Your Heating Specialist Since 1949

BriskHeat®

Freeze Protection Maintenance & Energy Efficiency Guide

Freeze Protection Maintenance & Energy Efficiency Guide

Introduction

Anticipating freezing conditions and protecting buildings, equipment, and materials against freeze damage is a vital part of any annual property assessment. A good freeze protection plan includes steps for inspection, preventative maintenance, and corrective maintenance prior to the beginning of cold weather conditions. This guide makes winterizing your property easy. Contact your local distributor or BriskHeat at 800-848-7673 or 614-294-3376 for additional assistance.

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Freeze Protection Maintenance & Enery Efficiency Guide

General Freeze Protection Preparation Steps

These are general freeze protection planning steps provided by application engineers and field experience notes. These steps are not all inclusive and we recommend that you consult a trained professional to review your corporate policies and local/national codes prior to implementing your plan.

	Item	Assigned to	Date Complete	Sign-off
☐	Clean and functionally test all heating systems. Apply heat in susceptible areas.			
☐	Roof and gutter: Inspect, remove debris, and patch/ repair (if needed), roof drains, scuppers, canals, gutters, downspouts before first frost. Inspect and functionally test installed roof and gutter heat trace system. Apply heat in exposed areas.			
☐	Identify and test main water supply cutoffs for each facility. Ensure these areas are readily available to emergency personnel responding to a freeze/thaw incident. Apply heat in prone areas.			
☐	Inspect wet-pipe sprinkler systems for areas inclined to freezing. Apply heat in vulnerable areas.			
☐	Identify materials that are subject to freeze damage in outside storage pads and unheated storage areas. Develop plan to ensure these materials can be easily heated and thawed to maintain production.			
☐	Check and fill antifreeze used in cooling systems as necessary.			
☐	Protect HVAC power and temperature controls against inadvertent deactivation.			
☐	Inspect insulation on piping and vessels. Look for damage and unprotected areas that might be exposed to freezing conditions. Add or replace insulation as needed.			

Tip: Think about materials that might be delivered during the cold season in unheated vehicles. BriskHeat offers plug-and-play portable heaters that easily wraparound and heat drums, pails, and tanks to thaw frozen or slow-flowing materials.

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General Freeze Protection Preparation Steps continued

	Item	Assigned to	Date Complete	Sign-off
☐	Drain and remove water from all seasonal cooling systems (unless protected by heating tapes or antifreeze).			
☐	Inspect, test, and stage portable auxiliary heaters.			
☐	Inspect conditions of all surface heaters such as heating tapes, heating cable, drum heaters, IBC heaters, tank heaters, and pipe heaters. Verify operation and temperature settings and test ground-fault equipment protection. Replace as needed. ***Tip:*** *Look for damaged insulation on all exposed portions of the power cord. If possible, check both ends of the cord for loose connections. An exposed conductor may come in contact with personnel during maintenance activities resulting in sparks or injury.*			
☐	Inspect, test, and repair heat trace heating cable located on cooling tower supply and return lines. Apply heat in susceptible areas.			
☐	Inspect and identify remaining water and air lines subject to freezing. Install appropriate heat and insulation Apply heat in unprotected areas. ***Tip:*** *Pay special attention to valves. This is a major choke point and inclined to damage. BriskHeat offers a safe and effective flexible heating tape that can be used to thaw out a valve quickly.*			
☐	For steam systems: Blow down drip legs, clean strainers, test temperature sensing devices for actuation of control valves and dampers, check steam traps, control actuators/valves, face and bypass dampers, linkages, and temperature controllers. Ensure that a vacuum breaker is installed and in working order on all preheat and heating coils which may be exposed to freezing conditions.			

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Freeze Protection Maintenance & Enery Efficiency Guide

General Freeze Protection Preparation Steps continued

	Item	Assigned to	Date Complete	Sign-off
☐	For ventilation systems, test and calibrate all temperature sensing devices, and check operation of valves, dampers, linkages, control actuators, and temperature controllers.			
☐	Identify areas where personal safety is at risk due to icy conditions. Develop a slip prevention maintenance plan. Apply heat in susceptible areas.			
☐	Identify control panels and electronic devices susceptible to condensation. Install enclosure heaters to prevent short outs and corrosion.			
☐	Institute a facility-wide awareness plan to identify and report any suspected problems with HVAC equipment during the warm weather season.			
☐	Have plan in place to remove emergency de-icing heaters after the cold weather season.			

Inspect facitity doors, windows, and exterior walls for sources of cold air infiltation. Make repairs or insulate to reduce susceptible areas.

Special Consideration: Hazardous Materials

- Ensure that all containers used for hazardous or toxic materials are properly stored, and inspect them for deterioration prior to handling. If containers become brittle (due to the combination of chemical attack, freezing temperatures, and ultraviolet light), they may break when moved.
- Liquids should not be permitted to remain in unheated process lines during periods when production has been stopped. All lines should be drained and purged to prevent future line breakage due to freezing temperatures.
- Ensure that piping, tanks, and valves in systems that carry hazardous or toxic substances are properly insulated.

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Testing & Inspection Log for Heating Cable

Heating Cable Inspection Log

Instructions:

1. **One Sheet per Circuit:** This inspection form allows for up to five inspections to be compared to an individual circuit.
2. **Maintenance Check Frequency:**
   Freeze Protection Circuits: Prior to the first freeze
   Temperature Maintenance Circuits: At least twice per year

Circuit Number	
Heater Type	
Circuit Length	

	Maintenance Check Date (Month/Year)		(mm/yy)	(mm/yy)	(mm/yy)	(mm/yy)	(mm/yy)
Periodic Inspection Record Form	Visual inspection inside connection box for corrosion, moisture, etc.	Initial					
	Damage or cracks (leaks) in insulation seals at valves, hangers, pumps, etc.	Initial					
	Heating cable properly connected and grounded; heating cable and connections insulated from connection box	Initial					
	Thermostat checked for moisture, corrosion, setpoint, switch operation, and sensor damage	Setpoint Initial					
	Megger tests performed at power connection with both bus wires disconnected from power wiring	Reading Initial					
	Circuit voltage at power connection	Reading					
	Circuit amperage after 5 minutes	Reading					
	Pipe temperature at time amps were measured	Reading					
	Watts/Ft. Volts x Amps = w/ft. feet	Watts/Ft. Initial					
	All connections, boxes, and thermostats have been resealed	Initial					
	End seals, covered splices, and tees marked on insulation cladding	Initial					

Remarks & Comments					

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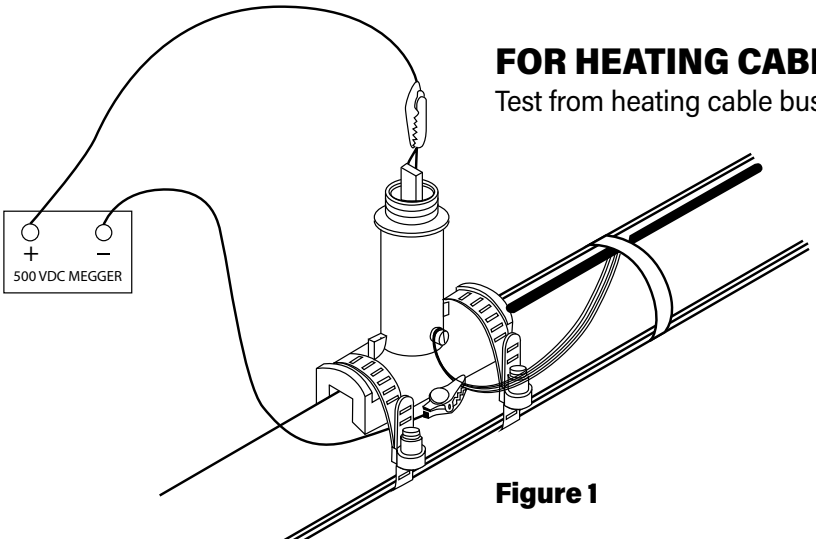
Heating Cable Insulation Resistance Test

The insulation resistance test is used to check for damage to extruded jackets. Connections for the megger are made as shown in Figures 1 & 2.



FOR HEATING CABLES WITH BRAID
Test from heating cable bus to braid

Figure 1

Note: Test should use at least a 500 VDC megger. Do not use a megger with an excess of 2500 VDC. Minimum acceptable readings should be 20 megohms per circuit, regardless of length.

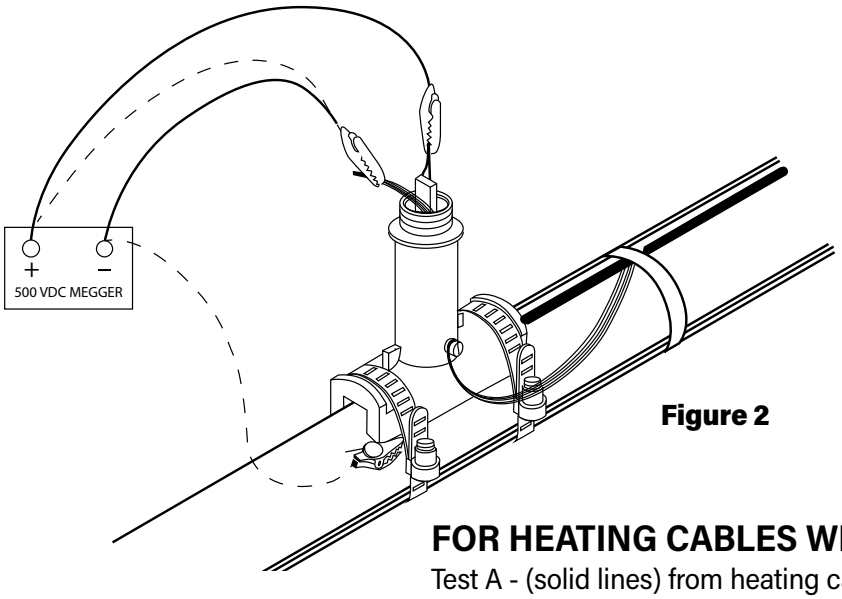


Figure 2

FOR HEATING CABLES WITH BRAID AND OUTER JACKET
Test A - (solid lines) from heating cable bus wires to braid
Test B - (dotted lines) from braid to metal pipe

A record should be kept of the readings taken from the time the cable is first installed on the pipe. A history of the insulation resistance reading can be helpful in spotting moisture ingress into the electrical system by seeing a gradual decline in the insulation resistance or physical damage to the heating cable (sharp decline in the insulation resistance). See the previous page for a sample record.

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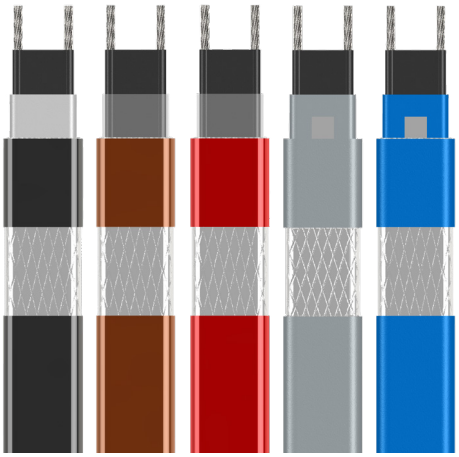
Procurement List for Heat Trace

Self-Regulating cable is well suited to cold weather conditions as it automatically adjusts heat output based on surface temperature. It is also safe to overlap and can be cut-to-length and terminated in the field. Cable is available in different wattages depending on the severity of the temperatures and heating requirements of the application. SLCBL is available in 5, 8, and 10 watts/foot. There are 3 types of outer jackets used for different applications.

- "B" has a tinned braided outer jacket that is best suited to dry environments.
- "BP" has a thermoplastic elastomer over jacket required for wet areas.
- "BF" has a fluoropolymer over jacket which is required for areas where chemicals are present.

Outer Jacket	Part No. 120 VAC	Watts/ft (Watts/m)
Tinned Copper Braid	**SLCBL5120B**	5 (17)
	SLCBL8120B	8 (25)
	SLCBL10120B	10 (31)
Thermoplastic Elastomer	**SLCBL5120BP**	5 (17)
	SLCBL8120BP	8 (25)
	SLCBL10120BP	10 (31)
Fluoropolymer	**SLCBL5120BF**	5 (17)
	SLCBL8120BF	8 (25)
	SLCBL10120BF	10 (31)

Tip: Convenient spool lengths eliminate cutting fees.



Standard Spool Sizes: 50 ft, 125 ft, 150 ft, 250 ft, 500 ft, 1000 ft (15 m, 38 m, 46 m, 76 m, 152 m). For orders greater than 10,000 ft (3,048 m), call for pricing.

Cable

Part No.	Watt/ft	120/240 VAC	Jacket	50 ft	100 ft	125 ft	250 ft	500 ft	1000 ft	Note:

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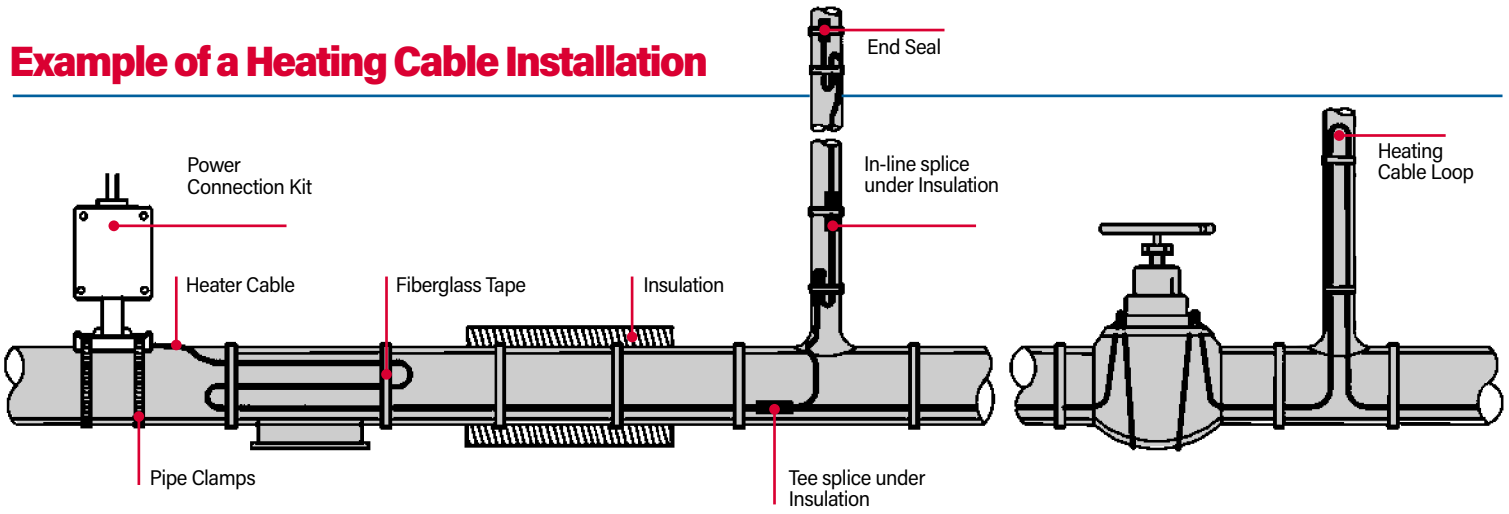
Procurement List for Heat Trace Accessories

Connection and termination kits are important components required for safe and effective heat trace installations.

Accessories:

Part No.	Description	Quantity Needed	Note:
PTBS-GET	Power Connection Kit with multiple entries		
PET-CA-P	Connection Kit frog leg expansion piece		
JHE-GET	Low profile end seal kit		
JHS-GET	Low profile splice connection kit		
JHT-GET	Low profile tee connection kit		
JHE-LG-GET	LED monitor light with end seal kit (green)		
JHE-LR-GET	LED monitor light with end seal kit (red)		
SLCBLUC	Connection kit and end seal w/o junction box		
SLCBLUC-GF	Ground fault power connection kit with plug		
SLCBLKC	Heat shrink end seal kit		
SLCBLSK	Heat shrink splice or tee kit		
AAT260	Aluminum Tape 2 in wide x 180 ft		

Example of a Heating Cable Installation



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Roof & Gutter De-Icing

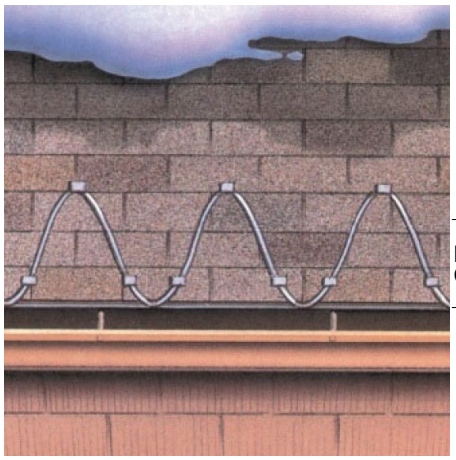
When gutters and downspouts freeze, major damage can occur to your building's roof and façade. We recommend roof and gutter self-regulating heating cable as the solution.

BriskHeat's SpeedTrace Roof & Gutter De-Icing Kits are designed to prevent the formation of ice dams on rooftops by using an electric self-regulating heating cable system. The heating cable melts away excessive ice and snow from the roof, gutters, and downspouts to ensure proper draining.

Kits Include: SpeedTrace Roof & Gutter Heating Cable (pre-assembled with power plug), Heavy-Duty Roof Clips, Downspout Hanger Brackets, UV Resistant Cable Ties.

Measuring Heating Cable Length for Roof & Gutter De-Icing
Use the equation below to calculate heating cable length:

Cable Required for Roof = (R x M) + G + D
(R) Roof Edge Length (linear length of roof to protect)
(M) Multiplier from table below
(G) Gutter Length
(D) Downspout Length (x2 if heating cable returns back to gutter)



Roof Overhang (Eave/Soffit)	Standard Roof	Standing Seam Roof, 18 in (45 cm) Seam	Standing Seam Roof, 24 in (60 cm) Seam
None	2.0	2.5	2.0
12 in (30 cm)	2.5	2.8	2.4
24 in (60 cm)	3.0	3.6	2.9
36 in (90 cm)	4.0	4.3	3.6

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Roof & Gutter De-Icing Continued

Complete kit includes everything you need!

Roof and Gutter Kits

Qty Needed	Part No. 110-120 VAC	Part No. 208-277 VAC	Cable Length ft (m)	Kit Includes			
				Roof Clips	Downspout Hangers	Cable Ties	Caution Labels
	FFRG15-50	FFRG25-50	50 (15.2)	30	2	15	2
	FFRG15-75	FFRG25-75	75 (22.8)	50	4	20	2
	FFRG15-100	FFRG25-100	100 (30.4)	60	4	25	2
	FFRG15-125	FFRG25-125	125 (38.1)	80	4	30	2
	FFRG15-150	FFRG25-150	150 (45.7)	100	6	40	2

Speedtrace & Speedtrace Extreme

SpeedTrace
5 watts/ft @ 50°F (16 watts/m @ 10°C)

Part No. 110-120 VAC	Part No. 208-277 VAC	Length ft (m)
FFSL1-6	FFSL2-6	6 (1.8)
FFSL1-12	FFSL2-12	12 (3.7)
FFSL1-18	FFSL2-18	18 (5.5)
FFSL1-24	FFSL2-24	24 (7.3)
FFSL1-37	FFSL2-37	37 (11.3)
FFSL1-50	FFSL2-50	50 (15.2)
FFSL1-62	FFSL2-62	62 (18.9)
FFSL1-75	FFSL2-75	75 (22.8)
FFSL1-87	FFSL2-87	87 (26.5)
FFSL1-100	FFSL2-100	100 (30.5)
FFSL1-125	FFSL2-125	125 (38.1)
FFSL1-150	FFSL2-150	150 (45.7)

SpeedTrace Extreme
8 watts/ft @ 50°F (26 watts/m @ 10°C)

Part No. 110-120 V	Part No. 208-277 V	Length ft (m)
FFSL81-6	FFSL82-6	6 (1.8)
FFSL81-12	FFSL82-12	12 (3.7)
FFSL81-18	FFSL82-18	18 (5.5)
FFSL81-24	FFSL82-24	24 (7.3)
FFSL81-50	FFSL82-50	50 (15.2)
FFSL81-75	FFSL82-75	75 (22.8)
FFSL81-100	FFSL82-100	100 (30.5)

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Pipe Lines & Valves Exposed to Freezing Conditions

Use this checklist to identify the pipe lines and valves that need heat. Your local distributor or BriskHeat will help you determine the proper type and amount of heat, insulation, and accessories necessary for your application.

Pipe Line/Valve

Pipe/Valve Location Where Heat is Needed	Length of Pipe or Size of Valve Where Heat is Needed	O.D. of Object to Be Heated	Temperature Required	Available Voltage Supply and Circuit Breaker Size	Hazardous Location? (Y/N) If Yes, Classification?	Insulation is Needed? (Y/N) Insulation Thickness?

WinterShield™ creates a pocket of warmth to protect devices from extreme cold

BriskHeat® Wet-Area cloth jacket valve heater

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Containers Exposed to Freezing Conditions

Containers such as drums, pails, tote tank/IBCs, and gas cylinders contain materials that either freeze or need a specific flow rate to maximize production. Utilizing a portable plug-and-play electrical surface heater on the container prior to and during production is a cost-effective and simple way to thaw and improve the flow rate of the material within the container.

Drums/Pails

Recommended Solutions:

- Heavy-Duty Silicone Rubber Band Heaters (DHCS/DHCH/DPCS/DPCH series) — Great all-purpose choice: Economical, moisture & chemical resistant and long lasting. Includes built-in adjustable thermostat control. 120V model includes standard 3-prong (NEMA 5-15) grounded plug.
- Full-Coverage Insulated Drum Heaters and Insulators (FGDH/FGPDH/FGDI series) — Fully insulated and more wattage for faster and more energy-efficient heat-ups. Heaters include built-in digital temperature controller. 120V model includes standard 3-prong (NEMA 5-15) grounded plug.
- ATEX Rated Full-Coverage Drum Heaters (WEX series) — ATEX certified for hazardous areas

Heavy-Duty Silicone Rubber Drum Heaters

Full-Coverage Insulated Drum Heaters

ATEX Rated Full-Coverage Drum Heaters

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Procurement List for Drums/Pails

Qty of Containers that Need Heat	Container Size (Make a special note if the container will be in a hazardous environment)	Container Outer Material (metal, plastic, etc.)	Available Voltage Supply for Heater (120V or 240V)
	55-gallon (208 litre) drums/barrels		
	30-gallon (114 litre) drums/barrels		
	15 & 16-gallon (57 & 60 litre) pails		
	5-gallon (19 litre) pails		

Tip: For faster heat-up, use multiple silicone rubber band heaters at one time or a full-coverage insulated drum heater.

Intermediate Bulk Container (IBC)/Tote Tanks

Recommended Solutions:

- Wraparound IBC/Tote Tank Heater (TOTE series) — Fully insulated blanket heater wraps around tote tank/IBC without contaminating or scorching your product. Adjustable straps allow it to fit multiple container widths. Includes dual adjustable thermostat control: 50°F to 160°F (10°C to 71°C).
- Wet-Area IBC/Tote Tank Heaters and Insulators (TOTEW/TOTEWI series) — Water-resistant, IP54 rated, full-coverage IBC/Tote Tank heaters and insulators suitable for use in outdoor/indoor use and in washdown environments. Includes digital controller.
- Silcone Rubber IBC/Tote Tank Heaters (TTH series) — Installs underneath plastic bladder for direct surface contact. Add efficiency with a wraparound insulator.
- ATEX rated Wraparound Tote Tank Heaters (WEX series) — ATEX certified for hazardous areas

Wraparound IBC/Tote Tank Heaters

Wet-Area Wraparound IBC/Tote Tank Heaters

TTH Silicone Rubber IBC/Tote Tank Heaters

ATEX Rated Wraparound IBC/Tote Tank Heaters

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Freeze Protection Maintenance & Enery Efficiency Guide

Procurement List for IBC/Tote Tanks

Qty of Tanks that Need Heat	Tank Height (Not including pallet or support stand)	Tank Length	Tank Width	Tank Outer Material (metal, plastic, caged, etc.)	Available Voltage Supply for Heater (120V or 240V)

Gas Cylinders

Recommended Solutions:

- If Ordinary Location: GCW series - Ordinary Location Gas Cylinder Warmer, – 2 in (50mm) thick insulation and self-regulating heating element. No extra temperature control necessary. 120V model includes standard 3-prong(NEMA 5-15) grounded plug.
- If Class I, Division 1 Hazardous-Area Location: HCW series- Hazardous-Area Gas Cylinder Warmer. (Same as above except it is suitable for Class I, Division 1 Groups B, C, and D.) No plug is included.
- If ATEX Hazardous-Area Location: WEX series - ATEX Gas Cylinder Warmers.

Ordinary Locations Gas Cylinder Warmer

Class I, Division 1 Hazardous-Area Rated Gas Cylinder Warmer

ATEX Rated Gas Cylinder Warmer

Procurement List for Gas Cylinders

Qty of Cylinders that Need Heat	Cylinder Diameter	Cylinder Height	Hazardous Location? (Y/N) If Yes, Classification?	Available Voltage Supply for Heater (120V or 240V)

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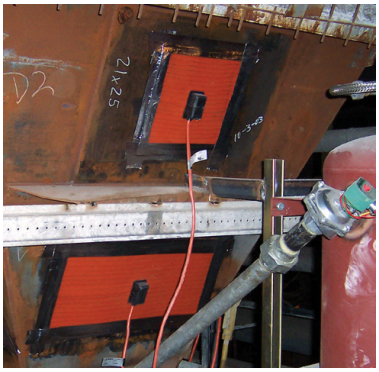
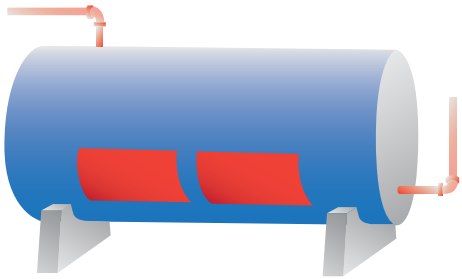
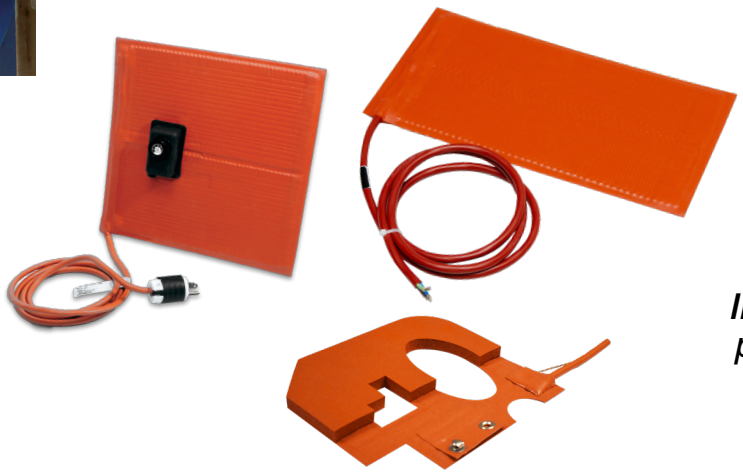
Heating and Freeze Protection for Large Tanks, Vessels, & Hoppers

Use this checklist to identify the tanks, vessels, and hoppers that are predisposed to freezing. Your local distributor or BriskHeat will help recommend exactly how much heat you need to prevent freezing or improve flow, and which style of heater, insulation, and temperature control is right for you.







INSUL-EZ: Easy-to-install peel-and-stick insulation to reduce heat loss

Wide range of silicone rubber heating blankets and foam insulators available to heat nearly any type of tank or vessel.

Vessel Location (Make a special note if it is in a Hazardous Location)	Vessel Type (Cylindrical Tank, Rectangular Tank, Hopper, etc.)	Vessel Size	Vessel Outer Material (metal, plastic, etc.)	Content Stored in Vessel	Process Temperature	Available Voltage Supply and Circuit Breaker Size

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Energy Efficiency Tips for Heating and Freeze Protection

Fall is the best time to examine your process heating systems for energy efficiency. Heating is a critical factor in manufacturing and can contribute to the overall cost of operation. Insulation is an important consideration in minimizing heat loss. Insufficient insulation can jeopardize worker safety as well as product quality. It can also increase emissions of greenhouse gases and damage temperature-sensitive equipment.

The Keys to Energy Efficient Heating Include:

- Knowledge of your system requirements – Where does your system require heating or cooling a process or product? What is the target temperature and what is the acceptable variation? What is the criticality of maintaining the acceptable range? Use this information to determine the correct heater, chiller, temperature controller and insulation.
- Examining potential sources of heat loss – The two most common causes of heat loss are conduction and convection. Conduction is the transfer of heat from a hot mass to one that is cooler. An example would be heated gas in a pipe can lose heat to a pipe stand. When an oven has a gap in the wall allowing heat to escape, this is an example of convection.
- Selection of insulating material – Insulation is rated by a physical property of thermal conductivity. The lower the number, the lower the heat loss. Be sure the material is appropriate for the exposure temperature and environment where it will be used. If moisture is present, use materials that will not be damaged by exposure.
- Proper installation techniques – Heat transfer is optimized by the heater being in direct contact with the surface to be heated. Pressure sensitive adhesives, high-temperature adhesive tape, RTV or heat conductive putty focus energy where it's needed. Proper installation of insulation is also important. Avoid gaps to reduce heat loss. Fiber materials should be covered to reduce airborne particles. Use more durable materials where there is risk of damage.

Tips for Energy Efficient Heating and Freeze Protection:

1. Any process that changes the temperature of a product can be a source of inefficiency. Using an optical pyrometer, scan production areas for temperature extremes. Areas too cold or too warm when compared to ambient needs attention.
2. Both heating and cooling processes can be made more efficient using insulation.
3. Insulation should be appropriate for the application. If it is very warm to the touch, it is likely not thick enough.
4. Recuperators or heat exchangers can redirect heat created by one process to another area where it can be utilized.
5. Add an ambient temperature controller or Thermo-cube to heat trace systems to reduce energy consumption during freeze protection.

Tips to Reduce Environmental Energy Costs:

1. Establish a range of temperature to be maintained. The smaller the range, the more complex the equipment and control. For freeze protection, anything below 37°F (3°C) should be heated; but there is no need to heat above 45°F (7°C). Both heating and cooling processes can be made more efficient using insulation.
2. Data management or control systems may need to be in a cooler environment; but in most cases, unoccupied areas do not need to be less than 77°F (25°C).
3. Window can be sources of cold or hot air as well as radiant heat from the sun. Make sure window are sealed and apply UV blocking film if possible.
4. Do not heat or cool storage areas unless extreme temperatures will damage materials stored in that area or cause damage to the facility (i.e. broken water pipes).

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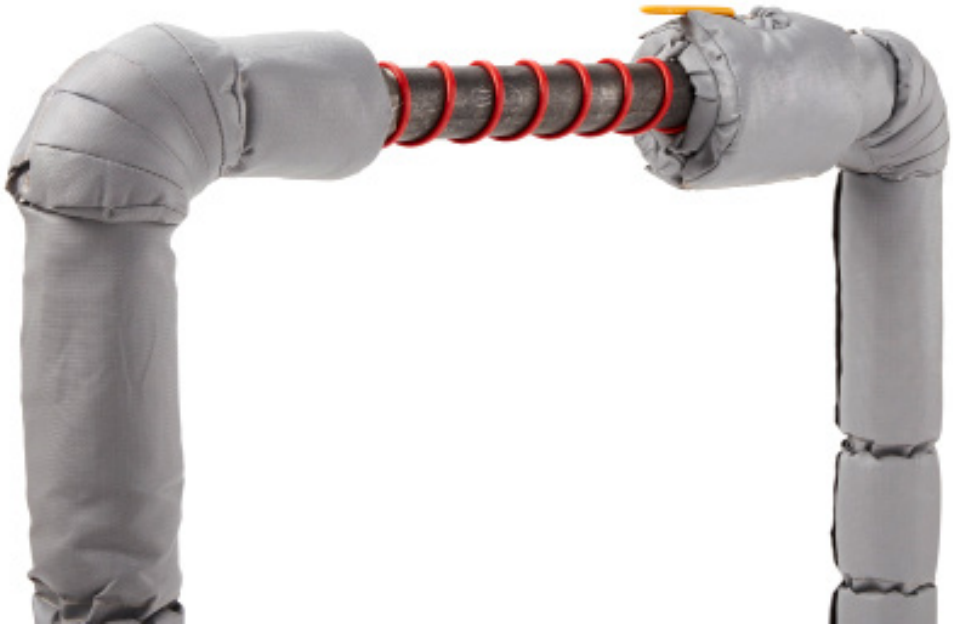
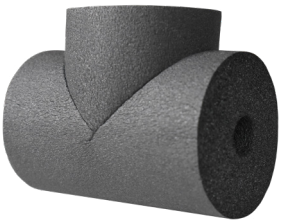
Energy Efficiency Tips for Process Heating

Recommended Solutions for Pipe Lines and Valves - Insulators



Removable Cloth Insulators



INSUL-LOCK®: Closed Cell Foam Insulation

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Emergency/Backup De-Icing Heaters

It is always a good idea to have a few flexible multi-purpose heaters on hand in the event of emergency de-icing. XtremeFLEX® flexible heating tapes with built-in adjustable temperature controls (MSTAT and HSTAT series) are ideal to prevent freezing or thaw frozen valves, pipes, and many other objects. Unlike dangerous blow torches, these heaters are safe, make direct contact with the object to be heated, are moisture and chemical resistant, and can be run unsupervised.

Easy-to-use adjustable thermostat

Always have a few of these lifesavers in the toolbox when freezing occurs.

Tips:

- Circle Part Number to indicate voltage preference.
- Choice of two temperature ranges: Up to 160°F (71°C) [MSTAT series] and up to 425°F (218°C) [HSTAT series].
- Have at least one of each size on hand so that you have the correct size when you need it. Shorter lengths are typically used for valves, bearings, pumps, and actuators. Longer lengths are typically used for pipe runs.
- When estimating heating tape lengths, keep in mind that the heating tape cannot be overlapped upon itself as this will cause damage to the heater.

MSTAT XtremeFLEX® Heating Tapes with Adjustable Thermostat Controls - up to 160°F (71°C)

Qty Needed	Heating Tape Width	Heating Tape Length	Wattage	Part Number (120 VAC)	Part Number (240V)
	1 in (25 mm)	2 ft (0.6 m)	144	**MSTAT101002**	**MSTAT102002**
	1 in (25 mm)	4 ft (1.2 m)	288	**MSTAT101004**	**MSTAT102004**
	1 in (25 mm)	6 ft (1.8 m)	432	**MSTAT101006**	**MSTAT102006**
	1 in (25 mm)	8 ft (2.4 m)	576	**MSTAT101008**	**MSTAT102008**
	1 in (25 mm)	10 ft (3.1 m)	720	**MSTAT101010**	**MSTAT102010**
	1 in (25 mm)	20 ft (6.0 m)	1200	**MSTAT101020**	**MSTAT102020**
	1 in (25 mm)	30 ft (9.1 m)	1440	**MSTAT101030***	**MSTAT102030***
	1 in (25 mm)	40 ft (12.2 m)	1440	**MSTAT101040***	**MSTAT102040***
	1 in (25 mm)	50 ft (15.2 m)	1440	**MSTAT101050***	**MSTAT102050***

Other widths and lengths are available upon request.

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Emergency/Backup De-Icing Heaters continued

HSTAT XtremeFLEX® Heating Tapes with Adjustable Thermostat Controls - up to 425°F (218°C)

Qty Needed	Heating Tape Width	Heating Tape Length	Wattage	Part Number (120 VAC)	Part Number (240 VAC)
	1in (25 mm)	2 ft (0.6 m)	144	**HSTAT101002**	**HSTAT102002**
	1in (25 mm)	4 ft (1.2 m)	288	**HSTAT101004**	**HSTAT102004**
	1in (25 mm)	6 ft (1.8 m)	432	**HSTAT101006**	**HSTAT102006**
	1in (25 mm)	8 ft (2.4 m)	576	**HSTAT101008**	**HSTAT102008**
	1in (25 mm)	10 ft (3.1 m)	720	**HSTAT101010**	**HSTAT102010**

Other widths and lengths are available upon request.

Extremely flexible — Heats a wide range of objects quickly

Enclosure Heaters

Ideal for control panels and electronic devices susceptible to condensation. Enclosure heater is a silicone rubber heater on an easy-to-install aluminum mounting plate— two mounting slots that are 1/4 x 5⁄32 in (6 x 4 mm) centered on a 1/2 in (12 mm) flange. Includes air sensing thermometer unless otherwise listed.

Qty Needed	Part No. 120 VAC	Part No. 240 VAC	Thermostat Setting Open/Close °F (°C)	Heater Size in	Heater Size mm	Watts
	TSREH640	**TSREH2640**	60/40 (15/4)	2.5 x 6	64 x 152	60
	TSREH1240	**TSREH21240**		2.5 x 12	64 x 305	120
	TSREH600	**TSREH2600**	No thermostat	2.5 x 6	64 x 152	60
	TSREH1200	**TSREH21200**		2.5 x 12	64 x 305	120

Also available with other thermostats.

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Additional Freeze Protection Solutions

Use this checklist to identify any remaining heaters needed for freeze protection.

Band-Style Crankcase Heaters for HVAC/R Compressors

Protects A/C and heat pump compression in cold weather.

Qty Needed	Part No.	Circumference in	Circumference mm	Voltage	Wattage	Lead Length in (mm)
	840051001	15.3 to 22.0	389 to 559	240	40	21 (533)
	840051002	20.5 to 27.1	521 to 688	240	40	21 (533)
	840051004	21.3 to 28.0	541 to 711	480	70	22 (559)
	840051006	21 to 28.0	533 to 711	240	70	48 (1219)
	840051007	27.3 to 34.0	693 to 864	240	93	48 (1219)
	840051008	27.3 to 34.0	693 to 864	480, 400	93, 66	48 (1219)
	840051010	27.3 to 34.0	693 to 864	230	66	48 (1219)
	840051009	39.5 to 46.1	1003 to 1171	230	95	29 (737)

HotBelt™ Wraparound Refrigerant Jug Warmer

Preheat and keep refrigerant jug cylinders warm when servicing HVACR systems in cold weather.

Qty Needed	Part No.	Voltage	Plug Type	Watts
	HB1001	120	NEMA 5-15P	200
	HB2001	240	NEMA 6-15P	200
	HB2003	230	Ferrule leads	200
	HB2002	230	Schuko CEE 7/7	200

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BriskHeat® *Your Heating Specialist Since 1949*

Freeze Protection Maintenance & Energy Efficiency Guide

About BriskHeat

BriskHeat offers a full range of surface and immersion heating products, controllers, insulators, and accessories for a wide variety of applications.

BriskHeat products include heating tapes, cables, blankets, drum and tote heaters, cloth jackets, tubular heaters, band and cartridge heaters, composite curing systems, and more. Since 1949, BriskHeat has provided quality heating and temperature control solutions to countless industries including semiconductor, chemical, food processing, biotech, aviation, laboratory, and power generation.

BriskHeat has a broad range of experience with applications including freeze protection, viscosity control, condensation prevention, and process heat. We also offer expert application and engineering solutions.

Large or small projects, high or low volume, domestic or worldwide, BriskHeat stands by to help you solve your application issues. With a ready staff of sales and application engineers to help you find the most economical solution for your needs, BriskHeat is your heating specialist.

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