

Polyimide Thermofoil™ Heaters

Thin, flexible heating solutions at -200 to 200°C

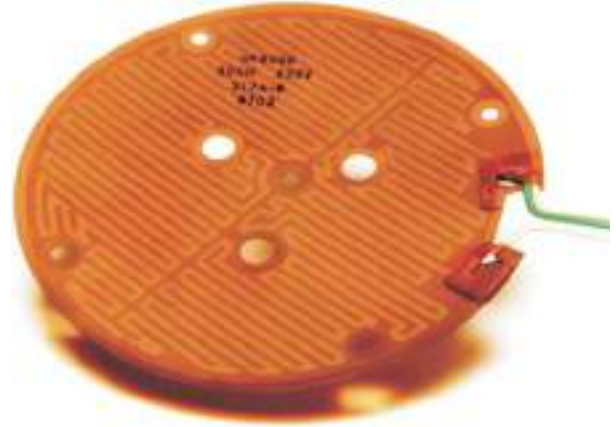
Overview

Polyimide (Kapton™) is a thin, semitransparent material with excellent dielectric strength. Polyimide Thermofoil™ heaters are ideal for applications with space and weight limitations, or where the heater will be exposed to vacuum, oil, or chemicals.

- Thin lightweight heaters allow you to apply heat where it's needed ultimately reducing overall operating costs
- Etched-foil heating technology provides fast and efficient thermal transfer increasing system throughput
- Customized options (i.e. SMT components, flex leads and connectorization) offer turnkey solutions to drastically reduce assembly time and increase productivity
- Custom profiling gives superior thermal performance for optimal quality and placement of the heating output to improve processing yield
- FEP internal adhesive for use to 200°C (392°F)
- UL component recognition available
- Suitable for vacuum environments (NASA-RP-1061)
- NASA approved materials for space applications (S-311-P-079)
- Resistant to most chemicals: acids, solvents, bases (except NaOH)
- Radiation resistant to 10⁶ rads if built with polyimide-insulated leads (custom option)
- Very small sizes available
- Fluid immersible models available (not standard)

Configure Minco heaters and order online at:

www.minco.com/heater_config/



Typical applications

- Medical diagnostic instruments such as heated sample trays, cuvettes, reagent bottles, etc.
- Maintain warmth of satellite components
- Protect aircraft electronic and mechanical devices against cold at high altitudes
- Stabilize optoelectronic components
- Test or simulate integrated circuits
- Enable cold weather operation of outdoor electronics such as card readers or LCDs
- Maintain constant temperature in analytic test equipment

Custom options

- Custom shapes and sizes to 10 × 22" (250 × 560 mm) with FEP adhesive; 12 × 72" (300 × 1830 mm) with WA/ULA
- Custom resistance to 450 Ω/in² (70 Ω/cm²)
- WA or ULA adhesive preferred for custom designs below 150°C
- Available with surface mount sensors, connectors, even integral controllers
- NASA approval is available in nearly all of the standard size Polyimide heaters
- TÜV or UL approval is optional
- Tighter resistance tolerance

Polyimide Heaters

Specifications

Temperature range: -200 to 200°C (-328 to 392°F). Upper limit with 0.003" (0.08 mm) foil backing is 150°C (302°F).

Material: Polyimide/FEP, 0.002"/0.001" (0.05/0.03 mm).

Resistance tolerance: ±10% or ±0.5 Ω, whichever is greater.

Dielectric strength: 1000 VRMS.

Minimum bend radius: 0.030" (0.8 mm).

Leadwire: Red PTFE insulated, stranded.

Current capacity (based on 100°C max. ambient temp.):

AWG 30	AWG 26	AWG 24	AWG 20
3.0 A	5.0 A	7.5 A	13.5 A

Maximum heater thickness:

Over element 0.012" (0.3 mm)

Over leads

AWG 30 (0.057 mm ²)	0.050" (1.3 mm)
AWG 26 (0.141 mm ²)	0.060" (1.5 mm)
AWG 24 (0.227 mm ²)	0.065" (1.7 mm)
AWG 20 (0.563 mm ²)	0.085" (2.2 mm)

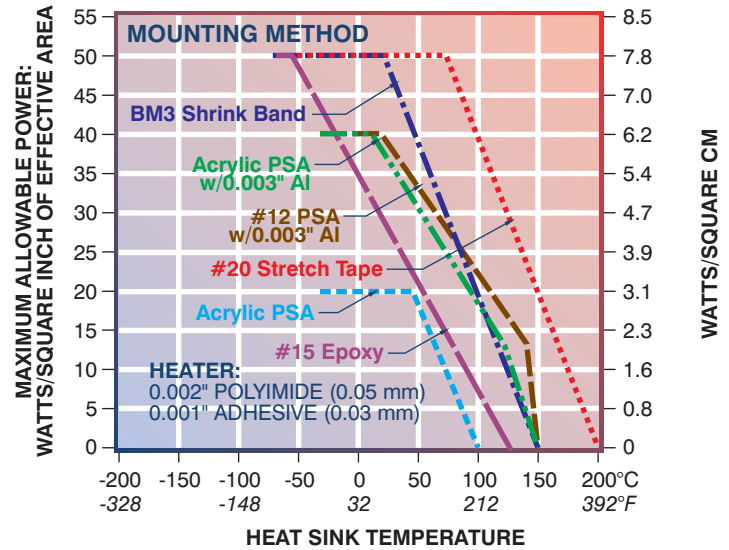
Add 0.005" (0.1 mm) to above dimensions for foil backing.

Dimensional tolerance:

6" (150 mm) or less	±0.03" (±0.8 mm)
6.01 to 12" (150 to 300 mm)	±0.06" (±1.5 mm)
Over 12" (300 mm)	±0.12" (±3.0 mm)

Specifications subject to change.

Maximum Watt Density, Polyimide Heaters



Example: At 50°C, the maximum power for a heater mounted with acrylic PSA is 18 W/in².

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