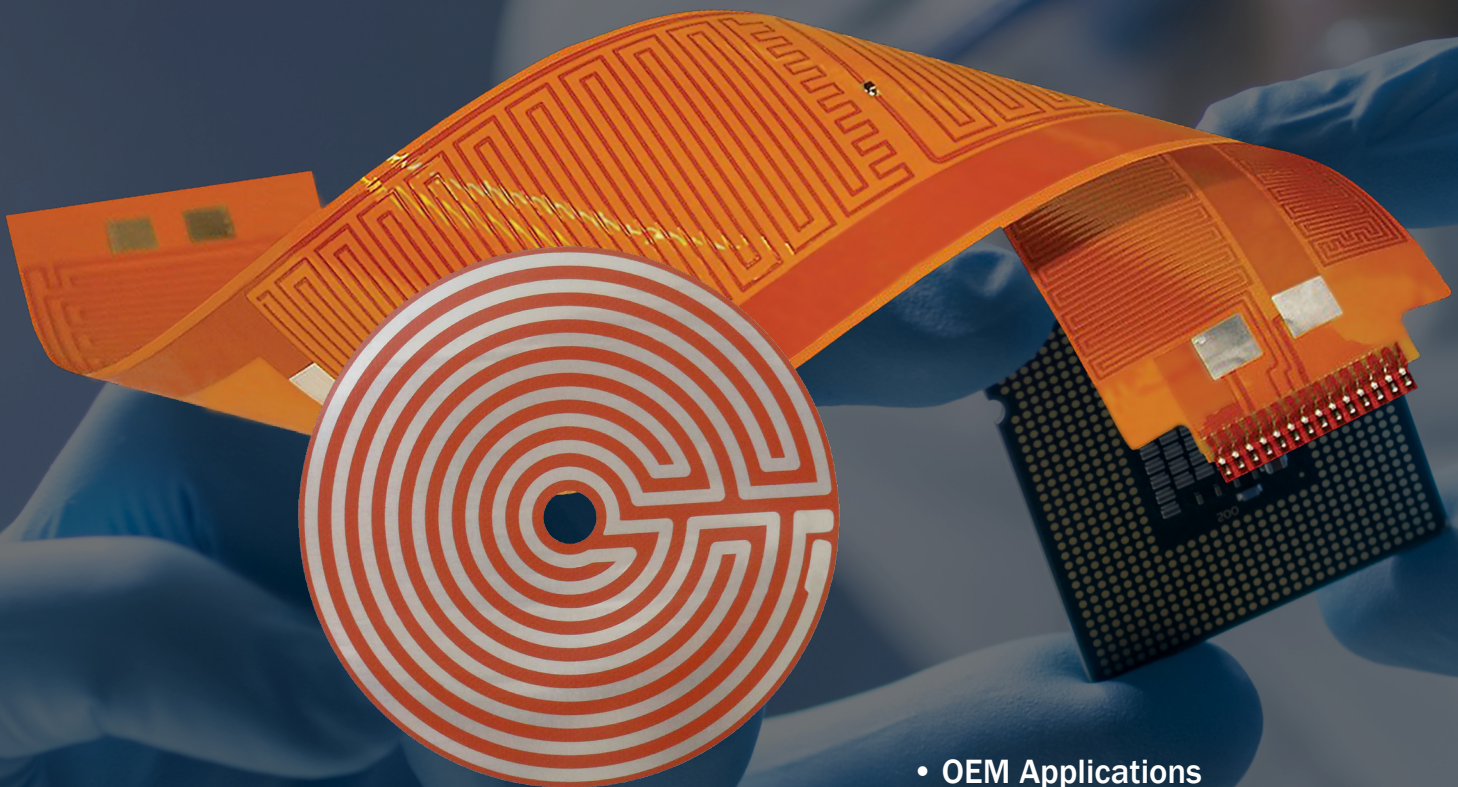


ETCHED FOIL FLEXIBLE HEATERS

Ideal for applications where space and weight are limited, or where heat uniformity is needed.

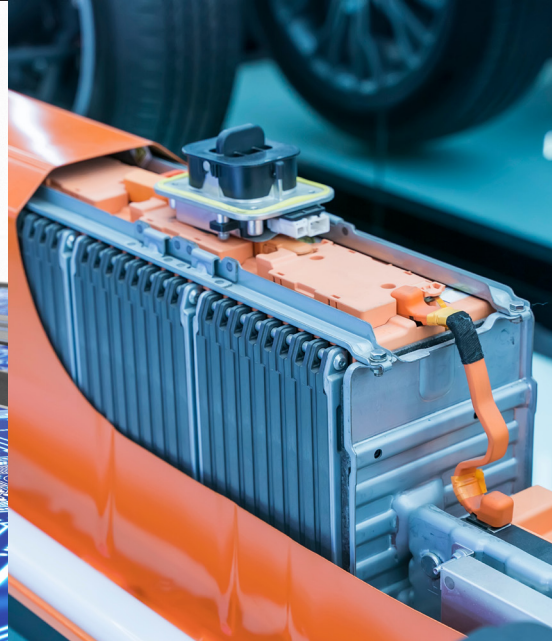
- ▶ Ultra-thin profile
- ▶ High-watt densities
- ▶ Complex forms, shapes, and sizes
- ▶ Uniform heat distribution
- ▶ A wide variety of options to meet your exact requirements



**PRECISION HEAT
MAXIMUM RELIABILITY**

- OEM Applications
- Analytical Instrumentation
- Semiconductor
- Medical
- Electronics
- Aerospace

ETCHED FOIL FLEXIBLE HEATERS



Etched Foil Heaters can be tailored to meet your exact requirements. They are widely used by OEMs in medical diagnostics, military, semiconductor, and other industries to support a variety of heating needs.

Features of Etched Foil Flexible Heaters

- ▶ **Watt densities up to 50 watts/in² (0.077 watt /mm²)**
- ▶ **Even heat distribution: Traces as close as 0.007 in (0.17 mm)**
- ▶ **Variable watt density and heat patterns**
- ▶ **Excellent dielectric strength**
- ▶ **Flexible geometry permits holes, notches, and unusual 3-D shapes**
- ▶ **Available with integrated temperature sensors, thermostats, and a variety of mounting or attachment options**

UNIQUE, CUSTOM FEATURES

BriskHeat offers a large variety of product features. We not only provide the convenience to customize heaters into any shape or size, but also features such as adhesive, materials of construction, lead lengths, and connection types.

LOW TO HIGH VOLUME

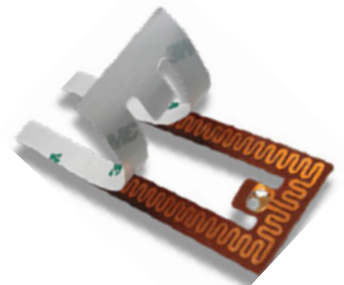
Whether you need a low quantity for prototyping or a high volume during production, the capabilities of our well-integrated operations ensure that we are able to meet your desired quantity.

ISO 9001:2015
Quality System

COMPLIANCE & CERTIFICATIONS

UL approvals available upon request.

We understand medical quality requirements, FDA traceability expectations, medical device qualification procedures and clean room/precision assembly needs.



ETCHED FOIL FLEXIBLE HEATERS

Customized Heater Constructions

BriskHeat works closely with you to ensure the proper design and layout. We have the ability to design, fabricate, and reverse engineer etched foil heaters to meet your exact requirements.



APPLICATIONS

Medical & Life Sciences

Dialysis, CPAP, DNA Analysis, Blood/Fluid Warming, Instrument Warming, MRI Equipment, Sterilization

Aviation & Transportation

Instrumentation, Battery and Oil Heating, Auto and Motorcycles

Telecommunications

Antennas, Enclosures, Microwave Repeaters, Back-Up Battery Systems

Food Service

Warming Cabinets, Heated Display Shelves, Prep Stations

Security

Chemical Detection, Explosives Detection, Cameras

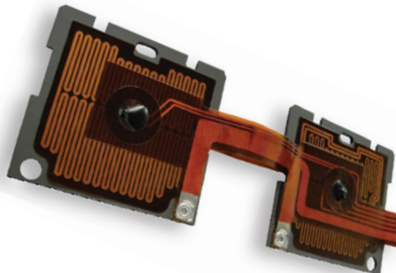
Energy

Fuel Cells, Power Meters, Battery Systems

Industrial

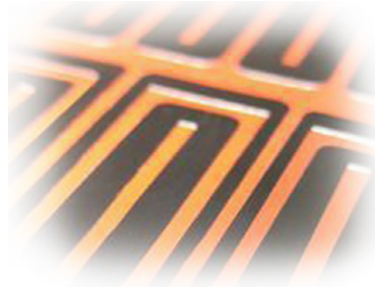
Packaging Lines, Electronic Enclosures, Motor Heaters, Cold Storage Equipment

COMBINATION/HYBRID



A combination of a heater and a flexible circuit.

BIFILAR

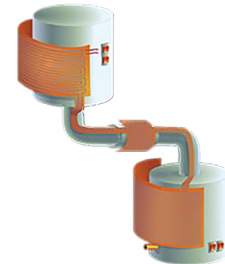


Consists of 2 heating elements within one pattern.

OTHER CUSTOMIZABLE CONSTRUCTIONS

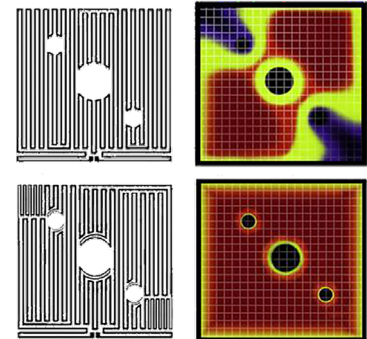
- ▶ Materials
 - Polyimide Film up to 500°F (260°C)
 - Silicone Rubber up to 392°F (200°C)
- ▶ Clearance Holes, Slots, and Cutouts
- ▶ Pressure Sensitive Adhesive (PSA) for peel and stick application
- ▶ Voltage up to 600 volts, 110/220 dual voltage option
- ▶ Incorporate Thermocouples, Thermistors, or RTDs
- ▶ Thermostats up to 240 volts and 15 amps
- ▶ Choice of Leads and Connectors

MULTI-ZONE



Specifically cater to those who need different thermal properties in different areas of one heater.

PROFILED



Consists of varying conductor patterns within one element.

ETCHED FOIL FLEXIBLE HEATERS

Your Choice: Polyimide Film or Silicone Rubber

POLYIMIDE FILM ETCHED FOIL HEATERS

- ▶ Ultra-thin and low mass — very thin heating for very small sizes
- ▶ High dielectric strength
- ▶ Low outgassing
- ▶ Superior tensile strength and tear resistance
- ▶ Resistant to most radiation, chemicals, and solvents

SILICONE RUBBER ETCHED FOIL HEATERS

- ▶ High-strength fiberglass reinforced silicone rubber gives heater dimensional stability without sacrificing flexibility
- ▶ Moisture and chemical resistant

Design Parameters

CHARACTERISTICS	TYPICAL PARAMETERS - Polyimide Film	TYPICAL PARAMETERS - Silicone Rubber
Size Range*	Less than 0.5 in (12 mm) square up to 22 in x 22 in (559 mm x 559 mm)	Less than 0.5 in (12 mm) square up to 22 in x 28 in (559 mm x 711 mm)
Temperature Range	-76°F to 500°F (-60°C to 260°C)	-58°F to 392°F (-50°C to 200°C)
Resistance Range	115 Ω /in ²	115 Ω /in ²
Metal Thickness Range*	0.0005 in – 0.004 in (0.013 mm – 0.102 mm)	0.0005 in – 0.004 in (0.013 mm – 0.102 mm)
Nominal Total Thickness*	0.006 in (0.15 mm)	0.03 in (0.76 mm)
Dielectric Range/ Insulation Resistance	3000 V/mil	400 V/mil
Maximum Power Densities	50 W/in ² (0.077 W/mm ²)	50 W/in ² (0.077 W/mm ²)
Resistance Tolerance*	+10% – 5%	+10% – 5%
Maximum Voltage	Up to 600 V	Up to 600 V
Standard Coverlay Thickness	0.001 in, 0.002 in, 0.003 in, and 0.005 in (0.025 mm, 0.051 mm, 0.076 mm, and 0.127 mm)	0.015 in (0.381 mm)
Leads (if required)	Length/AWG/Coating	Length/AWG/Coating

*Note: These are standard parameters. Please inquire for parameters beyond this range.

Ordering Information

Contact us TODAY about your application.

We specialize in using our engineering expertise to meet your exact requirements.

BriskHeat offers a complete line of heating, insulating, and temperature control solutions



Temperature Controls



Cloth Jackets and Insulators



Flexible Heating Tapes



Heavy-Duty Silicone Rubber Heaters