



An Extra Degree of ValueSM

Kapton*, Silicone-Rubber-Insulated, and Fiberglass-Woven Heaters

Heaters Flexible in Design and Application to Fit Your Specific Needs



Ogden Flexible Heaters Are Suited for Applications in a Wide Variety of Industries

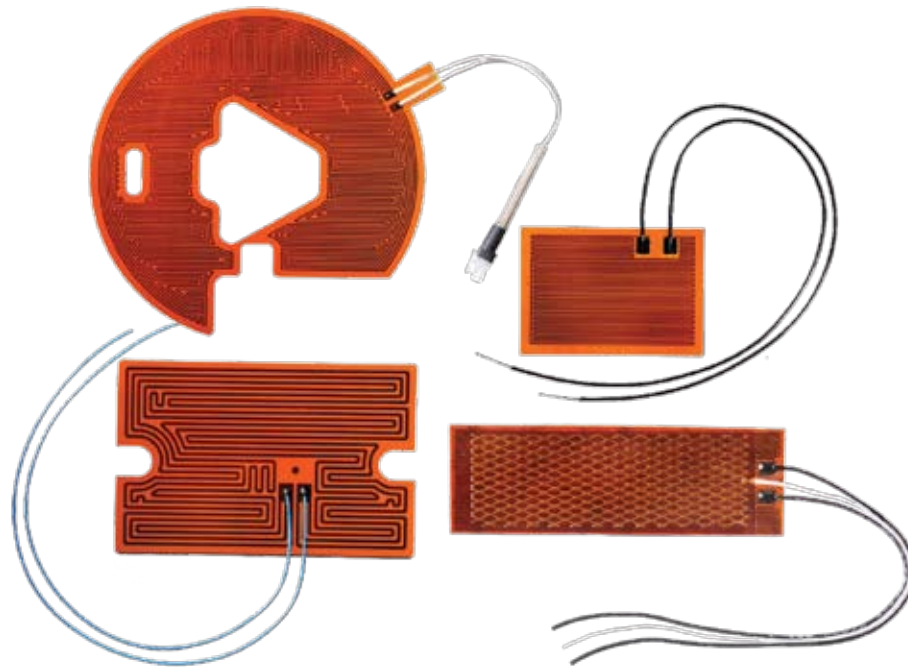
- Medical
- Semiconductor
- Power Systems/
Motors
- Communications
- Food Service
- Laminating/Forming
- Chromatography
- Printing/Copying
- Vending
- Transportation
- Avionics &
Aerospace
- Manufacturing
- Military
- Tank/Vessel
Heating
- Analytical
Instruments
- Electronics

Ogden offers a selection of flexible heaters in a variety of shapes, sizes, and materials to apply direct and efficient heat to most any contour without sacrificing dependability. Holes and slots can be incorporated for positioning on complex surfaces. Their thin profile and direct application to a surface provide fast, efficient heat transfer, requiring less power than traditional methods. In addition to standard models, our flexible heaters can be customized to your particular requirements. Call on Ogden engineering support for assistance to achieve a custom solution.

*Kapton is the registered trademark of E. I. Du Pont De Nemours and Company.

Kapton* Heaters

Thin-Profile Heaters with Superior Dimensional Stability and Flexibility



Features of Kapton Heaters

- Voltages: 24, 28, 115, and 240 standard
- Watt densities:
 - ✓ 2.5 W/in.² (0.4 W/cm²), slow warming
 - ✓ 5.0 W/in.² (0.8 W/cm²), general-purpose heating
 - ✓ 10 W/in.² (1.6 W/cm²), quick warming and high temperature range
- Temperature range: -328° to 392°F (-200° to 200°C)
- Minimum bend radius: 0.032 in. (0.81 mm)
- Resistance tolerances: ±10%
- Overall thickness: 0.007 in. (0.18 mm), except at lead exit
- Dielectric strength: 1,000 Vac
- Power design features: distributed wattage, dual voltage, zoning, 3-phase
- Sizes up to 12 x 18 in. (305 x 457 mm)

Kapton* is a polyimide film that has high dielectric strength (1,000 Vac), allowing for very thin heater construction. It encapsulates etched-foil heating elements bonded with FEP or acrylic adhesive. The result is a heater that is not only remarkably thin—in general, about 0.007 in. (0.18 mm)—resulting in fast thermal transfer, but also exhibits superior dimensional stability, light weight, and flexibility with bends as tight as 0.032 in. (0.81 mm). All together this makes them ideal for putting heat efficiently and effectively exactly where you need it in applications with tight space and weight limitations, and even controlled heat profiles.

Kapton heaters are rugged and durable. They resist most oils and chemicals, including solvents and acids, and they can withstand radiation up to 10⁶ rads.

A Unique Combination of Properties for Critical Applications

The ability to deliver precision heat distribution with ultra-thin, lightweight, flexible construction makes Kapton heaters ideal for applications that are not suitable for other flexible heaters.

Medical

- Life support devices
- Sterilizers, autoclaves
- Surgical instruments
- Blood analyzers
- Sleep apnea equipment
- Dialysis machines
- Incubators

Analytical Instruments

- Diagnostic instruments
- DNA analyzers
- Tissue processors
- Chromatographs

Semiconductor Wafer Processing

- Processing baths
- Chucks

Aerospace, Avionics

- Instrumentation
- Devices

Electronics

- Photocopiers
- Flat panel displays
- Semicon vacuum
- Computers

Ogden Kapton heaters are available in a variety of shapes, sizes, and wattages. Contact your Ogden representative for assistance.

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Ogden SL-N General-Purpose Silicone-Rubber-Insulated Flexible Heaters

For the Greatest Flexibility in Meeting Your Application Requirements



Features of SL-N General-Purpose Silicone-Rubber-Insulated Heaters

- Standard pre-designed sizes and ratings in stock
- Made-to-order designs and ratings available
- Square, rectangular, round, and custom shapes
- Standard 1 in. (254 mm) square to 12 in. W x 48 in. L (305 mm W x 1,220 mm L) in 120 V
- Custom sizes up to 36 in. W x 120 in. L (914 mm W x 3,048 mm L) up to 600 V
- Thickness range from 0.030 to 0.060 in. (0.762 to 1.524 mm)
- Silicone rubber material temperature range: -80° to +390°F (-18° to +200°C)
- Silicone-rubber material is UL recognized for watt densities of:
 - ✓ 5 W/in.² (0.78 W/cm²) in open air
 - ✓ 10 W/in.² (1.55 W/cm²) attached with factory-supplied PSA
 - ✓ 15 W/in.² (2.33 W/cm²) vulcanized to metal part
- Up to 40 W/in.² (6.20 W/cm²) possible with proper temperature control
- Distributed wattage requirements can be met by design
- Standard resistance tolerance: -10%, +5%
- Chemical and moisture resistant
- Choice of mounting methods, temperature controls, termination styles, and grounding options available

Ogden SL silicone-rubber-insulated heating elements are wire or etched-foil heating circuits sandwiched between layers of fiberglass-reinforced silicone rubber insulating material, providing flexibility and strength. They are capable of flexing and will conform to contoured surfaces. They can also be preformed to complex shapes and can be supplied with distributed wattages and multiple heating circuits.

Ruggedness, dimensional stability, flexibility, and superior weatherability are all characteristics of reinforced silicone-rubber heaters.

Standard SL-N General-Purpose Models

Ogden standard SL-N general-purpose heaters are pre-designed and available in a wide array of sizes and ratings. Some models are stocked and can be shipped within 24 hours from receipt of order. All standard SL-N general-purpose heaters are supplied with 10-in. (254-mm) silicone-insulated leads. Stocked items can be modified to include pressure-sensitive adhesive for mounting but require additional lead time.

To order, consult the ordering information table on page 4, specifying model number, PCN, and quantity. Stocked items ship within 24 hours from receipt of order.

Custom SL-N General-Purpose Models

When a standard silicone-rubber-insulated flexible heater will not satisfy the exact requirements of your application, custom SL-N general-purpose heaters can be made to order to exact electrical and dimensional specifications.

Beyond having the same silicone rubber material temperature range, thickness range, and resistance tolerance of standard SL-N general-purpose heaters, custom SL-N general-purpose heaters are available in custom shapes up to 600 volts. They can be made of a single piece up to 36 in. (915 mm) wide by 120 in. (3,050 mm) long.

A variety of mounting methods, temperature control, and termination options is available. There are also options for grounding and a choice of integral insulation. A description of the available options is provided on pages 6 thru 8.

To order, consult the ordering information on the facing page. Or consult your Ogden representative.

Standard SL-N Heater Specification and Ordering Information

Watts	Volts	Dimensions		Model No.	PCN
		Width in. (mm)	Length in. (mm)		
20	120	2 (528)	2 (528)	SL-N-2-2-0-10-120V-20W	121611
50	120	2 (528)	5 (1,270)	SL-N-2-5-0-10-120V-50W	121620
100	120	2 (528)	10 (2,540)	SL-N-2-10-0-10-120V-100W	121638
150	120	2 (528)	15 (3,810)	SL-N-2-15-0-10-120V-150W	121646
200	120	2 (528)	20 (5,080)	SL-N-2-20-0-10-120V-200W	121654
200	240	2 (528)	20 (5,080)	SL-N-2-20-0-10-240V-200W	121662
75	120	3 (762)	5 (1,270)	SL-N-3-5-0-10-120V-75W	121726
150	120	3 (762)	10 (2,540)	SL-N-3-10-0-10-120V-150W	121734
225	120	3 (762)	15 (3,810)	SL-N-3-15-0-10-120V-225W	121742
300	120	3 (762)	20 (5,080)	SL-N-3-20-0-10-120V-300W	121769
300	240	3 (762)	20 (5,080)	SL-N-3-20-0-10-240V-300W	121777
375	120	3 (762)	25 (6,350)	SL-N-3-25-0-10-120V-375W	121785
600	120	3 (762)	40 (10,160)	SL-N-3-40-0-10-120V-600W	121814
200	120	4 (1,016)	10 (2,540)	SL-N-4-10-0-10-120V-200W	121822
250	120	5 (1,270)	10 (2,540)	SL-N-5-10-0-10-120V-250W	121849
375	120	5 (1,270)	15 (3,810)	SL-N-5-15-0-10-120V-375W	121857
500	120	5 (1,270)	20 (5,080)	SL-N-5-20-0-10-120V-500W	121865
450	120	6 (1,524)	15 (3,810)	SL-N-6-15-0-10-120V-450W	121873
600	120	6 (1,524)	20 (5,080)	SL-N-6-20-0-10-120V-600W	121881

NOTE: All supplied with 10-in. (2,540-mm) leads.

SL-N Flexible Heaters Custom Ordering Information

Model	Flexible Heating Elements							
SL-N	General-Purpose Heater							
	Code	Special Mounting Features						
	N	None	V	Velcro*				
	A	Adhesive (PSA)	S	Spring				
	B	Vulcanized	SC	Spring Clasp				
	F	Foil Backing	H	Hooks				
	I	Insulation	C	Preformed				
	E	Eyelets/Mounting Holes						
	Code	Physical Dimensions (in.)						
	xx.xx	Smallest Dimensions (for circular-shaped heaters use designator "xx" only)						
	xx.xx	Largest Dimensions (for circular-shaped heaters, add "OD" to the indicated outside diameter, e.g., 8.25OD)						
	Code	Control Options						
	O	None						
	P	Preset Thermostat (specify temperature, e.g., 300°F max.)						
	A	Adjustable Thermostat (range 70°-140°F, 70°-190°F, or 70°-425°F)						
	J	Type J Thermocouple						
	K	Type K Thermocouple						
	R	RTD (specify rating)						
	D	TFD (specify rating)						
	TF	Thermal fuse (specify high limit)						
	T	Thermistor (specify rating)						
	Code	Lead Length						
	xx	Lead Length, in. (10 in. Standard)						
		Power Cord Length, ft (6 ft Standard)						
	Code	Lead Type						
		Silicone-Rubber-Insulated Leads						
	T	Teflon* Insulated leads						
	CGM	Power Cord without Plug, with Mesh Grid						
	CPGM	Power Cord with Plug, with Mesh Grid						
	CG	Power Cord with Integral Grounding, without Plug						
	CPG	Power Cord with Integral Grounding, with Plug						
	Code	Electrical Specifications						
	V	Voltage						
	W	Wattage						
		Single-Phase Is Standard; Use "3P" for Three-Phase						
SL-	N	5	25	0	10	120V	100W	Typical Model Number
SL-	AI	25	25	40P/120P	6CPG	480V	400W	Typical Model Number

Technical Notes:

1. Cutouts, notches, etc. must be indicated with accompanying detail drawings to show angle of curvature.
2. If adding abrasion protection, add designator: "F" for silicone rubber coated fiberglass sleeving; "A" for armor braiding.
3. Consult your local Ogden Sales Office for recommended grounding methods.

*Velcro is the registered trademark of Velcro Industries B.V.

Options for Customizing Ogden SL-N Silicone-Rubber-Insulated Flexible Heaters

Following are the various options available for customizing Ogden SL-N silicone-rubber-insulated flexible heaters to your exact requirements. Use this information for working with the ordering guidelines on page 5 or to assist you in consulting with your Ogden representative.

Mounting Methods

Ogden provides the best and most economical mounting method for your application.

Pressure-Sensitive Adhesive (PSA)

Silicone, silicone/acrylic, or acrylic pressure-sensitive adhesive tape can be factory bonded to your heating element to provide a strong bond to any clean, smooth surface. Ogden uses a specially manufactured silicone

based PSA that allows for our silicone-rubber heaters to be mounted even on curved surfaces. Simply peel away the protective backing and roll the heaters into place.

Field-Applied RTV Adhesives

Room-temperature vulcanizing (RTV) adhesives can be used to mount heaters up to 5 W/in.² (0.78W/cm²). Your local Dow Corning or GE RTV representative can recommend different adhesives based on your application.

Factory Vulcanized

Ogden can factory vulcanize your silicone rubber heating element directly onto your part. This provides the greatest bond strength and best heat transfer capability of all mounting methods. Ogden can either vulcanize to your

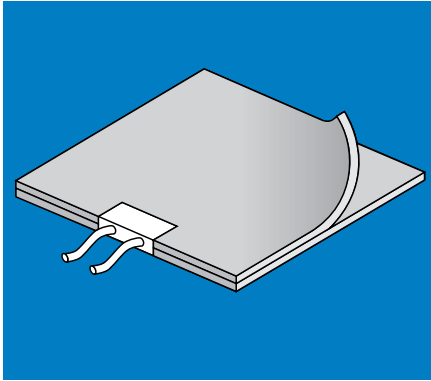
part or manufacture the part in-house, providing you with unsurpassed value-added work. In some cases, special tooling may be required.

Eyelets, Mounting Bars and Hooks

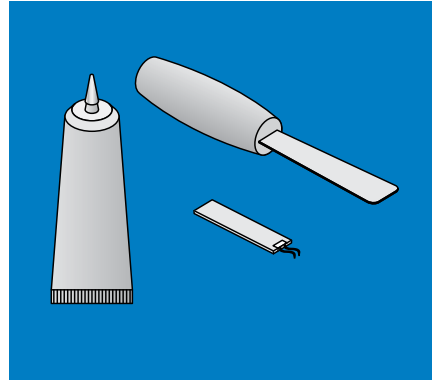
These can be attached or bonded into the heaters to allow for easy lacing of the heaters to the work. Mounting bars provide the greatest strength and longevity because they are thin strips of aluminum vulcanized between layers of rubber insulation.

Silicone or Nylon Straps

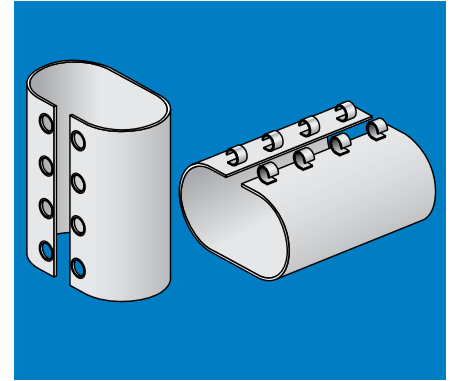
Used with D-rings to provide a simple method of mounting, the straps are slipped through and cinched tight. The straps are vulcanized directly to the heaters to provide durability and strength for repeated attachments.



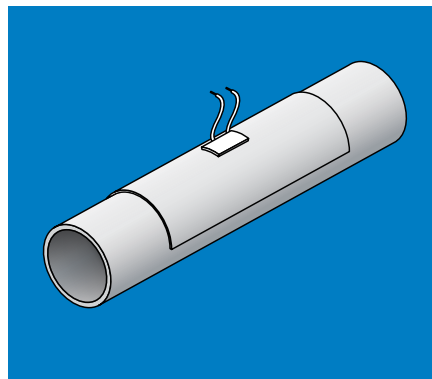
Pressure-Sensitive Adhesive (PSA)



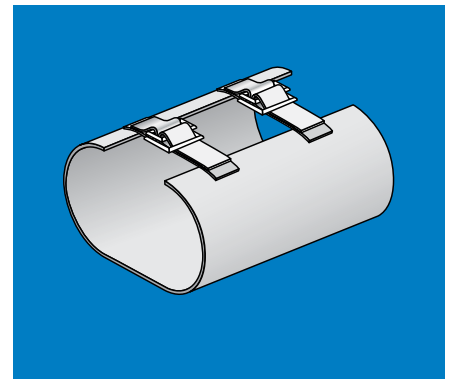
Field-Applied Room-Temperature Vulcanizing Adhesives (RTA)



Eyelets, Mounting Bars and Hooks



Factory Vulcanizing



Straps

Velcro* Closures

Used for lightweight and low-temperature heater applications, and on insulation blankets, Velcro hook-and-loop material is generally sewn onto silicone-rubber straps to provide greater strength and durability.

Springs or Spring Clasps

These are used for quick on/off attachment of the heaters. Mounting bars or plates are vulcanized into the heaters for greater strength and serviceability. Note: The exact circumference of the part to be heated is required when using springs or spring clasps.

Temperature Controls

Ogden provides a wide range of thermostats, thermocouples, RTDs, thermal fuses, and thermistors for

controlling your heated system. All can be mounted to the heater or be free-standing, sensing heater surface, air, or system surface temperature. Sensors can be used in conjunction with one another to provide controlling temperature and overtemperature protection.

Preset Thermostats

Bi-metal thermostats can be molded into the heating elements for part surface, heater surface, or air temperature sensing. The thermostats are mounted in-line with the elements or have their own termination based on the amperage requirements of the heaters.

Thermostats are available in 10°F (6°C) increments up to 300°F (149°C) 125V/15A, 250V/10A. Ogden main-

tains a stock of various temperature settings. Check on availability prior to ordering. Non-stock settings may require additional lead-time.

Adjustable Thermostats

Available in the ranges of 70° to 140°F (21° to 60°C), 70° to 190°F (21° to 88°C), or 70° to 425°F (21° to 218°C), they are mounted to the heaters and covered with a durable rubber box. Adjustments can be made with either a factory-provided knob or with a screw driver. Other temperature ranges are available on request. Thermostats are rated for 1,600 W maximum.

Thermocouples, RTDs, Thermal Fuses, or Thermistors

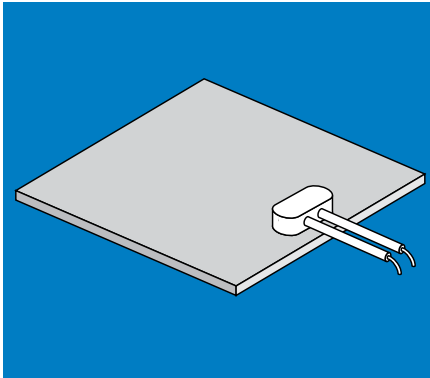
These can also be molded into the heating elements to sense either heater temperature or surface temperature of your part.

Termination Styles

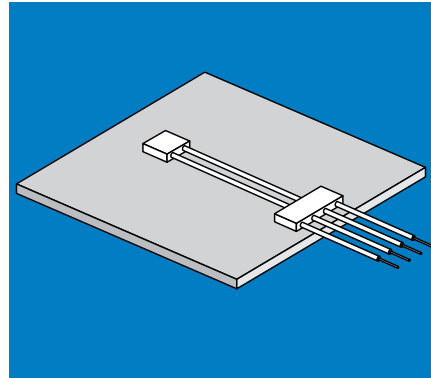
Ogden offers many types of leads and terminal connections for your flexible heaters. Internal connections to the elements can be made at any point on the surface of the heater or project from any edge. Internal or mounted strain reliefs are used in all constructions to ensure durability of your flexible product.

Silicone-, Teflon*, or Neoprene-Insulated Stranded Leads

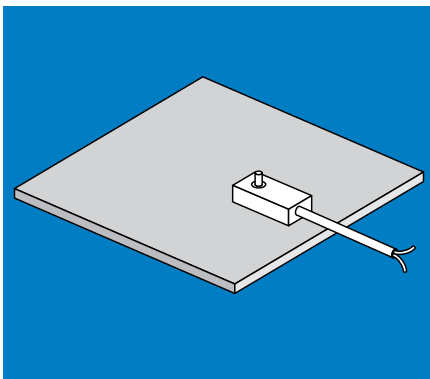
Stranded leads insulated with silicone, Teflon, or neoprene can be encapsulated in the heaters for direct power connection. Silicone-rubber-insulated leads for temperatures to 390°F (199°C) are standard for silicone-rubber heaters. Lead wires can come with a choice of terminals attached.



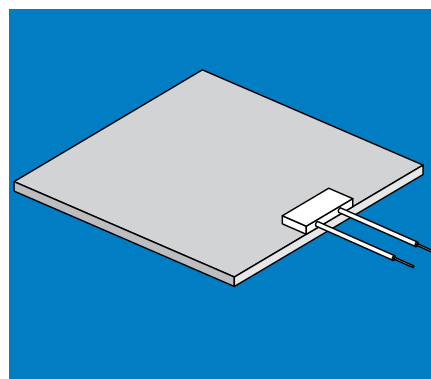
Preset Thermostats



Thermocouples, RTDs, Thermal Fuses, or Thermistors



Adjustable Thermostat



Lead Wires

*Velcro is the registered trademark of Velcro Industries B.V.
Teflon is the registered trademark of E. I. Du Pont De Nemours and Company.

Silicone, Fiberglass Sleeving, or Armor Braiding

To provide greater abrasion resistance, silicone, fiberglass sleeving, or armor braiding can be molded over the lead wires to provide greater abrasion resistance.

Power Cords

Power cords either with or without plugs can be vulcanized into SL-N silicone-rubber-insulated flexible heaters. Internal and external strain reliefs are used to ensure cord attachment strength and

durability of the element. Ground wires, if used, can be mounted to internal grounding screens, mounting plates, or foil backing. All “flying” ground wires are a minimum of 6 in. (152 mm) in length and may have a ring terminal attached for easy field grounding to your part.

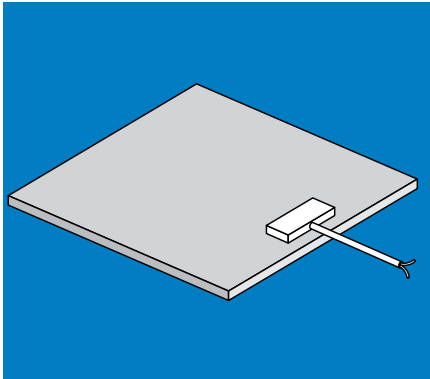
Grounding

To meet evolving NEC requirements, Military standards, or your application needs, grounding can be easily managed with Ogden flexible heaters. Internal grounding screens, surface-

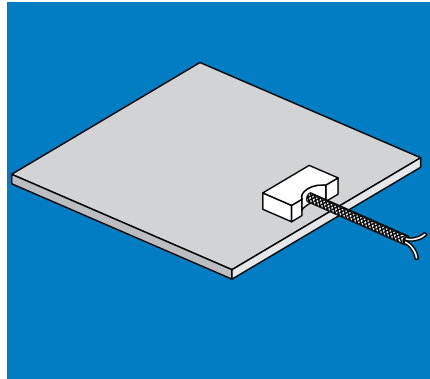
piercing mounting plates, or foil backing can be incorporated in the heater construction to ensure system grounding.

Insulation

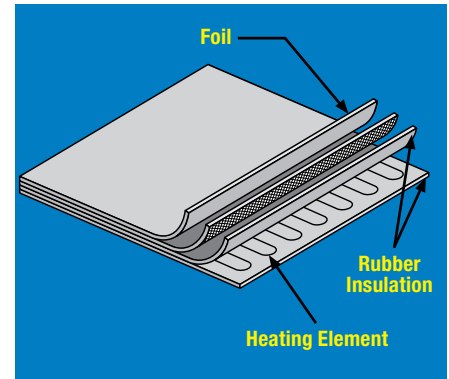
Insulation of the heater element can be achieved by factory bonding silicone or foam rubber to the element or by encasing fiberglass insulation as the outer layer of the heating element. Encasing fiberglass is not recommended for outdoor application since “breathing holes” are used that may allow for moisture absorption.



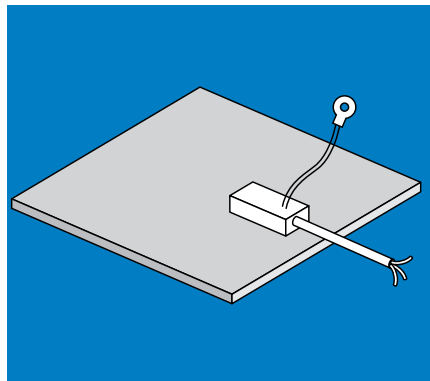
Silicone Sleeving



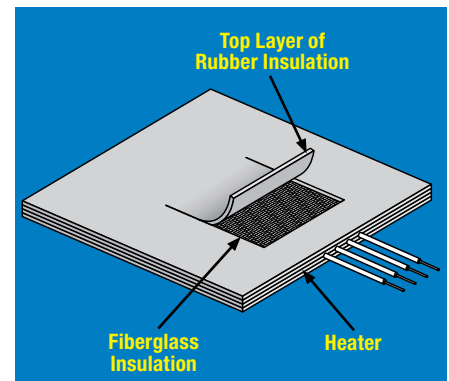
Armor Braid Sleeving



Foil Backing



Power Cord



Encased Insulation

Ogden SL-B Silicone-Rubber-Insulated Enclosure and Air Heaters

Freeze and Condensate Protection in Enclosed Spaces

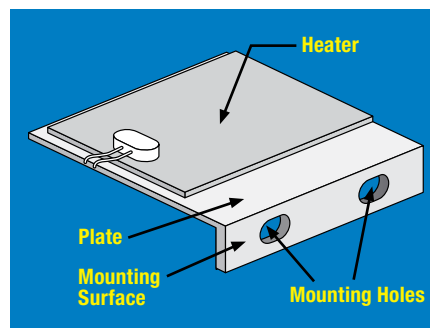


Features of SL-B Silicone-Rubber-Insulated Enclosure and Air Heaters

- 25, 50, 100, and 200 watts
- 120 volts standard; 600 volts available with special thermostats (consult Ogden)
- Vulcanized to mounting plate for easy installation
- 10-in. (254-mm) silicone-insulated leads standard
- Air-temperature-sensing thermostats (40°F/4°C closed, 55°F/13°C open) ensure heater operation in condensation-forming and other air-heating application conditions
- Custom design available (consult Ogden)

Ogden SL-B silicone-rubber-insulated enclosure and air heaters are used for freeze protection and condensate protection in electrical enclosures. They are also installed in equipment to keep mechanical components functioning in applications such as ATM machines and automatic doors. Shipment can be made within 24 hours from receipt of order.

The SL-B enclosure heaters are factory vulcanized to an aluminum mounting plate that allows for easy installation. The mounting surface is perpendicular to the heater and has two mounting holes. If using the heater with the integral thermostat, vertical mounting with the sensor towards the base of the enclosure is recommended.



Example installation of a Ogden SL-B silicone-rubber-insulated enclosure heater.

Determining Minimum Recommended Wattage for SL-B Enclosure and Air Heater Applications

°F (°C) Above Ambient	Total Surface Area, ft ² (m ²)													
	2 (0.2)	3 (0.3)	4 (0.8)	5 (0.5)	6 (0.6)	7.5 (0.7)	9 (0.9)	10 (1.0)	15 (1.4)	20 (1.9)	25 (2.3)	30 (2.8)	40 (3.7)	50 (4.7)
Uninsulated Enclosures														
20 (11)	30 (2.8)	40 (3.7)	55 (5.1)	70 (6.5)	80 (7.4)	100 (9.3)	120 (11.1)	135 (12.5)	205 (19.1)	270 (25.1)	335 (31.1)	405 (37.6)	540 (50.2)	670 (62.3)
40 (22)	55 (5.1)	80 (7.4)	110 (10.2)	135 (12.5)	160 (14.9)	200 (18.6)	245 (22.8)	270 (25.1)	405 (37.6)	540 (50.2)	670 (62.3)	805 (74.8)	1,075 (99.9)	1,340 (124.5)
60 (33)	90 (8.4)	120 (11.1)	160 (14.9)	205 (19.1)	245 (22.8)	300 (27.9)	365 (33.9)	405 (37.6)	605 (56.2)	805 (74.8)	1,005 (93.4)	1,210 (186.7)	1,610 (149.6)	2,010 (186.7)
80 (44)	110 (10.2)	160 (14.9)	215 (20.0)	270 (25.1)	325 (30.2)	400 (37.2)	485 (45.1)	540 (50.2)	805 (74.8)	1,075 (99.9)	1,340 (124.5)	1,610 (149.6)	2,145 (199.3)	2,680 (249.0)
100 (55)	135 (12.5)	200 (18.6)	270 (25.1)	335 (31.1)	405 (37.6)	500 (46.5)	605 (56.2)	670 (62.3)	1,005 (93.4)	1,340 (124.5)	1,675 (155.6)	2,010 (186.7)	2,680 (249.0)	3,350 (311.2)
120 (66)	165 (15.3)	240 (22.3)	320 (29.7)	405 (37.6)	485 (45.1)	600 (55.7)	725 (67.4)	805 (74.8)	1,210 (112.4)	1,610 (149.6)	2,010 (186.7)	2,415 (224.4)	3,220 (299.1)	4,020 (373.5)
140 (77)	190 (17.7)	280 (26.0)	375 (34.8)	470 (43.7)	565 (52.5)	700 (65.0)	845 (78.5)	940 (87.3)	1,410 (131.0)	1,880 (174.7)	2,345 (217.9)	2,815 (261.5)	3,775 (350.7)	4,690 (435.7)
Insulated Enclosures														
20 (11)	10 (0.9)	10 (0.9)	15 (1.4)	20 (1.9)	20 (1.9)	25 (2.3)	30 (2.8)	35 (3.3)	50 (4.7)	65 (6.0)	80 (7.4)	100 (9.3)	130 (12.1)	160 (14.9)
40 (22)	15 (1.4)	20 (1.9)	30 (2.8)	35 (3.3)	40 (3.7)	50 (4.7)	60 (5.6)	65 (6.0)	100 (9.3)	130 (12.1)	160 (14.9)	195 (18.1)	260 (24.2)	320 (29.7)
60 (33)	20 (1.9)	30 (2.8)	55 (5.1)	50 (4.7)	60 (5.6)	75 (7.0)	90 (8.4)	100 (9.3)	145 (13.5)	195 (18.1)	240 (22.3)	290 (26.9)	385 (35.8)	480 (44.6)
80 (44)	30 (2.8)	40 (3.7)	55 (5.1)	65 (6.0)	80 (7.4)	100 (9.3)	115 (10.7)	130 (12.1)	195 (18.1)	260 (24.2)	320 (29.7)	320 (29.7)	515 (47.9)	640 (59.5)
100 (55)	35 (3.3)	50 (4.7)	65 (6.0)	80 (7.4)	100 (9.3)	125 (11.6)	145 (13.5)	160 (14.9)	240 (22.3)	320 (29.7)	400 (37.2)	400 (37.2)	640 (59.5)	800 (74.3)
120 (66)	40 (3.7)	60 (5.6)	80 (7.4)	100 (9.3)	115 (10.7)	150 (13.9)	175 (16.3)	195 (18.1)	290 (26.4)	385 (35.8)	480 (44.6)	480 (44.6)	770 (71.5)	960 (89.2)
140 (77)	45 (4.2)	70 (6.5)	90 (8.4)	115 (10.7)	135 (12.5)	175 (16.3)	205 (19.1)	225 (20.9)	340 (31.6)	450 (41.8)	560 (52.0)	560 (52.0)	900 (83.6)	1,120 (104.1)

SL-B Heater Specification and Ordering Information

Watts	Volts	Dimensions			Model No.	PCN
		Heated Surface in. (mm)	Plate Size in. (mm)	Mounting Surface in. (mm)		
Enclosure with In-Line Thermostat, 40°F (4°C)						
25	120	2 x 5 (50 x 127)	2.5 x 5 (1.25 x 127)	0.5 x 5 (1.25 x 127)	SL-B-2-5-55P	122622
50	120	2 x 5 (50 x 127)	2.5 x 5 (1.25 x 127)	0.5 x 5 (1.25 x 127)	SL-B-2-5-55P	122606
100	120	2 x 10 (50 x 254)	2.5 x 10 (1.25 x 254)	0.5 x 10 (1.25 x 254)	SL-B-2-10-55P	122585
200	120	4 x 10 (102 x 254)	4.5 x 10 (114 x 254)	0.5 x 10 (1.25 x 254)	SL-B-4-10-55P	123297
Enclosure without Thermostat						
25	120	2 x 5 (50 x 127)	2.5 x 5 (1.25 x 127)	0.5 x 5 (1.25 x 127)	SL-B-2-5-0	122164
50	120	2 x 5 (50 x 127)	2.5 x 5 (1.25 x 127)	0.5 x 5 (1.25 x 127)	SL-B-2-5-0	122593
100	120	2 x 10 (50 x 254)	2.5 x 10 (1.25 x 254)	0.5 x 10 (1.25 x 254)	SL-B-2-10-0	122577
200	120	4 x 10 (102 x 254)	4.5 x 10 (114 x 254)	0.5 x 10 (1.25 x 254)	SL-B-4-10-0	123300
Field Installable Thermostat Kit, 40°F (4°C)						
—	—	—	—	—	T-N-55P-Kit	122657

Ogden SLDH Silicone-Rubber-Insulated Drum Heaters

Low-Watt-Density Electrical Resistance Heat for a Variety of Applications

Features of SLDH Silicone-Rubber-Insulated Flexible Heaters

- For 5-, 15-, 30-, and 55-gal metal and non-metal drums
- Rugged and flexible
- Chemical and moisture resistant
- 120-volt models supplied with 6-ft (1.8-m) power cord and three-prong plug; 240 volt models do not include plug
- Optional built-in adjustable thermostats available
- Easy to store
- Ship complete, ready to install and use on arrival



Ogden SLDH silicone-rubber-insulated drum heaters are designed to provide low-watt-density electrical resistance heat to the contents of drums for freeze protection, melting of low-melting-point solids, viscosity control of fluids, and temperature maintenance of materials while in use.

The heaters are constructed of chemical- and moisture-resistant silicone-rubber-reinforced fiberglass cloth laminated around resistance wire with a wire-mesh screen for ground-fault protection and a heavy-duty spring assembly for attachment to the drum. The construction of the SLDH heater provides flexibility without fear of premature failure. An optional built-in adjustable thermostat is available to

control heater temperature from 70° to 425°F (21° to 218°C) for steel drums or 70° to 140°F (21° to 60°C) for plastic drums.

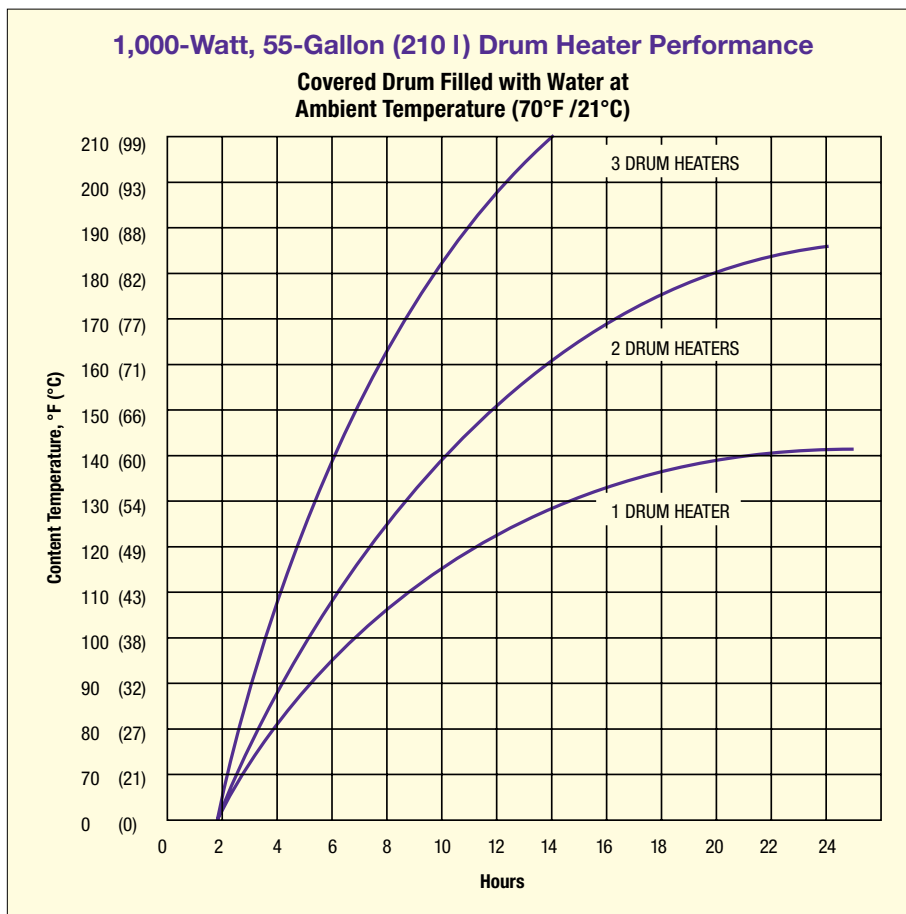
The SLDH drum heater heats the contents of the drum by convection. Heating occurs from where the heater is installed to the top of the drum. If the entire drum is to be heated, the SLDH heater should be installed as near to the bottom of the drum as possible. If only part of the material is to be heated, the drum heater should be installed around the center or top portion of the drum. This enables faster heat-up and saves energy. Take care to ensure that the material level in the drum never falls below the location of the heater. The line graph

on the next page illustrates the comparative efficiencies of one, two, and three SLDH heaters on a 55-gal drum.

Stock sizes are available to accommodate standard-size 5-, 15-, 30-, and 55-gal drums. Girth extension straps are available to use SLDH drum heaters on non-standard-size drums or to adapt SLDH drum heaters to larger drums or other cylindrical containers similar in size. The girth extension straps permit extending the length of the heater by ½ in. (12.7 mm) to 10 in. (254 mm) in circumference.

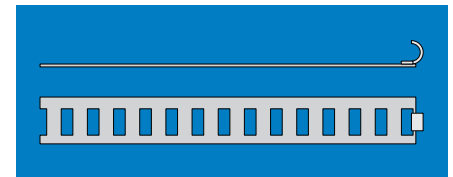
SLDH Heater Specification and Ordering Information

Drum Size gal (l)	Drum Type	Watts	Volts	Adjustable Thermostat °F (°C)	Heater Width in. (mm)	Heater Weight lb (kg)	Model No.	PCN
5 (20)	Metal	550	120	70 - 425 (21 - 218)	4 (102)	1.4 (0.64)	SLDH-05-A-6CPGM-1-55	123123
15 (57)	Metal	500	120	70 - 425 (21 - 218)	3 (76)	1.412 (0.64)	SLDH-15-A-6CPGM-1-50	123131
15 (57)	Metal	500	240	70 - 425 (21 - 218)	3 (76)	1.412 (0.64)	SLDH-15-1-6CGM-2-50	123211
15 (57)	Metal	700	240	70 - 425 (21 - 218)	3 (76)	1.6 (0.73)	SLDH-15-A-6CPGM-1-70	123140
30 (115)	Metal	750	120	70 - 425 (21 - 218)	3 (76)	1.7 (0.77)	SLDH 30-A-6CPGM-1-75	123158
30 (115)	Metal	750	240	70 - 425 (21 - 218)	3 (76)	1.7 (0.77)	SLDH-30-A-6CGM-2-75	123220
30 (115)	Metal	1,000	120	70 - 425 (21 - 218)	3 (76)	2 (0.91)	SLDH-30-A-6CPGM-1-100	123166
55 (210)	Metal	1,000	120	70 - 425 (21 - 218)	3 (76)	1.9 (0.86)	SLDH-55-A-6CPGM-1-100	123174
55 (210)	Metal	1,000	240	70 - 425 (21 - 218)	3 (76)	1.9 (0.86)	SLDH-55-A-6CGM-2-100	123238
55 (210)	Metal	1,200	120	70 - 425 (21 - 218)	4 (102)	2.3 (1.04)	SLDH-55-A-6CPGM-1-120	123182
55 (210)	Metal	1,200	240	70 - 425 (21 - 218)	4 (102)	2.3 (1.04)	SLDH-55-A-6CGM-2-120	123246
5 (20)	Plastic	300	120	70 - 140 (21 - 60)	9.5 (241)	3.4 (1.54)	SLDHP-05-A-6CPGM-1-30	123190
55 (210)	Plastic	750	120	70 - 140 (21 - 60)	9.5 (241)	5.1 (2.31)	SLDHP-55-A-6CPGM-1-75	123203



Drum Size/Capacity Cross Reference

Drum Size gal	Diameter in.	Diameter mm	Drum Capacity l
55	22 ½ (nom.)	570	210
30	19 ½ (nom.)	470	115
15	13 ½ (nom.)	343	57
5	11 ½ (nom.)	290	20



Girth extension straps.

Ogden PHD and PHDT Heavy-Duty Fiberglass Woven Drum Heaters

Durability and Strength for Harsh Working Environments

Features of PHD and PHDT Heavy-Duty Fiberglass Woven Heaters

- For 5-, 15-, 30-, and 55-gal metal drums
- Strong, durable, ideal for harsh working environments
- Chemical and moisture resistant
- 120-volt models supplied with 6-ft (1.8-m) power cord and three-prong plug; 240 volt models do not include plug
- PHDT models include adjustable thermostats
- Ground fault protection standard
- Easy to store
- Ship complete, ready to install and use on arrival



Ogden PHD heavy-duty fiberglass woven drum heaters are constructed of fiberglass-insulated resistance wire woven into a mesh blanket and then encased in layers of silicone rubber. Like Ogden SLDH silicone-rubber-insulated drum heaters, PHD fiberglass



Fiberglass woven construction makes Ogden PHD and PHDT drum heaters stronger and more durable for harsh-working-environment applications.

woven drum heaters provide low-watt-density electrical resistance heat for freeze protection, melting of low-melting-point solids, viscosity control of fluids, and temperature maintenance of materials while in use. But because of their construction, PHD woven drum heaters are much stronger and more durable than silicone-rubber-insulated drum heaters, making them better suited for harsh working environments.

Heating occurs by convection from the point where the heater is installed to the top of the drum. If the entire drum is to be heated, the PHD heater should

be installed as near to the bottom of the drum as possible. If only part of the material is to be heated, the drum heater should be installed around the center or top portion of the drum. This enables faster heat-up and saves energy. Care must be given to ensure that the material level in the drum never falls below the location of the heater.

PHD heavy-duty fiberglass woven drum heaters are available with a built-in thermostat to control heater temperature from 50° to 425°F (10° to 218°C). These models are designated PHDT.

There are PHD and PHDT models for all standard-size 5-, 15-, 30-, and 55-gal drums.

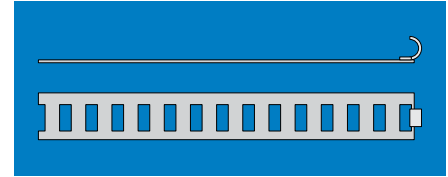
All PHD and PHDT fiberglass woven drum heaters feature a grounded heating element for electrical protection. They come with a spring clasp for snug attachment to the circumference of the drum.

Girth extension straps are available for using PHD and PHDT drum heaters on non-standard-size drums or to adapt the drum heaters to larger drums or other

cylindrical containers similar in size. The girth extension straps permit extending the length of the heater by ½ to 10 in. (12.7 to 254 mm) in circumference.

Drum Size/Capacity Cross Reference

Drum Size gal.	Diameter in.	Diameter mm	Drum Capacity l
55	22 ½ (nom.)	570	210
30	19 ½ (nom.)	470	115
15	13 ½ (nom.)	343	57
5	11 ½ (nom.)	290	20



Girth extension straps.

PHD and PHDT Heater Specification and Ordering Information

Drum		Watts	Volts	PHD		PHDT*	
Size gal (l)	Type			Model No.	PCN	Model No.	PCN
5 (20)	Metal	1,200	120	PHD-55-1-12	123027	PHDT-55-1-12	123107
15 (57)	Metal	1,200	240	PHD-55-2-12	123035	PHDT-55-2-12	123115
15 (57)	Metal	1,000	120	PHD-30-1-10	122980	PHDT-30-1-10	123060
15 (57)	Metal	1,000	240	PHD-30-2-10	122999	PHDT-30-2-10	123078
30 (115)	Metal	700	120	PHD-15-1-7	122964	PHDT-15-1-7	123043
30 (115)	Metal	700	240	PHD-15-2-7	122972	PHDT-15-2-7	123051
30 (115)	Metal	550	120	PHD-5-1-5	123000	PHDT-5-1-5	123086
55 (210)	Metal	550	240	PHD-5-2-5	123019	PHDT-5-2-5	123094
Girth Extension Strap				PDES-10	290132	PDES-10	290132

*PHDT includes built-in 50° to 425°F (10° to 218°C) adjustable thermostat.

Ogden IBG Flexible Thermal Drum Insulation Blanket

Increase the Heating Efficiency, Reduce the Operating Costs of Your Drum Heaters



Features of IBG Flexible Thermal Drum Insulation Blankets

- For 5-, 15-, 30-, and 55-gal drums
- Flexible, easy to mount
- 450°F (230°C) maximum exposure temperature
- Chemical and moisture resistant

Ogden IBG drum insulation blankets are bulk fiberglass insulation covered with silicone glass cloth, designed for use with Ogden drum heaters. These energy-saving blankets increase heating efficiency and reduce operating costs. They cover only the drum heater and provide thermal protection from the heater's back, heated surface.

Full-coverage thermal insulation blankets are available and made-to-order to your specifications. Contact your Ogden representative for assistance.

IBG insulation blankets may be easily installed with Velcro* fasteners. The blankets are moisture resistant but not waterproof.

IBG Insulation Blanket Specification and Ordering Information

Drum Size gal (l)	Weight lb (kg)	Model No.	PCN
5 (20)	2 (1)	IBG-5	298070
15 (57)	2 (1)	IBG-15	299225
30 (115)	3 (1.5)	IBG-30	299233
55 (210)	3 (1.5)	IBG-55	298089

*Velcro is the registered trademark of Velcro Industries B.V.