



Silicone Rubber and Metal Enclosure Heaters...

Heating of electrical and mechanical enclosures & panels. Freeze protection and condensation prevention for many types of instrumentation and equipment. Temperature control panels, control valve housings, ATMs, traffic signal boxes

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Silicone Rubber Enclosure Heaters



Finned Steel and Tubular Enclosure Heaters

SILICONE RUBBER ENCLOSURE HEATERS - PRODUCT DESCRIPTION

NPH silicone rubber enclosure heaters are designed for easy installation and safe operation. These rectangular-shaped wire wound silicone rubber heaters are vulcanized to an aluminum mounting plate with mounting holes. They provide superior protection for enclosures of all types against condensation, humidity and freezing. It is recommended that the enclosure heaters be used with a thermostat either built-in or mounted remotely to limit the maximum temperature reached and conserve energy.

A wire wound silicone rubber heater with ambient sensing thermostat and aluminum mounting plate are designed to prevent humidity and moisture accumulation in electrical and mechanical enclosures. Enclosure heaters can be supplied with thermostat separate from heater or without mounting plate.

With built-in ambient sensing thermostat, the minimum width is 2". Available lengths are from 5" to 40" at 5 watts/square inch. Aluminum mounting plate is 1/2" wider than heater. Mounting slots are conveniently located. The suggested mounting is vertical with the thermostat at the bottom as shown. Available thermostat setting is 40°F (4°C) 40°/55°F (4°C/13°C). Consult NPH for other settings available. Minimum quantity may apply.



Silicone rubber enclosure heater with ambient sensing thermostat

Silicone Rubber Enclosure Heaters- Wire Wound

Using evenly spaced resistance wires laminated between sheets of silicone, wire wound silicone rubber heater mats are ideal for prototyping or problem solving applications. Manufactured to customer specifications they can be made in a limitless range of shapes and sizes. High flexibility can be obtained using tough, robust silicone materials which are finding ever increasing applications in the industry. Silicone's wide temperature range, tolerance of -60 to +230 °C and superb electrical properties give it a distinct advantage over other forms of heating.

Silicone Rubber Heaters – Etched Foil Enclosure Heaters

Computer designed chemically etched foil tracks are laminated between thin sheets of silicone to give precise even heating. Suitable for both low and high volume production etched foil heaters have rapid heat up properties with precise temperature control. Heating solutions are available in a limitless range of etch foil heaters to customer specification for multiple industries. Silicone's wide temperature range, tolerance of -60 to 230°C and superb electrical properties give it a distinct advantage over other forms of heating.

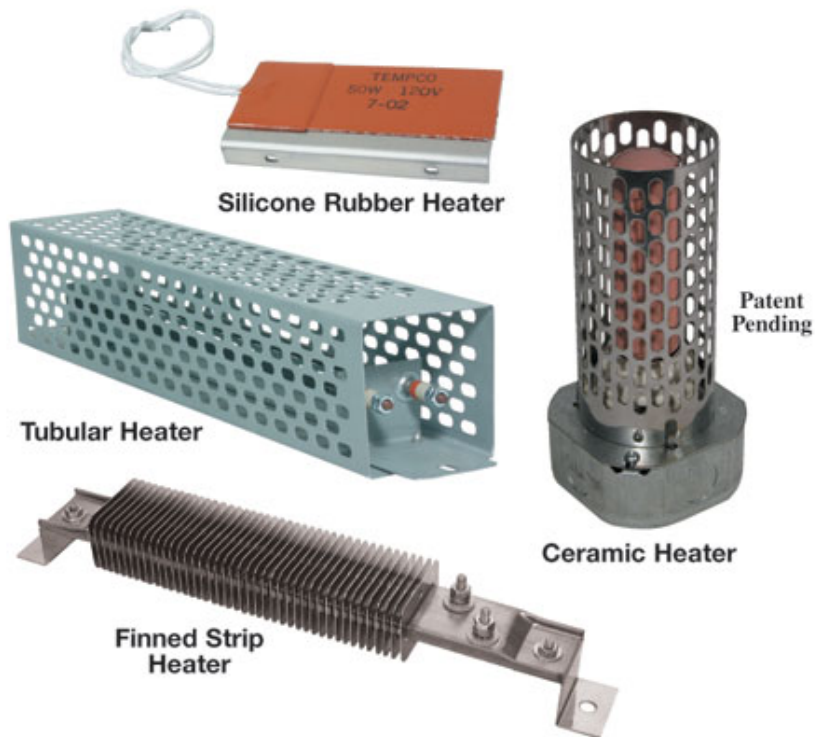
Silicone rubber heaters are extremely versatile and operate efficiently in many environments. Some distinct advantages of silicone rubber heaters are:

- Moisture resistance
- Oil and solvent resistance
- Chemical resistance
- Outdoor exposure
- Extremely thin profiles
- Conform to almost any shape

All silicone rubber heaters are built to order, but rush delivery is available. In most cases, NPH can deliver custom silicone rubber heaters within 48-96 hours. All NPH flexible heaters are available with custom design modification. Custom designs are welcome. Please contact us with your requirements.

FINNED STEEL AND TUBULAR ENCLOSURE HEATERS-DESCRIPTION

NPH Metal sheathed enclosure heaters are the answer to all your enclosure heater needs. Our heaters are designed to help electric, electronic, pneumatic, hydraulic and mechanical equipment perform at top capacity by protecting them against low temperatures, condensation and corrosion. NPH offers many different styles of heaters that can be used in enclosure heating applications. Our most popular styles are displayed above.



Finned Steel and Tubular Enclosure Heaters Applications:

- Traffic Signal Control Boxes
- Automatic Teller Machines
- Outdoor Electrical Power Enclosures
- Control Panels
- Control Valve Housings
- Switch Gear
- Clothing Lockers

Selecting the Right Heater for Your Enclosure Heaters Application

1. Determine the wattage of heater(s) that you need. See the instructions on this page to determine your wattage requirements.
2. Determine the type of heater that you need. Depending upon conditions, one heater type might be better than others. Items to take into consideration are space constraints inside the enclosure and wattages required.
3. Determine the number of heaters you need. You can combine multiple heaters to achieve your wattage requirements.
4. Determine how you will control your enclosure heaters. Will you use built-in thermostats to monitor the temperature? Or will you use a single temperature control to monitor and control the heaters? NPH manufactures a wide range of temperature control devices and when multiple heaters are required, NPH can supply you with the temperature controls that will meet your needs.

Determining the Minimum Wattage for Your Application

- Determine the lowest temperature to which the enclosure is expected to be exposed.
- Determine the operating temperature to which you want the enclosure heated.
- Subtract the ambient temperature from the the enclosure temperature to get the temperature change required.
- Calculate the surface area of the enclosure. For a rectangular enclosure use the formula:
 $2 [(Length \times Width) + (Length \times Height) + (Width \times Height)]$
- Select the correct table below depending upon whether your box is insulated or non-insulated. Read from the table the wattage required depending upon your calculated temperature change and surface area.
- Add an additional 50% of the determined wattage if the enclosure is to be located in windy conditions.

Insulated Enclosure Wattage Selection Table

Temperature	TOTAL SURFACE AREA ft ² (m ²)													
°F (°C)	2 (0.19)	3 (0.28)	4 (0.37)	5 (0.47)	6 (0.56)	7.5 (0.70)	9 (0.84)	10 (0.93)	15 (1.40)	20 (1.86)	25 (2.33)	30 (2.79)	40 (3.72)	50 (4.65)
20 (11)	10	10	15	20	20	25	30	35	50	65	80	100	130	160
40 (22)	15	20	30	35	40	50	60	65	100	130	160	195	260	320
60 (33)	20	30	45	50	60	75	90	100	145	195	240	290	385	480
80 (44)	30	40	55	65	80	100	115	130	195	260	320	320	515	640
100 (56)	35	50	65	80	100	125	145	160	240	320	400	400	640	800
120 (67)	40	60	80	100	115	150	175	195	290	385	480	480	770	960
140 (78)	45	70	90	115	135	175	205	225	340	450	560	560	900	1120

Uninsulated Enclosure Wattage Selection Table

Temperature	TOTAL SURFACE AREA ft ² (m ²)													
°F (°C)	2 (0.19)	3 (0.28)	4 (0.37)	5 (0.47)	6 (0.56)	7.5 (0.70)	9 (0.84)	10 (0.93)	15 (1.40)	20 (1.86)	25 (2.33)	30 (2.79)	40 (3.72)	50 (4.65)
20 (11)	30	40	55	70	80	100	120	135	205	270	335	405	540	670
40 (22)	55	80	110	135	160	200	245	270	405	540	670	805	1075	1340
60 (33)	90	120	160	205	245	300	365	405	605	805	1005	1210	1610	2010
80 (44)	110	160	215	270	325	400	485	540	805	1075	1340	1610	2145	2680
100 (56)	135	200	270	335	405	500	605	670	1005	1340	1675	2010	2680	3350
120 (67)	165	240	320	405	485	600	725	805	1210	1610	2010	2415	3220	4020
140 (78)	190	280	375	470	565	700	845	940	1410	1880	2345	2815	3775	4690



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