duty
- Designed for shaking microplates or tubes
- LED displays for speed and time

The OHAUS Digital Microplate Vortex Mixer is ideal for applications that demand repeatable results. Mixer features touchpad controls and LED displays for accurate speed (rpm) and time (minutes and seconds) results. Microprocessor control maintains set speed for strong, consistent mixing action. Timer will display elapsed time or, when programmed to a user defined time limit, the unit will shut off when time reaches zero. Choose from two modes of operation: "Touch" mode which activates mixing when cup head is depressed, or "On" mode when using the microplate attachments for continuous operation.

Operating Features:

Microprocessor Control: The variable speed microprocessor control provides consistent uniform mixing action.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Ordering Information:

Mixer includes a cup head, single microplate holder, and a detachable, 3-wire cord and specified plug. Accessories that can be used on the Microplate Vortex Mixer are cup head, single microplate holder and double microplate holder. Additional accessories can be found on page 60.

This product includes:

Description	Item Number
Cup Head	30400210
Microplate Holder (Single)	30400215



Specifications

Speed Range	On Mode	300 to 2500 rpm
	Touch Mode	300 to 3500 rpm
Timer		1 second to 160 hours
Orbit		3.5 mm (0.13")
Controls		Touch/Standby/On Rocker Switch, LED Displays for Speed/Time, Up/Down Buttons for Set-Point Control
Capacity		2 microplates
Duty Rating		Continuous duty
Dimensions (L x W x H)		26.7 x 13.7 x 11.4 cm (10.5 x 5.4 x 4.5")
Ship Weight		5.4 kg (12 lbs)

Description	Model	Item Number	Country Code
Digital Microplate Vortex Mixer	VXMPDG	30392150	VN, MY, SG, ID, IN
Digital Microplate Vortex Mixer	VXMPDG	30392151	AU, NZ
Digital Microplate Vortex Mixer	VXMPDG	30392153	TH, PH

Microplate Vortex Mixers



- Designed for continuous duty
- Designed for shaking microplates or tubes
- Optional double microplate holder available

The OHAUS Analog Microplate Vortex Mixer is a variable speed analog mixer that is designed for continuous duty. The high speed and small orbit is optimal for effectively mixing microplates. Choose from two modes of operation: "Touch" mode which activates mixing when cup head is depressed, or "On" mode when using the microplate attachments for continuous operation.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Ordering Information:

Mixer includes a cup head, single microplate holder, and a detachable, 3-wire cord and specified plug. Accessories that can be used on the Microplate Vortex Mixer are cup head, single microplate holder and double microplate holder. Additional accessories can be found on page 60.

This product includes:

Description	Item Number
Cup Head	30400210
Microplate Holder (Single)	30400215



Specifications		
Speed Range	On Mode Touch Mode	300 to 2500 rpm 300 to 3500 rpm
Orbit		3.5 mm (0.13")
Controls		Analog
Capacity		2 microplates
Duty Rating		Continuous duty
Dimensions L x W x H)		26.7 x 13.7 x 11.4 cm (10.5 x 5.4 x 4.5")
Ship Weight		5.4 kg (12 lbs)

Description	Model	Item Number	Country Code
Analog Microplate Vortex Mixer	VXMPAL	30392155	VN, MY, SG, ID, IN
Analog Microplate Vortex Mixer	VXMPAL	30392156	AU, NZ
Analog Microplate Vortex Mixer	VXMPAL	30392158	TH, PH

Microplate Vortex Mixer Accessories

Foam Insert for 0.5 mL Microtubes

Foam insert holds (52) 0.5 mL microtubes.
Requires Universal Holder.

Description	Item Number
0.5 mL microtubes	30400216
Universal Holder	30400226



Foam Insert for 1.5 to 2.0 mL Microtubes

Foam insert holds (38) 1.5 to 2.0 mL microtubes.
Requires Universal Holder.

Description	Item Number
1.5 to 2.0 mL microtubes	30400217
Universal Holder	30400226



Foam Insert for 12-13 mm Test Tubes

Foam insert holds (34) 12-13 mm diameter test tubes.
Requires Universal Holder.

Description	Item Number
12-13 mm test tubes	30400220
Universal Holder	30400226



Foam Insert for 15-18 mm Test Tubes

Foam insert holds (20) 15-18 mm diameter test tubes.
Ideal for 15 mL centrifuge tubes.
Requires Universal Holder.

Description	Item Number
15-18 mm test tubes	30400221
Universal Holder	30400226



Foam Insert for 19-21 mm Test Tubes

Foam insert holds (18) 19-21 mm diameter test tubes.
Requires Universal Holder.

Description	Item Number
19-21 mm test tubes	30400222
Universal Holder	30400226



Foam Insert for 22-25 mm Test Tubes

Foam insert holds (13) 22-25 mm diameter test tubes.
Requires Universal Holder.

Description	Item Number
22-25 mm test tubes	30400223
Universal Holder	30400226



Foam Insert for 26-29 mm Test Tubes

Foam insert holds (4) 26-29 mm diameter test tubes. Ideal for 50 mL centrifuge tubes. Requires Universal Holder.

Description	Item Number
26-29 mm test tubes	30400224
Universal Holder	30400226



Cup Head*

Designed for mixing 1 tube at a time.

Description	Item Number
Cup Head	30400210



Small Vessel Holder

Rubber holder secures 125 and 250 mL Erlenmeyer flasks.
Vessel holder also includes a grip mat.
Requires Universal Holder.

Description	Item Number
Small Vessel Holder	30400218
Universal Holder	30400226



Large Vessel Holder

Rubber holder secures 500 and 1000 mL Erlenmeyer flasks.
Vessel holder also includes a grip mat.
Requires Universal Holder.

Description	Item Number
Large Vessel Holder	30400211
Universal Holder	30400226



Microplate Holder (Single)*

Designed to hold one standard microplate.

Description	Item Number
Single Holder	30400215



Microplate Holder (Double)*

Designed to hold two standard microplates.

Description	Item Number
Double Holder	30400213



Microplate Holder (Quad)

Designed to hold four standard microplates.

Description	Item Number
Quad Holder	30400214



Stackable Microplate Holder Four

Designed to maximize the capacity of the Heavy-Duty Vortex Mixer to eight microplates by stacking the tray on top of the four plate holder.

Description	Item Number
Stackable Holder	30400212



Flat Foam Insert

Ideal for custom applications. Can be cut or drilled to fit your specifications. Requires Universal Holder.

Description	Item Number
Flat Foam Insert	30400209
Universal Holder	30400226



Universal Holder & Cover

Replacement for items supplied with Heavy-Duty Vortex Mixer. Cover allows for mixing irregularly shaped objects.

Description	Item Number
Universal Holder	30400226
Universal Holder Cover	30400225



Unless noted with an asterisk (), for use on Heavy-Duty Vortex only.

Multi-Tube Vortex Mixers



Multi-Tube
Vortex Mixers



Multi-Tube Vortexers are ideal for high throughput sample processing. Interchangeable foam racks for vortexing tubes from 10 to 29 mm in diameter available. Vortexing action is created by securing the top of the sample in place while allowing the bottom to rotate freely in a 3.6 mm orbit. Suction cup feet reduce motion and prevent sliding on work surface. Analog & digital models, both microprocessor-controlled and run in continuous or timed mode.

- Digital Models Ideal for Applications that Require Accuracy and Repeatability
- Pulsing Mode on Digital Models to Enhance Vortexing Action
- Analog Model Offers an Economical Alternative When Exact Speed/Time Not Required

Multi-Tube Vortex Mixers



- Process up to 50 samples at a time
- Continuous or timed operation
- Includes foam rack for 12 mm tubes

Conveniently angled front panel features rocker switch for run, time and standby modes.

Operating Features:

One piece, stainless steel housing design optimizes clean-ups. Ideal for applications requiring accuracy and repeatability. The stainless steel one piece housing design is conducive to keeping your vortexer clean and free from contaminants.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform mixing action.

Adjustment Knobs: Basic speed and time knobs with 1 to 10 dial markings.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Applications:

Suspensions, high throughput testing in clinical, environmental, and chemistry labs.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug. Unit is also supplied with a Tray Pad Set for support and one 12 mm Test Tube Foam Rack (30400239). Additional accessories can be found on page 64.



Specifications		
Model	VXMTAL	VXMTALB
Housing	Stainless Steel / One-Piece	Painted Steel / Two-Piece
Speed Range*	1200 to 2400 rpm	
Timer	0 to 60 seconds	
Orbit	3.6 mm (0.14")	
Maximum Weight Capacity	4.5 kg (10 lbs)	
Duty Rating	Continuous duty	
Tray Dimensions (L x W)	18.4 x 31.1 cm (7.25 x 12.25")	
Overall Dimensions (L x W x H)	24.1 x 38.4 x 40.6 cm (9.5 x 15.1 x 16")	
Ship Weight	19.1 kg (42 lbs)	

* Maximum speed will vary depending on load.

Description	Model	Item Number	Country Code
Analog Multi-Tube Vortexer	VXMTAL	30392166	VN, MY, SG, ID, IN
Analog Multi-Tube Vortexer	VXMTAL	30392167	AU, NZ
Analog Multi-Tube Vortexer	VXMTAL	30392169	TH, PH
Analog Multi-Tube Vortexer	VXMTALB	30573832	VN, MY, SG, ID, IN
Analog Multi-Tube Vortexer	VXMTALB	30573835	AU, NZ
Analog Multi-Tube Vortexer	VXMTALB	30573833	TH, PH

Multi-Tube Vortex Mixers



- Process up to 50 samples at a time
- LED displays for speed and time
- Pulsing mode

Ideal for applications requiring accuracy and repeatability.

Operating Features:

One piece, stainless steel housing design optimizes clean-ups. Ideal for applications requiring accuracy and repeatability. The stainless steel one piece housing design is conducive to keeping your vortexer clean and free from contaminants.

Microprocessor Control: The variable speed microprocessor control provides consistent uniform mixing action.

LED Display: Touch pad controls with easy-to-read, independent LED displays for speed and time allow operator to view both settings at once. Provides repeatable and accurate results every time and is easily visible across lab benches. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Pulsing Mode: Programmable pulsing mode allows user to adjust the pulse-on and pulse-off times between 1 and 59 seconds in 1 second intervals. This feature enhances the vortex action by creating a more vigorous mix.

Operating Conditions:

Unit can be run in conditions from 4 to 40°C (39 to 104°F), 20% to 85% relative humidity, non-condensing.

Applications:

Suspensions, high throughput testing in clinical, environmental, and chemistry labs.

Ordering Information:

Unit includes a detachable, 3-wire cord and plug. Unit is also supplied with a Tray Pad Set for support and one 12 mm Test Tube Foam Rack (30400239). Additional accessories can be found on page 64.

Specifications

Model	VXMTDG	VXMTDGB
Housing	Stainless Steel / One-Piece	Painted Steel / Two-Piece
Speed Range*	500 to 2500 rpm	
Speed Accuracy	± 25 rpm	
Timer	1 second to 160 hours	
Orbit	3.6 mm (0.14")	
Maximum Weight Capacity	4.5 kg (10 lbs)	
Duty Rating	Continuous duty	
Tray Dimensions (L x W)	18.4 x 31.1 cm (7.25 x 12.25")	
Overall Dimensions (L x W x H)	24.1 x 38.4 x 40.6 cm (9.5 x 15.1 x 16")	
Ship Weight	19.1 kg (42 lbs)	

* Maximum speed will vary depending on load.

Description	Model	Item Number	Country Code
Digital Multi-Tube Vortexer	VXMTDG	30392173	VN, MY, SG, ID, IN
Digital Multi-Tube Vortexer	VXMTDG	30392174	AU, NZ
Digital Multi-Tube Vortexer	VXMTDG	30392176	TH, PH
Digital Multi-Tube Vortexer	VXMTDGB	30573837	VN, MY, SG, ID, IN
Digital Multi-Tube Vortexer	VXMTDGB	30573840	AU, NZ
Digital Multi-Tube Vortexer	VXMTDGB	30573838	TH, PH

Multi-Tube Vortexer Accessories

Foam Test Tube Racks

Description	Tube Capacity	Color	Dimensions (L × W × H)	Item Number
10 mm Test Tube Foam Rack	50	Gray	14 × 24.1 × 5.1 cm (5.5 × 9.5 × 2")	30400238
12 mm Test Tube Foam Rack	50	Blue	14 × 24.1 × 5.1 cm (5.5 × 9.5 × 2")	30400239
13 mm Test Tube Foam Rack	50	Yellow	14 × 24.1 × 5.1 cm (5.5 × 9.5 × 2")	30400240
16 mm Test Tube Foam Rack (for 15 mL centrifuge tubes)	50	Green	14 × 24.1 × 5.1 cm (5.5 × 9.5 × 2")	30400241
25 mm Test Tube Foam Rack	28	White	14 × 24.1 × 5.1 cm (5.5 × 9.5 × 2")	30400243
29 mm Test Tube Foam Rack (for 50 mL centrifuge tubes)	15	Red	14 × 24.1 × 5.1 cm (5.5 × 9.5 × 2")	30400242
Replacement Tray Pad Set (upper & lower)	N/A	Gray	17.8 × 30.5 × 2.5 cm (7 × 12 × 1")	30400245



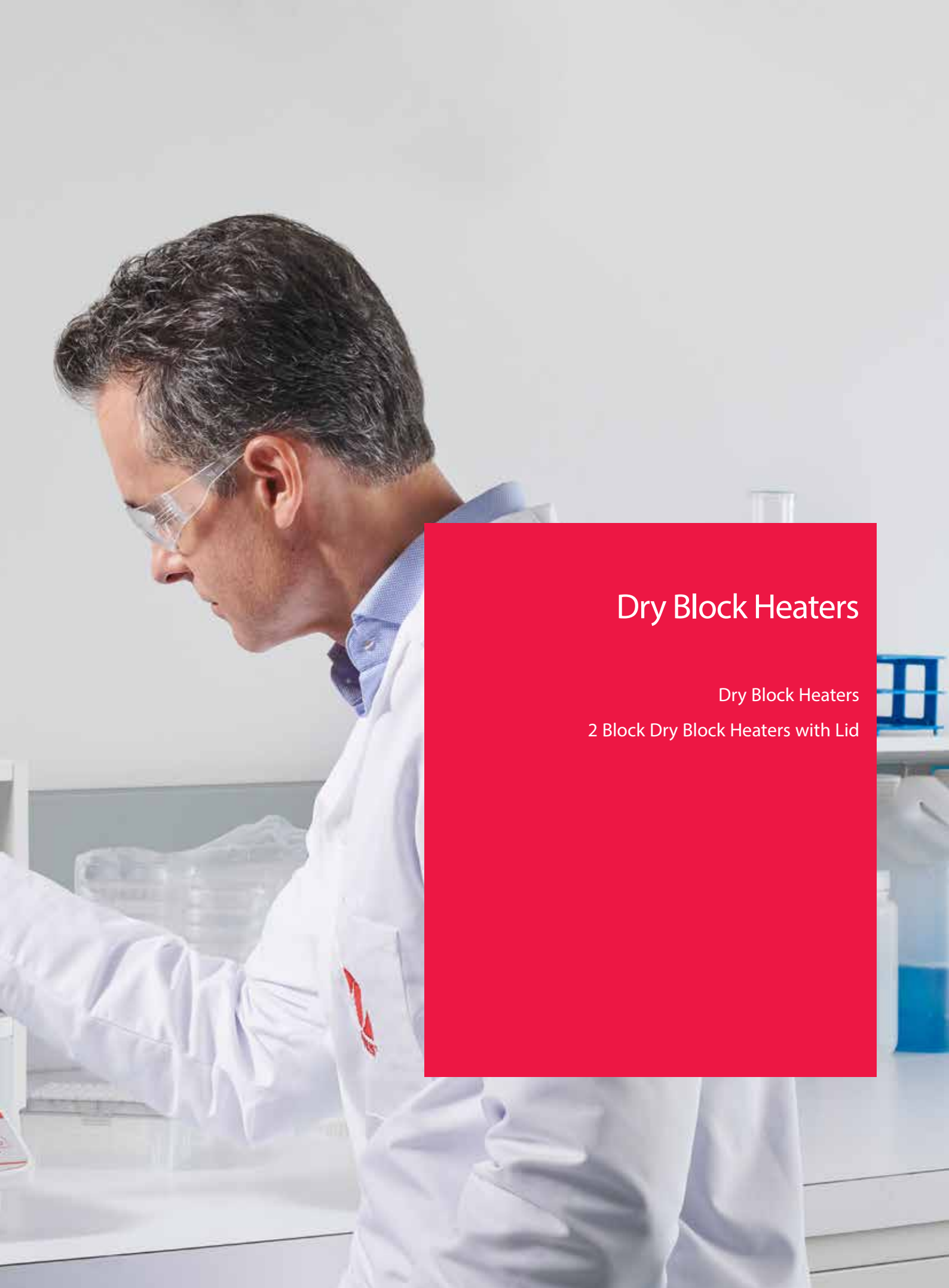
Post Extension Kit

Adds 15.2 cm (6") to the post of the Multi-Tube Vortex Mixer to accommodate tubes up to 25.4 cm (10") tall.

Description	Item Number
Post Extension Kit	30400244





A male scientist with dark hair and safety glasses is shown in profile, working in a laboratory. He is wearing a white lab coat over a blue collared shirt. He is focused on a task, possibly using a pipette or handling a sample. The background is a clean, bright laboratory setting with various equipment and containers visible.

Dry Block Heaters

Dry Block Heaters

2 Block Dry Block Heaters with Lid



Dry Block Heaters



Multi-purpose Dry Block Heaters are ideal for applications that require temperature stability. The close tube-to-block contact enables maximum heat retention, resulting in efficient heating. High-wattage, constant-temp. analog models are an economical option, while digital models offer exceptional temp. uniformity & stability for applications that require repeatable results. Units hold optional interchangeable modular blocks with over 40 options.

- Delivering Exceptional Temperature Stability and Uniformity
- Accurate and Fast Sample Heating with PID Microprocessor Temperature Control (Digital models)
- Digital Models can be Calibrated to an External Temperature Device

Dry Block Heaters



- Exceptional temperature uniformity and stability
- Optional external temperature probe
- Holds interchangeable modular blocks

Designed for applications that require repeatable results and superior temperature stability. These multi-purpose units are ideal for incubation and activation of cultures, enzyme reactions, immunoassays, melting/boiling points, and a wide variety of other laboratory procedures. Integral support rod holder with locking knob accepts optional External Temperature Probe Kit. Optional External Temperature Probe Kit monitors actual block or sample temperature. Each of the five models accepts separate interchangeable modular blocks, accommodating various tube sizes from 0.2 mL micro-tubes to 50 mL centrifuge tubes. Each block has a thermometer well for measuring block temperature. Efficient heating due to close tube-and-block contact for maximum heat retention. Heaters require OHAUS modular heating blocks for operation. Modular blocks are sold separately (see pages 73–75).

Operating Features:

Microprocessor Control: PID temperature control, with optional external RTD probe, offers a temperature stability as low as $\pm 0.1^\circ\text{C}$ with a temperature uniformity as low as $\pm 0.1^\circ\text{C}$. Samples are heated to temperature quickly and accurately. Temperature is adjusted in $\pm 0.1^\circ\text{C}$ increments.

LED Display: Touch pad controls with easy-to-read, independent LED displays for temperature, and time. Provides repeatable and accurate results every time and is easily visible across lab benches. Shows set-point and actual temperature. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Temperature Calibration Mode: Allows user to calibrate unit to an external temperature device.



Safety Features:

Caution Hot Indicator: Hot warning symbol light is illuminated when the temperature is above 40°C .

Overshoot Protection: If the unit exceeds the set temperature by 10°C the unit will automatically stop heating.

Audible Alarm: In timed mode, alarm will sound when time reaches zero and when unit reaches set-point temperature.

CAUTION! To avoid possible electrical hazard, do not fill well or block opening with water or other fluids. Unit is designed as a dry bath/incubator.

Operating Conditions:

Units can be run in conditions from 18 to 33°C (64 to 91°F), 20% to 80% relative humidity, non-condensing.

Applications:

Denaturing proteins, DNA applications, ELISA and other immunoassay studies.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Modular blocks are sold separately (see pages 73-75).

Size	Temperature Range	Temperature Stability @ 37°C	Uniformity Within the Block @ 37°C	Uniformity Across Similar Blocks @ 37°C	Temperature Stability @ 60°C	Uniformity Within the Block @ 60°C	Uniformity Across Similar Blocks @ 60°C	Heat-Up Time to 100°C
1 block	Ambient $+5^\circ\text{C}$ to 120°C	120 volt units: $\pm 0.1^\circ\text{C}$	120 volt units: $\pm 0.1^\circ\text{C}$	N/A	$\pm 0.4^\circ\text{C}$	$\pm 0.4^\circ\text{C}$	N/A	16 minutes
2 block		230 volt units: $\pm 0.2^\circ\text{C}$	230 volt units: $\pm 0.2^\circ\text{C}$	$\pm 0.1^\circ\text{C}$			$\pm 0.5^\circ\text{C}$	16 minutes
4 block				$\pm 0.2^\circ\text{C}$			$\pm 0.8^\circ\text{C}$	23 minutes
6 block				$\pm 0.3^\circ\text{C}$			$\pm 1^\circ\text{C}$	30 minutes

Dry Block Heaters

Advanced Dry Block Heaters

Block Capacity	Dimensions (L × W × H)	Model	Item Number	Item Number
1	31.5 × 20.3 × 8.9 cm (12.4 × 8 × 3.5")	HB1DG	30392061	VN, MY, SG, ID, IN
1	31.5 × 20.3 × 8.9 cm (12.4 × 8 × 3.5")	HB1DG	30392062	AU, NZ
1	31.5 × 20.3 × 8.9 cm (12.4 × 8 × 3.5")	HB1DG	30392064	TH, PH
2	39.1 × 20.3 × 8.9 cm (15.4 × 8 × 3.5")	HB2DG	30392082	VN, MY, SG, ID, IN
2	39.1 × 20.3 × 8.9 cm (15.4 × 8 × 3.5")	HB2DG	30392083	AU, NZ
2	39.1 × 20.3 × 8.9 cm (15.4 × 8 × 3.5")	HB2DG	30392085	TH, PH
4	42.9 × 20.3 × 8.9 cm (16.9 × 8 × 3.5")	HB4DG	30392089	VN, MY, SG, ID, IN
4	42.9 × 20.3 × 8.9 cm (16.9 × 8 × 3.5")	HB4DG	30392090	AU, NZ
4	42.9 × 20.3 × 8.9 cm (16.9 × 8 × 3.5")	HB4DG	30392092	TH, PH
6	53.1 × 20.3 × 8.9 cm (20.9 × 8 × 3.5")	HB6DG	30392096	VN, MY, SG, ID, IN
6	53.1 × 20.3 × 8.9 cm (20.9 × 8 × 3.5")	HB6DG	30392097	AU, NZ
6	53.1 × 20.3 × 8.9 cm (20.9 × 8 × 3.5")	HB6DG	30392099	TH, PH

External Temperature Probe Kit

Enables the unit to read actual block or sample temperature and display that temperature on the control panel. The optional External Temperature Probe Kit includes a stainless steel RTD PT100 probe, 45.7 cm (18") stainless steel support rod, thermometer/temperature probe extension clamp and hook connector. The PT100 RTD probe is designed to fit perfectly in to the thermometer well of each modular block.



Description	Item Number
Optional External Temperature Probe Kit	30400246



Dry Block Heaters



- Multi-purpose use
- Holds interchangeable modular blocks
- Analog controls

High wattage, constant-temperature Dry Block Heaters are economical, versatile and compact. These multi-purpose units are ideal for incubation and activation of cultures, enzyme reactions, immunoassays, melting/boiling points and a wide variety of other laboratory procedures. Each of the five models accept separate interchangeable modular blocks, accommodating various sample enclosures such as micro-tubes, centrifuge tubes, vials, microplates, and PCR strips or tubes. Each block has a thermometer well for measuring block temperature. Anodized aluminum modular blocks provide superior temperature stability and heat transfer. Heaters require OHAUS modular heating blocks for operation. Modular blocks are sold separately (see pages 73-75).



Operating Features:

High wattage, constant-temperature Dry Block Heaters are economical, versatile and compact.

Microprocessor Control: PID temperature controller maintains precise temperature control. Samples are heated to temperature quickly and accurately.

Adjustment Knobs: Dual temperature control knobs with dial markings from 1 to 10 for low temperature and high temperature adjustments. Low range knob adjusts from ambient to 100°C and high range knob adjusts from 75°C to 150°C.

CAUTION! To avoid possible electrical hazard, do not fill well or block opening with water or other fluids. Unit is designed as a dry bath/incubator.

Operating Conditions:

Units can be run in conditions from 18 to 33°C (64 to 91°F), 20% to 80% relative humidity, non-condensing.

Applications:

Coagulation and RH Studies.

Ordering Information:

Units include a detachable, 3-wire cord and plug. Modular blocks are sold separately (see pages 73-75).

Size	Temperature Range	Uniformity Within the Block @ 37°C	Temperature Stability @ 37°C	Uniformity Across Similar Blocks @ 37°C	Uniformity Within the Block @ 60°C	Temperature Stability @ 60°C	Uniformity Across Similar Blocks @ 60°C	Heat-Up Time to 100°C
1 block	Low Range: Ambient +5°C to 100°C High Range: 75°C to 150°C	120 volt units: ± 0.1°C 230 volt units: ± 0.4°C	120 volt units: ± 1.0°C 230 volt units: ± 1.5°C	N/A	+/- 0.6°C	+/- 3°C	N/A	16 minutes
2 block			120 volt units: ± 1.5°C 230 volt units: ± 2.0°C	± 0.1°C		+/- 4°C	± 0.8°C	16 minutes
4 block			120 volt units: ± 2.0°C 230 volt units: ± 2.5°C	± 0.2°C		+/- 5°C	± 1.2°C	23 minutes
6 block				± 0.3°C		+/- 5°C	± 1.4°C	30 minutes

Dry Block Heaters

Standard Dry Block Heaters

Block Capacity	Dimensions (L × W × H)	Model	Item Number	Country Code
1	31.5 × 20.3 × 8.9 cm (12.4 × 8 × 3.5")	HB1AL	30392047	VN, MY, SG, ID, IN
1	31.5 × 20.3 × 8.9 cm (12.4 × 8 × 3.5")	HB1AL	30392048	AU, NZ
1	31.5 × 20.3 × 8.9 cm (12.4 × 8 × 3.5")	HB1AL	30392050	TH, PH
2	39.1 × 20.3 × 8.9 cm (15.4 × 8 × 3.5")	HB2AL	30392054	VN, MY, SG, ID, IN
2	39.1 × 20.3 × 8.9 cm (15.4 × 8 × 3.5")	HB2AL	30392055	AU, NZ
2	39.1 × 20.3 × 8.9 cm (15.4 × 8 × 3.5")	HB2AL	30392057	TH, PH
4	42.9 × 20.3 × 8.9 cm (16.9 × 8 × 3.5")	HB4AL	30392068	VN, MY, SG, ID, IN
4	42.9 × 20.3 × 8.9 cm (16.9 × 8 × 3.5")	HB4AL	30392069	AU, NZ
4	42.9 × 20.3 × 8.9 cm (16.9 × 8 × 3.5")	HB4AL	30392071	TH, PH
6	53.1 × 20.3 × 8.9 cm (20.9 × 8 × 3.5")	HB6AL	30392075	VN, MY, SG, ID, IN
6	53.1 × 20.3 × 8.9 cm (20.9 × 8 × 3.5")	HB6AL	30392076	AU, NZ
6	53.1 × 20.3 × 8.9 cm (20.9 × 8 × 3.5")	HB6AL	30392078	TH, PH



2 Block Dry Block Heaters with Lid

2 Block Dry Block Heaters with Lid



Multi-purpose Dry Block Heaters are ideal for applications that require temperature stability. The close tube-to-block contact enables maximum heat retention, resulting in efficient heating. High-wattage, constant-temp. Analog models are an economical option, while digital models offer exceptional temp. uniformity & stability for applications that require repeatable results. Units hold optional interchangeable modular blocks with over 40 options.

- Delivering Exceptional Temperature Stability and Uniformity
- Heated Lid Model Reduces Condensation on Lids to Maintain Sample Integrity
- Calibrate to an External Temperature Device with Temperature Calibration Mode

2 Block Dry Block Heaters with Lid



- Exceptional uniformity, stability, and regulation of temperature
- Heated lid reduces condensation on sample lids
- Optional external temperature probe

OHAUS Digital Dry Block Heaters with Heated Lid are designed for applications that require repeatable results and superior temperature stability. These multi-purpose units are ideal for isothermal incubation, enzyme reactions, immunoassays, nucleic acid denaturation and a wide variety of other laboratory procedures. Integral support rod holder with locking knob accepts optional External Temperature Probe Kit. Optional External Temperature Probe Kit monitors actual block or sample temperature. Block heater accepts one microplate block or two separate interchangeable modular blocks, accommodating various tube sizes from 0.2 mL micro-tubes to test tubes or vials up to 85 mm in height. Each block has a thermometer well for measuring block temperature. Efficient heating due to close tube-and-block contact with a low density design for exceptional temperature uniformity. The heated lid helps to regulate the temperature and reduce the amount of condensation on sample lids. Heaters require OHAUS modular heating blocks for operation. Modular blocks are sold separately (see pages 73-75).

Safety Features:

Caution Hot Indicator: Hot warning symbol light is illuminated when the temperature is above 40°C.

Overshoot Protection: If the unit exceeds the set temperature by 10°C the unit will automatically stop heating.

Audible Alarm: In timed mode, alarm will sound when time reaches zero and when unit reaches set-point temperature.

CAUTION! To avoid possible electrical hazard, do not fill well or block opening with water or other fluids. Unit is designed as a dry bath/incubator.

Operating Conditions:

Units can be run in environments from 18 to 33°C (64 to 91°F), 20% to 80% relative humidity, non-condensing.

Applications:

Isothermal incubation, enzyme reactions, immunoassays and nucleic acid denaturation and a wide variety of other laboratory procedures.

Ordering Information:

Units include a detachable, 3-wire cord and plug. For optional temperature probe kits see page 68. Modular blocks sold separately (see pages 73-75).

Operating Features:

Microprocessor Control: PID temperature control, with optional external RTD probe, offers a temperature stability as low as $\pm 0.1^\circ\text{C}$ with a temperature uniformity as low as $\pm 0.1^\circ\text{C}$. Samples are heated to temperature quickly and accurately. Temperature is adjusted in $\pm 0.1^\circ\text{C}$ increments.

LED Display: Touch pad controls with easy-to-read, independent LED displays for temperature, and time. Provides repeatable and accurate results every time and is easily visible across lab benches. Shows set-point and actual temperature. Timer will display elapsed time or, when programmed to user defined limit, will shut off unit when time reaches zero. Display will show last used settings, even after power has been turned off.

Temperature Calibration Mode: Allows user to calibrate unit to an external temperature device.

Size	Temperature Range	Temperature Stability @ 37°C	Uniformity Within the Block @ 37°C	Uniformity Across Similar Blocks @ 37°C	Temperature Stability @ 60°C	Uniformity Within the Block @ 60°C	Uniformity Across Similar Blocks @ 60°C	Heat-Up Time to 100°C
2 block	Ambient +5°C to 100°C	120 volt units: $\pm 0.1^\circ\text{C}$ 230 volt units: $\pm 0.2^\circ\text{C}$	$\pm 0.1^\circ\text{C}$	$\pm 0.1^\circ\text{C}$	$\pm 0.4^\circ\text{C}$	N/A	$\pm 0.5^\circ\text{C}$	30 minutes

Block Capacity	Dimensions (L x W x H)	Model	Item Number	Country Code
2	39.1 x 20.3 x 17.8 cm (15.4 x 8 x 7")	HB2DGH	30392103	VN, MY, SG, ID, IN
2	39.1 x 20.3 x 17.8 cm (15.4 x 8 x 7")	HB2DGH	30392104	AU, NZ
2	39.1 x 20.3 x 17.8 cm (15.4 x 8 x 7")	HB2DGH	30392106	TH, PH

Modular Blocks & Accessories

Modular blocks are constructed from a solid anodized aluminum block*. The close contact of tubes-to-block walls allow for maximum heat retention. Each block has a thermometer well for measuring block temperature.

CAUTION! To avoid possible electrical hazard, do not fill well or block with water or other fluids. Units are designed as a dry bath/incubator.

Single block dimensions (L × W × H): 9.5 × 7.6 × 5.1 cm (3.75 × 3 × 2")

Double block dimensions (L × W × H): 15.2 × 9.5 × 5.7 cm (6 × 3.75 × 2.25")

Microcentrifuge Tube Blocks

Single block

Brand/Sample Type	No. of Wells	Well Dia.	Well Depth	Item Number
0.5 mL Tube	30	7.9 mm	27.6 mm	30400157
1.5 mL Tube	20	11.1 mm	39.1 mm	30400159
1.5 mL Eppendorf™ Tube	20	11.5 mm	36.9 mm	30400162
2 mL Eppendorf™ Tube	20	11.5 mm	38.1 mm	30400191
2 mL Corning™ Tube	20	10.9 mm	38.1 mm	30400192

Titer Plate Block

Double block

Fits 2/4/6 block Dry Block Heaters. Ideal for 96-well or 384-well titer plates. Recessed well for better stability, flat surface good for flat and round bottom plates.

Sample Type	Well Depth	Item Number
Titer Plate	13.5 mm	30400164

Conical-Bottom Centrifuge Tube Blocks

Single/Sample Type	No. of Wells	Well Dia.	Well Depth	Item Number
15 mL Tube	12	17.1 mm	44.5 mm	30400172
50 mL Tube	5	29.0 mm	47.6 mm	30400168

Standard Test Tube Blocks

Single/Sample Type	No. of Wells	Well Dia.	Well Depth	Item Number
6 mm Tube	30	8.3 mm	48.4 mm	30400158
10 mm Tube	24	10.7 mm	48.4 mm	30400151
12/13 mm Tube	20	13.9 mm	48.4 mm	30400152
12/13 mm Tube	16	13.9 mm	48.4 mm	30400165
15/16 mm Tube	12	17.5 mm	48.4 mm	30400153
17/18 mm Tube	12	19.1 mm	48.4 mm	30400195
20 mm Tube	8	21.0 mm	48.4 mm	30400154
25 mm Tube	6	26.2 mm	48.4 mm	30400155
35 mm Tube	4	35.0 mm	47.6 mm	30400167

* Block color subject to change

Modular Blocks* & Accessories

Combination Blocks

Single block

These blocks have been designed for variable sized samples.

Sample Type	No. of Wells	Well Dia.	Well Depth	Item Number
Test Tube Combination	6 mm	6	8.3 mm	48.4 mm
	12/13 mm	5	13.8 mm	48.4 mm
	25 mm	3	26.2 mm	48.4 mm
Centrifuge Tube Combination	1.5 mL	4	11.1 mm	39.1 mm
	15 mL	3	17.1 mm	44.5 mm
	50 mL	2	29.0 mm	47.6 mm
Micro-Tube Combination	0.5 mL	6	7.9 mm	27.6 mm
	1.5 mL	10	11.1 mm	39.1 mm
	2 mL	5	11.5 mm	38.1 mm

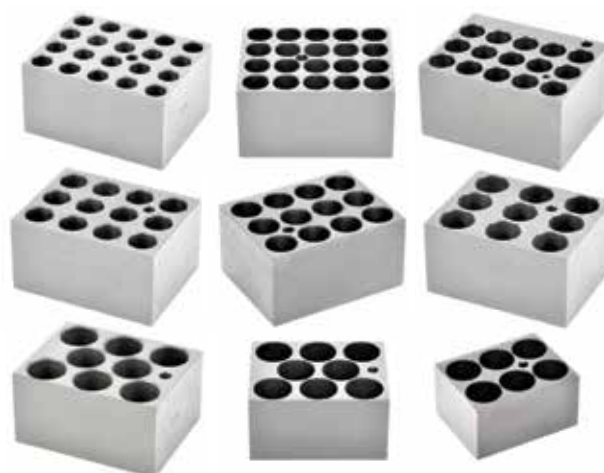


Vial Blocks

Single block

Designed for sample/serum and scintillation vials.

Sample Type	No. of Wells	Well Dia.	Well Depth	Item Number
12 mm Vial	20	12.7 mm	30 mm	30400182
15 mm Vial	20	15.8 mm	35 mm	30400183
16 mm Vial	15	16.4 mm	45 mm	30400190
17 mm Vial	12	17.8 mm	45 mm	30400184
19 mm Vial	12	19.7 mm	45 mm	30400185
21 mm Vial	9	21.7 mm	45 mm	30400186
23 mm Vial	8	23.8 mm	45 mm	30400187
25 mm Vial	8	25.8 mm	45 mm	30400188
28 mm Vial	6	28.8 mm	45 mm	30400189



PCR—Plate, Tube, Strip Blocks

Single and double block

Tapered tube wells for 0.2 mL tubes. Spaced for easy access and removal.

Sample Type	Block Size	No. of Wells	Well Dia.	Well Depth	Item Number
96-well PCR Plate	Double	96	6.4 mm	15.5 mm	30400171
10 × 8 Tube Strips	Single	80	6.4 mm	15.5 mm	30400169
Individual Tubes	Single	64	6.4 mm	20.2 mm	30400170



Cuvette Block

Single block

Two parallel slots fit 6 cuvettes in each slot, side-by-side.

Sample Type	No. of Wells	Well Depth	Item Number
(12) 12.5 mm Cuvettes	2	25.4 mm	30400161



* Block color subject to change

Modular Blocks* & Accessories

Solid Blocks

Single and double block

For use as a low-temperature hotplate, slide drying, or for custom drilling to make a custom block.

Block Size	Dimensions (L × W × H)	Item Number
Single	9.5 × 7.6 × 5.1 cm (3.75 × 3 × 2")	30400160
Double	15.2 × 9.5 × 5.7 cm (6 × 3.75 × 2.25")	30400166



Stainless Steel Sand Baths

Ideal for irregular vessels. Stainless steel construction for superior corrosion resistance. Designed to hold sand, stainless steel shot or non-volatile fluids.

For Unit	Dimensions (L × W × H)	Item Number
1 Block Dry Block Heater	9.5 × 7.6 × 6.4 cm (3.8 × 3.0 × 2.5")	30400173
2 Block Dry Block Heater	9.5 × 14.9 × 6.4 cm (3.8 × 5.9 × 2.5")	30400174
4 Block Dry Block Heater	14.7 × 19.1 × 6.4 cm (5.8 × 7.5 × 2.5")	30400175
6 Block Dry Block Heater	14.7 × 28.7 × 6.4 cm (5.8 × 11.3 × 2.5")	30400176



Accessories	Item Number
Sand, 0.45 kg (1 lb)	30400177
Stainless Steel Shot, 0.45 kg (1 lb)	30400178

Low Temperature Covers

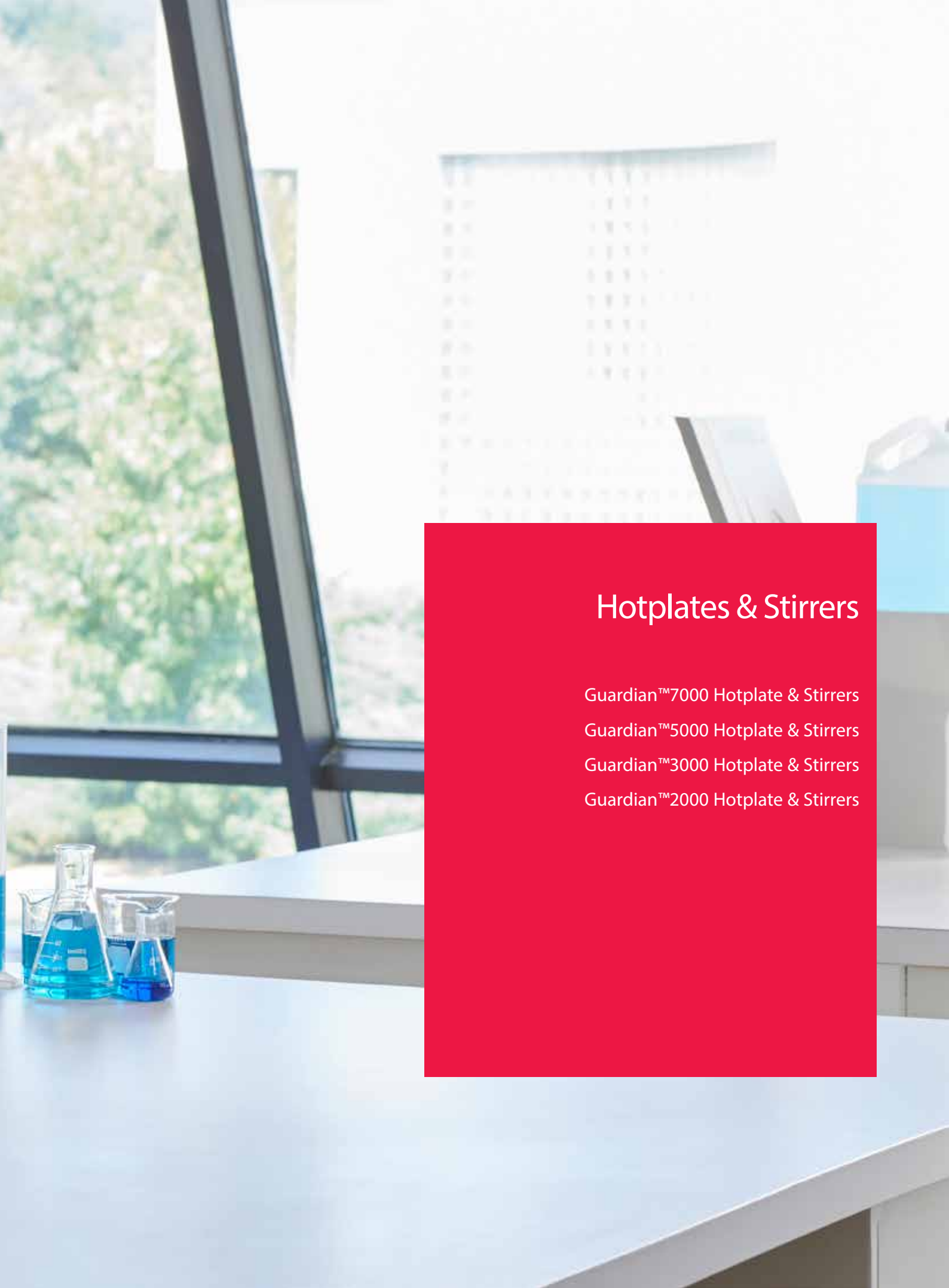
Plexiglass cover reduces air flow for additional temperature stability in low-temperature applications. Two sides are open 6.4 mm (0.25").

Block Size	Dimensions (L × W × H)	Item Number
2 Block Cover	16.5 × 16.5 × 4.1 cm (6.5 × 6.5 × 1.6")	30400179
4 Block Cover	21.6 × 21.6 × 4.1 cm (8.5 × 8.5 × 1.6")	30400180
6 Block Cover	31.8 × 21.6 × 4.1 cm (12.5 × 8.5 × 1.6")	30400181



* Block color subject to change



A photograph of a laboratory bench with a white surface. In the foreground, there are three pieces of glassware: a large Erlenmeyer flask and two smaller beakers, all containing a bright blue liquid. The background features a large window with a black frame, looking out onto a green, tree-filled landscape. A white building is visible in the distance. A large red rectangular box is overlaid on the right side of the image, containing white text.

Hotplates & Stirrers

Guardian™7000 Hotplate & Stirrers

Guardian™5000 Hotplate & Stirrers

Guardian™3000 Hotplate & Stirrers

Guardian™2000 Hotplate & Stirrers

Guardian™ 7000 Hotplate Stirrers



Guardian7000
HotplateStirrers



OHAUS Guardian™ 7000 Hotplate Stirrers are designed with outstanding safety features and superior heating and mixing performance. The SmartHousing™ is chemical resistant with an innovative, easy-to-clean design that channels spills away from internal components and the angled glass control panel. The bright LCD display includes intuitive icons, temperature, speed and time settings - all designed to monitor performance from across the lab.

- SmartPresence™ and SmartLink™ Technologies Ensure Supervised Operation
- SafetyHeat™ System Protects the Lab
- Powerful, Consistent Stirring Performance
- Customized Performance for Precise Applications

Guardian™7000 Hotplate Stirrers



Durable Hotplate Stirrers with Superior Safety Features and Intelligent Performance

Unique Features:

SmartPresence™ and SmartLink™ Technologies Ensure Supervised Operation: Protect your lab with patented SmartPresence™ and SmartLink™ technologies. These exclusive features automatically shut off the heater if no one is detected after a user set "time out" period has passed.

SafetyHeat™ System Protects the Lab: An industry-leading early detection system that uses two independent safety controls to continuously monitor the electronics and shut off heating before an overtemperature condition occurs.

Powerful, Consistent Stirring Performance: Precise stirring from 60 to 1600 rpm is made possible by the design of a powerful motor, strong magnet and software controlled ramp rate, ensuring secure magnetic coupling for viscous applications.

Customized Performance for Precise Applications: SmartHeat™ allows you to set the maximum temperature of the unit and SmartRate™ enables fast or slow temperature and speed ramp rates. The programming feature allows storage of 5 multi-step programs.

Other Features and Equipment:

Icons for SmartRate™, SmartHeat™, SmartPresence™, SmartLink™, green indicator lights when unit is heating and stirring, probe in use, USB port for programming of repeat applications, IP21 Ingress Protection, probe connection, hardened glass front panel, control knobs, On/Off switch for heater disconnect, built-in support rod holder, easy-to-clean ceramic or aluminum tops.

Compliance:

Product Safety: IEC/EN 61010-1; IEC/EN 61010-2-010; IEC/EN 61010-2-051

Electromagnetic Compatibility: IEC/EN 61326-1 Class A, Basic Environments

Compliance Marks: CE; RCM; TÜV SÜD; WEEE



Model	e-G71HS07C	e-G71HS10C	e-G71HSRDM
Function	Heating and Stirring		
Speed Range	60 rpm to 1600 rpm		
Speed Stability	+/- 2 %		
Temperature Range	Ambient + 5 °C – 500 °C		Ambient + 5 °C – 380 °C
Temperature Stability*	+/- 1 % Plate, below 100 °C +/- 1 °C and +/- 0.5 % Probe, below 100 °C +/- 1 °C		
Temperature Accuracy*	Plate +/- 5 °C (after Single Point Calibration) and Probe +/- 0.5 °C (after Single Point Calibration)		
Temperature Calibration	Five Plate and Five Probe		
Timer	1 minute to 99 hours and 59 minutes		
Control	Digital		
Display	Custom Backlit LCD		
Communication	USB		
Capacity	15 L	18 L	20 L
Top Plate Material	Ceramic		Aluminum
Top Plate Size	17.8 x 17.8 cm	25.4 x 25.4 cm	13.5 cm diameter
Dimensions (H x L x W)	12.2 x 30.9 x 22.3 cm	12.2 x 41.5 x 28.6 cm	12.6 x 26.7 x 17.3 cm
Net Weight	2.6 kg	5.2 kg	2.6 kg
Power	120V, 10A, 50/60Hz 230V, 6.0A, 50/60Hz	120V, 11.2A, 50/60Hz 230V, 7A, 50/60Hz	120V, 8.3A, 50/60Hz 230V, 4.6A, 50/60Hz
Power Consumption	1080 W 1242W (230V)	1210 W 1449 (230V)	896 W 952 (230V)
Working Environment	5 °C – 40 °C, 80 % RH, non-condensing		
Accessories	Temperature Probe (Included)		

* Conditions permitting. Variations in temperature measurement process, vessel, ambient and sample will impact actual performance.

**The Bluetooth word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by OHAUS is under license.

Guardian™ 7000 Hotplate Stirrers Accessories

Item No.	Description	e-G71HS07C	e-G71HS10C	e-G71HSRDM
30500570	Base Plate, 135 mm			●
30500571	Handles for Base Plate			●
30500572	Sectional Block, 12 mm Vials			●
30500573	Sectional Block, 15 mm Vials			●
30500574	Sectional Block, 17 mm Vials			●
30500575	Sectional Block, 21 mm Vials			●
30500576	Sectional Block, 28 mm Vials			●
30500577	Sectional Block, 12 mm Test Tubes			●
30500578	Sectional Block, 16 mm Test Tubes			●
30500579	Sectional Block, 20 mm Test Tubes			●
30500580	Sectional Block, 25 mm Test Tubes			●
30500581	Uni Block, 12 mm Vials			●
30500582	Uni Block, 15 mm Vials			●
30500583	Uni Block, 17 mm Vials			●
30500584	Uni Block, 21 mm Vials			●
30500585	Uni Block, 28 mm Vials			●
30500586	Uni Block, 12 mm Test Tubes			●
30500587	Uni Block, 16 mm Test Tubes			●
30500588	Uni Block, 20 mm Test Tubes			●
30500589	Uni Block, 25 mm Test Tubes			●
30392233	Clamp, Specialty, Rod, CLS-RODS			●
30500590	Temperature Probe, 20 cm S/S	●	●	●
30500591	Temperature Probe, 20 cm PTFE	●	●	●
30500592	Temperature Probe, 25 cm S/S	●	●	●
30500593	Temperature Probe, 25 cm PTFE	●	●	●
30500594	In Use Cover Guardian, 17.8 x 17.8 cm	●		
30500595	In Use Cover Guardian, 25.4 x 25.4 cm		●	
30500596	In Use Cover Guardian, Round			●
30500597	Vessel Clamp	●	●	●
30500598	Stir Bar Retriever	●	●	●
30412537	Wireless Dongle MTICWD-200*	●	●	●
30392314	Clamp, Specialty, Column, CLS-COLMNSS	●	●	●
30392315	Clamp, Specialty, Column, CLS-COLMNSM	●	●	●
30392316	Clamp, Specialty, Column, CLS-COLMNSL	●	●	●
30392317	Clamp, Specialty, Column, CLS-COLMNSX	●	●	●
30392318	Clamp, Specialty, Nester, CLS-NESTXS	●	●	●
30400145	Ultra Flex Support Kit	●	●	●
30400146	Support Rod And Clamp Kit	●	●	●
30400147	Spinbar, 2.5 cm PTFE	●	●	●
30400148	Spinbar, 3.8 cm PTFE	●	●	●
30400149	Spinbar, 7 cm PTFE	●	●	●
30400150	Spinbar, 10 cm with Pivot Ring PTFE	●	●	●

* Wireless Dongle accessory required to enable SmartLink™ feature.

Guardian5000
HotplateStirrers

Guardian™ 5000 Hotplate & Stirrers



OHAUS Guardian™ 5000 Hotplates & Stirrers are designed for safety and simplicity in all research, academia and industrial applications. The design ensures proper mixing and temperature control of the top plate or your sample when using the optional temperature probe. Heating models include a Single Point Calibration feature for multiple setpoints. Select from five models with three plate sizes for your everyday heating and stirring applications.

- SafetyHeat™ System Protects the Lab
- Powerful, Consistent Stirring Performance
- Easy to Read LCD Display With Everything You Need to Know
- Designed for Durability and Reliability with the Exclusive SmartHousing™

Guardian™ 5000 Hotplate & Stirrers



Reliable Hotplate Stirrers with Exceptional Safety Features for Everyday Use

Unique Features:

SafetyHeat™ System Protects the Lab: An industry-leading early detection system that uses two independent safety controls to continuously monitor the electronics and shut off heating before an overtemperature condition occurs.

Powerful, Consistent Stirring Performance: Precise stirring from 60 to 1600 rpm is made possible by the design of a powerful motor, strong magnet and software controlled ramp rate, ensuring secure magnetic coupling for viscous applications.

Easy to Read LCD Display With Everything You Need to Know: The bright LCD display includes large temperature and speed settings, intuitive icons and a prominent hot top indicator - all designed to quickly and easily monitor performance from across the lab.

Designed for Durability and Reliability with the Exclusive SmartHousing™: The SmartHousing™ is chemical resistant with an innovative, easy-to-clean design that channels spills away from internal components and the angled control panel.

Other Features and Equipment:

Green indicator lights when unit is heating and stirring, probe in use icon, Single Point Calibration icon, probe connection, IP21 Ingress Protection, polycarbonate front panel, control knobs, On/Off switch for heater disconnect, built-in support rod holder, audible alarm.

Compliance:

Product Safety: IEC/EN 61010-1; IEC/EN 61010-2-010; IEC/EN 61010-2-051

Electromagnetic Compatibility: IEC/EN 61326-1 Class A, Basic environments

Compliance Marks: CE; RCM; TÜV SÜD; WEEE

Model	e-G51ST07C	e-G51HP07C	e-G51HS07C	e-G51HS10C	e-G51HSRDM
Function	Stirring	Heating	Heating and Stirring		
Top Plate Size	17.8 x 17.8 cm			25.4 x 25.4 cm	13.5 cm diameter
Speed Range	60 rpm to 1600 rpm	--	60 rpm to 1600 rpm		
Speed Stability	+/-2 %	--	+/-2 %		
Temperature Range	--	Ambient + 5 °C – 500 °C			Ambient + 5 °C – 380 °C
Temperature Stability*	--	+/-3 % Plate, below 100 °C +/-2 °C and +/-1 % Probe, below 100 °C +/-1 °C			
Temperature Calibration	--	3 Plate and 3 Probe			
Control	Digital				
Display	Backlit LCD for Speed	Backlit LCD for Temperature	Backlit LCD for Temperature and Speed		
Capacity	15 L			18 L	20 L
Top Plate Material	Ceramic				Aluminum
Dimensions (H x L x W)	12.2 x 30.9 x 22.3 cm			12.2 x 41.5 x 28.6 cm	12.6 x 26.7 x 17.3 cm
Net Weight	2.6 kg			5.2 kg	2.6 kg
Power	120V, 1.0A, 50/60Hz 230V, 0.5A, 50/60Hz	120V, 10A, 50/60Hz 230V, 6.0A, 50/60Hz		120V, 11.2A, 50/60Hz 230V, 7A, 50/60Hz	120V, 8.3A, 50/60Hz 230V, 4.6A, 50/60Hz
Power Consumption	108 W (120V) 104 W (230V)	1080 W (120V) 1242 W (230V)		1210 W (120V) 1449 W (230V)	896 W (120V) 952 W (230V)
Working Environment	5 °C – 40 °C, 80 % RH, non-condensing				

* Conditions permitting. Variations in temperature measurement process, vessel, ambient and sample will impact actual performance.

Guardian™ 5000 Hotplate & Stirrers Accessories

Item No.	Description	e-G51ST07C	e-G51HP07C	e-G51HS07C	e-G51HS10C	e-G51HSRDM
30500570	Base Plate, 135 mm					●
30500571	Handles for Base Plate					●
30500572	Sectional Block, 12 mm Vials					●
30500573	Sectional Block, 15 mm Vials					●
30500574	Sectional Block, 17 mm Vials					●
30500575	Sectional Block, 21 mm Vials					●
30500576	Sectional Block, 28 mm Vials					●
30500577	Sectional Block, 12 mm Test Tubes					●
30500578	Sectional Block, 16 mm Test Tubes					●
30500579	Sectional Block, 20 mm Test Tubes					●
30500580	Sectional Block, 25 mm Test Tubes					●
30500581	Uni Block, 12 mm Vials					●
30500582	Uni Block, 15 mm Vials					●
30500583	Uni Block, 17 mm Vials					●
30500584	Uni Block, 21 mm Vials					●
30500585	Uni Block, 28 mm Vials					●
30500586	Uni Block, 12 mm Test Tubes					●
30500587	Uni Block, 16 mm Test Tubes					●
30500588	Uni Block, 20 mm Test Tubes					●
30500589	Uni Block, 25 mm Test Tubes					●
30392233	Clamp, Specialty, Rod, CLS-RODS					●
30500590	Temperature Probe, 20 cm S/S		●	●	●	●
30500591	Temperature Probe, 20 cm PTFE		●	●	●	●
30500592	Temperature Probe, 25 cm S/S		●	●	●	●
30500593	Temperature Probe, 25 cm PTFE		●	●	●	●
30500594	In Use Cover Guardian, 17.8 cm x 17.8 cm	●	●	●		
30500595	In Use Cover Guardian, 25.4 cm x 25.4 cm				●	
30500596	In Use Cover Guardian, Round					●
30500597	Vessel Clamp	●	●	●	●	●
30500598	Stir Bar Retriever	●		●	●	●
30392314	Clamp, Specialty, Column, CLS-COLMNSS	●	●	●	●	●
30392315	Clamp, Specialty, Column, CLS-COLMNSM	●	●	●	●	●
30392316	Clamp, Specialty, Column, CLS-COLMNSL	●	●	●	●	●
30392317	Clamp, Specialty, Column, CLS-COLMNSX	●	●	●	●	●
30392318	Clamp, Specialty, Nester, CLS-NESTXS	●	●	●	●	●
30400145	Ultra Flex Support Kit	●	●	●	●	●
30400146	Support Rod And Clamp Kit	●	●	●	●	●
30400147	Spinbar, 2.5 cm PTFE	●		●	●	●
30400148	Spinbar, 3.8 cm PTFE	●		●	●	●
30400149	Spinbar, 7 cm PTFE	●		●	●	●
30400150	Spinbar, 10 cm with Pivot Ring PTFE	●		●	●	●

* Conditions permitting. Variations in temperature measurement process, vessel, ambient and sample will impact actual performance.

Guardian™ 3000 Hotplate Stirrers



Guardian3000
HotplateStirrers



OHAUS Guardian™ 3000 Hotplate Stirrers are designed for economical heating and stirring in all laboratory settings. The bright LCD display includes easy-to-read temperature and speed settings, intuitive icons and a prominent hot top indicator that lights up when the heater is above 40°C. Select from three plate sizes to suit your application. All models can be used with the optional temperature probe for precise temperature control of the sample.

- SmartPresence™ and SmartLink™ Technologies Ensure Supervised Operation
- SafetyHeat™ System Protects the Lab
- Powerful, Consistent Stirring Performance
- Customized Performance for Precise Applications

Guardian™ 3000 Hotplate Stirrers



Affordable Digital Hotplate Stirrers Designed for Safety, Powerful Stirring and Fast Heating

Unique Features:

Industry leading safety at affordable prices. Guardian™ 3000 units offer safety, controlled heating and powerful stirring for general laboratory use - all at a competitive price point.

SafetyHeat™ protects the lab. An industry-leading early detection system uses two independent safety controls to monitor the electronics and stop heating before an overtemperature condition occurs.

Designed to last - the rugged metal housing has a spill-resistant design for long life in the lab under harsh conditions. The smooth, chemical-resistant ceramic top makes for easy clean ups.

Other Features and Equipment:

Green indicator lights when unit is heating and stirring with simple control knobs for easy temperature and speed adjustments, one PTFE coated stir bar, ON/OFF switch for heater disconnect, built-in support rod holder.

Compliance:

Product Safety: IEC/EN 61010-1; IEC/EN 61010-2-010; IEC/EN 61010-2-051

Electromagnetic Compatibility: IEC/EN 61326-1 Class A, Basic environments

Compliance Marks: CE; RCM; TÜV SÜD; WEEE

Other: IP21



Model	e-G31HS04C	e-G31HS07C	e-G31HSRDS
Function	Heating and Stirring	Heating and Stirring	Heating and Stirring
Top Plate Size	10.2 x 10.2 cm	17.8 x 17.8 cm	13.5 cm diameter
Speed Range	80 rpm to 1600 rpm		
Speed Stability*	+/-2%		
Temperature Range	Ambient + 5°C – 500°C		Ambient + 5°C – 380°C
Temperature Stability*	+/-3% Plate, below 100°C +/-2°C and +/-2% Probe, below 100°C +/-2°C		
Temperature Calibration	1 Plate and 1 Probe		
Control	Digital		
Display	Backlit LCD for Temperature and Speed		
Capacity	15 L		
Top Plate Material	Ceramic		Ceramic Coated Stainless Steel
Dimensions (H x L x W)	11.0 x 26.4 x 16.3 cm	11.2 x 31.8 x 22.3 cm	10.1 x 26.4 x 16.3 cm
Net Weight	2.5 kg	3.9 kg	2.5 kg
Power	100V-120V ~5A 50/60Hz 220V-240V ~2.5A 50/60Hz	100V-120V ~10A 50/60Hz 220V-240V ~5A 50/60Hz	100V-120V ~5A 50/60Hz 220V-240V ~2.5A 50/60Hz
Working Environment	5°C – 40°C, 80% RH, non-condensing		

* Conditions permitting. Variations in temperature and speed measurement processes, vessel, ambient and sample will impact actual performance. To improve temperature accuracy of the system use the Single Point Calibration feature.

Guardian™ 3000 Hotplate Stirrers Accessories

Item No.	Description	e-G31HS04C	e-G31HS07C	e-G31HSRDS
30500570	Base Plate 135 mm			●
30500571	Handles for Base Plate			●
30500572	Sectional Block 12 mm Vials			●
30500573	Sectional Block 15 mm vials			●
30500574	Sectional Block 17 mm Vials			●
30500575	Sectional Block 21 mm Vials			●
30500576	Sectional Block 28 mm Vials			●
30500577	Sectional Block 12 mm Test Tubes			●
30500578	Sectional Block 16 mm Test Tubes			●
30500579	Sectional Block 20 mm Test Tubes			●
30500580	Sectional Block 25 mm Test Tubes			●
30500581	Uni Block 12 mm Vials			●
30500582	Uni Block 15 mm vials			●
30500583	Uni Block 17 mm Vials			●
30500584	Uni Block 21 mm Vials			●
30500585	Uni Block 28 mm Vials			●
30500586	Uni Block 12 mm Test Tubes			●
30500587	Uni Block 16 mm Test Tubes			●
30500588	Uni Block 20 mm Test Tubes			●
30500589	Uni Block 25 mm Test Tubes			●
30392233**	Clamp, Specialty, Rod, CLS-RODS			●
30500590	Temperature Probe 20 cm S/S	●	●	●
30500591	Temperature Probe 20 cm PTFE	●	●	●
30500592	Temperature Probe 25 cm S/S	●	●	●
30500593	Temperature Probe 25 cm PTFE	●	●	●
30500597	Vessel Clamp	●	●	●
30500598	Stir Bar Retriever	●	●	●
30392314	Clamp, Specialty, Column, CLS-COLMNSS	●	●	●
30392315	Clamp, Specialty, Column, CLS-COLMNSM	●	●	●
30392316	Clamp, Specialty, Column, CLS-COLMNSL	●	●	●
30392317	Clamp, Specialty, Column, CLS-COLMNSX	●	●	●
30392318	Clamp, Specialty, Nester, CLS-NESTXS	●	●	●
30400147	Spinbar 2.5 cm PTFE	●	●	●
30400148	Spinbar 3.8 cm PTFE	●	●	●
30400149	Spinbar 7 cm PTFE	●	●	●
30400150	Spinbar 10 cm with Pivot Ring PTFE	●	●	●
30692826	Holder Kit Thermometer e-G31	●	●	●

**30392233 is for use with the 30500570 Base Plate only

Guardian™ 2000 Hotplate & Stirrers



Dependable OHAUS Guardian 2000™ Hotplates and Stirrers are ideal for education and other lab environments that require affordable, everyday fast heating and reliable stirring up to 15L. All three sizes offer simple knob control to easily adjust the heating and stirring functions. The durable housing includes a built-in support rod holder which accepts the optional support rod. Stirring models include PTFE coated stir bars.

- Powerful stirring and fast heating at an economical price. Safely heat up to 500°C and stir up to 15L with easy to use knob control for simple and reliable everyday heating and stirring in the lab.
- Designed to last - the rugged metal housing has a spill resistant design for long life in the lab under harsh conditions. The smooth, chemical-resistant ceramic top plate is perfect for easy clean up
- Safety is of utmost importance - the prominent hot top indicator light illuminates when the heater is above 40°C, keeping the end user safe during all heating applications.

Guardian™ 2000 Hotplate & Stirrers



Rugged and Reliable Analog Hotplates and Stirrers for General Purpose Heating and Stirring

Unique Features:

Powerful stirring and fast heating at an economical price. Safely heat up to 500°C and stir up to 15L with easy to use knob control for simple and reliable everyday heating and stirring in the lab.

Designed to last - the rugged metal housing has a spill resistant design for long life in the lab under harsh conditions. The smooth, chemical-resistant ceramic top plate is perfect for easy clean up.

Safety is of utmost importance - the prominent hot top indicator light illuminates when the heater is above 40°C, keeping the end user safe during all heating applications.

Other Features and Equipment:

Green indicator lights when unit is heating and stirring with simple control knobs for easy temperature and speed adjustments, one PTFE coated stir bar, ON/OFF switch for heater disconnect, built-in support rod holder.

Compliance:

Product Safety: IEC/EN 61010-1; IEC/EN 61010-2-010; IEC/EN 61010-2-051

Electromagnetic Compatibility: IEC/EN 61326-1 Class A, Industrial environments

Compliance Marks: CE; RCM; TÜV SÜD; WEEE

Other: IP21

Guardian™ 2000 Hotplate Stirrers Accessories

Item No.	Description	e-G21ST04R	e-G21HP04C	e-G21HS04C	e-G21ST07R	e-G21HP07C	e-G21HS07C	e-G21STRDS	e-G21HPRDS	e-G21HSRDS
30500597	Vessel Clamp	●	●	●	●	●	●	●	●	●
30500598	Stir Bar Retriever	●		●	●		●	●		●
30400147	Spinbar 2.5 cm PTFE	●		●	●		●	●		●
30400148	Spinbar 3.8 cm PTFE	●		●	●		●	●		●
30400149	Spinbar 7 cm PTFE	●		●	●		●	●		●
30400150	Spinbar 10 cm with Pivot Ring PTFE	●		●	●		●	●		●
30692826	Holder Kit Thermometer e-G31		●	●		●	●		●	●
30726783*	Spinbar with a Pivot 3.8 cm PTFE	●		●	●		●	●		●

* 3076783 is a pack of 5 spinbars

Specifications

Model	e-G21ST04R	e-G21HP04C	e-G21HS04C
Function	Stirring	Heating	Heating and Stirring
Top Plate Size	10.2 x 10.2 cm		
Speed Range	200 - 1600 rpm	–	200 - 1600 rpm
Temperature Range	–	70 °C - 500 °C	
Control	Analog		
Capacity	15 L		
Top Plate Material	Resin	Ceramic	
Dimensions (H x L x W)	11.0 x 26.4 x 16.3 cm		
Net Weight	2.1 kg	1.8 kg	2.5 kg
Power	100V-120V ~2A 50/60Hz 220V-240V ~1A 50/60Hz	100V-120V ~5A 50/60Hz 220V-240V ~4A 50/60Hz	
Power Consumption	35W (100~120V) / 35W (220~240V)	505W (100~120V) / 505W (220~240V)	535W (100~120V) / 535W (220~240V)
Working Environment	5 °C – 40 °C, 80 % RH, non-condensing		

Model	e-G21ST07R	e-G21HP07C	e-G21HS07C
Function	Stirring	Heating	Heating and Stirring
Top Plate Size	17.8 x 17.8 cm		
Speed Range	200 - 1600 rpm	–	200 - 1600 rpm
Temperature Range	–	70 °C - 500 °C	
Control	Analog		
Capacity	15 L		
Top Plate Material	Resin	Ceramic	
Dimensions (H x L x W)	11.2 x 31.8 x 22.3 cm		
Net Weight	2.8 kg	3.2 kg	3.9 kg
Power	100V-120V ~2A 50/60Hz 220V-240V ~1A 50/60Hz	100V-120V ~10A 50/60Hz 220V-240V ~7A 50/60Hz	
Power Consumption	35W (100~120V) 35W (220~240V)	1005W (100~120V) 1005W (220~240V)	1035W (100~120V) 1035W (220~240V)
Working Environment	5 °C – 40 °C, 80 % RH, non-condensing		

Model	e-G21STRDS	e-G21HPRDS	e-G21HSRDS
Function	Stirring	Heating	Heating and Stirring
Top Plate Size	13.5 cm diameter		
Speed Range	200 - 1600 rpm	–	200 - 1600 rpm
Temperature Range	–	50 °C - 380 °C	
Control	Analog		
Capacity	15 L		
Top Plate Material	Ceramic Coated Stainless Steel		
Dimensions (H x L x W)	10.1 x 26.4 x 16.3 cm		
Net Weight	2.3 kg	1.8 kg	2.5 kg
Power	100V-120V ~2A 50/60Hz 220V-240V ~1A 50/60Hz	100V-120V ~5A 50/60Hz 220V-240V ~4A 50/60Hz	
Power Consumption	35W (100~120V) 35W (220~240V)	505W (100~120V) 505W (220~240V)	535W (100~120V) 535W (220~240V)
Working Environment	5 °C – 40 °C, 80 % RH, non-condensing		

Guardian Series

Frequently Asked Questions

What differentiates the Guardian 7000 Hotplate Stirrers?

SmartLink: provides long-range user detection for improving safety when using the heating function.

SmartPresence: detects when a user is nearby and safely turns off the heating function when no one is detected.

SmartHeat: allows users to control the maximum temperature, preventing overheating of sensitive samples.

SafetyHeat: our industry leading internal protection system assures safety in heating applications with dual-monitoring of system health.

SmartRate: allows users to safeguard sensitive applications with precise control of temperature and speed ramp rates.

SmartHousing: ensures that every Guardian hotplate stirrer is consistently safe to use at high temperature settings by remaining cool to the touch. The innovative design is easy to clean and channels spills away from the internal components, as well as being constructed from a chemical resistant material for long-term use in the lab.

How can the Guardian 7000 safeguard sensitive applications?

For precise sample control with the Guardian 7000, use the included temperature probe and enable SmartRate to select fast or slow temperature and speed ramp rates.

SmartHeat allows lab users to limit the maximum temperature of the hotplate stirrer preventing overheating of sensitive samples -- keeping the user and samples safe.

What are the benefits of using the Guardian Series Hotplate Stirrers with round top plates?

The Guardian round top models are ideal for biochemistry and chemistry labs that carry out complex heating and stirring applications and increase productivity by utilizing multiple positions to perform experiments in parallel. Round top models save valuable bench space and accept a wide range of aluminum block accessories that can accommodate standard vials and test tubes.

A close-up photograph of the control panel of an OHAUS Guardian 7000 Hotplate Stirrer. The panel is white with two large, grey, cylindrical knobs for temperature and speed control. The OHAUS logo is printed in red on the lower right side of the panel. The background is a blurred view of the stirrer's surface and other components.

What type of Guardian top plate material best suits the lab, ceramic or aluminum?

Ceramic and aluminum top plates are both suitable for lab use and each material has its benefits.

Ceramic top plates are chemical resistant and safer if working with corrosive chemicals that may splash onto the plate surface. They can withstand higher temperatures up to 500 °C and can be wiped clean.

The white surface of a ceramic top plate is preferable for quantitative chemical analysis or other work where clear visibility of the sample color is required.

The edges of a ceramic top plate may not be as hot as the center. This may not be suitable if uniform heating over the entire plate surface is needed for the application. Aluminum top plates offer more uniform temperature over the entire heating surface and will not crack or chip, and will withstand accidental handling.

To avoid thermal shock, glassware should be used on ceramic top plates and heating of metallic vessels should be avoided. Ceramic top plate units are also not suitable for sandbaths or any vessel that may reflect heat back onto the surface which may cause thermal shock.

What types of applications are the Guardian 5000 Series Hotplate Stirrers designed for?

Guardian 5000 Series are designed for safety and simplicity in all academia, research, and industrial applications. The design ensures proper mixing and temperature control of the top plate or your sample when used with the optional temperature probe.

Which features are built into the Guardian 5000 Series to make it safe for use in academic settings?

The Guardian 5000 Series are designed for durability, reliability, and safety with its exclusive **SmartHousing** and **SafetyHeat**.

SmartHousing remains cool to the touch at all temperature settings, is chemical resistant, and is an easy-to-clean design that channels away spills from internal components and the front panel.

SafetyHeat system protects the lab with an industry-leading early detection system that uses two independent safety controls to continuously monitor the electronics and shuts off heating before an overtemperature condition occurs.

Guardian Series Hotplate Stirrers

Guardian™7000 Hotplate Stirrers



Guardian™5000 Hotplate Stirrers



Guardian™3000 Hotplate Stirrers



Guardian™2000 Hotplate Stirrers



Guardian Series Accessories*



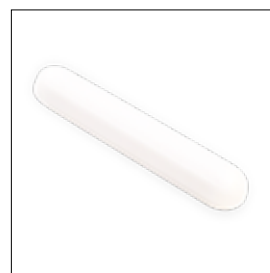
Vial and Test Tube Blocks



Base Plate and Handles



Temperature Probe



Spin Bars



Ultra Flex Support Kit



In Use Cover



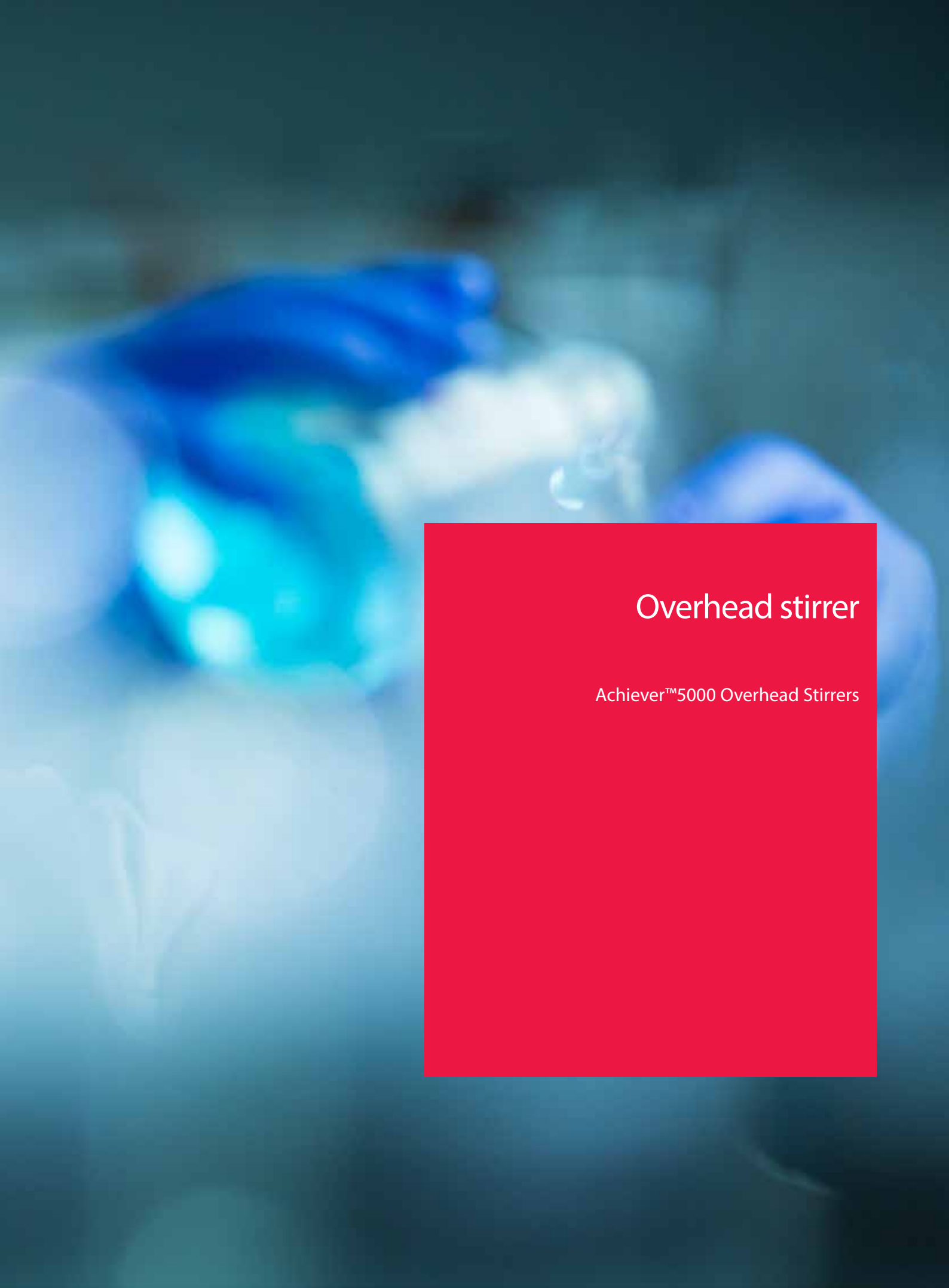
Support Rod and Clamp Kit



Vessel Clamps

*40 accessories available for Guardian Series





Overhead stirrer

Achiever™5000 Overhead Stirrers

Achiever™ 5000 Overhead Stirrers



Achiever 5000



OHAUS Achiever™5000 Overhead Stirrers are designed for powerful, precise stirring, safety and simplicity in all applications. The sealed design has an IP54 rating and ensures safe mixing performance even in the most demanding applications. The keyless chuck and software controlled speed ramping provide easy set up and safe stirring to protect the sample and user. Select from five models with up to 200 Ncm torque and up to 100 L volume capacity.

- Powerful mixing and constant speed is assured with the brushless motor and torque compensation technology - delivering accurate, controlled stirring of viscous liquids with quiet operation.
- Simplify set up with the Keyless Chuck - no tools required. Change shafts quickly and easily with one handed operation. This unique design will save time and effort for everyone in the lab.
- Designed for safety. The lock button prevents accidental speed changes and the motor's overload sensing technology simply shuts off stirring before an overload condition occurs to protect the sample.
- Compact and easy to use. Simple knob control combined with the bright digital display allows for precise setting and monitoring. Customize for your application with over 12 accessories.

Achiever™ 5000 Overhead Stirrers

Model	e-A51ST020	e-A51ST040	e-A51ST060	e-A51ST100	e-A51ST200
Stirring Speed Range	30-2000 rpm			30-1300 rpm	6-400 rpm (I) 30-2000 rpm (II)
Stirring Volume (H2O)	up to 25L		up to 40L	up to 100L	
Maximum Viscosity (cP or mPa's)	10,000	25,000	50,000	70,000	100,000
Maximum Torque (Ncm)	20	40	60	100	200
Speed Gears	1				2
Speed Accuracy	1 rpm				
Speed Control	Digital				
Display	LED				
Timer	Yes				
Lock Button	Yes				
Chuck Range (Diameter)	1 - 13 mm				
Shaft Pass Through (Diameter)	up to 8.5 mm				
Ingress Protection	IP54				
Dimensions (H x L x W)	28.5 x 23.5 x 9.0 cm				31.5 x 23.5 x 9.0 cm
Net Weight	4.1 kg				4.6 kg
Power Supply	230V, 50/60Hz				
Power Input	190W (230V)				
Working Environment	5 °C – 40 °C, 80 % RH, non-condensing				

Other Standard Features & Equipment

Speed accuracy of 1 rpm, sealed housing with IP54 rating, digital display, timer, torque tendency LED indicator, digital speed control, chuck range 1 to 13 mm, pass through shaft diameter up to 8.5 mm, support stand and clamp required for set up (sold separately).

Compliance

- Product Safety: CAN/CSA C22.2 No. 61010-1, CAN/CSA C22.2 No. 61010-2-051, EN 61010-1, EN 61010-2-051, IEC 61010-1, IEC 61010-2-051, UL 61010-1, UL 61010-2-051
- Electromagnetic Compatibility: EN 61326-1: 2013 Class A Industrial Environment; Canada ICES-003 Class A; FCC Part 15 Class A
- Compliance Marks: CE; RCM; cNus; WEEE; CN RoHS

Achiever™ 5000 Overhead Stirrers

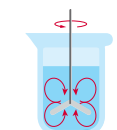
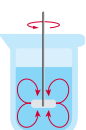
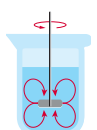
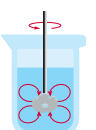
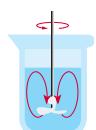
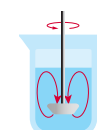
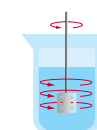
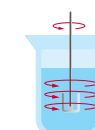
Choosing the Achiever 5000 Overhead Stirrer:

	Achiever 020	Achiever 040	Achiever 060	Achiever 100	Achiever 200
Trade name	e-A51ST020	e-A51ST040	e-A51ST060	e-A51ST100	e-A51ST200
Max Torque (Ncm)	20	40	60	100	200
Capacity (H ₂ O)	Up to 25 L	Up to 25 L	Up to 40 L	Up to 100 L	Up to 100 L
Max Viscosity (mPa × s = cP)	10,000	25,000	50,000	70,000	100,000
Speed Range	30–2,000 rpm	30–2,000 rpm	30–2,000 rpm	30–1,300 rpm	6–400 rpm 30–2,000 rpm

5 Questions to Ask

1. Sample Type
2. Sample Viscosity
3. Sample Volume
4. Speed Range
5. Mixing Preference

Choosing Stirring Shaft Accessory:

Stirring Shafts								
Shape								
Flow Diagram								
Stirring Shaft with	Floating Blades	Fixed Blade	Folding Blade	Turbine	Propeller	Turbo Propeller	Paddle, 6 Holes	Anchor
Item Number	30586777	30586776	30586778	30586781	30586780	30586782	30586779	30586775
Blade (mm)	93 × 11	50 × 10	60 × 15	49 × 10	60 × 9	46 × 14	69 × 75	45 × 54
Shaft Ø (mm)	7	7	7	7	7	7	7	7
Shaft Length (mm)	400	400	400	400	400	400	510	400
Speed Range	250 – Max	250 – Max	250 – Max	250 – Max	250 – Max	250 – Max	Up to 800	All Speeds
Viscosity Range*	● – ●●	● – ●●●●	● – ●●	●●●● – ●●●●●●	● – ●●●●●●	●●●● – ●●●●●●	●●●● – ●●●●●●	●●●● – ●●●●●●
Flow Pattern	Radial	Radial	Radial	Radial	Axial	Axial	Tangential	Tangential
Description	Floating Blades align during stirring and create radial flow from top to bottom in the vessel. This blade is ideal for stirring in narrow neck vessels such as flasks.	Fixed Blade creates radial flow from top to bottom in the vessel. Ideal for use at medium to high speeds for stirring light solids, mixing thickening materials, flocculation, etc.	Folding Blade aligns during stirring and creates radial flow from top to bottom in the vessel. This blade is used for stirring in narrow neck vessels.	Turbine creates a high shear, high turbulence radial flow in the vessel. This flow is from top to bottom.	Propeller creates axial flow with limited shearing forces. This flow pulls the sample from top to bottom in the vessel.	Turbo Propeller creates a low shearing axial flow in the vessel. This flow pulls the sample from top to bottom and the ring limits the contact of the blade with walls of the vessel or probes.	Paddle creates a reduced turbulence radial flow in the vessel producing gentle mixing of the sample.	Anchor creates tangential flow with high shearing forces on the ends. This flow can prevent sedimentation on the walls of the vessel.

*Consult the Viscosity Range table (below) for values.

Viscosity Range	Very Low	Low	Medium	High
cP Range	0–100	100–1,000	1,000–10,000	10,000–100,000
Symbol	●	●●	●●●	●●●●

Viscosity of Common Materials:



Material	Water	Blood	Corn Syrup	Maple Syrup	Castor Oil	Honey	Molasses	Chocolate Syrup	Ketchup	Peanut Butter	Crisco/Lard	Silicone Sealant	Window Putty
cP Range	1–5	10	50–100	150–200	250–500	2–3,000	5–10,000	10–25,000	50–70,000	150–200,000	1–2,000,000	5–10,000,000	100,000,000

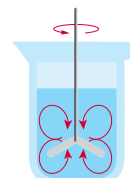
Achiever™ 5000 Overhead Stirrers



FLOATING BLADE 30586777

Good for narrow neck vessels

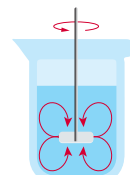
Flow	Stir Speed RPM	Viscosity	Blade
Radial	250 – Max 0 - 1,000 cP	93 x 11 mm	
Overall Length	Shaft Diameter	Material	
400 mm	7 mm	316 Stainless Steel	



FIXED BLADE 30586776

Good for high speed, low viscosity mixing. Can create a vortex.

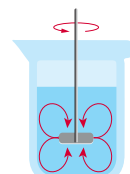
Flow	Stir Speed RPM	Viscosity	Blade
Radial	250 – Max 0 - 10,000 cP	50 x 10 mm	
Overall Length	Shaft Diameter	Material	
400 mm	7 mm	316 Stainless Steel	



FOLDING BLADE 30586778

Good for narrow neck vessels

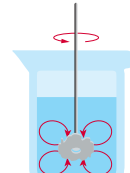
Flow	Stir Speed RPM	Viscosity	Blade
Radial	250 – Max 0 - 1,000 cP	60 x 15 mm	
Overall Length	Shaft Diameter	Material	
400 mm	7 mm	316 Stainless Steel	



TURBINE 30586781

Teeth break down agglomerations to help with dispersion. Provides very high shear.

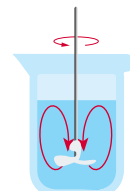
Flow	Stir Speed RPM	Viscosity	Blade
Radial	250 – Max 1,000 - 100,000 cP	49 x 10 mm	
Overall Length	Shaft Diameter	Material	
400 mm	7 mm	316 Stainless Steel	



PROPELLER 30586780

Can be used at high speed with medium or high viscosity materials. Excellent mixing properties for homogenization and suspensions.

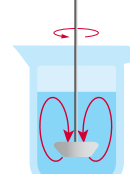
Flow	Stir Speed RPM	Viscosity	Blade
Axial	250 – Max 0 - 10,000 cP	60 x 9 mm	
Overall Length	Shaft Diameter	Material	
400 mm	7 mm	316 Stainless Steel	



TURBO PROPELLER 30586782

Ring protects dip tubes or sensors in vessel

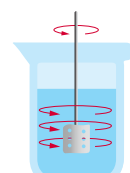
Flow	Stir Speed RPM	Viscosity	Blade
Axial	250 – Max 1,000 - 100,000 cP	46 x 14 mm	
Overall Length	Shaft Diameter	Material	
400 mm	7 mm	316 Stainless Steel	



PADDLE, 6 Holes 30586779

For use at low to medium speeds. Ideal for gentle mixing.

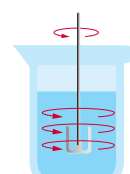
Flow	Stir Speed RPM	Viscosity	Blade
Tangential	Up to 800 0 - 10,000 cP	69 x 75 mm	
Overall Length	Shaft Diameter	Material	
510 mm	7 mm	316 Stainless Steel	



ANCHOR 30586775

Suitable for medium or high viscosity materials. Should be used at low speeds for high viscosity materials.

Flow	Stir Speed RPM	Viscosity	Blade
Tangential	All Speeds 1,000 - 100,000 cP	45 x 54 mm	
Overall Length	Shaft Diameter	Material	
400 mm	7 mm	316 Stainless Steel	







Bead Mill Homogenizers

HT Lysing Homogenizer

HT Lysing Homogenizer

HT Lysing
Homogenizer

The HT (High Throughput) Lysing Bead Mill Lab Homogenizer offers efficient solutions for all of your grinding, lysing, pulverizing, mixing and homogenizing sample preparation applications. High-throughput processing is ideal for multiple sample and tube configurations. Easy-to-load tray securely locks the microplate or tube in place. High speed linear motion processes samples quickly. Flexibility to use OHAUS sample tubes or any other brand.

- Flexibility to Handle Multiple Samples & Tube Configurations
- Take the Guesswork Out of Determining Optimum Speed/Time with 5 Pre-Set Programs
- Increased Efficiency With High-Throughput Sample Processing

Bead Mill Tube for OHAUS Bead Mill Homogenizers

Overview

OHAUS' convenient, ready-to-use Lysing Bead Tubes are a widely-used tool for sample homogenization. Each 2 ml self-standing tube contains pre-measured molecular biology grade grinding media* to effectively disrupt samples using high throughput homogenizers (e.g., reciprocating OHAUS HT Lysing Homogenizer), popular oscillating homogenizers (e.g., Mini Lysing Homogenizer), and smaller reciprocal bead beaters.

Pre-treated grinding beads and balls are processed to remove potential contaminants, including nucleic acids, nucleases, and proteases, which could negatively impact downstream applications*. Quality control testing is performed to ensure that the lysing bead tubes meet OHAUS' strict quality requirements.

Bead Beating Tips

Lysis Buffers

Bead beating is often performed using lysis buffers (i.e., "wet grinding").

Buffer composition changes significantly depending on the application. The components of those buffers can dramatically impact bead beating effectiveness. Buffers used to isolate DNA and RNA will typically contain detergents which can cause excessive foaming during bead beating that may impair the motion (and grinding mechanism) of the grinding beads. Increasing homogenization time can be used to compensate for foaming and improve homogenization. Detergents can often be added after the processing.

Small molecule or protein extractions may require the use of organic solvents (e.g., methanol, acetonitrile). Use caution when handling organic solvents. It is best to use organic solvent mixtures containing small amounts of water when bead beating. Heat buildup from the collision of beads can pressurize the tubes, particularly when organic solvents are used without dilution.

Stainless steel grinding balls may oxidize when exposed to organic solvents (e.g., phenol), in which case a suitable alternative, such as 3 mm Zirconium beads in the Plant Lysing Bead Tubes, can be used.

If Making a Homogenization Buffer

- For **DNA** isolations, use of Tris-EDTA ("TE") is recommended to chelate magnesium ions, rendering DNases inactive.
- For **RNA** isolations, use of a reducing agent (e.g., β -mercaptoethanol, dithiothreitol) and a chaotrope (e.g., guanidine hydrochloride, guanidine thiocyanate) is recommended to denature RNases present in the sample.
- For **Protein** isolations, use of protease inhibitors is recommended.

General Guidelines

Do not overfill Lysis Bead Tubes. Overfilling the tubes will impede homogenization by limiting the motion of the grinding media. Total volume of sample, grinding media, and buffer should never exceed 50% of tube volume.

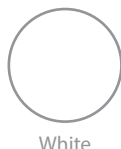
Homogenize in short bursts with pauses when homogenizing temperature-sensitive samples, such as proteins, to dissipate heat generated during grinding.

Do not use Lysing Bead Tubes for cryogenic grinding. Tubes will become brittle if dipped in liquid nitrogen.

*Disclaimer: Not for clinical use. For research purposes only.



Bacteria Lysing Bead Tubes



Product Number: 30391402 (100 each)

Contains: 100 μm Zirconium Beads
Button Setting #1: 5 min. @ 1500 rpm

Protocol:

1. Spin down 2 ml of sample or cultured bacteria.
2. Decant the supernatant and resuspend the pellet in 500 μl of a suitable buffer.
3. Transfer the solution to a Bacteria Lysis Bead Tube.
4. Homogenize for 5 minutes at 1500 rpm (press preset button).
5. Centrifuge for 5 minutes at 12,000 $\times$ g.
6. Transfer the supernatant to a clean tube and store/process.

May be used for: bacteria/spores

Helpful Hints:

- Increase the homogenization time if obtaining low DNA concentrations from gram positive bacteria.
- Assays can be performed to assess optimal homogenization conditions.

Yeast Lysing Bead Tubes

Product Number: 30391404 (100 each)

Contains: 400 μm Zirconium Beads
Button Setting #1: 5 min. @ 1500 rpm

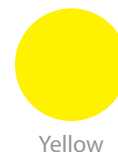
Protocol:

1. Spin down 1 ml of sample or cultured yeast.
2. Decant supernatant and resuspend the pellet in 500 μl of a suitable buffer.
3. Transfer the yeast solution to a Yeast Lysing Bead Tube.
4. Homogenize for 5 minutes at 1500 rpm (press preset button).
5. To remove debris, centrifuge for 5 minutes at 12,000 $\times$ g.
6. Transfer the supernatant to a clean tube for processing or storage.

May be used for: yeast, algae, spores

Helpful Hints:

- Longer processing times may be required to homogenize smaller yeasts (i.e. Pichia).
- Homogenization can be evaluated by comparing homogenized yeast to a non-homogenized sample under a microscope. Yeast cells that are cracked open will appear dark gray.



Fungi Lysing Bead Tubes (cells and mycelia)

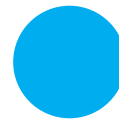
Product Number: 30391405 (100 each)

Contains: 800 μ m Zirconium Beads
Button Setting #1: 5 min. @ 1500 rpm

Protocol:

1. Cultured fungal cells, pseudomycelia, and small pellicle formations can be processed with Fungi Lysis Bead Tubes. Samples can be concentrated by centrifugation and resuspended in lysing buffer, or, if solid, added directly to Fungi Lysing Bead Tubes. Sample volume should be approximately 50 μ l. Add 500 μ l of a suitable buffer.
2. Homogenize for 5 minutes at 1500 rpm (press preset button).
3. To remove debris, centrifuge for 5 minutes at 12,000 $\times$ g.
4. Transfer the supernatant to a clean tube and process or store.

May be used for: fungal mycelium, cells, spores, eukaryotic algae



Blue

Soft Sample Lysing Bead Tubes



Orange

Product Number: 30391406 (100 each)

Contains: 1.4 mm Zirconium Beads
Button Setting#2: 2 min. @ 1500 rpm

Protocol:

1. For cultured cells or blood, centrifuge sample and decant supernatant. Resuspend the pellet in 500 μ l of a suitable buffer and transfer to a Lysing Bead Tube. For solid samples, place approximately 50 mg in a Lysing Bead Tube and 500 μ l of a suitable buffer. Homogenize for 2 minutes at 1500 rpm (press present button).
2. Remove debris by centrifuging for 5 minutes at 12,000 $\times$ g.
3. Transfer the supernatant to a clean tube for processing or storage.

May be used for: soft tissues (e.g., brain, adipose, liver, spleen); cultured cells and blood, as well as thin sections of fungal thallus and soft plant material

Plant Lysing Bead Tubes



Green

Product Number: 30391408 (100 each)

Contains: 3.0 mm Zirconium Beads
Button Setting #3: 3 min. @ 1300 rpm

Protocol:

1. Add 50 to 70 mg sample to a Lysing Bead Tube along with 500 μ l of a suitable buffer.
2. Start with a 2 minute homogenization step at 1500 rpm (press preset button). Check the sample for lysis. If the sample isn't fully homogenized, repeat the homogenization.
3. Pellet cellular debris by centrifuging for 5 minutes at 12,000 $\times$ g.
4. Transfer the supernatant to a clean tube for processing or storage.

May be used for: plant, stems, roots, and leaves

Helpful Hints:

- Plant sample mass should not exceed 70 mg.
- If using a CTAB buffer, increase the homogenization time, as foaming may impair movement of the beads.
- If plant stem does not fully homogenize, use the stainless-steel Animal Tissue Lysing Bead Tubes, with 600 μ l homogenization buffer.
- To homogenize plant pollen, use the Fungi Lysing Bead Tubes with 600 μ l homogenization buffer.
- Lysing Bead Tubes are not intended to homogenize seeds. Larger vials and grinding balls are better suited for this purpose.

Animal Tissue Lysing Bead Tubes

Product Number: 30391409 (100 each)

Contains: 3 mm Stainless Steel Balls**
Button Setting #2: 3 min. @ 1300 rpm

Protocol:

1. Animal tissues can be extremely difficult to homogenize. Tissues high in collagen are very difficult. Hair is very difficult. For most tissues, place up to 50 mg sample in a Lysing Bead Tube. Add 500 μ l of a suitable buffer.
2. Homogenize for 2 minutes at 1500 rpm (press preset button). If the tissue isn't fully homogenized, repeat the homogenization step.
3. Remove insoluble debris by centrifuging for 5 minutes at 12,000 $\times$ g.
4. Transfer the supernatant to a clean tube for processing or storage.

May be used for: animal tissue, muscle, tumors, lungs, insects

Helpful Hints:

- Stainless Steel may oxidize when exposed to organic solvents in some buffers.
- Plant Lysing Bead Tubes may be substituted for Animal Tissue Lysing Bead Tubes, though slightly longer homogenization times may be necessary.



Red

Environmental Lysing Bead Tubes

Product Number: 30391410 (100 each)

Contains: Mixture of 100 μ m / 800 μ m / 3.0 mm Zirconium Beads
Button Setting #4: 4 min. @ 1500 rpm

Protocol:

1. Add approximately 50 mg sample and 500 μ l of a suitable buffer to the Lysing Bead Tube.
2. Homogenize for 4 minutes at 1500 rpm (press preset button).
3. Centrifuge for 6 minutes at 12,000 $\times$ g to pellet debris.
4. Transfer the supernatant to a clean tube and process or store.

May be used for: environmental samples, including feces, soil, sediments, biofilms

Helpful Hints:

- Environmental sample types (e.g., soil, sediment, biofilms) can vary widely. Sample volume needs to be adjusted based upon the target biomolecule's concentration in the sample. The protocol used in the subsequent extraction procedure will also significantly influence sample size.



Brown

Lysing Bead Tube Sample Kit



Product Number: 30391433 (14 each)

Contains: Two (2) Bacteria Lysing Bead Tubes, two (2) Yeast Lysing Bead Tubes, two (2) Fungi Lysing Bead Tubes, two (2) Soft Sample Lysing Bead Tubes, two (2) Plant Lysing Bead Tubes, two (2) Animal Tissue Lysing Bead Tubes, and two (2) Environmental Lysing Bead Tubes

Safety and Handling Instructions

- Tubes should be stored tightly-capped in a cool, dry, well-ventilated area, protected from moisture and away from incompatible substances.
- Wash hands thoroughly after handling. Use with adequate ventilation and avoid ingestion and inhalation of tube contents.
- Do not leave tubes uncapped when not in use in order to avoid contamination.
- Do not submerge the tubes in liquid nitrogen.
- Please refer to your homogenizer manual and institution's safety guidelines/best practices to ensure that the tubes are safely loaded into the homogenizer.





LabJaws Clamps & Supports

Lab-Lifts

Lab-Lifts



LabJaws Clamps
& Supports



LabJaws offers the largest selection of Lab-Frame Kits, Lab-Lifts, Rods and Support Stands in the industry to hold glassware safely. Whether you're looking for a standard lab-frame or a customizable set-up, we have options to fit any space or application. Select from 14 pre-configured lab-frame kits (connectors and feet included) to rods which can be purchased individually and combined with LabJaws accessories to build a customized frame.

- Choose from Stainless Steel and Aluminum Options to Best Suit Your Application
- Range of Pre-Configured Lab-Frame Kits and Customizable Rods for Your Lab Space
- Lab-Lifts Provide Exceptional Stability to Hold Items at Varying Heights

OHAUS Aluminum Lab-Lifts

- Exceptional stability and durability
- Aluminum construction
- Three convenient sizes

Aluminum Lab-Lifts provide stable height adjustment for various items in the lab such as flasks, baths, and small equipment. Top and bottom decks are constructed of anodized aluminum. Internal supports and drive screws are constructed of stainless steel. Oversized sure-grip adjustment knobs provide smooth and accurate height adjustment. Lab-Lifts accept optional Support Rod Kit which mounts to the upper deck.

Deck Size	Min. to Max. Height	Max. Load*	Item Number
102 × 102 mm (4 × 4")	64 to 127 mm (2.5 to 5")	29.94 kg (66 lbs)	30400007
152 × 152 mm (6 × 6")	76 to 248 mm (3 to 9.75")	59.87 kg (132 lbs)	30400008
203 × 203 mm (8 × 8")	76 to 248 mm (3 to 9.75")	79.83 kg (176 lbs)	30400009
254 × 254 mm (10 × 10")	89 to 330 mm (3.5 to 13")	186 lbs (84.37 kg)	30400010

*NOTE: Maximum load rating represents static weight only. Static weight is the amount a unit can hold, not lift.



OPTIONAL ACCESSORIES

17" Support Rod Kit

Ideal for creating an adjustable support stand for mounting various items such as thermometer clamps, temperature probes, flask and column clamps. This kit allows you to mount a 432 mm (17") threaded vertical support rod to the upper deck of a 6 × 6", 8 × 8", 10 × 10", 12 × 12" or 16 × 16" Lab-Lift by screwing the rod into the pre-drilled hole.

17" Support Rod Kit includes:

- 1 - 432 mm (17") Stainless Steel Rod
- 1 - Jam Nut
- 1 - Flat Washer



Description	Rod Diameter	Item Number
17" Support Rod Kit	13 mm (0.51")	30400050

Lab-Lifts

OHAUS Heavy-Duty Lab-Lifts

- Stainless steel construction
- Seven convenient sizes to choose from
- Autoclavable and chemical resistant

These Heavy-Duty, Stainless Steel Lab-Lifts are ultra-stable lifting platforms with exceptional strength and durability. Constructed of stainless steel, Lab-Lifts are designed for use in extreme environments and high load applications. Equipped with oversized, sure-grip adjustment knobs that provide extra leverage for easy height adjustments. Durable construction allows lifts to be autoclaved or chemically cleaned. Ideal for use in fume hoods or bench tops and holds a variety of items such as glassware, hotplates, baths, and magnetic stirrers.

Deck Size	Min. to Max. Height	Max. Load*	Item Number
76 × 76 mm (3 × 3")	64 to 127 mm (2.5 to 5")	45.36 kg (100 lbs)	30400000
102 × 102 mm (4 × 4")	64 to 127 mm (2.5 to 5")	45.36 kg (100 lbs)	30400001
152 × 152 mm (6 × 6")	76 to 248 mm (3 to 9.75")	60.33 kg (133 lbs)	30400002
203 × 203 mm (8 × 8")	76 to 248 mm (3 to 9.75")	102.97 kg (227 lbs)	30400003
254 × 254 mm (10 × 10")	89 to 330 mm (3.5 to 13")	112.04 kg (247 lbs)	30400004
305 × 305 mm (12 × 12")	102 to 495 mm (4 to 19.5")	45.36 kg (100 lbs)	30400005
406 × 406 mm (16 × 16")	102 to 495 mm (4 to 19.5")	45.36 kg (100 lbs)	30400006

*NOTE: Maximum load rating represents static weight only. Static weight is the amount a unit can hold, not lift.



OPTIONAL ACCESSORIES

17" Support Rod Kit

Ideal for creating an adjustable support stand for mounting various items such as thermometer clamps, temperature probes, flask and column clamps. This kit allows you to mount a 432 mm (17") threaded vertical support rod to the upper deck of a 6 × 6", 8 × 8", 10 × 10", 12 × 12" or 16 × 16" Lab-Lift by screwing the rod into the pre-drilled hole.

17" Support Rod Kit includes:

- 1 - 432 mm (17") Stainless Steel Rod
- 1 - Jam Nut
- 1 - Flat Washer



Description	Rod Diameter	Item Number
17" Support Rod Kit	13 mm (0.51")	30400050

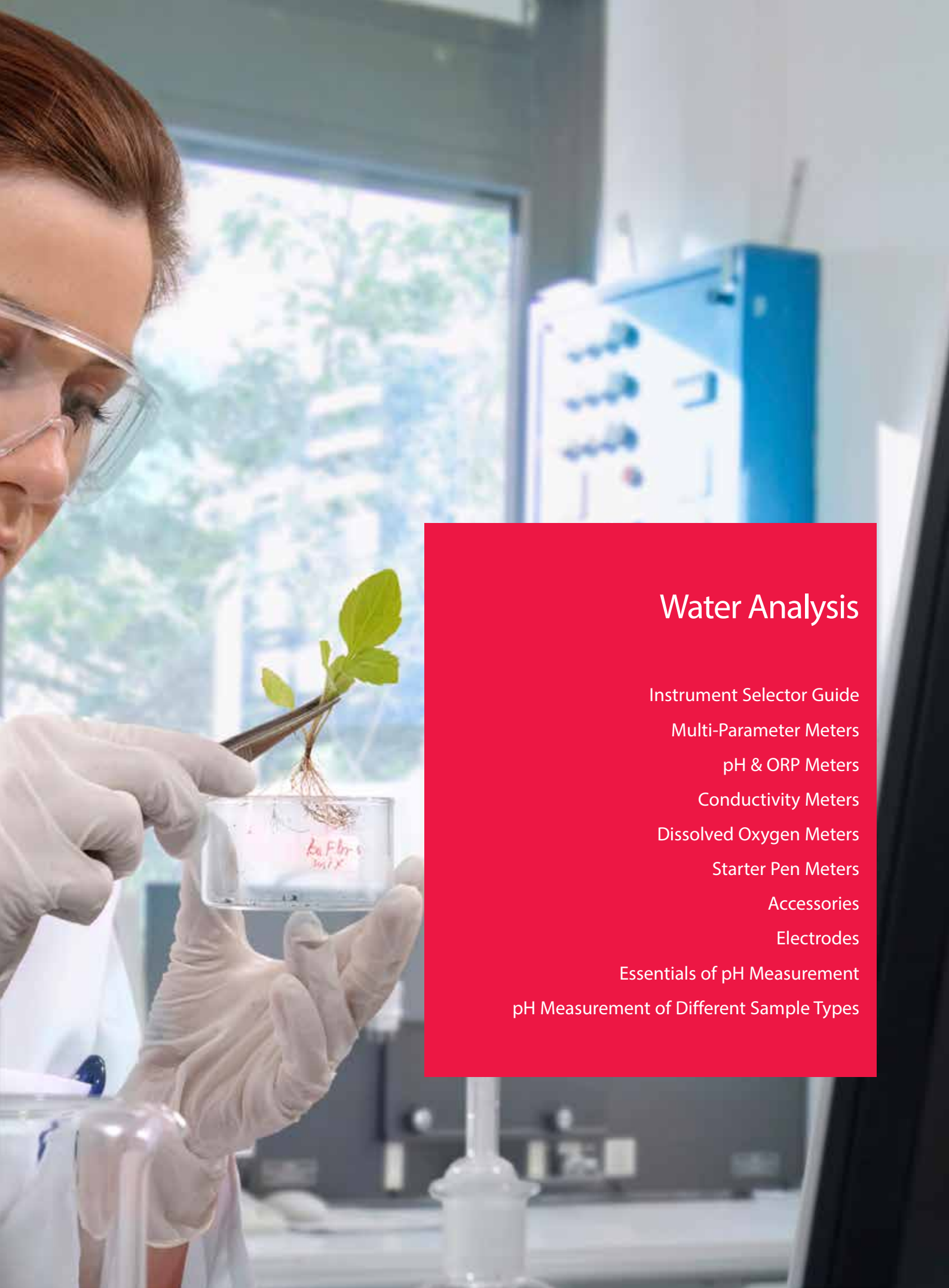
Ratchet Tool

Designed to add extra leverage to your 12 × 12" or 16 × 16" Lab-Lift. This recommended Ratchet Tool easily attaches to the actuating rod to allow easy, accurate adjustments.



Description	Item Number
Ratchet Tool	30400049





Water Analysis

Instrument Selector Guide

Multi-Parameter Meters

pH & ORP Meters

Conductivity Meters

Dissolved Oxygen Meters

Starter Pen Meters

Accessories

Electrodes

Essentials of pH Measurement

pH Measurement of Different Sample Types

Instrument Selector Guide

	Bench Meters								Portable Meters					
	AquaSearcher AB33M1	Starter 5000	AquaSearcher AB41PH	AquaSearcher AB33PH	AquaSearcher AB23PH	Starter 2200	AquaSearcher AB33EC	AquaSearcher AB23EC	Starter 400M	Starter 400	Starter 300	Starter 300C	Starter 400D	Starter 300D
Measurement Range	-2.00 to 20.00 pH; 0.01 µS/cm to 500.0 mS/cm; -5.0 to 110°C	-2.000 to 20.000 pH; -30°C to 130 °C	-2.000 to 20.000 pH; -10.0 to 125.0 °C	-2.00 to 16.00 pH; -5.0 to 110°C	0.00 to 14.00 pH; 0.0 to 100.0 °C	0.00 to 14.00 pH; 0.0 to 100.0 °C	0.001 µS/cm to 1000.0 mS/cm; -5.0 to 110°C	0.01 µS/cm to 199.9 µS/cm; 0.0 to 100.0 °C	2.00 to 16.00 pH; -5 °C to 110 °C	2.00 to 16.00 pH; -5 °C to 110 °C	0.00 to 14.00 pH; 0 °C to 100 °C	0.0 µS/cm to 199.9 mS/cm; 0 °C to 100 °C	0.0 to 200.0% 0 °C to 50 °C	0.0 to 199.9%; 200 to 400% 0 °C to 50 °C
pH	•	•	•	•	•	•			•	•	•			
ORP	•	•	•	•	•	•			•	•	•			
Conductivity	•						•	•	•			•		
TDS	•						•	•	•			•		
Salinity	•						•	•	•			•		
Resistivity	•						•		•					
DO													•	•
Temperature	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Input	BNC Mini-Din	BNC	BNC	BNC	BNC	BNC	Mini-Din	Mini-Din	BNC	BNC	BNC	Mini-Din	BNC	BNC
Automatic Temp. Compensation	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Manual Temp. Compensation	•	•	•	•	•	•	•	•	•	•	•			•
Battery Power									•	•	•	•	•	•
1 Pt. Calibration	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2 Pt. Calibration	•	•	•	•	•	•	•	•	•	•	•		•	•
≥3 Pt. Calibration	•	•	•						•	•	•			
Memory	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Backlit LCD	•	•	•	•	•	•	•	•	•	•			•	
LCD					•	•		•	•	•	•	•	•	•
Touchscreen	•	•	•	•			•							
Mechanical Keys					•	•		•	•	•	•	•	•	•
USB	•		•	•			•	•	•					
RS232	•	•	•	•			•							
USB Host		•												
GLP / Time / Date	•	•	•	•			•							
Multi Languages	•	•	•	•			•		•	•				
IP Protection	IP53		IP53	IP53	IP53		IP53	IP53	IP67	IP67	IP54	IP54	IP54	IP54
Stand-alone Electrode Holder	•	•	•	•	•	•	•	•						
Quick Guide	•	•	•	•	•	•	•	•						
In-Use Cover & Rubber Cover		•							○	○				
Hold Function									•	•	•	•	•	•
Auto Shut Off	•		•	•			•		•	•	•	•	•	•
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*on specific models

○ Rubber Cover

Instrument Selector Guide

	Starter Series Pen Meters												
	pH meters		ORP meters		Conductivity meters		DO meters	Salinity meters		TDS meters		Multi meters	
	ST10	ST20	ST10R	ST20R	ST10C	ST20C	ST20D	ST10S	ST20S	ST10T	ST20T	ST20M-B	ST20M-C
Measurement Range	0.00 to 14.00 pH*		-1000mV to 1000mV		0.0 to 199.9 µS/cm*		0.0 to 19.9 mg/L	0.0 to 80.0 ppt*		0 to 1000 mg/L*		0.00 to 14.00 pH, 0-1999 µS/cm, 0-19.99 mS/cm, 0-1000 mg/L, 0.0-10.0 ppt	
Automatic Temp. Compensation	●*		●*		●*		●*	●*		●*		●	
Battery Power	●		●		●		●	●		●		●	
1 Pt. Calibration	●*		●*		●*		●*	●*		●*		●	
2 Pt. Calibration	●*												
≥3 Pt. Calibration	●*												
LCD	●		●		●		●	●		●		●	
Mechanical Keys	●		●		●		●	●		●		●	
IP Protection	IP67		IP67		IP67		IP67	IP67		IP67		IP67	
Hold Function	●*		●		●		●	●		●		●	
Auto Shut Off	●		●		●		●	●		●		●	
Page No.	31		31		31		31	31		31		31	

Aquasearcher AB33M1 Bench

Easy-to-Use and Accurate Multi-Parameter Benchtop Meter

- Capable of measuring up to seven parameters including pH, ORP, conductivity, TDS, salinity, resistivity and temperature, the AB33M1 utilizes two independent measuring channels which can work simultaneously.
- With multifunctional touch keypads, AB33M1 makes measurement simple and fast. The intelligent i-Steward monitors the condition of electrodes, ensuring the accuracy of the results.
- A 1000-item memory for measurement and calibration allows for efficient data documentation. Records are kept with date/time for traceability. RS232 and USB enable connection to external devices.



Parameters	pH, oxidation-reduction potential (ORP), Conductivity, Total Dissolved Solids (TDS), Salinity and Resistivity with Temperature Measurements
Communication	RS232, USB Device (included)
Operation	AC adapter (included)
Design Features	i-Steward, two independent channels, calibration due alarm, 1,000 measurement memory

Construction and Display



Standalone Electrode Holder



Touch Backlit Display



Dual Channel Display

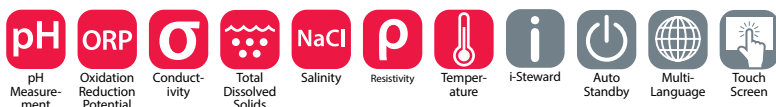


Connectivity

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
a-AB33M1-B	N/A	pH: -2.00 to 20.00 pH ; ORP: ± 2000.0 mV Conductivity: $0.01 \mu\text{S}/\text{cm}$ to $19.99 \mu\text{S}/\text{cm}$	pH: 0.01 pH ; ORP: 0.1 mV Conductivity: $0.01 \mu\text{S}/\text{cm}$ minimum; auto ranging	30589824
a-AB33M1-F	ST310 pH STCON3	$20 \mu\text{S}/\text{cm}$ to $199.9 \mu\text{S}/\text{cm}$; $200 \mu\text{S}/\text{cm}$ to $1999 \mu\text{S}/\text{cm}$; 2.00 mS/cm to 19.99 mS/cm ; 20.0 mS/cm to 500.0 mS/cm TDS: 0.1 mg/L to 199.9 g/L ; Resistivity: 2 to 100 M Ω -cm Salinity: 0 to 100 psu ; Temperature: -5.0 to 110.0°C , 23.0°F to 230.0°F	TDS: 0.01 mg/L minimum, auto ranging ; Resistivity: 0.01Ω -cm auto ranging ; Salinity: 0.01 psu minimum, auto ranging Temperature: 0.1°C , 0.1°F	30589825

Parameters and Features



Aquasearcher AB33M1 Bench

Applications and Industries



Academia

Critical for most academic research labs to monitor pH during titrations.



Universities

Used in university labs to teach students why measuring pH is essential in science.



Chemistry Institutes

Many chemical and biochemical processes are pH dependent.



Municipalities

Monitor water quality parameters to assure safe drinking water.



Food & Beverage



Pharmaceutical



Chemical Industries



Marine

Starter 400M Portable

Durable, Waterproof Battery-Operated Multi-Parameter Meters Ideal for Field Testing

- Built with IP67 waterproof housing as well as a rubber cover and IP67 electrodes, the ST400 is ideal for prolonged use in any field environment.
- Rechargeable Lithium battery provides 40 hours of uninterrupted use and more than 300 charge cycles—eliminating the need to change out batteries often.
- The ST400M features intuitive software which guides the user through operation. All necessary information to run tests successfully such as electrode condition is displayed clearly on the large LCD.



Parameters	pH, Conductivity, TDS, Salinity and Resistivity testing
Communication	Built-in micro-USB port
Operation	Rechargeable Lithium battery
Design Features	Data storage of up to 1000 items

Construction and Display



IP67 Waterproof Housing



IP67 Electrodes



Rubber Cover



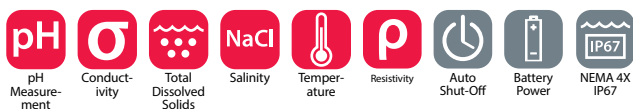
Backlit Liquid Crystal Display (LCD)

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
ST400M-B	N/A	pH -2 to 16.00 pH ORP -1999 to 1999 mV Conductivity 0.0 μS/cm to 199.9 mS/cm TDS 0.1 mg/l to 199.9 g/l Salinity 0.0 to 99.9 psu Resistivity 0 to 20MΩ·cm Temperature -5 °C to 110 °C	pH 0.01 pH ORP 1 mV Conductivity 0.1 μS/cm, Auto-range TDS 0.01 mg/l, Auto-range Salinity 0.01 psu, Auto-range Resistivity 0.01 Ω·cm, Auto-range Temperature 0.1 °C	30468990
ST400M-F	ST320 IP67 3m and STCON3 IP67 3m electrodes		30468991	
ST400M-G*			30468992	

*Portable bag included

Parameters and Features



Starter 400M Portable

Applications and Industries



Surface Water

Test water in rivers, lakes etc. to maintain a stable environment for aquatic life.



Municipalities

Monitor water quality parameters to assure safe drinking water.



Food & Beverage

Effectively monitor process water to enhance productivity and quality of final product.



Academia

Critical for most academic research labs to monitor pH during titrations.



Marine



Aquaculture



Agriculture

Starter 5000 pH Bench

High Performance Bench Meter for Universal pH Applications

- A 1000-item library allows for easy recall from data storage. Flexible pH analysis from 10 sensors for calibration storage, one self-defined and eight pre-defined buffer groups, three endpoint modes and GLP mode.
- A user-friendly bench meter with an innovative design, including an adjustable standalone electrode holder and large touch-screen, backlit LCD display.
- Featuring a USB port, IP54 housing and in-use-cover, this flexible and smooth-operating bench meter is built to last.



Parameters	pH, oxidation-reduction potential (ORP) measurement
Communication	RS232 and USB (included), GLP/GMP data output with real-time clock
Operation	AC adapter (included)
Design Features	3 endpoint modes, continuous measurement mode, up to 9 point calibration, 1,000 measurement memory

Construction and Display



ABS Housing



Standalone Electrode Holder



Replaceable In-Use Cover



Backlit Liquid Crystal Display (LCD), Touchscreen

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
ST5000-B	N/A	pH -2.000 to 20.000 ORP -2000.00 to +2000.00 mV Temperature -30 °C to 130 °C	pH 0.1/0.01/0.001 ORP 1/0.1/0.01 mV Temperature 0.1 °C	30129895
ST5000-F	ST350			30129896

Parameter and Features



Starter 5000 pH Bench

Applications and Industries



Universities

Used in university labs to teach students why measuring pH is essential in science.



Food & Beverage

Effectively monitor process water to enhance productivity and quality of final product.



Pharmaceutical

Analyze pH and conductivity to monitor quality and safety of drugs during development.



Chemical Industries

Control pH to help with process control and ensure product quality.

Aquasearcher AB41pH Bench

An Advanced, Research-Grade Benchtop pH Meter Offering Accurate, Repeatable Results

- With selectable resolution from 0.1 to 0.001 and an intelligent i-Steward system, AB41PH is an excellent pH bench meter with high resolution and consistent accuracy.
- Equipped with a 6.5-inch large LCD display and a touch keypad, AB41PH offers a simple and precise control experience.
- The AB41PH features a 1000-item memory and password management for GLP documentation. Provides connectivity and data output capabilities with RS232 and USB interface



Parameters	pH, Oxidation-Reduction Potential (ORP) with Temperature Measurements
Communication	RS232 and USB (included), GLP/GMP data output with real-time clock
Operation	AC adapter (included)
Design Features	i-Steward, 3 endpoint modes, calibration due alarm, 1,000 measurement memory, ten most recent calibrations, password management

Construction and Display



Standalone Electrode Holder



Touch Backlit Display



Compact Sitrter



Connectivity

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
a-AB41PH-B	N/A	pH: -2.000 to 20.000 pH ORP: ± 2000.0 mV Temperature: -10.0 to 125.0 °C, 14°F to 257°F	pH: 0.1/0.01/0.001 pH ORP: 0.1 mV Temperature: 0.1 °C, 0.1 °F	30589830
a-AB41PH-F	ST410 pH STTEMP			30589831

Parameter and Features



Aquasearcher AB41pH Bench

Applications and Industries



Chemical Industries

Control pH to help with process control and ensure product quality.



Universities

Used in university labs to teach students why measuring pH is essential in science.



Food & Beverage

Effectively monitor process water to enhance productivity and quality of final product.



Pharmaceutical

Analyze pH and conductivity to monitor quality and safety of drugs during development.

Aquasearcher AB33pH Bench

Highly Reliable and User-Friendly pH Benchtop Meter for Standard Laboratory Applications

- With multifunctional touch keypads, AB33PH makes measurement simple and fast within three steps. The intelligent i-Steward monitors the condition of electrodes, ensuring the accuracy of the results.
- Auto endpoint mode and auto buffer recognition makes calibration easy. A 1000-item memory for pH measurements and calibration trail makes for efficient data documentation.
- A user-friendly bench meter with an innovative design, including 6.5 inch large LCD display and adjustable stand-alone electrode holder. Multiple connectivity capabilities include RS232 and USB interface.



Parameters	pH, Oxidation-Reduction Potential (ORP) with Temperature Measurements
Communication	RS232 and USB interface
Operation	AC adapter (included)
Design Features	A 1000-item memory, automatic and manual endpoint functions, automatic and manual temperature compensation

Construction and Display



Standalone Electrode Holder



Touch Backlit Display



Connectivity

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
a-AB33PH-B	N/A	pH: -2.00 to 16.00 pH ORP: ± 2000.0 mV Temperature: -5.0 to 110.0°C, 23.0°F to 230.0°F	pH: 0.1/0.01 pH ORP: 1 mV Temperature: 0.1 °C, 0.1 °F	30589826
a-AB33PH-F	ST310 pH			30589827

Parameters and Features



Aquasearcher AB33pH Bench

Applications and Industries



Academia

Critical for most academic research labs to monitor pH during titrations.



Universities

Used in university labs to teach students why measuring pH is essential in science.



Chemistry Institutes

Many chemical and biochemical processes are pH dependent.



Municipalities

Monitor water quality parameters to assure safe drinking water.



Recirculating Systems

Closely monitor water quality to assure suitable habitat for fish.



Food & Beverage

Effectively monitor process water to enhance productivity and quality of final product.



Chemical Industries

Control pH to help with process control and ensure product quality.

Aquasearcher AB23pH Bench

Simple-to-Use Benchtop Meter Designed for Easy Sample Measurement

- With six instructional menu buttons, auto buffer recognition or temperature compensation, AB23 series is an easy and straightforward meter measurement.
- Large 5-inch bright LCD display complete measurement information simplifies operation allows you to monitor the results from a distance.
- Featuring a compact stand-alone electrode holder, AB23 series increases the flexibility of experiments and fits ideally in any lab.



Parameters	pH, oxidation-reduction potential (ORP) measurement
Operation	AC adapter (included)
Design Features	Up to 3 point calibration, 5 inch segment LCD with backlight

Construction and Display



Standalone Electrode Holder



Backlit Display



Compact Design

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
a-AB23PH-B	N/A	pH: 0.00 to 14.00 pH ORP: ± 1999 mV Temperature: 0.0 to 100.0 °C, 32.0 °F to 212.0 °F	pH: 0.01 pH ORP: 1 mV Temperature: 0.1 °C, 0.1 °F	30589820
a-AB23PH-F	ST320 pH			30589821

Parameters and Features



Aquasearcher AB23pH Bench

Applications and Industries



Academia

Critical for most academic research labs to monitor pH during titrations.



Chemistry Institutes

Many chemical and biochemical processes are pH dependent.



Learning Centers

Students learn the theory and practice of pH measurement.



Food & Beverage

Effectively monitor process water to enhance productivity and quality of final product.



Aquaculture

Maintain stable pH values to encourage healthy environment for aquatic organisms.



Agriculture

Regulate plant nutrient availability by closely monitoring soil pH.



Municipalities

Monitor water quality parameters to assure safe drinking water.

Starter 2200 Bench

Affordable Benchtop pH Meter for Basic Laboratory Applications

- A user-friendly bench meter which clearly displays critical information and the five distinctly marked keys allows users to operate the instrument with minimal training.
- Auto buffer recognition and auto-endpoint mode make calibration and measurement simple and ideal for routine pH measurement.
- The built-in electrode holder provides straightforward and convenient all-in-one operation, while the attached quick guide clearly explains the operating steps.



Parameters	pH, Oxidation-Reduction Potential (ORP) with Temperature Measurements
Operation	AC adapter (included)
Design Features	Auto buffer recognition, 1 to 3 point calibration, electrode condition icon

Construction and Display



Built-in Electrode Holder



Compact Design

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
ST2200-B	N/A	pH: 0.00 to 14.00 pH ORP: ± 1999 mV Temperature: 0.0 to 100.0 °C, 32.0 °F to 212.0 °F	pH: 0.01 pH ORP: 1 mV Temperature: 0.1 °C, 0.1 °F	30656033
ST2200-F	ST320 pH			30655944

Parameters and Features



Starter 2200 Bench

Applications and Industries



Municipalities

Monitor water quality parameters to assure safe drinking water.



Chemistry Institutes

Many chemical and biochemical processes are pH dependent.



Learning Centers

Students learn the theory and practice of pH measurement.



Food & Beverage

Effectively monitor process water to enhance productivity and quality of final product.



Aquaculture

Maintain stable pH values to encourage healthy environment for aquatic organisms.



Agriculture

Regulate plant nutrient availability by closely monitoring soil pH.

Starter 400 pH Portable

Durable, Waterproof Battery-Operated pH Meters Ideal for Field Testing

- Built with IP67 waterproof housing as well as a rubber cover and IP67 electrodes, the ST400 is ideal for prolonged use in any field environment.
- Rechargeable lithium battery provides 40 hours of uninterrupted use and more than 300 charge cycles—eliminating the need to change out batteries often.
- The ST400 features intuitive software which guides the user through operation. All necessary information to run tests successfully such as electrode condition is displayed clearly on the large LCD.



Parameters	pH, Oxidation-Reduction Potential (ORP) measurement
Communication	Built-in micro-USB port
Operation	Rechargeable lithium battery
Design Features	Data storage of up to 1000 items

Construction and Display



IP67 Waterproof Housing



IP67 Electrodes



Rubber Cover



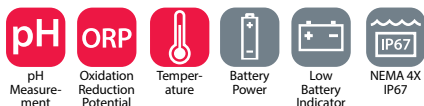
Backlit Liquid Crystal Display (LCD)

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
ST400-B	N/A	pH -2 to 16.00 pH ORP -1999 to 1999 mV Temperature -5 °C to 110 °C	pH 0.01 pH ORP 1 mV Temperature 0.1 °C	30468964
ST400-F	ST320 IP67 3m Electrode			30468965
ST400-G*				30468966

*Portable bag included

Parameters and Features



Starter 400 pH Portable

Applications and Industries



Learning Centers

Students learn the theory and practice of pH measurement.



Surface Water

Test water in rivers, lakes etc. to maintain a stable environment for aquatic life.



Municipalities

Monitor water quality parameters to assure safe drinking water.



Wastewater treatment

Test for contaminants in wastewater or sewage before it is converted into an effluent.



Food & Beverage

Effectively monitor process water to enhance productivity and quality of final product.



Marine

Accurately measure pH and ORP to monitor water quality for marine life.



Aquaculture

Maintain stable pH values to encourage healthy environment for aquatic organisms.

Starter 300 pH Portable

Convenient Portable pH Meter for Wherever Your Work Takes You

- Auto buffer recognition with four different buffer groups makes it easy to avoid errors during the calibration process.
- Easy-to-use and accurate with a simple calibration process, automatic temperature compensation and fast results. Ideal for secure field use with a meter stand, wrist strap and durable IP54 housing.
- The 30-measurement library stores data for future reference and allows the user to easily recall the last calibration data with one quick touch.

Parameters	pH, oxidation-reduction potential (ORP) measurement
Operation	4 AAA batteries (included)
Design Features	30 measurement memory, automatic and manual endpoint functions, automatic and manual temperature compensation



Construction and Display



ABS Housing



Field Kit



Liquid Crystal Display (LCD)

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
ST300-B	N/A	pH 0.00 to 14.00 ORP -1999 to 1999 mV Temperature 0 to 100 °C	pH 0.01 pH ORP 1 mV Temperature 0.1 °C	83033962
ST300	ST320			83033961
ST300-G*				30219114

*Portable bag included

Parameters and Features



Starter 300 pH Portable

Applications and Industries



Surface Water

Test water in rivers, lakes etc. to maintain a stable environment for aquatic life.



Municipalities

Monitor water quality parameters such as Dissolved Oxygen to assure safe drinking water.



Wastewater treatment

Test for contaminants in wastewater or sewage before it is converted into an effluent.



Aquaculture

Maintain stable pH values to encourage healthy environment for aquatic organisms.



Agriculture

Regulate plant nutrient availability by closely monitoring soil pH.

Aquasearcher AB33EC Bench

Highly Reliable Conductivity/TDS/Salinity/Resistivity Benchtop Meter for Standard Laboratory Applications

- Selectable reading reference temperatures of 20°C or 25°C with linear curve options and automatic temperature compensation ensure accurate results.
- Features such as auto-stop, auto temperature compensation, adjustable TDS factor, 2- or 4-cell conductivity probe compatibility make AB33EC well-suited for universal laboratory applications.
- A 1000-item memory for conductivity measurements and calibration trail allows for efficient data documentation. Standard RS232 and USB interface allow connection to external devices.



Parameters Conductivity, Total Dissolved Solids (TDS), Salinity and Resistivity with Temperature Measurements

Communication RS232, USB Device (included)

Operation AC adapter (included)

Design Features i-Steward, Calibration due alarm, 1,000 measurement memory

Construction and Display



Standalone Electrode Holder



Touch Backlit Display

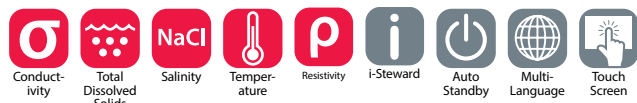


Connectivity

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
a-AB33EC-B	N/A	Conductivity: 0.001 μ S/cm to 19.99 μ S/cm 20 μ S/cm to 199.9 μ S/cm ; 200 μ S/cm to 1999 μ S/cm ; 2.00 mS/cm to 19.99 mS/cm ; 20.0 mS/cm to 1000 mS/cm TDS: 0.1 mg/L to 200 g/L ; Resistivity: 1 to 100 M Ω -cm Salinity: 0 to 100 psu ; Temperature: -5.0 to 110.0°C, 23.0°F to 230.0°F	Conductivity: 0.001 μ S/cm minimum; auto ranging TDS: 0.01 mg/L minimum, auto-range Resistivity: 0.01 Ω -cm auto ranging Salinity: 0.01 psu minimum, auto ranging ; Temperature: 0.1 °C, 0.1 °F	30589828
a-AB33EC-F	STCON7			30589829

Parameters and Features



Aquasearcher AB33EC Bench

Applications and Industries



Academia

Critical for most academic research labs to monitor conductivity of water during their workflow.



Chemistry Institutes

Use conductivity measurements to determine the amount of dissolved ions present in a water sample.



Municipalities

Monitor water quality parameters to assure safe drinking water.



Wastewater treatment

Test for contaminants in wastewater or sewage before it is converted into an effluent.



Food & Beverage

Effectively monitor process water to enhance productivity and quality of final product.



Chemical Industries

Determine concentration of ions in water to help with process control and ensure product quality.



Universities

Used in university labs to teach students why measuring pH is essential in science.



Pharmaceutical

Analyze pH and conductivity to monitor quality and safety of drugs during development.



Agriculture

Regulate plant nutrient availability by closely monitoring soil pH.



Wastewater treatment

Test for contaminants in wastewater or sewage before it is converted into an effluent.

Aquasearcher AB23EC Bench

Simple-to-Use Benchtop Meter Designed to Easily Measure Conductivity, TDS and Salinity

- With six instructional menu buttons and auto temperature compensation, the AB23EC is an easy and straightforward meter for measurement.
- A large 5-inch backlit LCD display with complete measurement information simplifies operation and allows you to monitor the results from a distance.
- Featuring a compact stand-alone electrode holder, the AB23EC increases the flexibility of the experiment and fits ideally in any lab.



Parameters	Conductivity, Total Dissolved Solids (TDS), Salinity with Temperature Measurements
Operation	AC adapter (included)
Design Features	99 measurement memory, automatic and manual endpoint functions, automatic and manual temperature compensation

Construction and Display



Standalone Electrode Holder



Backlit Display

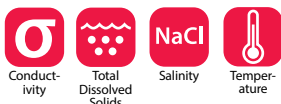


Compact Design

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
a-AB23EC-B	N/A	Conductivity: 0.01 $\mu\text{S}/\text{cm}$ to 19.99 $\mu\text{S}/\text{cm}$ 20 $\mu\text{S}/\text{cm}$ to 199.9 $\mu\text{S}/\text{cm}$; 200 $\mu\text{S}/\text{cm}$ to 1999 $\mu\text{S}/\text{cm}$; 2.00 mS/cm to 19.99 mS/cm 20.0 mS/cm to 199.9 mS/cm TDS: 0.1 mg/L to 199.9 g/L Salinity: 0 to 99.9 psu Temperature: 0.0 to 100.0 $^{\circ}\text{C}$, 32.0 $^{\circ}\text{F}$ to 212.0 $^{\circ}\text{F}$	Conductivity: 0.01 $\mu\text{S}/\text{cm}$ minimum; auto ranging TDS: 0.01 mg/L minimum; auto ranging Salinity: 0.01 psu minimum; auto ranging Temperature: 0.1 $^{\circ}\text{C}$, 0.1 $^{\circ}\text{F}$	30589822
a-AB23EC-F	STCON3			30589823

Parameters and Features



Conductivity

Total Dissolved Solids

Salinity

Temperature

Aquasearcher AB23EC Bench

Applications and Industries



Academia

Critical for most academic research labs to monitor conductivity of water during their workflow.



Learning Centers

Students learn the theory and practice of pH measurement.



Municipalities

Monitor water quality parameters to assure safe drinking water.



Cooling Water

Measuring and controlling conductivity allows accurate calculation of blowdown quantities and timing.



Food & Beverage

Effectively monitor process water to enhance productivity and quality of final product.

Starter 300C Portable

Convenient Portable Conductivity Meter for Wherever Your Work Takes You

- Four-pole linear electrode with temperature sensor safeguards the unit from polarization and pollution effects to ensure accurate readings.
- Easy-to-use and accurate with a simple calibration process, automatic temperature compensation and fast results.
- The 30-measurement library stores data for future reference and allows the user to easily recall the last calibration data with one quick touch.

Parameters	Conductivity, total dissolved solids (TDS) measurement
Operation	4 AAA batteries (included)
Design Features	Automatic temperature compensation, adjustable temperature coefficient



Construction and Display



ABS Housing



Wrist Strap



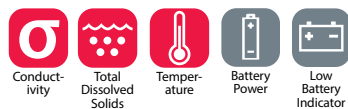
Liquid Crystal Display (LCD)

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
ST300C-B	N/A	Conductivity 00.0 µS/cm to 199.9 mS/cm; TDS 0.1 mg/L to 199.9 g/L Temperature 0 to 100 °C	Conductivity 0.01 µS/cm TDS 0.1 mg/L Temperature 0.1 °C	30092000
ST300C	STCON3			83033964
ST300C- G*				30219115

*Portable bag included

Parameters and Features



Starter 300C Portable

Applications and Industries



Municipalities

Monitor water quality parameters to assure safe drinking water.



Wastewater treatment

Test for contaminants in wastewater or sewage before it is converted into an effluent.



Recirculating Systems

Closely monitor water quality to assure suitable habitat for fish.



Cooling Water

Measuring and controlling conductivity allows accurate calculation of blowdown quantities and timing.



Marine

Accurately measure salinity, conductivity and TDS to monitor water quality for marine life.



Agriculture

Regulate plant nutrient availability by closely monitoring soil electrical conductivity (EC).

Starter 400D Portable

Dissolved Oxygen (DO) Meter with Optical Technology

- Optical DO electrode requires minimal maintenance and offers immediate measurement readings. No warm up or sample preparation needed.
- Large backlit LCD screen provides easy to read results—even in low light environments. Ideal for secure field use with a meter stand, wrist strap and durable IP54 housing.
- The 99-measurement library stores data for future reference and allows for easy one-touch recall of the last calibration data.



Parameter	Dissolved Oxygen (DO) measurement
Operation	4 AAA batteries (included)
Design Features	99 measurement memory, last calibration data recall, auto barometric pressure measurement, auto temperature compensation with manual salinity compensation

Construction and Display



Optical Electrode



Field Kit

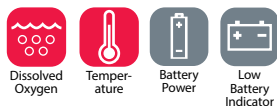


Liquid Crystal Display (LCD)

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
ST400D-B	STDO21	DO 0.00 to 20.0 mg/L(ppm) Temperature 0 to 50 °C	DO 0.01 mg/L; 0.1% Temperature 0.1 °C	30378541
ST400D-G				30378542
ST400D				30378543

Parameter and Features



Dissolved Oxygen

Temperature

Battery Power

Low Battery Indicator

Starter 400D Portable

Applications and Industries



Academia

Critical for most academic research labs to monitor pH during titrations.



Surface Water

Test water in rivers, lakes etc. to maintain a stable environment for aquatic life.



Municipalities

Monitor water quality parameters such as Dissolved Oxygen to assure safe drinking water.



Wastewater treatment

Test for contaminants in wastewater or sewage before it is converted into an effluent.



Food & Beverage

Analyzing Dissolved Oxygen concentration is a critical control point during fermentation.



Marine

Accurately measure Dissolved Oxygen to monitor water quality for marine life.



Aquaculture

Maintain stable Dissolved Oxygen values to encourage healthy environment for aquatic organisms.

Starter 300D Portable

Convenient Portable Dissolved Oxygen Meter for Wherever Your Work Takes You

- The galvanic electrode can be used immediately after being powered on without the typical wait time associated with dissolved oxygen meters.
- Easy-to-use and accurate with a simple calibration process, automatic temperature compensation and fast results.
- The 30-measurement library stores data for future reference and allows the user to easily recall the last calibration data with one quick touch.

Parameter Dissolved Oxygen (DO) measurement

Operation 4 AAA batteries (included)

Design Features 30 measurement memory



Construction and Display



Galvanic Electrode



Wrist Strap

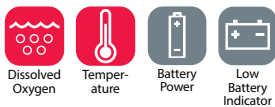


Liquid Crystal Display (LCD)

Models

Model	Included Electrode	Measurement Range	Measurement Resolution	Item No.
ST300D-B	N/A	DO 0.0 to 199.9%; 200 to 400% Temperature 0 to 50 °C	DO 0.1%; 1% Temperature 0.1 °C	30031656
ST300D	STDO11			30031655
ST300D-G	STTEMP30			30219116

Parameter and Features



Starter 300D Portable

Applications and Industries



Municipalities

Monitor water quality parameters such as Dissolved Oxygen to assure safe drinking water.



Wastewater treatment

Test for contaminants in wastewater or sewage before it is converted into an effluent.



Food & Beverage

Analyzing Dissolved Oxygen concentration is a critical control point during fermentation.



Aquaculture

Monitor Dissolved Oxygen values to encourage healthy environment for aquatic organisms.



Agriculture

Regulate plant nutrient availability by closely monitoring Dissolved Oxygen levels of saturated soil.

Starter Pen Meters

Accurate Electrochemistry Measurement At Your Fingertips

- Small, economical pen meters offer simple, fast, and straightforward operation.
- With durable IP67 waterproof ABS housing, protective sensor cap, and an automatic shutdown feature that preserves battery life, OHAUS pen meters can endure consistent use in rough, wet environments.
- Equipped with a wrist strap to prevent accidental drop and damage.

Parameters	pH, ORP, conductivity, TDS, salinity, DO
Operation	4 1.5V batteries (included)
Design Features	Easily replaceable electrodes, automatic shut off feature



Construction and Display



IP67 ABS Housing



Backlit Liquid Crystal Display (LCD)



Wrist Strap

Models

Model	Meter Type	Measurement Range	Measurement Resolution	Temperature Display	Item No.
ST10	pH	0.00 to 14 pH	0.1 pH	Not Available	30073970
ST20		0.00 to 14 pH ; 0.0 to 99.0 °C	0.01 pH	Yes	30073971
ST20M-B	Multi	pH 0 to 14 Conductivity 0 to 1999 μ S/cm TDS 0 to 1000 mg/L Temperature 0-99.0 °C	pH 0.01 pH Conductivity 1 μ S/cm TDS 1 mg/L NA Temperature 0.1 °C	Yes	30393199
ST20M-C		pH 0-14 Conductivity 0 to 19.99 mS/cm Salinity 0.0 to 10.0 ppt Temperature 0 to 99.0 °C	pH 0.01pH Conductivity 0.01mS/cm Salinity 0.1 ppt Temperature 0.1 °C	Yes	30393200

Parameters and Features



Starter Pen Meters

Models

Model	Meter Type	Measurement Range	Measurement Resolution	Temperature Display	Item No.
ST10C-A	Conductivity	0.00 – 199.9 $\mu\text{S}/\text{cm}$	0.1 $\mu\text{S}/\text{cm}$	Not Available	30073972
ST10C-B		0 – 1999 $\mu\text{S}/\text{cm}$	1 $\mu\text{S}/\text{cm}$		30073973
ST10C-C		0.00 – 19.99 mS/cm	10 $\mu\text{S}/\text{cm}$		30073974
ST20C-A		0.00 – 199.9 $\mu\text{S}/\text{cm}$; 0.0 – 99.0 $^{\circ}\text{C}$	0.1 $\mu\text{S}/\text{cm}$	Yes	30073975
ST20C-B		0 – 1999 $\mu\text{S}/\text{cm}$; 0.0 – 99.0 $^{\circ}\text{C}$	1 $\mu\text{S}/\text{cm}$		30073976
ST20C-C		0.00 – 19.99 mS/cm ; 0.0 – 99.0 $^{\circ}\text{C}$	10 $\mu\text{S}/\text{cm}$		30073977
ST10T-A	TDS	0.0 – 100.0 mg/L	0.1 mg/L	Not Available	30073978
ST10T-B		0.0 – 1000 mg/L	1 mg/L		30073979
ST20T-A		0.0 – 100.0 mg/L ; 0.0 – 99.0 $^{\circ}\text{C}$	0.1 mg/L	Yes	30073980
ST20T-B		0.0 – 1000 mg/L ; 0.0 – 99.0 $^{\circ}\text{C}$	1 mg/L		30073981
ST10S	Salinity	0.0 – 10.0 ppt	0.1 ppt	Not Available	30073982
ST20S		0.0 – 80.0 ppt; 0.0 – 99.0 $^{\circ}\text{C}$		Yes	30073983
ST10R	ORP	-1000 – 1000 mV	1 mV	Not Available	30073984
ST20R		-1000 – 1000 mV; 0.0 – 99.0 $^{\circ}\text{C}$		Yes	30073985
ST20D	Dissolved Oxygen	0.0 – 80.0 ppt	0.1 mg/L	Yes	30073986

Applications and Industries



Universities

Used in university labs to teach students why measuring pH is essential in science.



Chemistry Institutes

Many chemical and biochemical processes are pH dependent.



Learning Centers

Students learn the theory and practice of pH measurement.



Municipalities

Monitor water quality parameters such as Dissolved Oxygen to assure safe drinking water.



Chemical Industries

Control pH to help with process control and ensure product quality.



Aquaculture

Maintain stable pH values to encourage healthy environment for aquatic organisms.



Agriculture

Regulate plant nutrient availability by closely monitoring soil pH.

MULTI-PARAMETER ACCESSORIES

Accessories	Item No.
Electrode holder AB33/41	30661423
Stirrer Compact AS20 w/o Power Supply	30661425
Holder, Stand Alone, Electrode	30058733
Printer, Impact, SF40A, AM	30064203
RS232 Kit, STX SPX ST3100M	30268982
USB Kit, Device, STX SPX ST3100M	30268984
pH Electrolyte	30059255
pH Electrode Protection	30059256
In-Use-Cover, STARTER	30058734
Portable Bag, STARTER	30031635
Zero Oxygen Chemicals, STARTER	30059257
Seal Kit, STARTER portables	83032962

Accessories	Item No.
Buffer pH 4.01 250 mL	30100425
Buffer pH 6.86 250 mL	30100426
Buffer pH 7.00 250 mL	30100427
Buffer pH 9.18 250 mL	30100428
Buffer pH 10.01 250 mL	30100429
Buffer pH 12.45 250 mL	30100440
Buffer pH 1.68 250 mL	30100424
Buffer Powder pH 4.01; 7.00; 10.01	83033971
Standard Conduct 10 μ S/cm 250 mL	30100441
Standard Conduct 84 μ S/cm 250 mL	30100442
Standard Conduct 1413 μ S/cm 250 mL	30100443
Standard Conduct 12.88mS/cm 250 mL	30100444
Standard Conduct 500 μ S/cm 250mL	30393269

pH & ORP ACCESSORIES

Accessories	Item No.
Electrode holder AB33/41	30661423
Electrode holder AB23	30661424
Stirrer Compact AS20 w/o Power Supply	30661425
ECS Special Accessory	30658042
Holder, Stand Alone, Electrode	30058733
Adapter, 9 Pin-9 Pin, PC-SF40A	30059316
Printer, Impact, SF40A, AM	30064203
pH Electrolyte	30059255
pH Electrode Protection	30059256
In-Use Cover, ST5000	30129897
In-Use-Cover, STARTER	30058734
Portable Bag, STARTER	30031635
Seal Kit, STARTER portables	83032962
Zero Oxygen Chemicals, STARTER	30059257

Accessories	Item No.
Standard Conduct 84 μ S/cm 250 mL	30100442
Standard Conduct 1413 μ S/cm 250 mL	30100443
Standard Conduct 12.88mS/cm 250 mL	30100444
Membrane Kit Replaceable, ST20D	30222084
Buffer pH 1.68 250 mL	30100424
Buffer pH 4.01 250 mL	30100425
Buffer pH 6.86 250 mL	30100426
Buffer pH 7.00 250 mL	30100427
Buffer pH 9.18 250 mL	30100428
Buffer pH 10.01 250 mL	30100429
Buffer pH 12.45 250 mL	30100440
Buffer Powder pH 4.01; 7.00; 10.01	83033971

CONDUCTIVITY ACCESSORIES

Accessories	Item No.
Holder, Stand Alone, Electrode	30058733
In-Use-Cover, STARTER	30058734
Printer, Impact, SF40A, AM	30064203
Standard Conduct 10 μ S/cm 250 mL	30100441
Standard Conduct 84 μ S/cm 250 mL	30100442
Standard Conduct 1413 μ S/cm 250 mL	30100443
Standard Conduct 12.88mS/cm 250 mL	30100444
Standard Conduct 500 μ S/cm 250mL	30393269
Portable Bag, STARTER	30031635
Seal Kit, STARTER portables	83032962

DISSOLVED OXYGEN ACCESSORIES

Accessories	Item No.
Seal kit, STARTER portables	83032962
Zero Oxygen Chemicals, STARTER	30059257
DO Electrode Cap, STD021	30253566
Portable Bag, STARTER	30031635

PEN METER ACCESSORIES

Accessories	Item No.
Zero Oxygen Chemicals, STARTER	30059257
Buffer pH 4.01 250 mL	30100425
Buffer pH 7.00 250 mL	30100427
Buffer pH 10.01	30100429
Standard Conduct 84 μ S/cm 250 mL	30100442
Standard Conduct 1413 μ S/cm 250 mL	30100443
Standard Conduct 12.88mS/cm 250 mL	30100444
Membrane Kit Replaceable, ST20D	30222084

Accessories	Item No.
Pen Meter Electrode pH10 ST	30087992
Pen Meter Electrode pH20 ST	30087993
Pen Meter Electrode ST20M-B	30393203
Pen Meter Electrode ST20M-C	30393204
Pen Meter Electrode CT10A ST	30087994
Pen Meter Electrode CT10B ST	30087995
Pen Meter Electrode CS10C ST	30087996
Pen Meter Electrode CT20A ST	30087997
Pen Meter Electrode CT20B ST	30087998
Pen Meter Electrode CS20C ST	30087999
Pen Meter Electrode R10 ST	30088020
Pen Meter Electrode R20 ST	30088021
Pen Meter Electrode ST20D	30222083

Starter Electrodes Selector Guide

pH Electrodes							
Application	Sample Type	Recommendations	Double Junction	Standard	Economy/Basic	IP Rated	Micro
Education	Student Use	Epoxy body for added durability	ST260	–	ST210 / ST310	–	N/A
General Purpose	Most sample types	Suitable for general purpose measurements	ST260	ST350	ST310	–	N/A
Emulsions	Foods, cosmetics, oils	Open junction to prevent clogging	–	ST350	ST230	–	N/A
Flat Surfaces	Paper, cheese, meat, agar	Flat surface tip and double junction Ag/AgCl reference (no sample contact with silver)	–	STSURF	–	–	N/A
Biological/Pharmaceutical	TRIS buffer, proteins, enzymes	Double junction Ag/AgCl reference (no sample contact with silver)	ST260 / ST420	–	–	–	N/A
Low Ionic Strength	Treated effluent, deionized water, distilled water	Refillable for better contact and stable measurements	ST420	STPURE	–	–	N/A
Small Sample Size	Microtiter plates, test tubes, small flasks and beakers as small as 0.2 mL	Small diameter to fit into narrow sample containers	N/A	N/A	N/A	–	STMICRO8
Small Sample Size	TRIS buffer, proteins, sulfides, fits 96 microwell plates	Small diameter to fit into narrow sample containers	N/A	N/A	N/A	–	STMICRO5
Viscous Liquids	Slurries, suspended solids, sludges	Open junction to prevent the electrode from clogging	–	ST350	ST230 / ST280	–	N/A
Waters	Acid rain, boiler feed water, distilled water, rain water,	Double junction Ag/AgCl reference and refillable for better contact	ST260	–	–	–	N/A
Waters	Drinking water, tap water	Epoxy body for added durability	–	ST350	ST310	–	N/A
Waters	Wastewater, seawater	Double junction Ag/AgCl reference and epoxy body for added durability	–	ST270 / ST272	ST230	–	N/A
Harsh Environments	Field or plant use, rugged use	Epoxy body for added durability and polymer or gel filled for easy maintenance	–	ST322	ST320	ST320 IP67	N/A
High Ionic Strength	Acids, bases, brines, pH > 12 or pH < 2	Open junction for better contact and stable measurements	–	–	ST230	–	N/A
Soft Samples	Piercing fruits, cheese and meats	Spear tip for piercing samples	–	ST270	–	–	N/A

Starter Electrodes Selector Guide

Application	Sample Type	Recommendations	ORP Electrodes		Conductivity Electrodes		Dissolved Oxygen Electrodes	
Education	Student use	Epoxy body for added durability	–	STORP1	STCON3	–	STDO11	–
General Purpose	Most sample types	Suitable for general purpose measurements	–	STORP1	STCON3	–	STDO11	–
Emulsions	Foods, cosmetics, oils	Open junction to prevent clogging	–	N/A	–	N/A	–	STDO21
Flat Surfaces	Paper, cheese, meat, agar	Flat surface tip and double junction Ag/AgCl reference (no sample contact with silver)	–	N/A	–	STCON7	–	STDO21
Biological/ Pharmaceutical	TRIS buffer, proteins, enzymes	Double junction Ag/AgCl reference (no sample contact with silver)	–	N/A	–	STCON7	–	N/A
Low Ionic Strength	Treated effluent, deionized water, distilled water	Refillable for better contact and stable measurements	–	N/A	STCON3	STCON8	–	STDO21
Small Sample Size	Microtiter plates, test tubes, small flasks and beakers as small as 0.2 mL	Small diameter to fit into narrow sample containers	–	N/A	–	N/A	–	N/A
Small Sample Size	TRIS buffer, proteins, sulfides, fits 96 microwell plates	Small diameter to fit into narrow sample containers	–	N/A	–	N/A	–	N/A
Viscous Liquids	Slurries, suspended solids, sludges	Open junction to prevent the electrode from clogging	–	N/A	–	N/A	–	STDO21
Waters	Acid rain, boiler feed water, distilled water, rain water,	Double junction Ag/AgCl reference and refillable for better contact	–	STORP1	STCON3	–	STDO11	–
Waters	Drinking water, tap water	Epoxy body for added durability	–	STORP1	STCON3	–	–	STDO21
Waters	Wastewater, sea-water	Double junction Ag/AgCl reference and epoxy body for added durability	STORP2	–	–	STCON7	–	STDO21
Harsh Environments	Field or plant use, rugged use	Epoxy body for added durability and polymer or gel filled for easy maintenance	–	–	–	STCON7	–	STDO21
High Ionic Strength	Acids, bases, brines, pH > 12 or pH < 2	Open junction for better contact and stable measurements	–	–	–	–	–	–
Soft Samples	Piercing fruits, cheese and meats	Spear tip for piercing samples	–	–	–	–	–	–

Starter Electrodes

OHAUS Precision Powers the Starter Electrodes

- All sturdy and durable electrodes are constructed of either plastic or glass shafts and built to withstand daily use.
- Options available for electrodes with temperature sensing, which powers automatic temperature compensation and ensures accurate measurements.
- All electrodes fit perfectly in the electrode holders on OHAUS bench meters and electrode clips on all OHAUS portable meters.



Parameters

pH, reference, oxidation-reduction potential (ORP), conductivity, dissolved oxygen (DO), temperature measurement

Construction

Glass, plastic or metal

Design Features

Can be used in conjunction with all Starter bench and portable meters

Construction



Glass

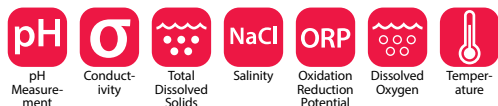


Plastic



Metal

Parameters



Starter Electrodes

Models

	Model	ST5000, AB41PH, AB33PH, AB23PH, ST2200, ST300	AB33M1	AB33EC, AB23EC, ST300C	ST300D	ST400M	ST400	ST400D	Temperature	Shaft Mate- rial	Item No.
pH Electrode	ST210	*	*							Plastic	83033966
	ST230	*	*							Glass	83033968
	ST260	*	*							Glass	30129357
	ST270	*	*							Glass	30240974
	ST272	*	*							Plastic	30393265
	ST280	*	*							Glass	30681114
	STMICRO5	*	*							Glass	30087566
	STMICRO8	*	*							Glass	30087569
	STPURE	*	*							Glass	83033969
	STSURF	*	*							Plastic	30129470
	ST310	*	*						*	Plastic	83033965
	ST320	*	*						*	Plastic	83033967
	ST320 IP67					*	*		*	Plastic	30468960
	ST322	*	*						*	Plastic	30681113
	ST350	*	*						*	Glass	30129354
	ST410	*	*							Glass	30656037
	ST420	*	*							Glass	30681115
Reference Electrode	STREF1	*	*							Glass	30059253
Orp Electrode	STORP1	*	*							Plastic	30038555
	STORP2	*	*							Glass	30038553
Conductivity Probe	STCON3		*	*						Plastic	83033972
	STCON3 IP67					*				Plastic	30468962
	STCON5		*	*						Glass	30681116
	STCON7		*	*						Steel	30080693
	STCON8		*	*						Glass	30681117
	STCON8 w/glass chamber		*	*						Glass	30681235
Dissolved Oxy- gen Sensor	STDO11				*					Plastic	30031639
	STDO21, 1m							*	*	Plastic	30378544
	STDO21, 5m							*	*	Plastic	30378545
Temperature Sensor	STTEMP30	*	*		*				*	S.Steel	83033970

Starter Electrodes

Accurate and precise measurement has been our main focus since our inception in 1907. After more than a century of developing balances that have provided the reliable and precise weight determination that is essential to laboratory applications, OHAUS is proud to also offer our expertise in measurement in a line of electrochemistry products.

The Starter Series includes pH, reference, oxidation-reduction potential (ORP) electrodes, as well as conductivity, dissolved oxygen (DO) and temperature electrodes that can be used in conjunction with our bench and portable meters. In this section, you will find essential information regarding OHAUS' portfolio of Starter sensors, including product specifications and sample types they were designed to measure. In addition to the sensors, information regarding accessories such as conductivity and pH solutions used for calibration, are included.

Basic Theory of pH

pH is a one of the most commonly measured parameters in chemical and life science research, as well as is many different industries, including water and wastewater treatment, food technology, environmental protection, production and agriculture.

pH is defined as the negative logarithm of the hydrogen ions concentration in the sample:

$$\text{pH} = -\log [\text{H}^+]$$

pH provides a convenient way to compare the relative acidity or alkalinity of a sample at a given temperature.

pH electrodes produce different mV values in solutions with different pH. Ideally, at 25°C, a pH electrode should produce a slope of 59.16mV per 1 pH unit.

Electrodes for pH Measurement

pH measurement is usually conducted using a combination electrode that consists of a pH-sensitive glass electrode that is sensitive to hydrogen ions present in the sample as well as a reference electrode that has a constant potential value.

A potential is developed on the membrane surface when a pH electrode comes into contact with a sample.

pH meters measure variations in the potential and convert it directly to a corresponding pH value, according to the Nernst equation:

$$E = E_0 + (2.303RT/nF)\log[\text{H}^+]$$

pH measurement is sensitive to temperature changes. However, at a pH of 7, temperature will not have an effect on the potential of the system. This is known as the isopotential point. OHAUS' 3-in-1 electrodes are convenient tools that contain a built-in temperature electrode that can be used together with a meter to compensate temperature changes without the need for an external temperature electrode.

pH Electrodes Structure



Glass Shaft



Plastic Shaft

Shaft Body Material	Characteristic	Advantage
Glass Shaft	Can withstand high temperatures and is resistant to corrosive materials and organic solvents.	Ideal for laboratory use, easy to clean
Plastic Shaft	Not recommended for usage at temperatures above 80 °C. Moderate resistance to highly corrosive materials and organic solvents.	Durable and sturdy



Refillable



Non-Refillable

Fill Type	Characteristic	Advantage
Refillable	Reference electrolytes can be replenished when necessary.	Reusable
Non-Refillable	The electrode must be replaced when contaminated.	No maintenance is required



Ceramic Junction



Annular Junction

Reference Junction Type	Characteristic	Advantage
Ceramic Junction	This standard junction consists of a porous piece of ceramic which allows the electrolyte to slowly flow out of the electrode.	Stable and simple to use.
Annular Junction	Formulated with a special ceramic which encircles the glass bulb. Numerous pores in the ceramic provide lower resistance and more stable pH readings.	Not easily blocked, Ideal for muddy samples

pH Electrodes

Maintenance and Storage of pH Electrodes

pH electrodes are delicate measuring instruments that require proper care and maintenance to produce accurate and reliable results as well as to ensure a long useful life.

Always keep the pH electrode moist when not in use by using an electrode storage solution (3M KCl). DO NOT store the electrode in distilled or deionized water as this will cause ions to leak out of the glass bulb and reference electrolyte, causing a slow and sluggish response.

Electrodes may be shipped with either protective caps or in electrode soaking bottles to prevent cracking or scratching and to keep the glass bulbs moist. Remove the electrode gently from the storage bottle and rinse it with distilled water before use. For long-term storage, always keep the electrode in the bottle in enough storage solution to cover the bulb. Replenish the bottle as needed.



	ST410	ST420	ST350	ST322	ST320	ST320 IP67	ST310	ST272	ST270
pH Range	0 to 14	2 to 12	0 to 14	0 to 14	0 to 14	0 to 14	0 to 14	2 to 12	0 to 14
Temperature	5 to 90°	5 to 90°	0 to 100°	5 to 60°	0 to 80°	0 to 80°	0 to 80°	0 to 50°	0 to 100°
Type of junction	Ceramic	Ceramic	Annular Ceramic	Fiber Pin	Fiber Pin	Fiber Pin	Ceramic	Annular Ceramic	Annular Ceramic
Shaft Material	Glass	Glass	Glass Body	Plastic	Epoxy Body	Epoxy Body	Epoxy Body	Epoxy Body	Glass Body
Connector	BNC	BNC	BNC&Cinch	BNC & Cinch	BNC & Cinch	BNC & Cinch	BNC & Cinch	BNC	BNC
Sensor Type	Combined Electrode	Combined Electrode	3 in 1	3 in 1	3 in 1	3 in 1	3 in 1	Combined Electrode	Combined Electrode
Reference System	Ag/AgCl Double Junction	Ag/AgCl Double Junction	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl
Reference electrolyte	3.3 M KCl	3.3 M KCl	3.3 M KCl	Polymer Gel	Gel Filled	Gel Filled	3.3 M KCl	Gel Filled	Gel Filled
Cable	1 m	1 m	1 m	1 m	1 m	3 m	1 m	1 m	1 m
Fill Type	Refillable	Refillable	Refillable	Non-Fillable	Non-refillable	Non-refillable	Refillable	Non-refillable	Non-refillable
Description	Double Junction combination pH electrode	Double Junction combination pH electrode	pH/ATC with glass body	3-in-1 pH/ATC electrode with low maintenance	pH/ATC with epoxy body, low maintenance	pH/ATC with epoxy body, low maintenance gel	pH/ATC with epoxy body, refillable	Combination pH electrode with stainless steel cutting blade	Combination pH electrode, glass body, spear tip
Application	Strong Acid/Alkali Solution	Low ionic strength solutions. TRIS, protein, sulfide, or any other samples that react chemically with the Ag/AgCl reference element.	Top performance for QC and research	Laboratory general purpose, routine or research applications	General purpose, high performance	High performance pH analysis in the field	General purpose for everyday use	For meat, cheese and sludge where glass alone may break	For meat, cheese and fruit samples
Feature	Chemical resistant glass body	Chemical resistant glass body	Chemical resistant glass body	Low maintenance	Epoxy body for ruggedness	Epoxy body and built-in ATC	Long-lasting	Annular junction prevents clogging	Annular junction prevents clogging

pH Electrodes

OHAUS Starter series electrochemistry instruments include electrodes that support advanced pH analysis, including a glass shaft 3-in-1 electrode, micro sample, double salt-bridge, and flat surface pH electrodes.

OHAUS launched several pH electrodes, include glass shaft 3-in-1 ST350, micro sample pH electrode STMICRO5 and STMICRO8; double-salt bridge pH electrode ST260 which is fit for tris-buffer solution pH measurement, flat surface pH electrode STSURF and puncture electrodes ST270 and ST272.



	ST280	ST260	ST230	ST210	STMICRO8	STMICRO5	STPURE	STSURF
pH Range	0 to 14	0 to 14	0 to 14	0 to 14	0 to 14	0 to 14	2 to 12	0 to 14
Temperature	5 to 60°	0 to 100°	0 to 100°	0 to 80°	0 to 100°	0 to 100°	0 to 80°	0 to 100°
Type of junction	Open Junction	Ceramic	Annular Ceramic	Ceramic	Annular Ceramic	Annular Ceramic	Ground Glass	Ground Glass
Shaft Material	Glass	Glass Body	Glass Body	Epoxy Body	Glass Body	Glass Body	Glass Body	Epoxy Body
Connector	BNC	BNC	BNC	BNC	BNC	BNC	BNC	BNC
Sensor Type	Combined Electrode	Combined Electrode	Combined Electrode	Combined Electrode	Combined Electrode	Combined Electrode	Combined Electrode	Combined Electrode
Reference System	Ag/AgCl	Ag/AgCl Double Junction	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl
Reference electrolyte	Polymer gel	3.3 M KCl	3.3 M KCl	3.3 M KCl	3.3 M KCl	3.3 M KCl	3.3 M KCl	3.3 M KCl
Cable	1 m	1 m	1 m	1 m	1 m	1 m	1 m	1 m
Fill Type	Non-Fillable	Refillable	Refillable	Refillable	Refillable	Refillable	Refillable	Refillable
Description	Open junction combination pH electrode	Double junction refillable combination pH electrode	Combination pH electrode with rugged bulb	Combination pH electrode with epoxy body	Combination pH electrode with glass body, long length	Combination pH electrode with glass body, semi-micro tip	Combination pH electrode	Combination pH electrode with epoxy body, flat surface
Application	Highly suspended, dirty samples	Use in dirty water or TRIS, sulfide and protein samples	For soil, sludge, colloids, viscous material	For routine applications	For routine or research applications	For samples with size constraints For samples with size limitations	For samples with low ionic strength	Measure moist surfaces such as agar gel lates, meats and cheese
Feature	Toughened bulb for rugged lab use	Long-lasting	Toughened bulb for rugged lab use	Economical	Measure samples as small as 0.5 mL in tube	Measure samples as small as 0.2 mL in 96 well plates	Economical	A flat pH bulb and refillable designs

Reference Electrodes

Basic Principle of Reference Electrodes

Reference electrodes have a stable and well defined electrochemical potential. A measured potential in an electrochemical cell is determined against a defined potential value of a reference electrode.

STREF1 is Silver/Silver Chloride (Ag/AgCl in Saturated KCl), which represents another type of reference electrode.

Storage and Maintenance

Maintenance of reference electrodes can help avoid stability problems and keep them in proper working condition.

Check that the reference electrode compartments are filled with electrolyte solution and the junction is not blocked.



Model	STREF1
Item Number	30059253
Description	Silver/Silver Chloride (Ag/AgCl)
E vs. SHE (Standard Hydrogen Electrode) (V)	0.198
Connector	2mm Banana
Dimensions (Shaft)	110 x 12 mm
Cable Length	1 m



ORP Electrodes

Basic Principle of ORP

Oxidation-Reduction Potential (ORP) electrodes test for the overall availability of electrons in a medium, specifically the ratio of positive and negative ions in the solution. They are also sometimes referred to as Redox electrodes.

ORP is the only practical method used to electronically monitor sanitizer effectiveness and it is also commonly tested in water, such as swimming pools and aquariums.

ORP is expressed in millivolts (mV). -1000 mV to 1000mV is a common range for ORP tests. The pH value influences the ORP value significantly.

Storage and Maintenance

To ensure accurate measurements, it is important to keep the electrode clean. Contamination can cause inaccurate results and slow response times.



Model	STORP2	STORP1
Item Number	30038553	30038555
Shaft Material	Glass	Plastic
Temperature Range	0-100 °C	0-80 °C
Internal Reference Type	Ag/AgCl	Ag/AgCl
Refillable/Non-refillable	Refillable	Non-refillable, Gel
Reference Junction Type	Annular Ceramic	Ceramic Pin
Refilling Reference Electrolyte	3M KCl Solution	3M KCl Gel
Dimensions (Shaft)	120 x 12 mm	120 x 12 mm
Cable Length	1 m	1 m
Temperature Sensor	No	No
Connector	BNC	BNC
Zero Potential Value	86mV±15mV	86mV±15mV
Grade Difference	≥ 165mV	≥ 165mV

Conductivity Electrodes

Basic Theory of Conductivity

Conductivity is measured in a wide range of industries and gives a readout of total ionic concentration within the sample. It is a rapid and inexpensive way of determining the ionic strength of a solution.

A basic conductivity cell consists of a pair of electrodes that are placed in a sample. The ratio of the distance between the electrodes (D) and their surface area (A) is known as the cell constant K:

$$K = D/A \text{ [cm}^{-1}\text{]}$$

Calibration

Cell constants at time of manufacture are listed on many conductivity cells. It is recommended that you always determine the exact cell constant by using a calibration standard. Calibration is essential since the cell constant can vary by 10% or more from the nominal value and they do change over time. Once calibrated, they do not change quickly and do not require frequent calibration like a pH electrode. It is important to calibrate 25 °C or know the value of your calibration standard at different temperatures. The cell constant changes only if the surface of the electrode changes, for example through fingerprints, deposits, scratches or enclosed air bubbles.



Benefits of 4-Electrode Cells

- All have durable plastic bodies
- No error from cable resistance, allowing for longer cable lengths
- Minimum effect on accuracy from electrode polarization and contamination
- Wide measurement range
- Unaffected by deposits on cell surface

Model	STCON3	STCON3 IP67
Item Number	83033972	83033972
Measuring range	2 µS/cm - 200mS/cm	2 µS/cm - 200mS/cm
Temperature range	0 °C – 50°C	0 °C – 50°C
Cable Length	1 m	3m
Connector Type	Mini-DIN	CTW
Cell Material	4 rings stainless steel	4 rings stainless steel
Cell Constant	1.5 - 2.0 cm ⁻¹	1.5 - 2.0 cm ⁻¹
Shaft Material	Plastic	Plastic
Shaft Length	130 mm	130 mm
Shaft Diameter	14 mm	14 mm
Temperature probe	NTC 30 kΩ	NTC 30 kΩ
Description	Widest conductivity range	Widest conductivity range
Application	For lab and field applications	For lab and field applications
Feature	Removable guard	Removable guard

Conductivity Electrodes

Storage and Maintenance

The conductivity electrode should be stored in a clean and dry environment. They can be stored in deionized water in-between measurements. For storage overnight or longer, conductivity cells should be rinsed thoroughly in deionized water and stored dry.

If they become contaminated they should be cleaned. Refer to user guides for specific instructions for different electrode materials.

Precautions and Limitations

Do not expose the shaft to organic solvents when cleaning or when taking measurements.

1. Do not use the electrode outside the recommended temperature range.
2. Calibrate the electrode with standard solution for an accurate measurement.

Benefits of 2-Electrode Cells

- Available in glass, allows use in most samples
- best for ultra-pure water measurements
- Multiple cell materials available, platinum or stainless steel
- Different cells designed to measure multiple specific ranges
- Option for flow cell or flow-thru design



Model	STCON5	STCON7	STCON8 w chamber
Item Number	30681116	30080693	30681235
Measuring range	50 $\mu\text{S}/\text{cm}$ -2 mS/cm	0.02 $\mu\text{S}/\text{cm}$ - 200 $\mu\text{S}/\text{cm}$	0.055-300 $\mu\text{S}/\text{cm}$
Temperature range	0 °C – 80°C	0 °C – 60°C	0 °C – 80 °C
Cable Length	1 m	1 m	1m
Connector Type	Mini-DIN	Mini-DIN	Mini-DIN
Cell Material	2 Ring platinum	2 Ring 316L	2 Ring platinum
Cell Constant	1 $\text{cm}^{-1} \pm 0.2$	0.1 $\text{cm}^{-1} \pm 0.02$	0.1 $\text{cm}^{-1} \pm 0.02$
Shaft Material	Glass	Steel	Glass
Shaft Length	155 mm	95 mm	155mm
Shaft Diameter	12 mm	12 mm	12 mm
Temperature probe	NTC 30 k Ω	NTC 30 k Ω	NTC 30 k Ω
Description	Standard conductivity range	Low conductivity range	Low ionic strength solutions, deionized water, and ultra pure water.
Application	For lab applications	For Boiler feed water, ultra-pure water	For ultra pure water applications
Feature	Chemical resistant glass body	Rugged Steel	Platinized glass/platinum
Other	N/A	N/A	Includes detachable glass chamber

Dissolved Oxygen Electrodes

Basic Principle of Dissolved Oxygen (DO) Electrodes

There are three types of commonly used oxygen sensors: polarographic, galvanic and optical (luminescence) sensors.

STD011 is a galvanic DO electrode and the simplest among the three electrodes. It produces its own electric current.

The cathode is silver and the anode is zinc. Oxygen passes through the membrane and is reduced at the cathode to increase the electrical signal (current) read by the electrode. As oxygen increases, the signal increases.

Galvanic sensors are active at all times and will degrade in storage as well as during use. They do not need to polarize (warm up) before calibration or measurement while polarographic electrodes take 15 minutes to several hours to warm up.

The STD021 optical dissolved oxygen sensors measure the interaction between oxygen and certain luminescent dyes. These sensors are ideal for long-term monitoring applications due to their minimal maintenance requirements. STD021 also does not require any warm-up time or stirring when taking a measurement. Over a long period of time, the dye degrades and the sensing element and membrane will need to be replaced, but this replacement is very infrequent compared to electrochemical sensor membrane replacement.



Storage and Maintenance

Carefully remove the protective bottle from the tip of the electrode by unscrewing the lid and removing the bottle. Remove the shorting plug from the connector and store in a safe place. Be careful because the protective bottle lid is tightly fit on the electrode.

STD011 should be stored in a moist environment to keep the membrane from drying out, but do not store directly in water.

Model	STD011	STD021-1	STD021-5
Item Number	30031639	30378544	30378545
Connection	BNC	Mini-DIN	Mini-DIN
Cable Length	1.1 m	1 m	5 m
Shaft Length	120 mm	120 mm	120 mm
Shaft Diameter	12 mm	16 mm	16 mm
Shaft Material	Plastic	Plastic	Plastic
Temperature Range	0-50 °C	0 °C – 60 °C	0 °C – 60 °C
Measurement Range	0-200%	0.00 – 20.0 mg/L(ppm)	0.00 – 20.0 mg/L(ppm)

Temperature Electrodes & Solutions

Temperature Compensation

Temperature variations can affect measurement values.

OHAUS offers a standalone temperature electrode, STTEMP30.

It can be used in conjunction with Bench and Portable meters.

Model	STTEMP30
Item Number	83033970
Shaft Material	Stainless Steel
Shaft Length	120 mm
Temperature Range	0-100 °C
Cable Length	1 m
Connection	Cinch



Standard Solutions

pH Buffer Solutions

1.68, 4.01, 6.86, 7.00, 9.18, 10.01, and 12.45 buffer solutions are available in 250ml bottles.

Conductivity standards

Four conductivity standard solutions for calibration include:

10 μ S/cm, 84 μ S/cm, 1413 μ S/cm and 12.88 mS/cm.

Reference Refilling Electrolyte

3M KCl saturated with AgCl reference fill solution for Ag/AgCl single junction electrodes.



Electrode Protection Solutions

After cleaning or when the electrode is not in use, always keep it in storage solution.

To ensure proper conditions for pH electrodes, we offer pH electrode protection solution (3M KCl, 125ml).

Essentials of pH Measurement

Electrode calibration is necessary in order to establish the slope and zero point of the electrode. Since both of these can change over time, frequent calibration is necessary. The frequency of calibration depends on the application, with some applications requiring daily calibration while others may require only weekly or monthly calibration. More frequent calibration is recommended when measuring in heavily contaminated, low-ion, strongly acidic, and high temperature solutions.

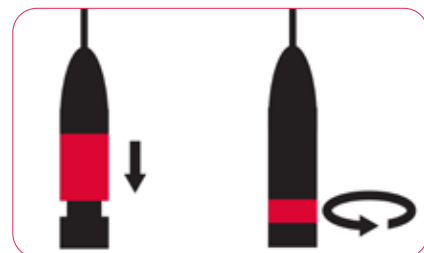
The following is a general procedure for preparing most pH electrodes.

Perform Routine Maintenance

- On a weekly basis, inspect the pH electrode for scratches, cracks, salt crystal build-up, or membrane/junction deposits.
- Keeping an electrode clean can help eliminate calibration issues. Clean any salt deposits from the electrode exterior by rinsing it with distilled water before use. Always check the meter and electrode manuals for calibration and routine maintenance information.
- Place the electrode for 10 minutes in 0.1 M HCl or 0.1 M NaOH. If the buildup is not removed, the solution should be cautiously heated up to 45 °C - 55 °C for 10 minutes before the acid or alkaline concentration is increased.

Open the Refill Slider/Ring

- For pH electrodes featuring a refillable reference, the first step to calibrating and/or taking a measurement is to open the refill opening. Depending on the model, the refill opening is either a slider (left image) or a ring (right image). The refilling opening must always be open during calibration and measurement.



Check the Electrolyte Level

- For refillable electrodes, ensure the fill level of the electrolyte is at least 2 cm above the level of the measurement solution. Replace the electrolyte if it has become contaminated.

Check the Selected Buffer Set

- The pH values of buffer solutions are temperature dependent and the response can vary from manufacturer to manufacturer. Also, the pH values of buffers in a buffer set can vary from one set to another. Modern pH meters automatically adjust for the respective temperature profile once the buffer set used has been correctly set.

Use Fresh, Unused, Unexpired Buffers

- Once buffers are used for calibration, they are assumed contaminated and should not be used again. Reusing buffers can lead to slow pH electrode response or the inability to calibrate. The cause of calibration failure is difficult to determine if the pH buffers have already been used. Used buffer solutions can be kept for rinsing the calibration container and the electrode between calibration points.
- Expired buffer solutions should not be used and buffer bottles should not be left open. Carbon dioxide in the air can change the pH of basic buffer solutions, so basic buffer bottles should only briefly be opened. Use opened containers of buffer as soon as possible.

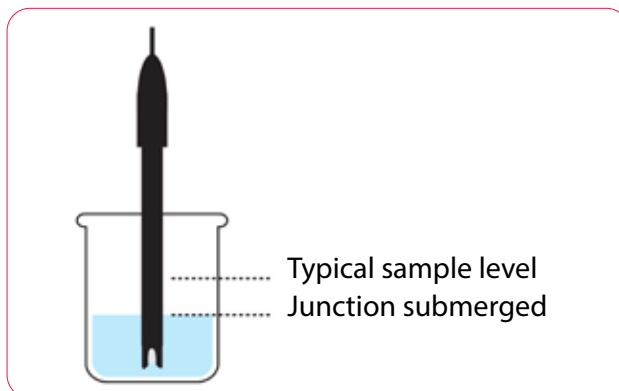
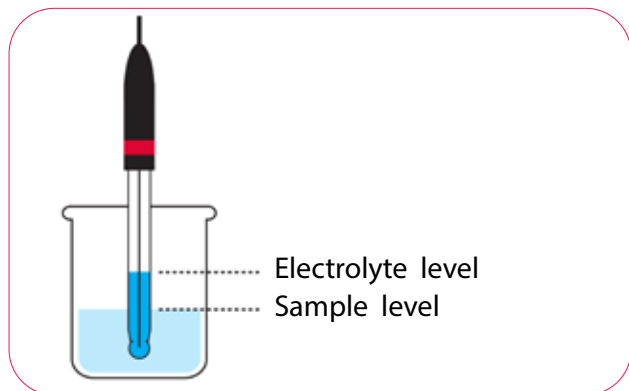


Expiration dates are printed on the label of the buffer bottle, and according to the LOT code visit ohaus.com/Lot-Certificates

Essentials of pH Measurement

The Reference Junction Should be Immersed

- The reference junction must be completely submerged in solution. The temperature sensor must also be in solution in order to accurately compensate pH for temperature.
- The sample solution level must be above the pH electrode reference junction when the electrode is immersed in the sample.



Perform at Least a 2-Point Calibration

- It is best to perform at least a 2-point calibration and pH 7 buffer must be one of those points.
- The pH buffers used should differ by at least two pH units and should bracket the expected in situ pH conditions. Calibration points need to bracket your sample range. Unless the sample is expected to be above pH 7, basic buffers should not be used, as their pH value quickly changes by absorbing CO_2 .
- When measurements are performed over a large range of pH values, it is recommended that one takes at least 3 calibration points. A 1-point calibration will only determine the zero point, not the electrode slope. The range of use of 1-point calibrations is limited and should only be completed with pH 7 buffer. The pH value obtained can be used to compare to previous results, but is not an absolute value.
- Between buffers, rinse the electrode with distilled water and then with the next buffer. To reduce the chance of error due to polarization, avoid rubbing or wiping the electrode bulb. Use a lint-free tissue and gently blot the bulb.
- The first calibration point should be pH 7. Although it is not always required, it is best to begin calibration with pH 7 buffer.

pH Measurement of Different Sample Types

pH measurements of flat samples and very small samples

- Some samples are too small even for a micro sensor to measure accurately. In such cases, a surface sensor is the optimal configuration. The sample must be moist enough for the pH-sensing bulb and the reference junction to make adequate contact with the sample. If necessary, add a drop of distilled water or potassium chloride to wet the surface before placing the electrode on the sample. For the best reproducibility, all samples should have the same amount of liquid added before measurement.
- Surface pH sensors prevent sample contamination: Direct contact of the pH sensor with the sample during measurement can be a critical source of contamination. Reference electrolyte may flow into the sample; in addition, there is a risk of carryover from the rinsing solution, and residues may be present on the sensor. Pipetting at least 100 μL of sample onto a flat, clean surface and measuring with a flat membrane sensor can prevent such problems.

pH measurements in solid samples

- Solid and semi-solid samples include cheese, meat, powders, paper and agar gels. Standard pH electrodes are generally not able to withstand the pressure of being pushed into a solid sample; therefore one needs a special electrode which is able to penetrate the sample in order to measure the pH. There are many methods available for measuring the pH of solid and semi-solid samples that include using a flat surface pH electrode, using a spear tip pH electrode, and mixing or blending a fixed amount of sample with distilled water. The Ohaus electrodes most suitable for these kinds of applications are the ST272 pH electrode. While their spear shaped point enables them to pierce the sample, the membrane shape ensures accurate measurements. This electrode is typically used for quality control or checking production processes of cheese and meat.

pH measurements in dirty samples

- Measuring the pH of dirty samples can be somewhat tricky, since the dirt in the sample can hinder correct measurements. Sludge, suspension, colloid, slurry and viscous samples include wastewater, mud, paper pulp and corn syrup. The risk of blockages with such samples would be very high if one were to use a pH electrode with a ceramic junction. These samples clog the electrode junction and coat the pH-sensing bulb, resulting in slow electrode response, measurement drift and pH measurement errors.

Icon Legend

Applications



Oxygen
Reduction
Potential



pH
Measurement



Conductivity



Dissolved
Oxygen



Salinity



Total
Dissolved
Solids



Temperature

Features



Audible
Alerts



Auto
Shut-Off



Auto
Standby



Touch
Screen



Battery
Power



Low
Battery
Indicator



Multi-
Language



GLP Data
Output



Software
Lockout



NEMA 4X
IP67



i-Steward





Centrifuge

FC5306 Mini Centrifuge

FC5513 High-Speed Microliter Centrifuges

FC5515/FC5515R High-Speed Microliter Centrifuges

FC5706 Multi Centrifuge

FC5707 Multi Centrifuge

FC5714 High-Speed Multi-Pro Centrifuges

FC5718/FC5718R High-Speed Multi-Pro Centrifuges

FC5816/FC5816R High-Speed Multi-Pro Centrifuges

FC5916/FC5916R High-Speed Multi-Pro Centrifuges

Frontier™ 2516 Micro Centrifuge

Frontier™ 2706 Multi Centrifuge

FC5306 Mini Centrifuge



FC5306



Powerful and Convenient Mini Centrifuge for Simple and Rapid Life Science Separation Applications!

The OHAUS Frontier 5306 is a powerful mini centrifuge for simple and rapid liquid separation. The FC 5306 includes an 8-position 1.5/2 ml tube rotor as well as a 4-position 8-strip PCR tube rotor that can accommodate 32 individual PCR tubes or 0.2 ml strip tubes. With the included adapters, 0.2 ml and 0.5 ml strip tubes can also be accommodated in the 8 position tube rotor, further increasing its versatility. Frontier 5306 also has a quick release design in which the rotors can be removed and installed without the use of any tool. This centrifuge provides quiet, safe, and easy operation for your daily quick spin-down applications.

A Quiet Motor and Rubber Base Assure Quiet Operation

With a low voltage power input, quiet motor, and rubber base that absorbs vibrations, Frontier 5306 keeps operational noise to a minimum and reduces disruptions in the laboratory.

Multiple Protective Features Ensure the Safety of Centrifuge Operator

Frontier 5306 has many safety attributes, including a low voltage power input, sturdy lid, and two safety switches which immediately stop the rotors should the lid open while in rotation. An imbalance sensor also stops the centrifuge if the rotors become imbalanced or sudden shock occurs, protecting the operator from being injured by the high-speed spinning rotors.

Simple One-Step Operation

Frontier 5306 takes simple operation to a new level. Once the device is powered on, simply place your sample in the centrifuge, close the lid, and it will begin to rotate. Not even one button press is needed in order to separate your sample.



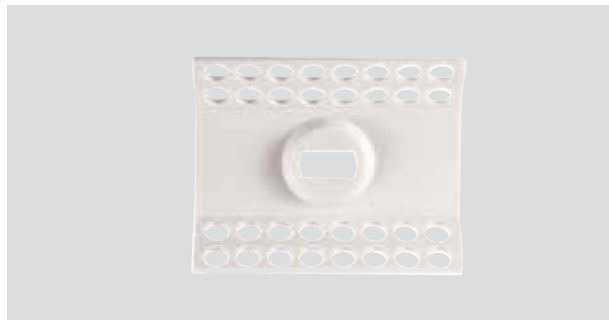
Dual safety switches

FC5306 Mini Centrifuge

FC5306 Rotors



Angle Rotor (8 × 1.5 ml / 2 ml)
Max Speed 6000 rpm, Max RCF 2000 × g, Radius 11 mm
Item Number: 30129559
Included in package



4 × 0.2 ml PCR8 Angle Rotor
Max Speed 6000 rpm, Max RCF 2000 × g
Item Number: 30129560
Included in package

Specifications

Model	FC5306	
Rotor	Angle Rotor	Tube Bank Rotor
Rotating Speed Scope	6000 rpm	
Centrifugal Force	2000 × g	
Rotating Direction	Counterclockwise	
Maximum Capacity	8 × 1.5 ml / 2.0 ml	4 × 0.2 ml-PCR 8-tube bank
		32 × 0.2 ml single centrifugal tube
Adapter	0.2 ml / 0.5 ml	—
Accelerating Time	≤2 s	
Decelerating Time	≤3 s	
Drive Mode and Motor	Direct drive, with low noise attributable to rolling bearing	
Power Supply	Input: 100-240V ~ 50/60Hz 1.5A	
	Output: 24V --- 2.0A	
Dimensions (W × D × H)	150 × 168 × 128 mm	
Net Weight	1.1 kg (including free-load angle rotor)	
Shipping Dimensions (W × D × H)	216 × 305 × 194 mm	
Shipping Weight	1.9 kg	
Product Safety	IEC/EN 61010-1:2010, IEC/EN 61010-2-020:2006	
Electromagnetic Compatibility	FCC Part 15 Class B, ICES-001 Class B, EN 61326-1:2013, Class B, Basic environments, IEC 61326-1:2012, Class B, Basic environments	

Ordering information

Category	Description	Item Number
Centrifuge	FC5306 Mini Centrifuge	30129567
Rotor	Angle Rotor (8 × 1.5 ml / 2.0 ml)	30129559
	4 × 0.2 ml PCR8 Angle Rotor	30129560

Frontier 5513 High-Speed Micro Centrifuge



Frontier™ 5000
Series Micro



Compact Micro Centrifuge with Modern Touch-Wheel Interface Ideal for High-Speed Lab Applications

The FC5513 is a high-speed benchtop microliter centrifuge capable of generating $17,317 \times g$ with four optional rotors, designed for a range of essential lab applications. Engineered with convenient operation in mind, the FC5513 features a uniquely designed splash-proof front panel with touch-wheel control on an intuitive interface. The compact design saves valuable bench space in the lab.

Select from a Variety of Rotors Designed for a Range of Lab Applications

The FC5513 offers standard $24 \times 1.5 / 2$ ml microtube rotors with a biocontainment option. This centrifuge can also support spin columns and hematocrit capillary tubes when used with additional rotor options.

Modern Touch-Wheel Control on a Sleek Splash-Proof Interface

Designed for ease of operation, the FC5513 features convenient control on a protective splash-proof interface, which allows for responsive operation, even when wearing gloves.

The Compact Design Saves Valuable Benchtop Space

Enclosing all its functionalities within a small footprint, the FC5513 saves valuable space on the lab bench.

Solid engineering to ensure functionality and reliability

- True splash-proof panel protects the centrifuge from accidental sample spilling
- Maintenance-free induction motor produces maximum G-force of $17317 \times g$
- Speeds up to 13500 rpm in less than 15 seconds with microtubes
- 10 acceleration/deceleration settings
- 99 memory sets to quickly store and recall commonly used parameters
- Rotor imbalance sensing systems stops the unit when the loadings are imbalanced

Flexible rotor selections to cover essential laboratory applications

- Standard offer comes with $24 \times 1.5 / 2.0$ ml microtube rotors
- Compatible with 4 optional rotors, maximum capacity of $24 \times 1.5 / 2.0$ ml
- Support spin-column and hematocrit capillary through additional rotor options
- Biocontainment rotor available for safe handling of hazardous samples

Standard Features Include:

Sleekly designed interface enables smooth operation for a great user experience

- Easy-to-Use touch-wheel interface for parameter adjustments
- Convenient interface shows both set and actual parameters
- One-touch toggling between RPM/RCF, Acc/Dec
- Crisp display on a double-line LCD display with backlight

Frontier 5513 High-Speed Micro Centrifuge

FC5513 Rotor



24 × 1.5 / 2.0 ml, BIOSEALS, V2 Angle Rotor
Max Speed 13500 rpm, Max RCF 17317 × g,
Radius 11 mm
Item Number: 30472302



18 × 2 ml SC Angle Rotor
Max Speed 13500 rpm, Max RCF 15484 × g,
Item Number: 30472303



24 × Capillaries, V2 Hematocrit Rotor
Max Speed 13000 rpm, Max RCF 16058 × g
Item Number: 30472304

Specifications

Model	FC5513
Speed Range	200 rpm – 13500 rpm; 10 rpm/set
Maximum RCF	17317 × g; 10 × g/set
Maximum Capacity (Rotor)	24 × 1.5/2.0 ml
Temperature Range	Air cool
Running Time	Quick Spin, 10 sec to 99 hr 59 min 59 sec, or continuous
Noise Level	≤ 60 dB(A)
Acc/Dec Levels	10
Allowable Density at Maximum Speed	1.2 g/ml
Allowable Kinetic Energy	2129 Nm
AC Power	120-230 V ~ 50/60 Hz
Voltage Fluctuation	± 10%
Current Consumption	1.9 A
Power Consumption	170 W
Dimensions (W × D × H)	277 × 356 × 236 mm
Net Weight (with rotor)	12.6 kg
Shipping Dimensions (W × D × H)	370 × 470 × 340 mm
Shipping Weight (with rotor)	14 kg
Environment	For indoor use only

Ordering information

Category	Description	Item Number
Centrifuge	FC5513 Micro Centrifuge 230 V (rotor included)	30370691
	FC5513 Micro Centrifuge 120 V (rotor included)	30370692
	FC5513 Micro Centrifuge 230 V (rotor not included)	30393187
	FC5513 Micro Centrifuge 120 V (rotor not included)	30393188
Rotor	24 × 1.5/2.0 ml Angle Rotor, BIOSEALS	30472302
	18 × 2 ml Angle Rotor, SC-Spin Column	30472303
	Hematocrit rotor, 24 × Capillaries	30472304

FC5515/FC5515R High-Speed Microliter Centrifuges



Frontier™ 5000
Series Micro



Smooth and Dependable High-Speed Microliter Centrifuge for Liquid Separation Applications

Frontier 5515 and 5515R microliter benchtop centrifuges provide high-speed operation for spin-down applications requiring a wide variety of tube volumes and capacities. With refrigeration capabilities (FC5515R), 10 acceleration/deceleration settings, multiple safety features, and an unmatched capacity, Frontier provides stable liquid separation for life science applications requiring high-speed operation.

Easy-to-Use Control Panel that Supports Simple Operation

The intuitive control panel with rotary knob puts the centrifuge's simple operations at your fingertips, including the ability to set and recall speed and g-force, as well as control the temperature (FC5515R only).

Sophisticated Technology that Drives High-Performance

A powerful brushless induction motor, 10 acceleration and deceleration settings, and memory for up to 99 commonly-used parameters are a few of Frontier's features that propel high-performance.

Several Safety Features that Protect Against Injury

Among Frontier's safety attributes are a motorized lid locking system and a rotor imbalance sensor that stops the centrifuge if the rotors become imbalanced or sudden shock occurs, protecting the operator from by the high-speed spinning rotors.

Seven Rotor Sizes that Provide Flexibility for Varied Centrifugation Needs

Compatible with seven different rotors, more than any centrifuge in its class, the highly-versatile Frontier can be used for various applications of different volumes.

Computerized control system provides 10 levels of acceleration or deceleration settings. Store up to 99 sets of centrifugation parameters. Extended timer setting allows centrifuge runs up to 99 hours and 59 minutes. Powerful and environmental friendly refrigeration system provides wide temperature control range from -20°C to 40°C. Pre-cool mode is capable to reduce temperature from 23°C to 4°C in 10 minutes. At maximum speed of 15200 RPM, the centrifuge can maintain 4°C throughout experiments (depending on rotor).

Safe and Silent

Reliability ensured by multiple safety features including adaptive imbalance monitoring system, explosion-proof housing, over-speed detection. Maintenance free brushless induction motor reduces maintenance needs and can reach maximum speed in 16 s from stand still. Silent and compact design reduces noise to less than 60 dB(A) at maximum speed and save benchtop space.

Standard Features Include:

Simple and Intuitive

Double line screen with backlight provides rich real-time display of all key status information.

Ergonomic parameter setting interface designed to support instantaneous centrifugal operation.

Built-in rotor parameters enable real-time conversion of speed between RPM and RCF value while RPM/RCF value can be adjusted on-the-fly.

Powerful and Functional

Up to 7 types of rotor options are available (including air-tight and Snap-on) rotors

Compatible to autoclave sterilization effectively ensure the safety of life science and medical research.

Maximum capacity can process up to 44 × 1.5 ml / 2 ml or 12 × 5 ml, effectively increasing the sample through-put.

Compatible to 10 different volumes from 0.2ml to 5ml covers typical laboratory consumables in microliter range.

FC5515/FC5515R High-Speed Microliter Centrifuges

FC5515/FC5515R Rotor



24 × 1.5 ml / 2.0 ml Angle Rotor, Sealable
Max Speed 15200 rpm, Max RCF 21953 × g,
Radius 11 mm
Item Number: 30642371

① The lowest temperature at max speed: 4°C



30 × 1.5 ml / 2.0 ml Angle Rotor, Sealable
Max Speed 13500 rpm, Max RCF 19150 × g,
Radius 11 mm
Item Number: 30130872

① The lowest temperature at max speed: 7°C



44 × 1.5 ml / 2.0 ml Angle Rotor
Max Speed 13500 rpm, Max RCF 17113 / 17317 × g,
Radius 11 mm
Item Number: 30372717

① The lowest temperature at max speed: 7°C



12 × 5 ml Angle Rotor, Sealable
Max Speed 14500 rpm, Max RCF 19978 × g,
Radius 17 mm
Item Number: 30130873

① The lowest temperature at max speed: 4°C



Angle rotor, 4x8-w PCR Strip
Max Speed 15000 rpm, Max RCF 15342 × g,
Radius 6.0 mm
Item Number: 30130874

① The lowest temperature at max speed: 4°C



Hematocrit rotor, 24 × Capillaries
Max Speed 12000 rpm, Max RCF 14811 × g
Item Number: 30130881

① The lowest temperature at max speed: defined as the lowest temperature can be reached and maintained when the rotor is running at its maximum speed in the centrifuge with its maximum load capacity and ambient temperature is at 23°C. Lower temperature can still be reached by reducing one or more of the three parameters, speed, ambient temperature, sample load.

FC5515/FC5515R High-Speed Microliter Centrifuges

Specifications

Model	FC5515R		FC5515	
Speed Range	200 rpm - 15200 rpm; 10 rpm/set			
Maximum RCF	21953 × g; 10 × g/set			
Maximum Capacity (Rotor)	44 × 1.5 / 2.0 ml; 12 × 5 ml			
Temperature Range	-20°C to 40°C, 1°C/set		Air cool	
Running Time	10 sec to 99 hr 99 min 59 sec or continuous			
Noise Level (varies by rotor)	≤ 57 ± 2 dB(A)		≤ 60 ± 2 dB(A)	
AC Power	230V / 50-60 Hz	120V / 50-60 Hz	230V / 50-60 Hz	120V / 50-60 Hz
Fluctation	± 10%	± 10%	± 10%	± 10%
Current Consumption	2.4 A	5.1 A	1.3 A	2.3 A
Power Consumption	500 W	560 W	270 W	280 W
ECM	EN/IEC 61326-1 Class B emissions, Basic immunity FCC Class B emissions			
Dimensions (W × D × H)	287 × 561 × 292 mm		287 × 393 × 292 mm	
Net Weight (without rotor)	35 kg		17 kg	
Shipping Dimensions (W × D × H)	400 × 660 × 520 mm		400 × 545 × 410 mm	
Shipping Weight (without rotor)	44 kg		20 kg	

Ordering information

Category	Description	Item Number
Centrifuge	FC5515 Micro Centrifuge (rotor not included)	30130866
	FC5515R Micro Centrifuge (rotor not included)	30130868
Rotor	24 × 1.5 ml / 2.0 ml Angle Rotor, Sealable	30642371
	30 × 1.5 ml / 2.0 ml Angle Rotor, Sealable	30130872
	44 × 1.5 ml / 2.0 ml Angle Rotor	30372717
	12 × 5 ml Angle Rotor, Sealable	30130873
	Angle rotor, 4×8-w PCR Strip	30130874
	Hematocrit rotor, 24 × Capillaries	30130881



Frontier™ 5000
Series Multi

FC5706 Multi Centrifuge

Reliable and Compact Multi-Function Centrifuge For Standard Life Science Separation Applications

Frontier 5706 is a small benchtop multi-function centrifuge ideal for a multitude of spin-down applications. Characterized by reliability, various safety features, the ability to accommodate test tubes of various sizes and intuitive operation, FC5706 was built to meet the basic need for liquid separation in the life sciences.

Extremely Simple and Intuitive Operation

With an easy-to-turn control knob, a large LCD display and the capabilities to set and view both speed in rpm and g-force, enjoy precise results and enhanced functionality with extremely simple operation.

Compatibility with Test Tubes of Various Sizes

The FC5706 can accommodate all standard tube sizes from 1.5 ml to 50 ml, providing centrifugation for a wide variety of applications. It also has a large capacity, and can hold six 50 ml tubes and twelve 15 ml tubes during one process.

Several Safety Features that Protect Against Injury

Among Frontier 5706's safety attributes are sturdy mechanical lid with locking system and a rotor imbalance sensor that stops the centrifuge if the rotors become imbalanced or sudden shock occurs, protecting the operator from being injured by the high-speed spinning rotors.

Standard Features Include:

Intuitive

FC5706 is a general purpose benchtop centrifuge with Compact design which saves space.

Double line screen with backlight provides rich real-time display of all key status information.

Ergonomic parameter setting interface designed to support instantaneous centrifugal operation.

Built-in rotor parameters enable real-time conversion of speed between RPM and RCF value while RPM/RCF value can be adjusted on-the-fly.



Practical

Three rotors options are compatible to 7 different volumes from 1.5 ml to 50 ml.

Computerized control system provides 10 levels of acceleration or deceleration settings. Extended timer setting allows centrifuge runs up to 99 hours and 59 minutes.

Reliable

Safety features include adaptive imbalance monitoring system and overspeed detection. Noise at maximum speed noise lower than 60dB(A).

FC5706 Multi Centrifuge

FC5706 Rotors



6 × 50 ml Angle Rotor
Max Speed 6000 rpm, Max RCF 4427 × g, Radius 30 mm
Item Number: 30130878



12 × 15 ml Angle Rotor
Max Speed 6000 rpm, Max RCF 4427 × g, Radius 17 mm
Item Number: 30130877



6 × 5 ml Swing Out Rotor
Max Speed 4000 rpm, Max RCF 1878 × g, Radius 14 mm
Item Number: 30130880

Specifications

Model	FC5706	
Speed Range	200 rpm - 6000 rpm; 50 rpm/set	
Maximum RCF	4427 × g; 10 × g/set	
Maximum Capacity (Rotor)	6 × 50 ml	
Temperature range	Air cool	
Running Time	10 sec to 99 hr 99 min 99 sec or continuous	
Noise level (depending on the rotor)	≤ 60 ±2 dB(A)	
AC Power	230 V / 50-60 Hz	120 V / 50-60 Hz
Voltage Fluctuation	± 10 %	
Current Consumption	0.55 A	1.1 A
Power Consumption	100 W	
EMC	EN/IEC 61326-1 Class B emissions, Basic immunity FCC Class B emissions	
Dimensions (W × D × H)	291 × 392 × 266 mm	
Net Weight (without rotor)	10.5 kg	
Shipping Dimensions (W × D × H)	400 × 545 × 410 mm	
Shipping Weight (without rotor)	15 kg	

Ordering information

Category	Description	Item Number
Centrifuge	FC5706 Multi Centrifuge (rotor not included)	30130875
Rotor	6 × 50 ml Rotor	30130878
	12 × 15 ml Angle Rotor	30130877
	6 × 5 ml Swing Out Rotor	30130880



Frontier™ 5000
Series Multi

FC5707 Multi Centrifuge

Compact Low-Speed Centrifuge with a Modern Touch-Wheel Interface Ideal for General Lab Applications

Frontier 5707 is a reliable compact low-speed general purpose centrifuge which includes a pre-installed 8 × 15 ml rotor. The rotor can process both round and conical bottom tubes (including common blood tubes), and can also be adapted easily with accessories to process smaller tubes. Designed with convenient operation in mind, the FC5707 features a uniquely designed splash-proof front panel with Touch-Wheel control on an intuitive interface.



Standard Features Include:

Modern Touch-Wheel Control on a Sleek Splash-Proof Interface

Designed for ease of operation, the FC5707 features convenient control on a protective splash-proof interface, which allows for responsive operation—even when wearing gloves.

The Compact Design Saves Valuable Benchtop Space

Enclosing all its functionalities within a small footprint, the FC5707 saves valuable space on the lab bench.

Easy and Flexible Operation for a Range of Applications

The 8 × 15 ml angle rotor can process both round and conical bottom tubes, including common blood tubes. It can also be adapted for use with smaller tubes such as 7, 5 and 1.5 / 2 ml when used with accessories.



FC5707 Multi Centrifuge

FC5707 Rotors



8 × 15 ml Angle Rotor
Max Speed 6800 rpm, Max RCF 4445 × g, Radius 13.5 mm
Item Number: 30472305

Specifications

Model	FC5707
Speed Range	200 rpm – 6800 rpm; 10 rpm / set
Maximum RCF	4445 × g; 10 × g / set
Maximum Capacity (Rotor)	8 × 15 ml RB/FA
Temperature Range	Air cool
Running Time	Quick Spin, 10 sec to 99 hr 59 min 59 sec, or continuous
Noise Level	≤ 60 dB(A)
Acc/Dec Levels	10
Allowable Density at Maximum Speed	1.2 g/ml
Allowable Kinetic Energy	845 Nm
AC Power	230 V ~ 50/60 Hz
Voltage Fluctuation	± 10%
Current Consumption	0.8 – 0.4 A
Power Consumption	50 W
Dimensions (W × D × H)	277 × 356 × 236 mm
Net Weight (with rotor)	10 kg
Shipping Dimensions (W × D × H)	370 × 470 × 340 mm
Shipping Weight (with rotor)	11.5 kg
Environment	For indoor use only

Ordering information

Category	Description	Item Number
Centrifuge	FC5507 Multi Centrifuge 100-230 V (rotor included)	30393189
Rotor	8 × 15 ml Angle Rotor	30472305

Accessories

Order No.	Description	Vol./Tube	Diameter	Tube type
Without Adapter	Rotor, Angle, 8 × 15 ml Round bottom tubes/Conical bottom tubes	15 ml	17 mm	Round bottom/ Conical bottom
30130889	Adapter, 1 × 7 ml D13.5 mm RB, 2/pk	7 ml	13.5 mm	Round bottom
30130890	Adapter, 1 × 5 ml D13.5 mm RB, 2/pk	5 ml	13.5 mm	Round bottom
30130886	Adapter, 1 × 1.5/2.0 ml D11 mm, 6/pk	1.5 / 2 ml	11 mm	Microtube



Frontier™ 5000
Series Multi Pro

Frontier™ 5000 Multi-Pro Centrifuges



FC5714



FC5718/FC5718R



FC5816/FC5816R



FC5916/FC5916R

Powerful and Versatile Universal Centrifuges for Virtually Every Lab Application

Frontier 5000 Multi-Pro Centrifuges are designed for universal use in virtually every application in research, industrial & clinical laboratories. Combine with our range of rotors & accessories for customized use in specific applications. Available in 5 models with capacities from low microliter to 6×250 ml - and featuring high speed performance at maximum volume, automatic rotor identification system and safety features, these multi-purpose centrifuges are a must for any lab.

Easy-to-Use Control Panel that Supports Simple Operation

The intuitive control panel with rotary knob puts the centrifuge's simple operations at your fingertips, including the ability to set and recall speed and g-force, as well as control the temperature (Refrigerated Model only).

Sophisticated Technology that Drives High-Performance

A powerful brushless induction motor, 10 acceleration and deceleration settings, and memory for up to 99 commonly used parameters are a few of Frontier's features that propel high-performance.

Several Safety Features that Protect Against Injury

Among Frontier's safety attributes are a motorized lid locking system and a rotor imbalance sensor that stops the centrifuge if the rotors become imbalanced or sudden shock occurs, protecting the operator from by the high-speed spinning rotors.

Seven Rotor Sizes that Provide Flexibility for Varied Centrifugation Needs

Compatible with seven different rotors, more than any centrifuge in its class, the highly versatile Frontier can be used for various applications of different volumes.

FC5714 High-Speed Multi-Pro Centrifuges



Frontier™ 5000
Series Multi Pro



Standard Features Include:

Compatible to maximum 9 optional rotors

▶▶ Accommodate 18 different volumes between 0.2-100 ml, covering all standard volumes in a lab

▶▶ Optional rotor for microtiter plates

▶▶ Over 77 different accessories to fit different tube types and sizes
4 × 100 ml Covering capacity from microliter to 100 ml

Capable of high-speed centrifugation up to $18624 \times g$ with micro tubes

Dual imbalance sensors

Automatic Rotor Recognition

Distinct control panel

▶▶ Simple one-handed operation

▶▶ Set and view speed in both rpm and g-force

▶▶ Control all settings with ergonomic adjustment knob



FC5714 High-Speed Multi-Pro Centrifuges

FC5714 Rotors



4x145 ml Swing out rotor
Max Speed 4500 rpm, Max RCF 3350 × g,
Radius 46 mm
Item Number: 30314822
Auto rotor identification



4x100 ml Swing out rotor, Sealable
Max Speed 4000 rpm, Max RCF 2486 × g,
Radius 40 mm
Item Number: 30314823
Auto rotor identification



2x3 MTP Swing out rotor
Max Speed 4500 rpm, Max RCF 2716 × g,
Radius 11 mm
Item Number: 30314824
Auto rotor identification



6x50 ml Angle rotor
Max Speed 6000 rpm, Max RCF 4427 × g,
Radius 29 mm
Item Number: 30314830
Auto rotor identification



30x15 ml Angle rotor
Max Speed 4500 rpm, Max RCF 2830 × g,
Radius 17 mm
Item Number: 30314832
Auto rotor identification



12x15 ml Angle rotor
Max Speed 6000 rpm, Max RCF 4427 × g,
Radius 17 mm
Item Number: 30314834
Auto rotor identification



30x1.5 / 2.0 ml Angle rotor, Sealable
Max Speed 12000 rpm, Max RCF 15131 × g
Radius 11 mm
Item Number: 30314836
Auto rotor identification



24x1.5 / 2.0 ml Angle rotor, Sealable
Max Speed 14000 rpm, Max RCF 18624 × g
Radius 11 mm
Item Number: 30642361
Auto rotor identification

FC5714 High-Speed Multi-Pro Centrifuges

Specifications

Model	FC5714	
Maximum Speed	14000 rpm, 10 rpm/set	
Maximum RCF	18624 × g, 10 × g/set	
Maximum Capacity	4 × 100 ml	
Temperature range	Air cool	
Running Time	Short Spin, 10 sec to 99 hr 59 min 59 sec, or continuous	
Noise Level (depending on the rotor)	≤ 63 ± 2 dB(A)	
Number of Compatible Rotors	9	
Acc/Dec Levels	10	
Allowable Kinetic Energy	5595 Nm	
AC Power	120V ~ 50/60 Hz	230 V ~ 50/60 Hz
Current Consumption	2.4 A	1.1 A
Power Consumption	300 W	240 W
Voltage Fluctuation	± 10 %	
Dimensions (W × D × H)	362 × 493 × 330 mm	
Net Weight (without rotor)	30 kg	
Environment	For indoor use only	

Product Safety: EN 61010-1; EN 61010-2-020
EMC: EN 61326-1

Ordering information

Category	Description	Item Number
Centrifuge	FC5714 Multi-Pro Centrifuge (rotor not included)	30314810
Rotor	4 × 145 ml Swing out rotor	30314822
	4 × 100 ml Swing out rotor, Sealable	30314823
	2 × 3 MTP Swing out rotor	30314824
	6 × 50 ml Angle rotor	30314830
	30 × 15 ml Angle rotor	30314832
	12 × 15 ml Angle rotor	30314834
	30 × 1.5 / 2.0 ml Angle rotor, Sealable	30314836
	24 × 1.5 / 2.0 ml Angle rotor, Sealable	30642361

FC5714 High-Speed Multi-Pro Centrifuges

FC5714 Rotor Competibility Table

FC5714	0.2/0.4 ml	0.5 ml	1.5/2.0 ml	4.5 ml	5 ml	7 ml	10 ml	15 ml	16 ml	25 ml	30 ml	50 ml	85 ml	100 ml	4-10 ml blood tube	5-7 ml blood tube	PCR	MTP
Item: 30314822 For: FC5714 Max Speed: 4500 rpm Max RCF: 3350 × g Auto ID: YES Rotor, Swing out, 4×145ml, ID			▲	▲				▲		▲	▲	▲	▲	●	▲	▲		
Item: 30314823 For: FC5714 Max Speed: 4000 rpm Max RCF: 2486 × g Auto ID: YES Rotor, Swing out, 4×100ml, ID, Sealable			▲				▲	▲		▲	▲	▲	▲	●		▲		
Item: 30314824 For: FC5714 Max Speed: 4500 rpm Max RCF: 2716 × g Auto ID: YES Rotor, Swing out, 2×3MTP, ID			▲															●
Item: 30314830 For: FC5714 Max Speed: 6000 rpm Max RCF: 4427 × g Auto ID: YES Rotor, Angle, 6×50ml RB/FA, ID			▲		▲	▲		▲	▲		▲	●						
Item: 30314832 For: FC5714 Max Speed: 4500 rpm Max RCF: 2830 × g Auto ID: YES Rotor, Angle, 30×15ml RB/FA, ID			▲		▲	▲		●										
Item: 30314834 For: FC5714 Max Speed: 6000 rpm Max RCF: 4427 × g Auto ID: YES Rotor, Angle, 12×15ml RB/FA, ID			▲		▲	▲		●										
Item: 30314836 For: FC5714 Max Speed: 12000 rpm Max RCF: 15131 × g Auto ID: YES Rotor, Angle, 30×1.5/2.0ml, ID, Sealable	▲	▲	●															
Item: 30642361 For: FC5714 Max Speed: 14000 rpm Max RCF: 18624 × g Auto ID: YES Rotor, Angle, 24×1.5/2.0ml, ID, Sealable	▲	▲	●															

* Blood collection tube
ID: auto rotor identification
Hi: version with higher speed

● Adapter not required ▲ With adapter

FC5718/FC5718R High-Speed Multi-Pro Centrifuges



Frontier™ 5000
Series Multi Pro



Standard Features Include:

Compatible to maximum 19 optional rotors

- ▶ Accommodate 19 different volumes between 0.2-100 ml, covering all standard volumes in a lab
- ▶ Optional rotors for 8-well PCR strips, or microtiter plates
- ▶ Over 120 different accessories to fit different tube types and sizes

4 × 100 ml Covering capacity from microliter to 100 ml

Capable of high-speed centrifugation up to 20984 × g with tubes up to 85 ml

Dual imbalance sensors

Automatic Rotor Recognition

Distinct control panel

- ▶ Simple one-handed operation
- ▶ Set and view speed in both rpm and g-force
- ▶ Control all settings with ergonomic adjustment knob

Powerful refrigeration system, temperature variable between -20°C to 40°C (FC5718R only)

FC5718/FC5718R High-Speed Multi-Pro Centrifuges

FC5718/FC5718R Rotors



4x145 ml Swing out rotor
Max Speed 4500 rpm, Max RCF 3350 × g,
Radius 46 mm
Item Number: 30314822
Auto rotor identification
① The lowest temperature at max speed: -7°C



4x100 ml Swing out rotor, Sealable
Max Speed 5000 rpm, Max RCF 3885 × g,
Radius 40 mm
Item Number: 30314823
Auto rotor identification
① The lowest temperature at max speed: -3°C



2x3 MTP Swing out rotor
Max Speed 4500 rpm, Max RCF 2716 × g,
Radius 11 mm
Item Number: 30314824
Auto rotor identification
① The lowest temperature at max speed: -6°C



6x85 ml Angle rotor, Hi
Max Speed 11000 rpm, Max RCF 13932 × g,
Apply to FC5718
Max Speed 13500 rpm, Max RCF 20984 × g
Apply to FC5718R
Radius 38 mm
Item Number: 30314825
Auto rotor identification
① The lowest temperature at max speed: 17°C



6x85 ml Angle rotor
Max Speed 9000 rpm, Max RCF 10413 × g,
Radius 38 mm
Item Number: 30314826
Auto rotor identification
① The lowest temperature at max speed: -5°C



4x85 ml Angle rotor, Hi
Max Speed 12000 rpm, Max RCF 14809 × g,
Radius 38 mm
Item Number: 30314827
Auto rotor identification
① The lowest temperature at max speed: 5°C



10x50 ml Angle rotor, ID
Max Speed 7500 rpm, Max RCF 8174 × g
Radius 29 mm
Item Number: 30314829
Auto rotor identification
① The lowest temperature at max speed: 9°C



6x50 ml Angle rotor, ID
Max Speed 6000 rpm, Max RCF 4427 × g
Radius 29 mm
Item Number: 30314830
Auto rotor identification
① The lowest temperature at max speed: -8°C



6x50 ml Angle rotor, Hi
Max Speed 12000 rpm, Max RCF 13522 × g
Radius 29 mm
Item Number: 30314831
Auto rotor identification
① The lowest temperature at max speed: -5°C



30x15 ml Angle rotor
Max Speed 4500 rpm, Max RCF 2830 × g
Radius 17 mm
Item Number: 30314832
Auto rotor identification
① The lowest temperature at max speed: -9°C



20x10 ml Angle rotor, Hi
Max Speed 12000 rpm, Max RCF 15775 × g
Radius 16 mm
Item Number: 30314833
Auto rotor identification
① The lowest temperature at max speed: 2°C



12x15 ml Angle rotor, ID
Max Speed 6000 rpm, Max RCF 4427 × g
Radius 17 mm
Item Number: 30314834
Auto rotor identification
① The lowest temperature at max speed: -11.5°C

FC5718/FC5718R High-Speed Multi-Pro Centrifuges

FC5718/FC5718R Rotors



44x1.5/2.0 ml Angle rotor
Max Speed 13500 rpm, Max RCF 17113 × g,
Radius 11 mm
Item Number: 30372718
Auto rotor identification
① The lowest temperature at max speed: 1 °C



30x1.5/2.0 ml Angle rotor, Sealable
Max Speed 13000 rpm, Max RCF 17758 × g,
Apply to FC5718
Max Speed 14000 rpm, Max RCF 20595 × g,
Apply to FC5718R
Radius 11 mm
Item Number: 30314836
Auto rotor identification
① The lowest temperature at max speed: 9 °C



Angle rotor, 4 × PCR8 Strip
Max Speed 15000 rpm, Max RCF 15343 × g
Item Number: 30314841
Auto rotor identification
① The lowest temperature at max speed: -1 °C



24x1.5 / 2.0 ml Angle rotor, Sealable
Max Speed 14000 rpm, Max RCF 18624 × g
Radius 11 mm
Item Number: 30642361
Auto rotor identification



12x1.5/2.0 ml Angle rotor
Max Speed 18000 rpm, Max RCF 23542 × g
Radius 11 mm
Item Number: 30314839
Auto rotor identification
① The lowest temperature at max speed: -2 °C

① The lowest temperature at max speed: defined as the lowest temperature can be reached and maintained when the rotor is running at its maximum speed in the centrifuge with its maximum load capacity and ambient temperature is at 23 °C . Lower temperature can still be reached by reducing one or more of the three parameters, speed, ambient temperature, sample load.

FC5718/FC5718R High-Speed Multi-Pro Centrifuges

Specifications

Model	FC5718		FC5718R	
Maximum Speed	18000 rpm, 10 rpm/set			
Maximum RCF	23542 × g, 10 × g/set			
Maximum Capacity	4 × 100 ml			
Temperature range	Air cool		-20~40 °C	
Running Time	Short Spin, 10 sec to 99 hr 59 min 59 sec, or continuous			
Noise level (depending on the rotor)	≤ 60 ± 2 dB(A)			
Number of Compatible Rotors	19			
Acc/Dec Levels	10			
Allowable kinetic energy	16672 Nm		25111 Nm	
AC Power	120V ~ 50/60 Hz	230 V ~ 50/60 Hz	120V ~ 50/60 Hz	230 V ~ 50/60 Hz
Current Consumption	4.0 A	2.0 A	6.0 A	3.0 A
Power Consumption	475 W	455 W	660 W	660 W
Voltage Fluctuation	± 10 %			
Dimensions (W × D × H)	408 × 499 × 351 mm		407 × 731 × 359 mm	
Net Weight (without rotor)	43 kg		60 kg	
Environment	For indoor use only			

Product safety: EN 61010-1: 2010、EN 61010-2-020: 2006
EMC: EN 61326-1: 2013, FCC Part 15 Class B.

Ordering information

Category	Description	Item Number
Centrifuge	FC5718 Multi-Pro Centrifuge (rotor not included)	30314812
	FC5718R Multi-Pro Centrifuge (rotor not included)	30314814
Rotors	4 × 145 ml Swing out rotor	30314822
	4 × 100 ml Swing out rotor, Sealable	30314823
	2 × 3 MTP Swing out rotor	30314824
	6 × 85 ml Angle rotor, Hi	30314825
	6 × 85 ml Angle rotor	30314826
	4 × 85 ml Angle rotor, Hi	30314827
	10 × 50 ml Angle rotor, ID	30314829
	6 × 50 ml Angle rotor, ID	30314830
	6 × 50 ml Angle rotor, Hi	30314831
	30 × 15 ml Angle rotor	30314832
	20 × 10 ml Angle rotor, Hi	30314833
	12 × 15 ml Angle rotor, ID	30314834

Category	Description	Item Number
Rotors	44 × 1.5 / 2.0 ml Angle rotor	30372718
	30 × 1.5 / 2.0 ml Angle rotor, Sealable	30314836
	24 × 1.5 / 2.0 ml Angle rotor, Sealable	30642361
	12 × 1.5 / 2.0 ml Angle rotor	30314839
	Angle rotor, 4×PCR8 Strip	30314841

FC5718/FC5718R High-Speed Multi-Pro Centrifuges

FC5718/FC5718R Rotor Competibility Table

FC5718/FC5718R		0.2/0.4 ml	0.5 ml	1.5/2.0 ml	4.5 ml	5 ml	7 ml	10 ml	15 ml	16 ml	25 ml	30 ml	50 ml	85 ml	100 ml	4-10 ml blood tube	5-7 ml blood tube	PCR	MTP
Item:	30314822																		
For:	FC5718/FC5718R																		
Max Speed:	4500 rpm/4500 rpm																		
Max RCF:	3350 × g/3350 × g			▲	▲				▲		▲	▲	▲	▲	●	▲	▲		
Auto ID:	YES/YES																		
Rotor, Swing out, 4×145 ml, ID																			
Item:	30314823																		
For:	FC5718/FC5718R																		
Max Speed:	5000 rpm/5000 rpm																		
Max RCF:	3885 × g/3885 × g			▲				▲	▲		▲	▲	▲	▲	●		▲		
Auto ID:	YES/YES																		
Rotor, Swing out, 4×100 ml, ID, Sealable																			
Item:	30314824																		
For:	FC5718/FC5718R																		
Max Speed:	4500 rpm/4500 rpm																		
Max RCF:	2716 × g/2716 × g			▲															●
Auto ID:	YES/YES																		
Rotor, Swing out, 2×3 MTP, ID																			
Item:	30314825																		
For:	FC5718/FC5718R																		
Max Speed:	11000 rpm/13500 rpm								▲	▲					●				
Max RCF:	13932 × g/20984 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 6×85 ml RB, ID, Hi																			
Item:	30314826																		
For:	FC5718/FC5718R																		
Max Speed:	9000 rpm/9000 rpm								▲	▲									
Max RCF:	10413 × g/10413 × g														●				
Auto ID:	YES/YES																		
Rotor, Angle, 6×85 ml RB, ID																			
Item:	30314827																		
For:	FC5718/FC5718R																		
Max Speed:	12000 rpm/12000 rpm								▲	▲									
Max RCF:	14809 × g/14809 × g														●				
Auto ID:	YES/YES																		
Rotor, Angle, 4×85 ml RB, ID, Hi																			
Item:	30314829																		
For:	FC5718/FC5718R																		
Max Speed:	7500 rpm/7500 rpm			▲		▲	▲		▲						●				
Max RCF:	8174 × g/8174 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 10×50 ml FA, ID																			
Item:	30314830																		
For:	FC5718/FC5718R																		
Max Speed:	6000 rpm/6000 rpm			▲		▲	▲		▲	▲					●				
Max RCF:	4427 × g/4427 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 6×50 ml RB/FA, ID																			
Item:	30314831																		
For:	FC5718/FC5718R																		
Max Speed:	12000 rpm/12000 rpm								▲	▲					●				
Max RCF:	13522 × g/13522 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 6×50 ml RB, ID, Hi																			
Item:	30314832																		
For:	FC5718/FC5718R																		
Max Speed:	4500 rpm/4500 rpm			▲		▲	▲		●										
Max RCF:	2830 × g/2830 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 30×15 ml RB/FA, ID																			

* Blood collection tube

ID: auto rotor identification

Hi: version with higher speed

(Continue on next page)

● Adapter not required

▲ With adapter

FC5718/FC5718R High-Speed Multi-Pro Centrifuges

FC5718/FC5718R Rotor Competibility Table

FC5718/FC5718R		0.2/0.4 ml	0.5 ml	1.5/2.0 ml	4.5 ml	5 ml	7 ml	10 ml	15 ml	16 ml	25 ml	30 ml	50 ml	85 ml	100 ml	4-10 ml blood tube	5-7 ml blood tube	PCR	MTP
Item:	30314833																		
For:	FC5718/FC5718R																		
Max Speed:	12000 rpm/12000 rpm																		
Max RCF:	15775 × g/15775 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 20×10 ml RB, ID, Hi																			
Item:	30314834																		
For:	FC5718/FC5718R																		
Max Speed:	6000 rpm/6000 rpm																		
Max RCF:	4427 × g/4427 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 12×15 ml RB/FA, ID																			
Item:	30372718																		
For:	FC5718/FC5718R																		
Max Speed:	13500 rpm/13500 rpm																		
Max RCF:	17113 × g/17113 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 44×1.5/2.0 ml, ID																			
Item:	30314836																		
For:	FC5718/FC5718R																		
Max Speed:	13000 rpm/14000 rpm																		
Max RCF:	17758 × g/20595 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 30×1.5/2.0 ml, ID, Sealable																			
Item:	30642361																		
For:	FC5718/FC5718R																		
Max Speed:	14000 rpm/15000 rpm																		
Max RCF:	18624 × g/21379 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 24×1.5/2.0 ml, ID, Sealable																			
Item:	30314839																		
For:	FC5718/FC5718R																		
Max Speed:	18000 rpm/18000 rpm																		
Max RCF:	23542 × g/23542 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 12×1.5/2.0 ml, ID																			
Item:	30314841																		
For:	FC5718/FC5718R																		
Max Speed:	15000 rpm/15000 rpm																		
Max RCF:	15343 × g/15343 × g																		
Auto ID:	YES/YES																		
Rotor, Angle, 4×8-w PCR Strip, ID																			

* Blood collection tube

ID: auto rotor identification

Hi: version with higher speed



Adapter not required



With adapter

FC5816/FC5816R High-Speed Multi-Pro Centrifuges



Frontier™ 5000
Series Multi Pro



Standard Features Include:

Compatible to maximum 13 optional rotors

- ▶ Accommodate 19 different volumes between 0.2-250 ml, covering all standard volumes in a lab
- ▶ Optional rotor for microtiter plates
- ▶ Over 70 different accessories to fit different tube types and sizes
- ▶ High through put rotor for 15 mL, 50 ml conical tubes and 4-10 ml, 5-7 ml blood collection tubes

Covering capacity from low microliter to 6 × 250 ml

Capable of high-speed centrifugation, up to 21726 × g with tubes up to 85 ml, and up to 10016 × g with tubes up to 250 ml (10016 × g)

Dual imbalance sensors

Automatic Rotor Recognition

Distinct control panel

- ▶ Simple one-handed operation
- ▶ Set and view speed in both rpm and g-force
- ▶ Control all settings with ergonomic adjustment knob

Powerful refrigeration system, temperature variable between

-20°C to 40°C (FC5816R only)



FC5816/FC5816R High-Speed Multi-Pro Centrifuges

FC5816/FC5816R Rotors



4x290 ml Swing out rotor
Max Speed 4500 rpm, Max RCF 3780 × g,
Radius 62 mm
Item Number: 30314820
Auto rotor identification

① The lowest temperature at max speed: -2°C



2x3 MTP Swing out rotor
Max Speed 4500 rpm, Max RCF 2716 × g,
Radius 11 mm
Item Number: 30314824
Auto rotor identification

① The lowest temperature at max speed: -3°C



4x250 ml Swing out rotor
Max Speed 4500 rpm, Max RCF 3735 × g,
Radius 29 mm
Item Number: 30314828
Auto rotor identification

① The lowest temperature at max speed: 2°C



6x250 ml Angle rotor
Max Speed 8000 rpm, Max RCF 10016 × g,
Radius 62 mm
Item Number: 30314821
Auto rotor identification

① The lowest temperature at max speed: 3°C



6x85 ml Angle rotor
Max Speed 11000 rpm, Max RCF 15555 × g,
Apply to FC5816
Max Speed 13000 rpm, Max RCF 21726 × g,
Apply to FC5816R
Radius 38 mm
Item Number: 30314826
Auto rotor identification

① The lowest temperature at max speed: 15°C



4x85 ml Angle rotor, Hi
Max Speed 12000 rpm, Max RCF 14809 × g,
Radius 38 mm
Item Number: 30314827
Auto rotor identification

① The lowest temperature at max speed: 5°C



10x50 ml Angle rotor
Max Speed 9000 rpm, Max RCF 11771 × g,
Apply to FC5816
Max Speed 10500 rpm, Max RCF 16022 × g,
Apply to FC5816R
Radius 29 mm
Item Number: 30314829
Auto rotor identification

① The lowest temperature at max speed: 9°C



6x50 ml Angle rotor, Hi
Max Speed 13000 rpm, Max RCF 15869 × g
Radius 29 mm
Item Number: 30314831
Auto rotor identification

① The lowest temperature at max speed: 0°C



30x15 ml Angle rotor
Max Speed 4500 rpm, Max RCF 2830 × g
Radius 17 mm
Item Number: 30314832
Auto rotor identification

① The lowest temperature at max speed: -12°C



20x10 ml Angle rotor, Hi
Max Speed 12000 rpm, Max RCF 15775 × g
Radius 16 mm
Item Number: 30314833
Auto rotor identification

① The lowest temperature at max speed: 0°C



44x1.5/2.0 ml Angle rotor
Max Speed 15000 rpm, Max RCF 21128 × g,
Apply to FC5816
Max Speed 16000 rpm, Max RCF 24039 × g,
Apply to FC5816R
Radius 11 mm
Item Number: 30372718
Auto rotor identification

① The lowest temperature at max speed: 8°C



24x1.5 / 2.0 ml Angle rotor, Sealable
Max Speed 15000 rpm, Max RCF 21379 × g
Apply to FC5718
Max Speed 16000 rpm, Max RCF 24325 × g,
Apply to FC5718R
Radius 11 mm
Item Number: 30642361
Auto rotor identification

① The lowest temperature at max speed: 3°C

① The lowest temperature at max speed: defined as the lowest temperature can be reached and maintained when the rotor is running at its maximum speed in the centrifuge with its maximum load capacity and ambient temperature is at 23°C. Lower temperature can still be reached by reducing one or more of the three parameters, speed, ambient temperature, sample load.

FC5816/FC5816R High-Speed Multi-Pro Centrifuges

Specifications

Model	FC5816		FC5816R	
Maximum Speed	15000 rpm, 10 rpm/set		16000 rpm, 10 rpm/set	
Maximum RCF	21379 × g, 10 × g/set		24325 × g, 10 × g/set	
Maximum Capacity	6 × 250 ml			
Temperature range	Air cool		-20℃~40 ℃	
Running Time	Short Spin, 10 sec to 99 hr 59 min 59 sec, or continuous			
Noise level (depending on the rotor)	≤ 61 ± 2 dB(A)		≤ 63 ± 2 dB(A)	
Number of Compatible Rotors	13			
Acc/Dec Levels	10			
Allowable kinetic energy	34363 Nm			
AC Power	120V ~ 50/60 Hz	230 V ~ 50/60 Hz	120V ~ 50/60 Hz	230 V ~ 50/60 Hz
Current Consumption	4.2 A	2.4 A	7.8 A	3.7 A
Power Consumption	530 W	850 W	850 W	785 W
Voltage Fluctuation	± 10 %			
Dimensions (W × D × H)	446 × 538 × 354 mm		723 × 538 × 354 mm	
Net Weight (without rotor)	52 kg		77 kg	
Environment	For indoor use only			

Product safety: EN 61010-1: 2010、EN 61010-2-020: 2006

EMC: EN 61326-1: 2013, FCC Part 15 Class B.

Ordering information

Catogory	Description	Item Number
Centrifuge	FC5816 Multi-Pro Centrifuge (rotor not included)	30314816
	FC5816R Multi-Pro Centrifuge (rotor not included)	30314818
Rotor	4 × 290 ml Swing out rotor	30314820
	2 × 3 MTP Swing out rotor	30314824
	4 × 250 ml Swing out rotor	30314828
	6 × 250 ml Angle rotor	30314821

Catogory	Description	Item Number
Rotor	6 × 85 ml Angle rotor	30314826
	4 × 85 ml Angle rotor, Hi	30314827
	10 × 50 ml Angle rotor	30314829
	6 × 50 ml Angle rotor, Hi	30314831
	30 × 15 ml Angle rotor	30314832
	20 × 10 ml Angle rotor, Hi	30314833
	44 × 1.5 / 2.0 ml Angle rotor	30372718
	24 × 1.5 / 2.0 ml Angle rotor, Sealable	30642361

FC5816/FC5816R High-Speed Multi-Pro Centrifuges

FC5816/FC5816R Competibility Table

FC5816/FC5816R			0.2/ 0.4 ml	0.5 ml	1.5/ 2.0 ml	4.5 ml	5 ml	7 ml	10 ml	15 ml	16 ml	25 ml	30 ml	50 ml	85 ml	100 ml	175/ 225 ml	250 ml	4- 10 ml*	5- 7 ml*	PCR	MTP
Swing out rotor, 4 × 290 ml, ID																						
Item	30314820																					
For	FC5816	FC5816R			▲				▲	▲		▲		▲		▲		●	▲	▲		
Max Speed	4500 rpm	4500 rpm																				
Max RCF	3780 × g	3780 × g																				
Swing out rotor, 2 × 3 MTP, ID																						
Item	30314824																					
For	FC5816	FC5816R			▲																	●
Max Speed	4500 rpm	4500 rpm																				
Max RCF	2716 × g	2716 × g																				
Swing out rotor, 4 × 250 ml, ID																						
Item	30314828																					
For	FC5816	FC5816R								▲				●					▲	▲		
Max Speed	4500 rpm	4500 rpm																				
Max RCF	3735 × g	3735 × g																				
Angle rotor, 6 × 250 ml, ID																						
Item	30314821																					
For	FC5816	FC5816R			▲				▲	▲			▲	▲			▲	●				
Max Speed	8000 rpm	8000 rpm																				
Max RCF	10016 × g	10016 × g																				
Angle rotor, 6 × 85 ml, ID																						
Item	30314826																					
For	FC5816	FC5816R								▲	▲		▲	▲	●							
Max Speed	11000 rpm	13000 rpm																				
Max RCF	15555 × g	21726 × g																				
Angle rotor, 4 × 85 ml, ID, Hi																						
Item	30314827																					
For	FC5816	FC5816R								▲			▲	▲	●							
Max Speed	12000 rpm	12000 rpm																				
Max RCF	14809 × g	14809 × g																				
Angle rotor, 10 × 50 ml, ID																						
Item	30314829																					
For	FC5816	FC5816R			▲		▲	▲		▲				●								
Max Speed	9000 rpm	10500 rpm																				
Max RCF	11771 × g	16022 × g																				
Angle rotor, 6 × 50 ml, ID, Hi																						
Item	30314831																					
For	FC5816	FC5816R								▲	▲		▲	●								
Max Speed	13000 rpm	13000 rpm																				
Max RCF	15869 × g	15869 × g																				
Angle rotor, 30 × 15 ml, ID																						
Item	30314832																					
For	FC5718	FC5718R			▲		▲	▲		●												
Max Speed	4500 rpm	4500 rpm																				
Max RCF	2830 × g	2830 × g																				

(Continue on next page)

* Blood collection tube

ID: auto rotor identification

Hi: version with higher speed

● Adapter not required ▲ With adapter

FC5816/FC5816R High-Speed Multi-Pro Centrifuges

FC5816/FC5816R Competibility Table

FC5816/FC5816R			0.2/ 0.4 ml	0.5 ml	1.5/ 2.0 ml	4.5 ml	5 ml	7 ml	10 ml	15 ml	16 ml	25 ml	30 ml	50 ml	85 ml	100 ml	175/ 225 ml	250 ml	4- 10 ml*	5- 7 ml*	PCR	MTP
Angle rotor, 20 × 10 ml, ID, Hi																						
Item	30314833																					
For	FC5816	FC5816R							●													
Max Speed	12000 rpm	12000 rpm																				
Max RCF	15775 × g	15775 × g																				
Angle rotor, 44 × 1.5/2.0 ml, ID																						
Item	30372718																					
For	FC5816	FC5816R	▲	▲	●																	
Max Speed	15000 rpm	16000 rpm																				
Max RCF	21128 × g	24039 × g																				
Angle rotor, 24 × 1.5/2.0 ml, Sealable																						
Item	30642361																					
For	FC5816	FC5816R	▲	▲	●																	
Max Speed	15000 rpm	16000 rpm																				
Max RCF	21379 × g	24325 × g																				

* Blood collection tube
ID: auto rotor identification
Hi: version with higher speed

● Adapter not required ▲ With adapter



Frontier™ 5000
Series Multi Pro

FC5916/FC5916R High-Speed Multi-Pro Centrifuges

Standard Features Include:

- ▶ Compatible with up to 14 optional rotors and 75 accessories
- ▶ Capacities from microliter to 4 × 750 ml
- ▶ Improved sample processing through-put with additional rotor for blood collection tubes and standard conical tubes
- ▶ High-speed centrifugation (>10000 rpm) from 0.2 ml up to 85 ml tubes
- ▶ Temperature variable range of -20 °C to 40 °C (FC5916R only)



FC5916/FC5916R High-Speed Multi-Pro Centrifuges

FC5916/FC5916R Rotors



24x1.5 / 2.0 ml Angle rotor, Sealable
Max Speed 14000 rpm, Max RCF 18624 × g
Radius 11 mm
Item Number: 30642361
Auto rotor identification
① The lowest temperature at max speed: 3 °C



6x250 ml Angle rotor
Max Speed 8000 rpm, Max RCF 10016 × g,
Radius 62 mm
Item Number: 30314821
Auto rotor identification
① The lowest temperature at max speed: 3 °C



2x3 MTP Swing out rotor
Max Speed 4500 rpm, Max RCF 2716 × g,
Radius 11 mm
Item Number: 30314824
Auto rotor identification
① The lowest temperature at max speed: -3 °C



6x85 ml Angle rotor
Max Speed 11000 rpm, Max RCF 15555 × g,
Apply to FC5916
Max Speed 13000 rpm, Max RCF 21726 × g,
Apply to FC5916R
Radius 38 mm
Item Number: 30314826
Auto rotor identification
① The lowest temperature at max speed: 15 °C



4x85 ml Angle rotor, Hi
Max Speed 15000 rpm, Max RCF 23140 × g,
Apply to FC5916
Max Speed 16000 rpm, Max RCF 26328 × g,
Apply to FC5916R
Radius 38 mm
Item Number: 30314827
Auto rotor identification
① The lowest temperature at max speed: 5 °C



10x50 ml Angle rotor
Max Speed 10000 rpm, Max RCF 14532 × g,
Apply to FC5916
Max Speed 10500 rpm, Max RCF 16022 × g,
Apply to FC5916R
Radius 29 mm
Item Number: 30314829
Auto rotor identification
① The lowest temperature at max speed: 9 °C



6x50 ml Angle rotor, Hi
Max Speed 13000 rpm, Max RCF 15869 × g
Radius 29 mm
Item Number: 30314831
Auto rotor identification
① The lowest temperature at max speed: 0 °C



20x10 ml Angle rotor, Hi
Max Speed 12000 rpm, Max RCF 15775 × g
Radius 16 mm
Item Number: 30314833
Auto rotor identification
① The lowest temperature at max speed: 0 °C



44x1.5/2.0 ml Angle rotor
Max Speed 16000 rpm, Max RCF 24325 × g,
Radius 11 mm
Item Number: 30372718
Auto rotor identification
① The lowest temperature at max speed: 8 °C



30x1.5/2.0 ml Angle rotor, Sealable
Max Speed 15000 rpm, Max RCF 23643 × g,
Radius 11 mm
Item Number: 30314836
Auto rotor identification
① The lowest temperature at max speed: 9 °C



Angle rotor, 4xPCR8 Strip
Max Speed 15000 rpm, Max RCF 15343 × g
Item Number: 30314841
Auto rotor identification
① The lowest temperature at max speed: -1 °C

FC5916/FC5916R High-Speed Multi-Pro Centrifuges

FC5916/FC5916R Rotors



4x750 ml Swing out rotor
 Max Speed 4000 rpm, Max RCF 3434 × g,
 Radius 99 mm
 Item Number: 30553085
 Auto rotor identification
 ① The lowest temperature at max speed: °C



4x500 ml Angle rotor
 Max Speed 8000 rpm, Max RCF 10367 × g,
 Radius 96 mm
 Item Number: 30553086
 Auto rotor identification
 ① The lowest temperature at max speed: °C

① The lowest temperature at max speed: defined as the lowest temperature can be reached and maintained when the rotor is running at its maximum speed in the centrifuge with its maximum load capacity and ambient temperature is at 23 °C. Lower temperature can still be reached by reducing one or more of the three parameters, speed, ambient temperature, sample load.

Specifications

Model	FC5916		FC5916R	
Maximum Speed	16000 rpm, 10 rpm/set			
Maximum RCF	24325 × g, 10 × g/set		26331 × g, 10 × g/set	
Maximum Capacity	4 × 750 ml			
Temperature range	Air cool		-20℃~40 ℃	
Running Time	Short Spin, 10 sec to 99 hr 59 min 59 sec, or continuous			
Noise level (depending on the rotor)	≤ 63 ± 2 dB(A)			
Number of Compatible Rotors	14			
Acc/Dec Levels	10			
Allowable kinetic energy	60629 Nm		54458 Nm	
AC Power	120V ~ 50/60 Hz	230 V ~ 50/60 Hz	120V ~ 50/60 Hz	230 V ~ 50/60 Hz
Current Consumption	5.6 A	2.8 A	80 A	7.2 A
Power Consumption	640 W	680 W	1630 W	1750 W
Voltage Fluctuation	± 10 %			
Dimensions (W × D × H)	780 × 670 × 590 mm		900× 750 × 560 mm	
Net Weight (without rotor)	98 kg		137 kg	
Environment	For indoor use only			

Product safety: EN 61010-1: 2010, EN 61010-2-020: 2006
 EMC: EN 61326-1: 2013, FCC Part 15 Class B.

Ordering information

Catogory	Description	Item Number
Centrifuge	FC5916 Multi-Pro Centrifuge (rotor not included)	30553036
	FC5916R Multi-Pro Centrifuge (rotor not included)	30553101
Rotor	6 × 250 ml Angle rotor	30314821
	2 × 3 MTP Swing out rotor	30314824
	6 × 85 ml Angle rotor	30314826
	4 × 85 ml Angle rotor, Hi	30314827
	10 × 50 ml Angle rotor	30314829

Catogory	Description	Item Number
Rotor	6 × 50 ml Angle rotor, Hi	30314831
	20 × 10 ml Angle rotor, Hi	30314833
	44 × 1.5 / 2.0 ml Angle rotor	30372718
	30 × 1.5 / 2.0 ml Angle rotor, Sealable	30314836
	24 × 1.5 / 2.0 ml Angle rotor, Sealable	30642361
	Angle rotor, 4xPCR8 Strip	30314841
	Rotor, Swing Out, 4 × 750 ml, ID, Sealable	30553085
	Rotor, Angle, 4 × 500 ml, ID	30553086

FC5916/FC5916R High-Speed Multi-Pro Centrifuges

FC5916/FC5916R Competibility Table

FC5916/FC5916R			0.2/ 0.4 ml	0.5 ml	1.5/ 2.0 ml	4.5 ml	5 ml	7 ml	10 ml	15 ml	16 ml	25 ml	30 ml	50 ml	85 ml	100 ml	175/ 225 ml	250 ml	500 ml	750 ml	4- 10 ml [*]	5- 7 ml [*]	PCR	MTP
Angle rotor, 24 × 1.5/2.0 ml, Sealable																								
Item	30642361																							
For	FC5916	FC5916R	▲	▲	●																			
Max Speed	16000 rpm	16000 rpm																						
Max RCF	24325 × g	24325 × g																						
Angle rotor, 6 × 250 ml, ID																								
Item	30314821																							
For	FC5916	FC5916R			▲				▲	▲			▲	▲				●						
Max Speed	8000 rpm	8000 rpm																						
Max RCF	10016 × g	10016 × g																						
Swing out rotor, 2 × 3 MTP, ID																								
Item	30314824																							
For	FC5916	FC5916R			▲																			●
Max Speed	4500 rpm	4500 rpm																						
Max RCF	2716 × g	2716 × g																						
Angle rotor, 6 × 85 ml, ID																								
Item	30314826																							
For	FC5916	FC5916R								▲	▲		▲	▲	●									
Max Speed	11000 rpm	13000 rpm																						
Max RCF	15555 × g	21726 × g																						
Angle rotor, 4 × 85 ml, ID, Hi																								
Item	30314827																							
For	FC5916	FC5916R								▲			▲	▲	●									
Max Speed	15000 rpm	16000 rpm																						
Max RCF	23140 × g	26328 × g																						
Angle rotor, 10 × 50 ml, ID																								
Item	30314829																							
For	FC5916	FC5916R			▲		▲	▲		▲					●									
Max Speed	10000 rpm	10500 rpm																						
Max RCF	14532 × g	16022 × g																						
Angle rotor, 6 × 50 ml, ID, Hi																								
Item	30314831																							
For	FC5916	FC5916R								▲	▲		▲	●										
Max Speed	13000 rpm	13000 rpm																						
Max RCF	15869 × g	15869 × g																						
Angle rotor, 20 × 10 ml, ID, Hi																								
Item	30314833																							
For	FC5916	FC5916R							●															
Max Speed	12000 rpm	12000 rpm																						
Max RCF	15775 × g	15775 × g																						
Angle rotor, 44 × 1.5/2.0 ml, ID																								
Item	30372718																							
For	FC5916	FC5916R	▲	▲	●																			
Max Speed	16000 rpm	16000 rpm																						
Max RCF	24325 × g	24325 × g																						
Angle rotor, 30 × 1.5/2.0 ml, ID, Sealable																								
Item	30314836																							
For	FC5916	FC5916R	▲	▲	●																			
Max Speed	15000 rpm	15000 rpm																						
Max RCF	23643 × g	23643 × g																						
Swing out rotor, 16 × 50 ml, ID																								
Item	30314841																							
For	FC5916	FC5916R																						●
Max Speed	15000 rpm	15000 rpm																						
Max RCF	15343 × g	15343 × g																						
Rotor, Swing Out, 4 × 750 ml, ID, Sealable																								
Item	30553085																							
For	FC5916	FC5916R							▲	▲	▲		▲	▲		▲	▲	▲	▲	▲	▲	●		▲
Max Speed	4000 rpm	4500 rpm																						
Max RCF	3434 × g	4346 × g																						
Angle rotor, 4 × 500 ml, ID																								
Item	305530856																							
For	FC5916	FC5916R								▲			▲	▲			▲	▲	●					
Max Speed	8000 rpm	8000 rpm																						
Max RCF	10367 × g	10367 × g																						

* Blood collection tube

ID: auto rotor identification

Hi: version with higher speed

● Adapter not required

▲ With adapter



Frontier™ 2000
Series Micro

FC2516 Micro Centrifuge

Economical, Safe and Reliable High-Speed Micro Centrifuge

The Frontier FC2516 High Speed Microcentrifuge reaches a maximum speed of 16,500 rpm/19,080 x g, and accommodates five rotors to handle a sample range from 1.5 to 10 mL. A simple interface allows users to easily change between various functions and set up to nine programs. The centrifuge is designed to meet most high-speed molecular biology lab applications.

Designed for safety - the imbalance sensor identifies a rotor imbalance and stops operation to protect the user

The lid's unique design allows it to remain open at all angles, preventing accidental closure.

View or adjust speed/time during operation easily with the backlit LCD display

Lid automatically opens after the run is complete and the single-turn rotor lid allows users to access the samples fast.

FC2516 uses a quiet and maintenance-free brushless DC motor

The centrifuge housing, chamber and rotor buckets are constructed of corrosion-resistant stainless steel that holds up well to organic solvents.

Compliance:

Product Safety: IEC/EN 61010-1, IEC/EN 61010-2-020

Electromagnetic Compatibility: IEC/EN 61326-1 FCC Part 15 Class B,
Basic environments

Compliance Marks: CE



FC2516 Micro Centrifuge

FC2516 Rotors



12 x 1.5/2 ml Angle rotor, Sealable
Max Speed 16500 rpm, Max RCF 19080 × g,
Radius 10 mm
Item Number: 30694903
Auto rotor identification



10 x 5 ml Angle rotor, Sealable
Max Speed 16000 rpm, Max RCF 17882 × g,
Radius 13 mm
Item Number: 30694904
Auto rotor identification



24 x 1.5/2 ml Angle rotor, Sealable
Max Speed 14000 rpm, Max RCF 17956 × g,
Radius 10 mm
Item Number: 30694908
Auto rotor identification



6 x 10 ml Angle rotor, Sealable
Max Speed 13000 rpm, Max RCF 14196 × g,
Radius 16 mm
Item Number: 30694909
Auto rotor identification



48 x 1.5/2 ml Angle rotor, Sealable
Max Speed 12000 rpm, Max RCF 14079 × g,
Radius 10 mm
Item Number: 30694844
Auto rotor identification

Specifications

Model	FC2516
Speed Range	300 – 16,500 rpm; 5 rpm/increments
Maximum RCF	19,080 x g; 5 x g/set
Maximum Capacity (rotor)	48 x 1.5/2.0 mL
Cooling	Air Cooled
Running Time	1 to 99 min 59 sec or Continuous
Noise Level (depending on the rotor)	≤ 65 dB(A)
Number of Compatible Rotors	5
Acc/Dec Levels	10
AC Power	230 V/50 – 60 Hz
Voltage Fluctuation	± 10%
Current Consumption	3.1 A
Power Consumption	400 W
Dimensions (W x D x H)	380 x 280 x 245 mm
Net Weight (without rotor)	21.0 kg
Shipping Dimensions (W x D x H)	470 x 360 x 355 mm
Shipping Weight (without rotor)	24.0 kg
Environment	For indoor use only

FC2516 Micro Centrifuge

Ordering information

Category	Description	Item Number
Centrifuge	FC2516 Micro Centrifuge	30602507
Rotor	12 x 1.5/2 ml Angle rotor, Sealable	30694903
	10 x 5 ml Angle rotor, Sealable	30694904
	24 x 1.5/2 ml Angle rotor, Sealable	30694908
	6 x 10 ml Angle rotor, Sealable	30694909
	48 x 1.5/2 ml Angle rotor, Sealable	30694844
主机含转子	微量高速离心机 FC2516ZH W/R08 (含转子: 30694908)	30602526

Accessories

	Order No.	30694903
	Description	Rotor, Angle 12 x 1.5/2 mL Sealable FC2000
	Max. Speed	16,500 rpm
	Max. RCF	19,080 x g

Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Rotor, Angle, 12 x 1.5/2.0 mL	1.5/2.0 mL	10 mm	Microtube/Round Bottom/Conical Bottom	12

	Order No.	30694904
	Description	Rotor, Angle 10 x 5 mL Sealable FC2000
	Max. Speed	16,000 rpm
	Max. RCF	17,882 x g

Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Rotor, Angle, 10 x 5 mL	5 mL	13 mm	Round Bottom/Conical Bottom	10

	Order No.	30694908
	Description	Rotor, Angle, 24 x 1.5/2 mL Sealable FC2000
	Max. Speed	14,000 rpm
	Max. RCF	17,956 x g

Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Rotor, Angle, 24 x 1.5/2.0 mL	1.5/2.0 mL	10 mm	Microtube/Round Bottom/Conical Bottom	24

	Order No.	30694909
	Description	Rotor, Angle, 6 x 10 mL Sealable FC2000
	Max. Speed	13,000 rpm
	Max. RCF	14,196 x g

Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Rotor, Angle, 6 x 10 mL	10 mL	16 mm	Round Bottom/Conical Bottom	6

	Order No.	30694844
	Description	Rotor, Angle, 48 x 1.5/2 mL Sealable FC2000
	Max. Speed	12,000 rpm
	Max. RCF	14,079 x g

Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Rotor, Angle, 48 x 1.5/2.0 mL	1.5/2.0 mL	10 mm	Microtube/Round Bottom/Conical Bottom	48

FC2706 Multi Centrifuge



Frontier™ 2000
Series Multi Pro



Economical, Multi-Function Low-Speed Benchtop Centrifuge

The Frontier FC2706 Multi Centrifuge reaches a maximum speed of 6,000 rpm/3,660 x g in 12 sec. The five optional rotors can handle a sample range from 10 to 100 mL in either round bottom or conical bottom tubes. A simple interface allows users to easily change between various functions, and set up to nine programs. It is suitable for common laboratory applications, especially for extraction experiments of food, wastewater and biological samples.

Designed for safety - the imbalance sensor identifies a rotor imbalance and stops operation to protect the user

The lid's unique design allows it to remain open at all angles, preventing accidental closure.

A backlit LCD display allows the user to easily view settings as well as adjust speed/time during operation

The lid automatically opens after the run is complete.

FC2706 uses a quiet and maintenance-free brushless DC motor

The centrifuge housing, chamber and rotor buckets are constructed of corrosion-resistant stainless steel that holds up well to organic solvents.



Compliance:

Product Safety: IEC/EN 61010-1, IEC/EN 61010-2-020

Electromagnetic Compatibility: IEC/EN 61326-1 FCC Part 15 Class B,
Basic environments

Compliance Marks: CE



FC2706 Multi Centrifuge

FC2706 Rotors



6 × 15 ml Angle rotor
Max Speed 6000 rpm, Max RCF 3660 × g,
Radius 17 mm
Item Number: 30692838
Auto rotor identification



12 × 15 ml Angle rotor
Max Speed 5000 rpm, Max RCF 3080 × g,
Radius 17 mm
Item Number: 30694907
Auto rotor identification



6 × 50 ml Angle rotor
Max Speed 5000 rpm, Max RCF 2850 × g,
Radius 28 mm
Item Number: 30694811
Auto rotor identification



6 × 100 ml Angle rotor
Max Speed 5000 rpm, Max RCF 3130 × g,
Radius 41.5 mm
Item Number: 30694814
Auto rotor identification



6 × 10 ml Angle rotor
Max Speed 4000 rpm, Max RCF 2200 × g,
Radius 16 mm
Item Number: 30692865
Auto rotor identification

Specifications

Model	FC2706
Speed Range	300 – 6,000 rpm; 5 rpm/increments
Maximum RCF	3,660 × g; 5 × g/set
Maximum Capacity (rotor)	6 × 100 mL
Cooling	Air Cooled
Running Time	1 to 99 min 59 sec or Continuous
Noise Level (depending on the rotor)	≤ 65 dB(A)
Number of Compatible Rotors	5
Acc/Dec Levels	10
AC Power	230 V/50 – 60 Hz
Voltage Fluctuation	± 10%
Current Consumption	2:00 AM
Power Consumption	300 W
Dimensions (W × D × H)	440 x 320 x 250 mm
Net Weight (without rotor)	21.0 kg
Shipping Dimensions (W × D × H)	530 x 400 x 355 mm
Shipping Weight (without rotor)	24.0 kg
Environment	For indoor use only

FC2706 Multi Centrifuge

Ordering information

Category	Description	Item Number
Centrifuge	FC2706 Multi Centrifuge	30602506
Rotor	6 × 15 ml Angle rotor	30692838
	12 × 15 ml Angle rotor	30694907
	6 × 50 ml Angle rotor	30694811
	6 × 100 ml Angle rotor	30694814
	6 × 10 ml Angle rotor	30692865
主机含转子	多功能通用低速离心机 FC2706ZH W/R07 (含转子: 30694907)	30602508
主机含转子	多功能通用低速离心机 FC2706ZH w/R11 (含转子: 30694811)	30602509

Accessories

	Order No.	30692838			
	Description	Rotor, Angle, 6 x 15 mL FC2000			
	Max. Speed	6,000 rpm			
	Max. RCF	3,660 x g			
Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Rotor, Angle, 6 x 15 mL	15 mL	17 mm	Vacutainer/Round Bottom/Conical Bottom	6
	Order No.	30694907			
	Description	Rotor, Angle, 12 x 15 mL FC2000			
	Max. Speed	5,000 rpm			
	Max. RCF	3,080 x g			
Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Rotor, Angle, 12 x 15 mL	15 mL	17 mm	Vacutainer/Round Bottom/Conical Bottom	12
	Order No.	30694811			
	Description	Rotor, Angle, 6 x 50 mL FC2000			
	Max. Speed	5,000 rpm			
	Max. RCF	2,850 x g			
Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Rotor, Angle, 6 x 50 mL	50 mL	28 mm	Round Bottom/Conical Bottom	6
	Order No.	30694814			
	Description	Rotor, Angle, 6 x 100 mL FC2000			
	Max. Speed	5,000 rpm			
	Max. RCF	3,130 x g			
Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Rotor, Angle, x 100 mL	100 mL	41.5 mm	Round Bottom/Conical Bottom	6
	Order No.	30692865			
	Description	Swing out, Rotor, 6 x 10 mL FC2000			
	Max. Speed	4,000 rpm			
	Max. RCF	2,200 x g			
Order No.	Description	Vol./Tube	Diameter	Tube type	No.of tubes/rotor
Without Adapter	Swing out, Rotor, 6 x 10 mL	10 mL	16 mm	Vacutainer/Round Bottom/Conical Bottom	6

There're more OHAUS balances, giving you countless opportunities to maximize your reach in your customer's laboratories.

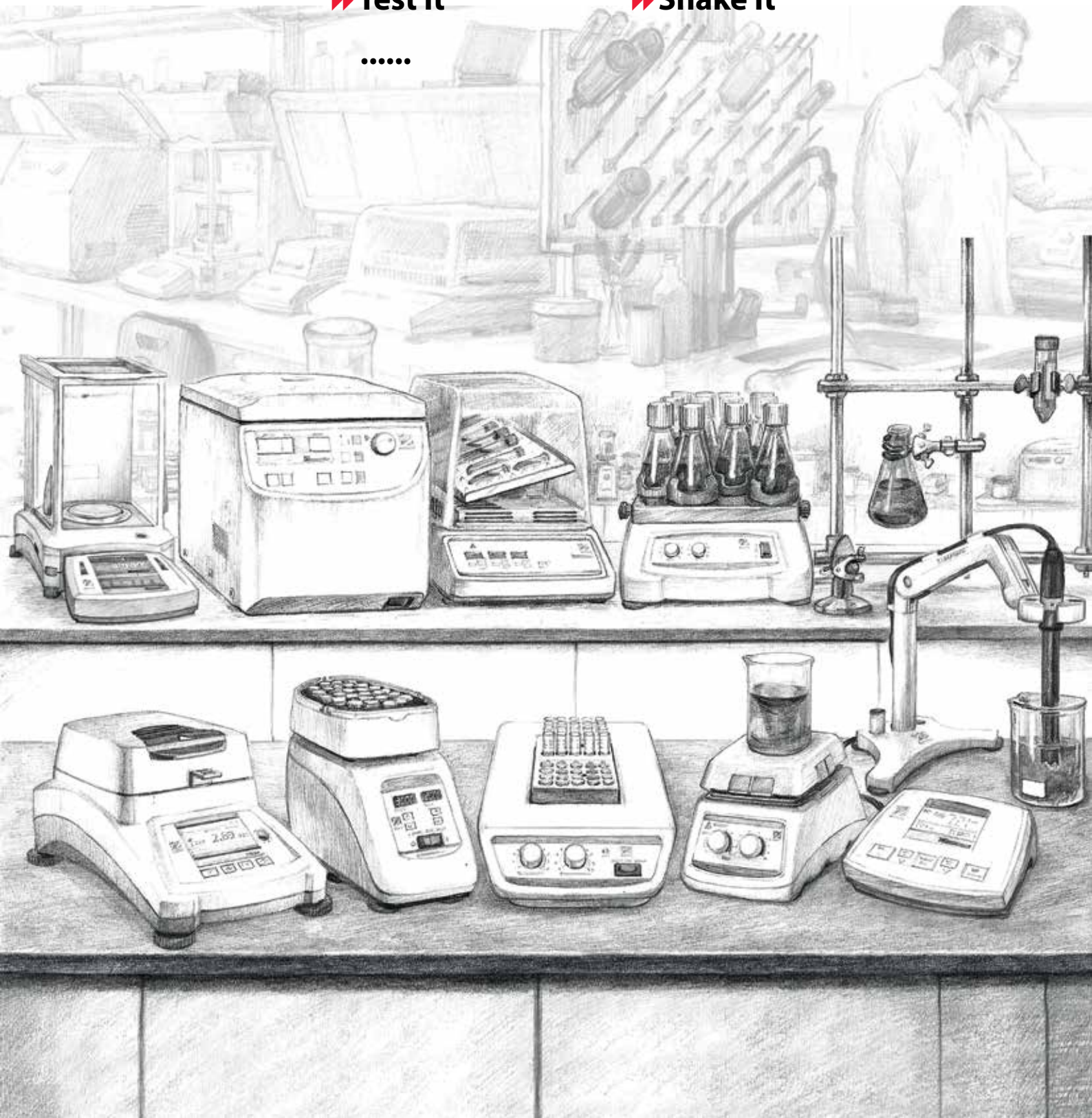
▶▶ **Weigh it**

▶▶ **Dry it**

▶▶ **Test it**

▶▶ **Shake It**

.....





Contact your Dealer for more information



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