

Aluminum Heating Mantle for Round-Bottom Flasks

Operating Manual

Laboratory Equipment

Intended use

Controlled electrical heating of round-bottom flasks for laboratory distillation, reflux, extraction, synthesis and solvent evaporation.

Intended users

Trained laboratory personnel in chemistry, pharmaceutical, research, teaching and extraction laboratories.

Read this manual completely before first use and keep it with the product. This document provides general operating, care and safety guidance. Where the product is supplied with manufacturer labeling or instructions, those take precedence. For questions, a replacement copy, or a digital copy of this manual, email sales@scimedstore.com.

1. Safety

Safety warnings and cautions

- Connect only to a grounded outlet with the supply voltage marked on the unit.
- Never operate the mantle empty or with an empty flask; this damages the heating element.
- Use only a round-bottom flask of the size matching the mantle capacity, sitting fully and snugly in the mantle.
- Hot surfaces: the mantle and flask stay hot after switching off. Use heat-resistant gloves and allow to cool before handling.
- Heat flammable or volatile solvents only in a fume hood, with appropriate condensers, and keep ignition sources away. Never heat a closed (sealed) system.
- Do not allow liquids to spill into the mantle. If a spill occurs, switch off and unplug immediately and do not use until fully dry and checked.
- Unplug before cleaning, moving or servicing. Do not use if the cord, housing or heating element is damaged.
- Do not leave the mantle running unattended unless your laboratory procedures permit it.

2. Specifications

Capacity	Varies by variant: 50 mL, 100 mL, 250 mL, 500 mL, 1000 mL, 2000 mL, 5000 mL, 10000 mL, 20000 mL
Heater power	Varies by variant: 50 mL 60 W; 100 mL 60 W; 250 mL 150 W; 500 mL 200 W; 1000 mL 300 W; 2000 mL 450 W; 5000 mL 600 W; 10000 mL 2 x 500 W; 20000 mL 3 x 700 W
Heating element	Electrically heated knitted glass yarn, no joints
Body	One-piece spun aluminum, powder-coated / stove-enamel painted
Controls	Energy regulator / temperature controller, temperature indicator, mains switch
Typical temperature	Ambient to approx. 450°C at flask surface (depends on contents, flask and insulation)

3. Unpacking and setup

- 1 Unpack and check the mantle, cord and control panel for transport damage.
- 2 Place the mantle on a stable, level, heat-resistant surface or a lab jack, inside a fume hood when using solvents.
- 3 Check that the supply voltage marked on the unit matches your supply.
- 4 Confirm the regulator is set to its lowest setting and the mains switch is off.
- 5 Clamp the flask neck to a retort stand so the flask is supported independently of the mantle.
- 6 Plug the power cord into a grounded outlet.

4. Operation

Heating a flask

- 1 Fill the flask with the liquid to be heated (do not exceed the recommended fill level for your method) and add boiling chips or a stir bar where appropriate.
- 2 Lower the clamped flask into the mantle so it seats fully in the heating cavity.

- 3 Connect condensers or other glassware as required by your procedure, making sure the system is vented.
- 4 Switch on the mains switch.
- 5 Turn the energy regulator / temperature controller up gradually and watch the temperature indicator.
- 6 Increase the setting in small steps until the required heating rate or boiling is reached; avoid sudden high settings.
- 7 Monitor the process throughout and reduce the setting if boiling becomes too vigorous.

Switching off

- 1 Turn the regulator to its lowest setting and switch off the mains switch.
- 2 Raise the flask out of the mantle with the clamp or lower the mantle on the lab jack if rapid cooling is needed.
- 3 Allow the mantle and flask to cool before dismantling glassware.
- 4 Unplug the mantle when finished.

5. Cleaning and disinfection

- Switch off, unplug and allow to cool fully before cleaning.
- Wipe the outer aluminum body with a soft cloth lightly dampened with mild detergent; dry thoroughly.
- Remove dry debris from the heating cavity with a soft brush. Do not pour or spray liquids into the cavity.
- Do not use abrasive cleaners or solvents on the painted body or control panel.
- Do not immerse the mantle in water or autoclave it.

6. Maintenance and storage

- Store in a clean, dry place with the cavity covered to keep dust out.
- Inspect the power cord, control panel and heating element regularly for wear, discoloration or damage.
- Have the heating element replaced by qualified personnel if it becomes damaged or contaminated by spills.
- Refer electrical repairs to qualified service personnel.

7. Troubleshooting

Problem	Likely cause	What to do
Mantle does not heat	No power, mains switch off or regulator at minimum	Check the outlet and cord, switch on the mains switch and raise the regulator setting.
Heating is slow	Flask not seated fully or mantle larger than flask	Use a flask that matches the mantle capacity and seat it fully; insulate the flask neck if your method allows.
Overheating or bumping	Setting too high or no boiling chips / stirring	Reduce the setting and use boiling chips or stirring per your method.
Smoke or odor from the mantle	Spilled material on the heating element	Switch off and unplug immediately; allow to cool and have the element inspected before reuse.
Temperature indicator not responding	Indicator or sensor fault	Switch off and contact service.

8. Disposal

- Remove any chemical residue before disposal, following your laboratory's chemical waste procedures.
- Dispose of the unit as electronic waste in accordance with local regulations. Do not discard in household waste.

9. Warranty and support

Products are covered by SciMed's standard warranty (12 months from purchase unless a different period is stated on your invoice). Warranty terms: scimedstore.com/pages/warranty.

Support, spare parts and additional copies of this manual: sales@scimedstore.com. Please include your order number and a photo of the product or issue.

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