

## LABORATORY ROUND-BOTTOM FLASK HEATING

*A safe and efficient way to heat liquids in round-bottom flasks*

### Application

Many applications in chemistry, biology, and research laboratories involve heating liquids for research experimentation. Glass round-bottom flasks are commonly used for distilling, chemical reactions, and refluxing. Round-bottom flasks are desirable for these operations because they have a spherical base that allows more surface area to be heated than a standard flat-bottom flask. Because of the round-bottom design, careful consideration must be made to stabilize the flask and keep the flask upright and safe during use.

There are several methods for heating round-bottom flasks, but most have challenges. Common heating techniques and concerns include:

1. Open flame - This method can create uneven hotspots and less desirable heating performance. It can also introduce many significant safety hazards in a lab environment.
2. Oil and water baths - These are uniform heating methods but leave a liquid residue on the flasks and require special handling.
3. Hot plates - They require additional accessories to accommodate for the round flask shapes in addition to introducing safety concerns.

In addition to simple heating, many of the liquids must be stirred during the heating process. Stirring is required for several reasons:

1. For quicker dissolving time or to speed-up a reaction
2. For mixing or to prevent material separation
3. Equalize the temperature of the liquid in the flask

If the process does not include a way to efficiently stir flask contents during the application, additional cost and effort will be required. For example, extra equipment will need to be purchased or manual stirring will be required.

### Solution

BriskHeat's heating mantles are specifically designed to heat round-bottom flasks. BriskHeat offers cloth mantles for use on ring stands, soft-sided tabletop mantles and metal-housed mantles. Sizes range from 50 ml to 6,000 ml. The flask rests within the spherically shaped knitted fiberglass heating basket to provide stability and safety. The basket's spherical design also allows for premium surface contact around the lower half of the flask for even distribution of heat. The high-temperature heating capability up to 450°C (842°F) provides the versatility needed to perform a wide variety of experimentation processes. For added convenience, the metal-housed mantles are available with or without a built-in temperature controller. The heating mantle's housing is designed to accommodate a frame rod used for connecting clamps, rings, etc. to the apparatus

Metal-housed, round-bottom flask heaters are also available with magnetic stirrers. A polycoated metal pellet is placed in the contents of the round-bottom flask, and a magnet under the heater moves in a circular motion causing it to follow and stir the liquid. These versions include a built-in temperature controller and are available in sizes from 100 ml to 1,000 ml.



#### Industries

Analytical Instrumentation/ Laboratory	Cosmetics/Personal Care
Chemical Processing/ Extractions	Food & Beverage Processing
	Life Science/Medical/ Pharmaceutical

#### Types of Users

Lab Managers	Chemists
Process Engineers	Project Managers
Scientists	