Hotplate/Stirrer Selection Guide

Professional Hotplates, Stirrers & Hotplate-Stirrers

Advanced Hotplates, Stirrers & Hotplate-Stirrers

Professional Round Top Hotplate-Stirrers

Advanced Round Top Hotplate-Stirrers

Basic Mini Hotplates, Stirrers & Hotplate-Stirrers

Top Plate Dimensions (L x W)	7 x 7", 10 x 10"	4 x 4", 7 x 7", 10 x 10"	5.3" Diameter	5.3" Diameter	4.5" Diameter
Overall Dimensions (L x W x H)	See page 52	See page 54	14.8 x 9.9 x 4.3" (37.6 x 25.1 x 10.9cm)	14.8 x 9.9 x 4.3" (37.6 x 25.1 x 10.9cm)	6.5 x 5.75 x 4.75" (16.5 x 14.6 x 12.1cm)
Temperature Range					
Ceramic	Ambient +5° to 500°C	Ambient +5° to 500°C	N/A	N/A	N/A
Aluminum	Ambient +5° to 400°C	Ambient +5° to 400°C	N/A	N/A	to 400°C
Stainless Steel	N/A	N/A	Ambient +5° to 400°C	Ambient +5° to 400°C	N/A
Temperature Stability					
Ceramic	± 1%*	± 3%**	N/A	N/A	N/A
Aluminum	± 1%*	± 2%**	± 1%***	± 3%**	N/A
Stainless Steel	N/A	N/A	± 1%***	± 3%**	N/A
Speed Range	60 to 1600rpm	60 to 1600rpm	60 to 1600rpm	60 to 1600rpm	100 to 1200rpm
Speed Stability	± 2%	± 2%	± 2%	± 2%	± 2%
Timer (Digital Models)	1 second to 160 hours	N/A	1 second to 160 hours	N/A	N/A
Maximum Capacity (H_2O)	2500mL, 6000mL	600mL, 2500mL, 6000mL	1500mL	1500mL	1000mL
Ship Weight	See Page 52	See Page 54	11.7lbs (5.3kg)	9.4lbs (4.3kg)	4.5lbs (2kg)

* Plate Control: Below 100°C ±2°C. Environmental and sample conditions permitting.
Probe Control: Below 100°C ±1°C. Environmental and sample conditions permitting.

** Below 100°C ±2°C. Environmental and sample conditions permitting.
*** Below 100°C ±1°C. Environmental and sample conditions permitting.

How to Select a Hotplate/Stirrer

Review the following points to help you select the appropriate hotplate/stirrer for your unique application.

1. Control Types

The **Professional** series offers a closed loop PID microprocessor for both temperature and speed control, but additionally offers electronic feedback for control of both temperature and speed. These units offer the best in accuracy and precision. A built-in timer allows for greater independence. Also included with the Professional series Hotplates and Hotplate-Stirrers is an external stainless steel temperature probe. It guarantees the utmost in sample temperature monitoring and control, delivering ±1% temperature stability and supplied with a 12" flexible arm and three interchangeable clamps.

The **Advanced** series is very accurate and offers a closed loop PID microprocessor for both temperature and speed which automatically stabilizes the top plate for temperature and or stirring speeds by regulating for variations in the system with regards to the original set-point. Utilizing electronic user feedback, it offers the most optimal measure for temperature control by providing greater accuracy and ease-in-use for reproducing your results.

The **Basic Mini** series offers an open loop speed control and a mechanical thermostat that is not designed for exact regulation over speed or temperature. When precision is not needed these units offer an economical and reliable alternative.

2. Temperature needs

Temperature uniformity refers to the consistency of the temperature across the top plate. Each top plate material has its pros and cons. Ceramic top plates are more chemical resistant, heat up very quickly, and are easy to clean. The white reflective surface aids in viewing the sample. However; ceramic tops are subject to thermal shock. Heating of metallic vessels should be avoided. The edges of a ceramic top plate may not be a hot as the center where the heating element is located. Aluminum top plates offer a more uniform heating surface, will not crack or chip but are more susceptible to corrosion and more difficult to clean.

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Standard / Advanced
High Volume Stirrers

Advanced Large Capacity
Stirrer Model 1000 /
Model 2000

Standard / Advanced
Multi-Position Stirrers

Standard / Advanced
Slow Speed Stirrers
4 Position / 10L

Standard / Advanced
Slow Speed Stirrers
1 Position

12.5 x 11"	21.25 x 25"	12.5 x 11"	12.5 x 11""	7 x 7"
17 x 11 x 3.8" (43.2 x 27.9 x 9.7cm)	28.5 x 26.75 x 5.25" (72.4 x 68 x 13.3cm)	17 x 11 x 4" (43.2 x 27.9 x 10.2cm)	17 x 11 x 4" (43.2 x 27.9 x 10.2cm)	21.1 x 8.5 x 3.5" (53.6 x 21.6 x 8.9cm)
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
60 to 1400rpm	100 to 1800 rpm	60 to 1400rpm	1 to 150rpm	1 to 150rpm
± 2%	± 2%	± 2%	±1%	± 1%
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
25L	100L / 200L	See Page 63	1L / 10L	2L
14.6lbs (6.6kg)	63lbs (28.6kg)	14.75lbs (6.69kg)	14.5lbs (6.6kg)	8.8lbs (4kg)

3. Sample size

The size or volume of your sample is another important factor to consider when selecting a hotplate or stirrer. Always consider the largest sample that you may be working with and look for one that can handle that capacity. The capacities listed are based on water. A viscous sample will weigh more than water.

4. Viscosity

Sample viscosity plays a role in selecting a stirrer. The magnetic coupling strength is a factor in determining which size stirrer to choose. The right drive magnet and stir bar combination is needed to efficiently stir the sample. Variables such as sample size or weight and top plate size dictate which stirrer will work best. The stir bar size and shape, the distance between the drive magnet and the stir bar, vessel shape and size, speed and viscosity also must be considered. The more viscous the sample, the greater magnetic coupling strength needed.