



## Installation Instructions

### SERVICE REFERENCE

DIVISION 4	SECTION
SALES REFERENCE	PL401-OMC
	161-305399-012
DATE	FEBRUARY, 2004

# Laminated Silicone Rubber Heaters

## INSTALLATION

Laminated silicone rubber heaters are electric heaters with a resistance circuit vulcanized between two or more layers of reinforced silicone rubber. The heaters are thin and flexible making them ideal for a variety of low to moderate temperature applications.

### ⚠ WARNING

**FIRE HAZARD. Maximum temperature rating of silicone rubber is 200°C (392°F). Heater should be controlled via thermostat, temperature controller or watt density to prevent it from over heating.**

**Do not exceed the rated voltage on the heater. All heaters are stamped with their design voltage, and should be installed by a knowledgeable electrician.**

**These heaters are not rated for hazardous locations, and should not be used to heat flammable fuels, or in the presence of flammable fumes.**

### ⚠ WARNING

**ELECTRIC SHOCK HAZARD. Disconnect all power before installing or servicing heater. Failure to do so could result in personal injury or property damage. Heater must be installed or serviced by a qualified person in accordance with the National Electrical Code, NFPA 70.**

Proper mounting of heaters will ensure good heat transfer between the heater and the surface being heated, which in turn will save power and extend the life of your heater.

#### Before installing heaters:

1. The surface to which the heater will be attached should be cleaned of all oil, grease and dirt. Wiping the entire area down with alcohol is recommended.
2. If an adhesive is being used, very smooth or shiny surfaces should be lightly roughened with steel wool or an extra fine sand paper, and then wiped down with alcohol.
3. Very rough surfaces should be avoided.
4. Regardless of the installation method, air pockets should be avoided.

#### Pressure Sensitive Adhesive (PSA)

PSA is a factory applied acrylic adhesive. The adhesive is rated at 150°C (302°F) for continuous use, and 175°C (347°F) for short periods. For this reason, PSA is not recommended for heaters with

watt density greater than 5 wsi. (For heaters greater than 5 wsi, contact the factory about vulcanizing heaters directly to the surface being heated.) PSA is not suitable for rough surfaces, or curved surfaces with a radius tighter than 8".

To mount the heater:

1. After the surface has been cleaned, remove the release paper.
2. Start at one corner or edge, use a roller or squeegee gradually work the heater into place.
3. After the heater is in place, go over the entire surface again with a roller or squeegee, paying special attention to remove all air bubbles. Air bubbles will create hot spots that may cause the heater to over heat and burn out.
4. If possible, energize the heater and let it run at 125°C (257°F) for 1/2 hour prior to putting the heater into application. This will help the adhesive set.

#### Customer Applied Adhesive

If the customer is supplying their own adhesive, it is their responsibility to make sure the adhesive they choose is compatible with silicone rubber. Ogden recommends GE Silicones #108 or #116, RTV silicone adhesive.

To mount the heater:

1. If the customer is supplying their own adhesive, follow the manufacturer's recommendations for applying the adhesive.
2. If they are using the Ogden's recommended GE #108 or #116, liberally apply adhesive to the heater surface, and spread it out using a notched trowel (the kind used for spreading tile adhesive). Make sure the entire surface has a uniform coating.
3. Position the heater in place and using a roller, start from the center and work to the edges of the heater. Make sure there are no voids or air bubbles.
4. Allow the adhesive to set per the manufacturer's instructions.

#### Straps or Spring mounting

Straps and spring closures are a convenient way to wrap silicone heaters around round or nearly round objects such as pipes and drums. As with other types of mounting, good heat transfer is of utmost importance.

1. Make sure surface is clean before applying the heater.
2. Make sure the heater is flat against the surface before tightening the straps or hooking the spring(s).

An un-insulated heater less than 3 wsi will not normally burn out from air pockets between the heater and the surface being heated, but poor contact between the surfaces will take longer to get to temperature desired, and therefore waste energy. Care should be taken to avoid placing heaters over drums with dents.

## INSTALLATION (cont'd.)

### Clamping

Silicone laminate heaters can be sandwiched between two surfaces. As long as good contact is maintained, this can be an effective means of mounting these heaters.

To be effective, both surfaces must be rigid, and should be robust enough so they do not become deformed when exposed to elevated temperatures. At least one of the surfaces must be capable of transferring the heat away from the surface of the heater.

### Contamination

Silicone rubber has very low water absorption, making it useful for many outdoor applications.

Silicone rubber also shows fair to good chemical resistance to lubricating oil, vegetable oil, and animal fat. However, contaminants in these oils may lead to break down of the silicone.

Silicone rubber has fair to poor compatibility with ammonia, hydrochloric acid, hydrofluoric acid, nitric acid, and sulfuric acid. Care should be taken to insure heaters are not subjected to exposure from these chemicals.

### WARRANTY AND LIMITATION OF REMEDY AND LIABILITY

Ogden warrants only that the Products and parts manufactured by Ogden, when shipped, and the work performed by Ogden when performed, will meet all applicable specification and other specific product and work requirements (including those of performance), if any, and will be free from defects in material and workmanship under normal conditions of use. All claims for defective or nonconforming (both hereinafter called defective) Products, parts or work under this warranty must be made in writing immediately upon discovery, and in any event, within one (1) year from delivery, provided, however all claims for defective Products and parts must be made in writing no later than eighteen (18) months after shipment by Ogden. Defective and nonconforming items must be held for Ogden's inspections and returned to the original f.o.b. point upon request. THE FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESS, IMPLIED AND STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Notwithstanding the provisions of this WARRANTY AND LIMITATION Clause, it is specifically understood that Products and parts not manufactured and work not performed by Ogden are warranted only to the extent and in the manner that the same are warranted to Ogden by Ogden's vendors, and then only to the extent that Ogden is reasonably able to enforce such warranty, it being understood Ogden shall have no obligation to initiate litigation unless Buyer undertakes to pay all cost and expenses therefor, including but not limited to attorney's fees, and indemnifies Ogden against any liability to Ogden's vendors arising out of such litigation.

Upon Buyer's submission of a claim as provided above and its substantiation, Ogden shall at its option either

(i) repair or replace its Products, parts or work at the original f.o.b. point of delivery or (ii) refund an equitable portion of the purchase price.

THE FOREGOING IS OGDEN'S ONLY OBLIGATION AND BUYER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY, AND IS BUYER'S EXCLUSIVE REMEDY AGAINST OGDEN FOR ALL CLAIMS ARISING HEREUNDER OR RELATING HERETO WHETHER SUCH CLAIMS ARE BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, BUYER'S FAILURE TO SUBMIT A CLAIM AS PROVIDED ABOVE SHALL SPECIFICALLY WAIVE ALL CLAIMS FOR DAMAGES OR OTHER RELIEF, INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LATENT DEFECTS. IN NO EVENT SHALL BUYER BE ENTITLED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES AND BUYER SHALL HOLD OGDEN HARMLESS THEREFROM. ANY ACTION BY BUYER ARISING HEREUNDER OR RELATING HERETO, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES, MUST BE COMMENCED WITHIN ONE (1) YEAR AFTER THE DATE OF SHIPMENT OR IT SHALL BE BARRED.

W2008M



103 GAMMA DRIVE EXT., PITTSBURGH, PA 15238  
PHONE: (412) 967-3800 FAX: (412) 967-5148