

INSTRUCTIONS FOR BONDING KAPTON HEATERS WITH MINCO #14 OR #17 ADHESIVE

Minco #14 and Minco #17 are .001" (.025 mm) thick thermosetting modified acrylic film adhesives. They are suitable for bonding Kapton-insulated Thermofoil heaters to most flat or curved surfaces. The useful temperature range of the adhesive is -200°C to 150°C (-328°F to 300°F) continuous exposure, and 205°C (400°F) intermittent exposure.

The film adhesive is applied to the heater at the factory and must be subjected to heat and pressure to bond and fully cure the heater to a surface. The adhesive shelf life should exceed 6 months when stored at 25°C (77°F) and 50% relative humidity. When heaters are bonded per the following instructions, the typical heater to surface peel strength will exceed 3 pounds per inch width.

Minco recommends that you consider factory mounting of heaters when using these films, to take advantage of our specialized lamination equipment and expertise.

1. Clean the heat sink surface of all dust, oil, and other contaminants. Ultrasonic cleaning followed by vapor degreasing is the preferred method for cleaning. Other methods such as a detergent and water scrub, solvent wipe, or sandblasting are also acceptable.
2. After the bonding surface of the heat sink is clean and dry, remove the backing on the adhesive and hold the heater in position on the surface with several pieces of tape. Use a self-adhering tape, such as polyimide or Teflon film, with a silicone pressure-sensitive adhesive that will withstand 177°C (350°F). Use care when handling the heaters so that the exposed film adhesive is not contaminated with fingerprints or other foreign matter.
3. Apply uniform mechanical pressure (150-250 psi or 10-15 kg/sq. cm) to the heater in a direction normal to the mounting surface. Use a resilient silicone rubber pad (30-40 Shore A hardness) with a Teflon-glass slip sheet between the heater surface and pad as shown in Figure 1 (See page two).

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Engineering Instruction 503

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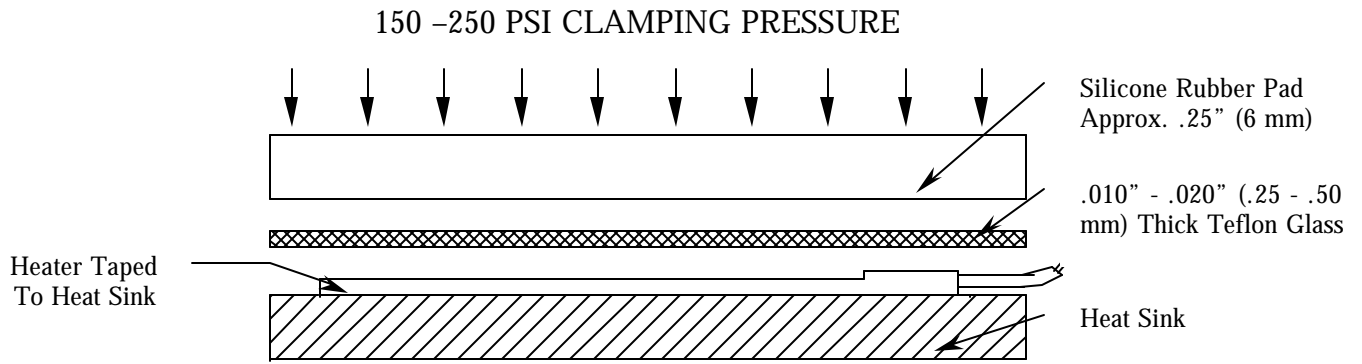


Figure 1 – CLAMPING FOR FLAT HEAT SINK

Pressure can be applied to non-planar heat sink surfaces by casting a silicone rubber mold to the shape of the heat sink. An example of a conical shape heat sink is shown in Figure 2.

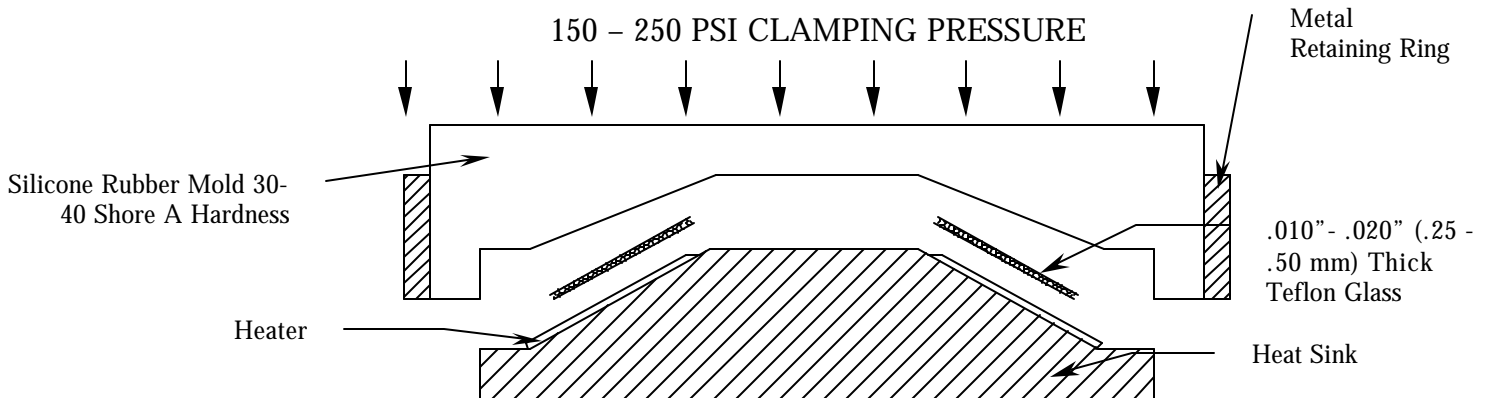


Figure 2 – CLAMPING FOR CURVED HEAT SINK

4. Cure the adhesive under pressure, at 163-177°C (325-350°F) for 15 to 30 minutes (excluding time necessary for warm-up). Cool the assembly to 65°C (150°F) or below before removing pressure.
5. Inspect the installed heater for proper adhesion before applying electrical power. There should be no evidence of air entrapment or non-adhesion within the heating element portion of the heater blanket.

We believe this information to be reliable, but the customer must assume responsibility for heater performance in the intended application. **MINCO accepts no liability beyond our standard warranty for consequences of improper installation and/or heater or adhesive failure.**

If any questions or problems occur, contact your MINCO sales representative or the factory for assistance.