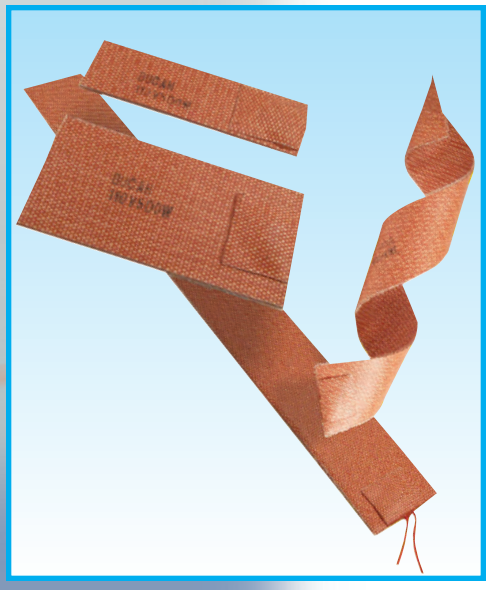
BUCAN ELECTRIC HEATING DEVICES INC.

SILICONE RUBBER HEATERS



Specifications		
	Wire-wound	Etched-foil
Max Length*	144in	22in
Max Width*	37in	10in
Thickness	0.06in/0.12in	0.03in/0.06in
Max Operating Temperature	450°F Intermittent 392°F Continuous	
Max Voltage	600 VAC 125 VDC	
Resistance Tolerance	-5/+10 %	
Wattage Tolerance	-10/+5 %	
Dimensional Tolerance	Up to 6in +/-0.030 6in-12in +/-0.060 12in-36in +/-0.120in Over 36in +/-1%	

*Plase consult the factory
- For possible length and width combinations
- For longer or wider dimensions

Typical Heating Applications:

- *Photo Processing Equipment*
- *Freeze Protection*
- *Computer Equipment*
- *Medical Equipment*
- *Condensation Prevention for Instruments & Equipment*
- *Curing of Plastic Laminates*
- *Semiconductor Processing Equipment*

Silicone rubber heaters are thin, flexible, and lightweight. They can operate between -70°F and 450°F (up to 392°F CSA certified). A fiberglass grid reinforces the silicone laminates making **silicone rubber heaters** rugged and dimensionally stable. The heating circuits inside these heaters are designed to have uniform distribution and because of their proximity to the heated surface, they transfer heat in a rapid, uniform and efficient manner. **Silicone rubber heaters** are moisture and chemical resistant; they can be bonded to flat or curved surfaces and can be built with many features such as: thermostats, temperature sensors or thermal fuses. Silicone rubber heaters are not suitable for vacuum, radiation, and continuous exposure to oils.

Silicone rubber heaters can be manufactured with two types of heating circuits; wire-wound style and etched-foil style. Each construction has its unique characteristics and should be selected accordingly. Wire-wound circuits are formed by creating a specific pattern with resistance wire (single or multi-strand) which is wound around a high temp core for strength and flexibility.

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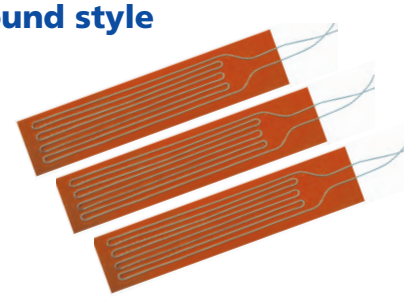
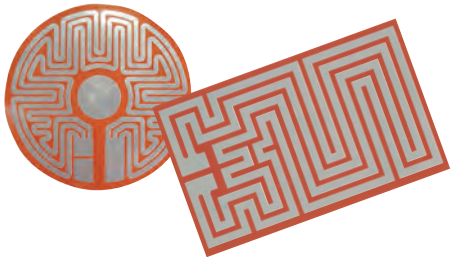
The etched-foil circuit is produced by chemically etching a resistive circuit out of a nickel based alloy resistance foil (0.0005in-0.004in thick) in a clean room process similar to the production of printed circuit boards. Etched-foil circuits are more suitable for complex heat distribution patterns and because of the larger surface area coverage of their resistive elements (75% of the surface), these circuits can have higher watt-densities compared to wire-wound circuits.

Wire-wound style



Etched foil style

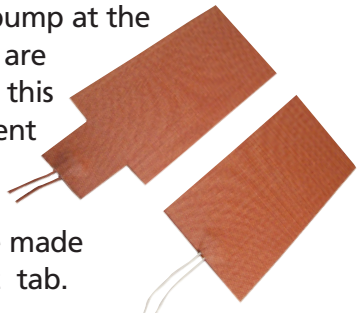


Lead wire styles

Silicone rubber heaters come only with lead-wire terminations. Two styles are available:

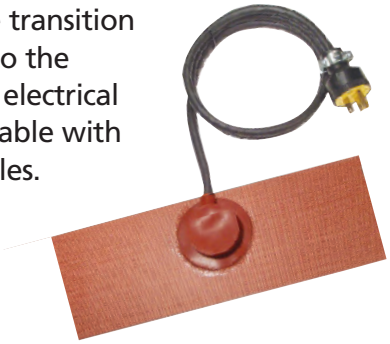
Teflon or silicon lead wires

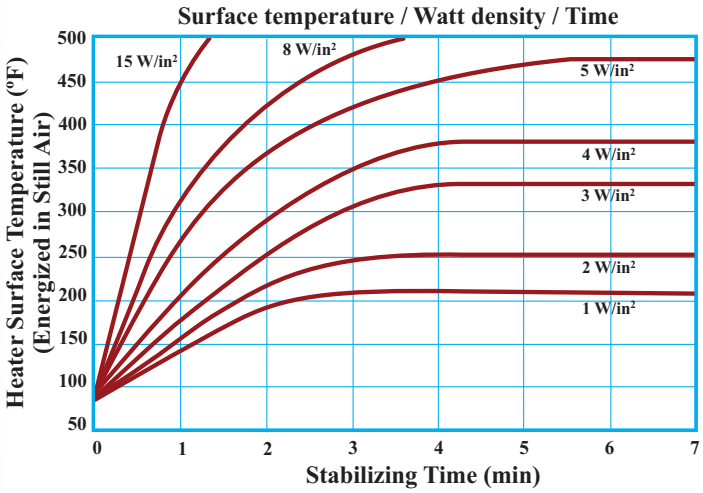
These leads are either sandwiched between the silicone layers or exit on top of the heater. A small patch is placed on the point of exit to provide extra protection. This causes the formation of a slight bump at the point where the wires are attached. To eliminate this problem, the attachment between the internal resistance wire and the lead wire could be made at an external no-heat tab.



Power cables

When silicone rubber heaters are used independently in an industrial application, they can be made with power cables that exit from a silicone transition box attached to the heater. Proper electrical plugs are available with the power cables.





Bucan designs and manufactures highly efficient vulcanising presses

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Attachment methods

RTV adhesives

In the field, a strong bonding to application surfaces could be achieved by using room temperature adhesive pastes. Red colored RTV 106 and transparent RTV 116 are the two types of adhesives available. Both these RTV materials are adequate for temperatures up to 450°F.

Factory vulcanization

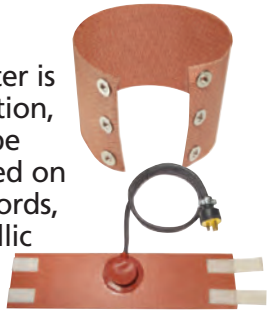
This is the most efficient method to bond a heater to a surface. Using high temperature and pressure, a silicone rubber heater can be vulcanized to a surface. However, bonding through this method can be carried out only in the factory.

Pressure sensitive adhesive

Silicone rubber heaters could be made with a thin layer of high temperature (320°F) adhesive backing. This adhesive, which can easily bond to practically any surface, is supplied with a protective cover, which can be easily removed before applying the heater to any surface. Temperature and watt density restrictions should be maintained when PSA is used. Please consult factory.

Mechanical fasteners

When a silicone rubber heater is wrapped around an application, the ends of the heater can be fastened by attachments used on fabrics. Eyelets with lacing cords, Velcro hook and loop, metallic fasteners with springs, and independent straps are the most commonly used fasteners.



Thermostats, Sensors and Thermal Fuses

Silicone rubber heaters can accommodate process or safety features such as **pre-set** or **adjustable thermostats** which can be mounted on the heater to monitor its temperature or positioned over a cold section to monitor the temperature of the heated part. Thermostats are wired directly into the heater circuit or can be wired separately (Pilot Duty) when the voltage or wattage of the heater exceeds the thermostat range.

Adjustable Thermostats

100°F-165°F	120/240 VAC 1600W Max
70°F-205°F	120/240 VAC 1600W Max
75°F-375°F	120/240 VAC 1600W Max

Pre-Set Thermostats

(Open-Close) 125 VAC/15A, 250 VAC/8A

60°-40°F	120°-90°F	200°-170°F
85°-67°F	140°-110°F	250°-220°F
110°-80°F	150°-120°F	300°-270°F

*For tolerances please consult factory
*For ambient temperature sensing, pre-set thermostat sensing side is exposed to the air.

Silicone rubber heaters can also accommodate other temperature sensors such as: **thermocouples, RTDs** and **thermistors** for use with an external temperature controller. They can also be supplied with non-resettable **thermal fuses** to protect heaters from reaching predetermined temperatures.

Additional Options

- **Holes and Cut-outs** almost anywhere on a heater
- **Complex shapes** for special applications
- **Grounded metallic layer** for electrical shock protection
- **Distributed wattage** or **multi-zone** heating patterns
- **Silicone sponge rubber cover** for thermal insulation
- **Aluminum Foil Backing** to increase heat dissipation