

SPI 00-0598

Mounting Thermofoil™ Heaters & Thermal-Ribbon™ Sensors with #12 Pressure-Sensitive Adhesive

Overview

Minco #12 pressure-sensitive adhesive (PSA) is a silicone based adhesive with thermosetting properties when properly cured. Minco #12 PSA has low adhesion to fingertips. Initial tack or adhesion is low, but optimal adhesion is achieved over time as the adhesive gradually wets-out to the heat sink surface.

Warranty

Minco warranties #12 PSA for six months after the Do Not Ship After (DNSA) date on the part's packaging barcode label. The shelf life of #12 PSA is six months when stored at 21°C (70°F) or below and 50% relative humidity. After this time, the PSA retains its adhesive properties, but it may adhere to the backing making the backing very difficult to remove.

Surface Preparation

Make certain that the surface to which the Thermofoil™ heater or Thermal-Ribbon™ sensor is to be bonded is clean, dry, and dust-free. An etched or otherwise slightly roughened surface usually permits the best bond. Cleaning solvents such as acetone, toluene, or xylene may be used, depending on the surface.

Mounting Procedure

Follow these steps to mount heaters/sensors with #12 PSA.

- 1 Remove the protective release backing from the adhesive side of the heater/sensor. Tweezers are recommended for lifting a corner of the release backing. A quick sharp continuous pull of the release backing at an angle of at least 120° gives the best results. Do not stop until the backing is completely removed.

WARNING: Do not touch the adhesive or allow foreign materials to adhere.

- 2 Carefully position and apply the heater/sensor to the desired surface, making certain that firm, even pressure is applied to the entire bonding area. Try to avoid air entrapment while installing. Hand pressure is sufficient to result in good adhesion at normal room temperature. To achieve maximum bond strength, allow 72 hours wet-out time. If placing a heater/sensor onto a cylindrical surface with a diameter smaller than 6", it may be necessary to wrap heater/sensor with high-temperature tape in order to keep it in contact with the heat sink.

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Mounting Procedure (continued)

- 3 The heater/sensor is now ready for use. However, for best adhesion, steps 4 through 8 are recommended.
 - 4 Press the installed heater/sensor into close contact with the heat sink surface at room temperature using a rubber roller or equivalent. Apply pressure starting at the center of the heater/sensor and roll to each outer edge to remove any entrapped air.
 - 5 Place the installed heater/sensor with part in an oven set at approximately 150°C (300°F) for 10 to 15 minutes to thermally set and cure the adhesive film.
 - 6 Steps 4 and 5 are especially recommended in applications where optimum adhesion is required for a long time. In either case, allow 72 hours wet-out time.
 - 7 If the heater/sensor is mounted on a curved surface, best results can be obtained by applying a fillet of adhesive (Minco #6 RTV cement) between all exposed edges of the heater/sensor and the surface of the mating part.
 - 8 If the mounted heater/sensor is to be operated in a vacuum environment, it is recommended that the heating indicated in step 5 be performed in a vacuum chamber to ensure removal of all entrapped air. The temperature should be set at least as high as the operating temperature, but not to exceed 175°C (350°F).
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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.