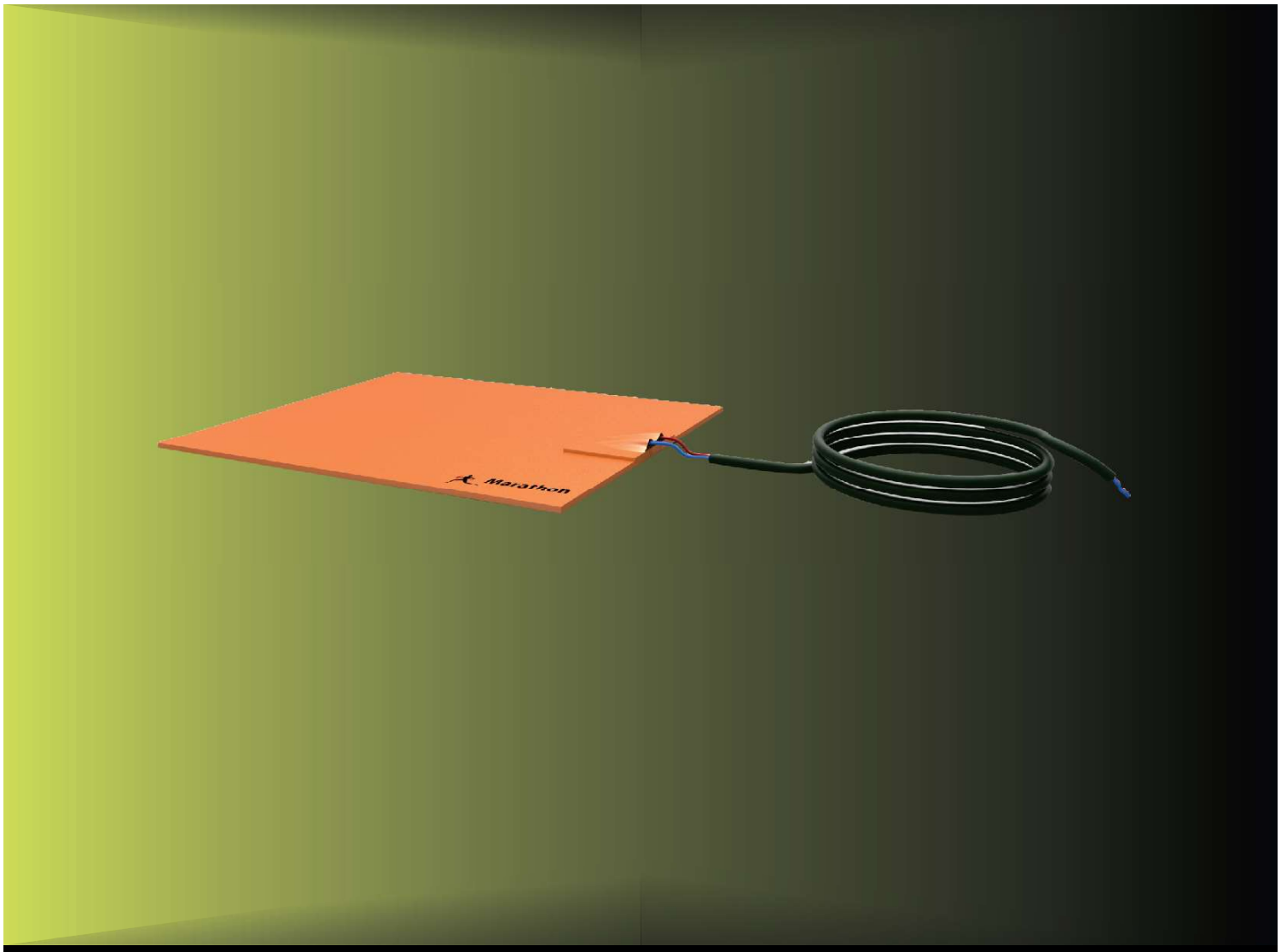
Marathon TempSens

ENGINEERED SOLUTIONS
FOR HEATING & SENSING

ISO 9001-2015 CE IEC Underwriters Laboratories

SILICONE RUBBER HEATERS



MARATHON HEATER (I) PVT. LTD.

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SILLICON RUBBER HEATERS

Silicon rubber heater are extremely thin and flexible and can be constructed in any geometry to fit on almost any type of contours. Their thin design and direct bonding to the application facilitates efficient and rapid heat transfer resulting in faster heating and lower wattage requirement. Silicone Rubber Heaters offer a very high watt density and their versatile design permits higher or lower heat concentration zones to meet distributed wattage requirements. They can be pre-formed to complex shapes and can withstand mechanical shock and vibration. They can also accommodate Thermostats or RTD for precise temperature controls. For ease of connectivity, termination can be provided at any location. Different mounting methods such as pressure sensitive adhesive, field applied adhesive, Velcro etc. are available according to the requirement. Silicone

Rubber Heaters are available in two types-

Wire wound elements consist of the resistance wire wound on a fiber glass cord for support and stability. Wire wound is recommended and preferred for all large and small sized heaters.

Etched foil heaters are made with a thin metal foil (.001") as the resistance element. The etched foil heater provides exceptional heat transfer compared to wire wound elements, due to its large flat surface area.

Construction

1. **The lead wire** consists of high temperature resistance wire wound around a fiberglass core for added support and flexibility
2. **Silicone rubber** are rugged, moisture and chemical resistant, flame retardant, have high dielectric strength.
3. **Nickel Chromium Resistance wire** for maximum life, evenly wound for even heat distribution. Vulcanization process is used to attach the power leads and cord sets to the heater windings.

Technical Specifications

- **Wattage Tolerance :** Wire Wound +5%, -10%
  Etched Foil + 10%, -10%
- **Voltage :** 12V to 600V
- **Max. Operating Temperature :** 250°C
- **Maximum size :** length 1" to 120"
- **Width :** 1 to 36"
- **Thickness :** 0.056" standard, other thicknesses available
- **Watt density :-** 80W/In^2

Note : For custom design requirements please contact sales@marathonheat.com

Design Option

Ground Mesh

For grounding purposes a second layer of insulating material and a conductive grid can be added to the heater. The heater comes with a ground wire. Marathon Heater offers several design options to meet various application requirements.

Silicone Rubber Sponge Insulation

To improve heater efficiency, 1/16", 1/8", 1/4", 3/8" or 1/2" insulation can be bonded to the outside of the heater. Closed cell silicone sponge is extremely flexible and has a Temperature range of "-75°C to 250°C".

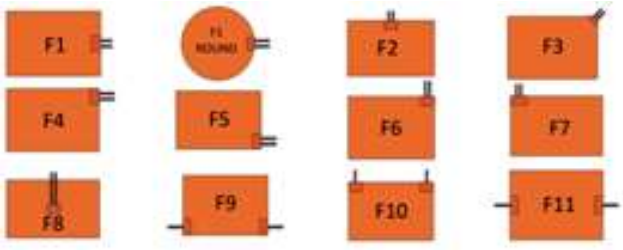
Round Heaters

Round shapes are also available. Round heaters are best attached to tooling with PSA.

Silicone Rubber Enclosure Heaters

Enclosure heaters are used to maintain temperature in any type of electrical box. Typical applications include ATM's, control

Flexible Heater Lead Location Options



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Mounting Methods

Pressure Sensitive Adhesive : Here are several options for installation or mounting Silicone Rubber Heaters. An easy mounting method is to peel and stick. PSA is attached directly to one side of the heater. Just peel away the protective liner and attach the heater to the desired tool. PSA is rated to a continuous temperature of 300 F and a maximum intermittent temperature of 400 F. It is not recommended for curved surfaces. The heater should be installed within 6 months of manufacture.

Factory Vulcanizing : Another method of installation is to send your tool to the Marathon Heater factory. The tool is placed in a vacuum able and the SRH is vulcanized directly to the tool. This is the strongest bond available.

Field applied adhesive : SRH may also be attached with field applied adhesive; Marathon Heater will supply the required RTV to adhere the heater to the desired surface. We offer a room temperature curing adhesive. Apply a thin film of RTV on the entire bottom of the heater. After positioning the heater on the part, use a roller to remove all air trapped between the heater and the part. The RTV should be allowed to cure for 24 hours.

Temperature Controls for Silicone Rubber Heaters:

Marathon Heater Silicone Rubber heaters can accommodate pre- set or adjustable thermostats, thermal cut-offs,RTDs and Type J thermocouples. Each has a specific temperature range and maximum amperage capability . The most common type of temperature control are pre-set and adjustable thermostats. They can be mounted to sense the temperature of the surrounding atmosphere or to sense the part temperature. Not recommended for low voltage applications

.Thermocouples & RTDs are small and are easily embedded anywhere on the heater.

Drum Heaters

Marathon Heater Drum Heaters are an easy way to heat up drum contents. Various sizes and lengths allow you to heat up practically any drum, pail or barrel. Uniform heat prevents scorching or degradation of the contents. The silicone rubber band heater is placed below the level of the fluid. The easy spring lock-up provides movement of the band when content levels fluctuate. The band style drum heater can be used on plastic, alloy or just about any material.

Springs and Grommet : Each end of the spring is attached to a grommet securing the heater to the tool. Grommets are spaced approximately 2" apart

Velcro : 1''Wide Velcro secure the heater to the tool. Temp range 200°C

Band Style Drum Heater applications include:

- Freeze protection
- Viscosity control
- Speeding up the flow of liquids
- Maintaining product consistency

Features

- Easy installation with spring loaded fastener.
- 3 conductor cord set.
- Internally grounded.
- Can be wrapped around any object
- Options thermocouples, RTD's, holes and cut-outs.

Applications

- Food services.
- Heating of pipes.
- Freeze protection.
- Medical services.
- Semi conductor industry.