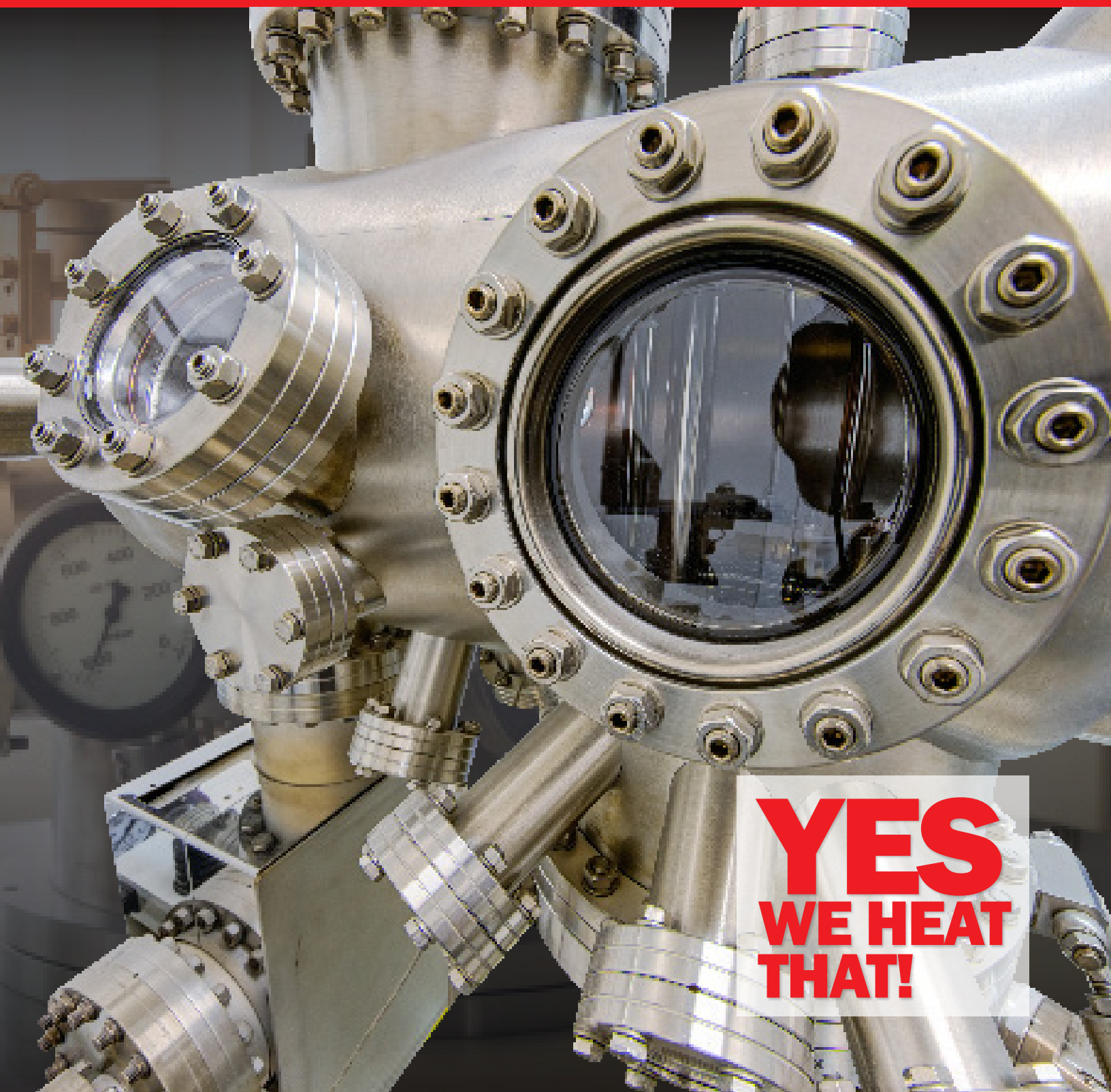


**BriskHeat®** Your *Heating* Specialist since 1949

## HIGH VACUUM HEATING SOLUTIONS



**YES  
WE HEAT  
THAT!**

## APPLICATION NOTE

### VACUUM BAKE-OUT

*A superior vacuum bake-out process within laboratory, research, and development operations*

#### Application

With many laboratory or research & development tests, it is critical that materials are free of gasses, water vapor, and other contaminants. A vacuum bake-out is a process used to remove such contaminants. Applying surface heat (normally up to 392 °F (200 °C)) is required to successfully complete a vacuum bake-out process. The removal of impurities allows vacuum-baked components to be used in ultra-high vacuum or ultra-high purity systems without fear of contamination. Heat is used to help release impurities and other contaminants, from components in a closed system (vacuum chamber), while a vacuum pump removes those impurities.

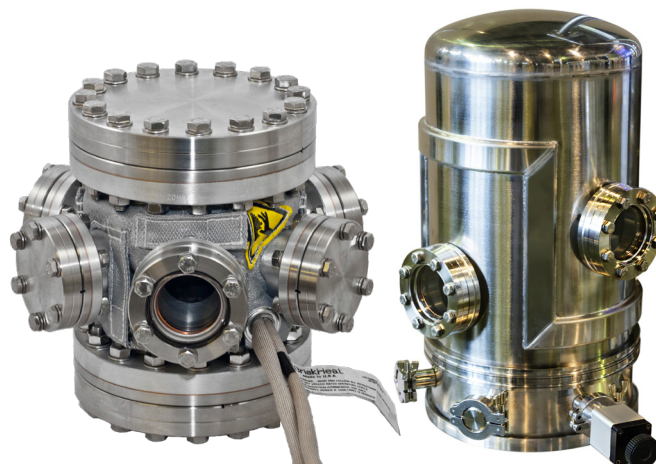
#### Solution

Custom cloth heating jackets are ideal heaters for vacuum bake-out applications. They fit around the outside of vacuum chambers to provide the necessary heat. Vacuum chambers come in many different sizes and shapes, often with complex shapes and multiple exterior surface obstructions. Custom cloth heating jackets can be designed and manufactured to fit almost any size and configuration, ensuring intimate surface contact for consistent heat across the entire heated area. The built-in insulation maximizes efficiency, and reduces heat-loss, allowing them to safely operate at several hundred degrees at very tight tolerances. High temperature Samox® or PTFE cloth construction provides extreme durability and long service life under high temperature uses. The heating element is BriskHeat's patented multi-stranded heating element. Several closure options are available to suit your needs such as hook-and-loop closure (pictured), lace and boot hooks, lace and grommets, or belts with D-Rings, making them easy to install and easy to remove.

Further customization of cloth heating jacket includes:

- Redundant circuits to act as back up if the primary element fails
- Non-ferrous components for research and experimentation that include magnetic fields
- View ports to observe the chamber's interior during an experiment

A total solution for using cloth heating jackets includes choosing the right temperature control system. SDX, **LYNX™** or the MPC2 Multipoint Temperature Control Panel are designed to provide control needed for vacuum bake-out. The amperage load, heater configuration and environment will determine the best solution for your application.



#### Additional Uses

Apart from vacuum bake out, cloth heating jackets are also superb heaters for research projects involving systems with complex structures. Custom heaters can be made to fit all sizes and shapes of equipment such as tanks, pipes/tubes, joints, valves, and much more.

#### Additional Product

For laboratory or R&D experiments necessitating high wattage and very high temperatures, Mineral Insulated (MI) is recommended. MI cable is semi-rigid and electrically insulated using Magnesium Oxide (mineral) to ensure safe electrical insulation with maximum thermal transfer. MI cable has maximum exposure temperature of 1832°F (1000°C) and a 76.2 W/ft (250 W/m) watt density.

#### Products

Cloth Heating Jackets

#### Types of Users

Lab Managers  
Process Engineers

Scientists  
Project Managers

#### Industries

Laboratory  
Universities R & D

High Physics  
General Manufacturing



## CUSTOM CLOTH HEATERS

### IDEAL FOR A WIDE RANGE OF HIGH VACUUM APPLICATIONS

- ▶ Ability to heat and insulate all components of a system
  - Diameters as small as ¼ in (6 mm)
  - Flanges, VCR nuts, valves, unistruts, etc.
- ▶ Uniform temperatures throughout entire line or component
- ▶ Easy on-off installation with durable and reusable hook and loop fasteners
- ▶ High temperature capabilities
  - Up to 250 °C for Class 10 Clean rooms
  - Up to 593 °C for Class 100 Clean rooms
- ▶ Energy efficient design
- ▶ Patented grounded heating element
- ▶ Exceptional durability

### Benefits

- Economically reduces condensation build-up and contamination
- Increased productivity
- Decreased maintenance
- Energy-savings
- Safe and cool to the touch (meets SEMI S2 standards)
- Long service life: BriskHeat's typical heating jacket life is 10+ years.
- No need for aftermarket parts
- Available with integrated **LYNX™** Temperature Control

### Applications:

Vacuum bake-out  
Tanks, drums, cylinders  
and vessels  
Laboratory equipment

Analytical equipment  
Emission testing  
Fluid delivery systems  
Small and unique geometries

### Need a custom solution?

We can provide you with a custom solution to fit the exact needs for all of your laboratory heating applications. Contact your BriskHeat representative to learn more!



## XTREMEFLEX® BIH AND BWH HIGH TEMPERATURE HEATING TAPES

- ▶ Highly flexible and durable
- ▶ BIH: 8.6 W/in<sup>2</sup> (0.013 W/mm<sup>2</sup>) watt density
- ▶ BWH: 13.1 W/in<sup>2</sup> (0.02 W/mm<sup>2</sup>) watt density
- ▶ Maximum exposure temperature:
  - Removable & Reusable Use: Up to 572° F (300° C)
  - Single Install Use: Up to 932° F (500° C)

### BIH

Tape Width in (mm)	Tape Length ft (m)	Watts	Part No. 120 V	Part No. 240 V	Price
1.00 (2.5)	1 (0.3)	105	BIH101010L	N/A	\$57
1.00 (2.5)	2 (0.6)	210	BIH101020L	BIH102020L	\$73
1.00 (2.5)	4 (1.2)	420	BIH101040L	BIH102040L	\$84
1.00 (2.5)	6 (1.8)	620	BIH101060L	BIH102060L	\$104
1.00 (2.5)	8 (2.4)	830	BIH101080L	BIH102080L	\$124
1.00 (2.5)	10 (3.0)	1045	BIH101100L	BIH102100L	\$135
1.00 (2.5)	12 (3.6)	1250	BIH101120L	BIH102120L	\$149

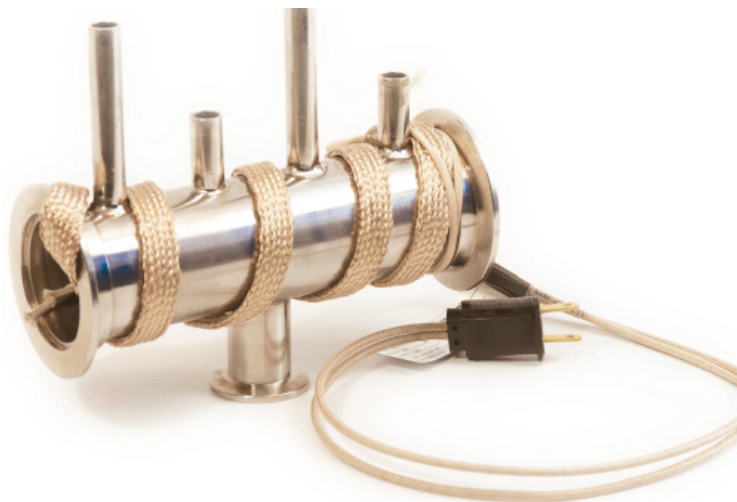
Other standard sizes and voltages available



### BWH

Tape Width in (mm)	Tape Length ft (m)	Watts	Part No. 120 V	Part No. 240 V	Price
1.00 (25)	2 (0.6)	313	BWH101020L	BWH102020L	\$67
1.00 (25)	4 (1.2)	627	BWH101040L	BWH102040L	\$90
1.00 (25)	6 (1.8)	940	BWH101060L	BWH102060L	\$118
1.00 (25)	8 (2.4)	1254/1245	BWH101080L	BWH102080L	\$142
1.00 (25)	10 (3.1)	1570/1567	N/A	BWH102100L	\$162

Other standard sizes and voltages available



**IMPORTANT: Temperature controllers are required for heaters without a built-in temperature controller.**



## XTREMEFLEX® BSO SILICONE RUBBER HEATING TAPES

- ▶ Moisture and chemical resistant
- ▶ Exceptionally flexible
- ▶ Maximum exposure temperature 450° F (232° C)

Tape Width in (mm)	Tape Length ft (m)	Watts	Part No. 120 V	Part No. 240 V	Price
0.50 (13)	2 (0.6)	52	BS0051020L	BS0052020L	\$73
0.50 (13)	4 (1.2)	104	BS0051040L	BS0052040L	\$84
0.50 (13)	6 (1.8)	156	BS0051060L	BS0052060L	\$90
0.50 (13)	8 (2.4)	209	BS0051080L	BS0052080L	\$112
1.00 (25)	2 (0.6)	104	BS0101020L	BS0102020L	\$90
1.00 (25)	4 (1.2)	209	BS0101040L	BS0102040L	\$124
1.00 (25)	6 (1.8)	313	BS0101060L	BS0102060L	\$142
1.00 (25)	8 (2.4)	418	BS0101080L	BS0102080L	\$174

**IMPORTANT: Temperature controllers are required for heaters without a built-in temperature controller.**

*Other standard sizes and voltages available*



## XTREMEFLEX® HWC HIGH TEMPERATURE HEATING CORDS

- ▶ Designed for use on small tubes, vessels or where space is limited
- ▶ Connects easily to your choice of temperature control
- ▶ Exceptional flexibility, wraps around objects as small as 1/8" diameter
- ▶ Includes high-temperature tie-downs

### Specifications:

Highly Flexible and Durable Multi-stranded Dual Heating Element Provides Even Heat Across Tape.

Reinforced with High Temperature Samox® Fiberglass for Added Strength and Durability

#### Maximum Exposure Temperature:

- Removable & Reusable Use: Up to 572°F (300°C)
- Single Install Use: Up to 932°F (500°C)

**Power Rating:** 60 W/ft (196 W/m)

**Power Cord:** 24 in (610 mm) Power Leads with  
120 VAC: Standard 2-prong (NEMA 1-15) plug  
240 VAC: Bare-Wire Connection

**Ingress Protection Rating:** IP50



**Suitable for Electrically  
Conductive Surfaces**

Cord Length ft (m)	Watts	Part No. 120 V	Part No. 240 V	Price
4 (1.2)	266	HWC1040	N/A	\$79
6 (1.8)	350	HWC1060	N/A	\$89
12 (3.7)	750	HWC1120	HWC2120	\$108
18 (5.5)	1000	HWC1180	HWC2180	\$125
24 (7.3)	1440	HWC1240	HWC2240	\$145

## SILVER-SERIES CLOTH JACKET INSULATORS

Silver-Series Insulators are a configurable system of cloth insulators that feature durable high-temperature cloth, needle-punched fiberglass insulation, and hook & loop closures for easy installation and removal. This cost-effective solution improves thermal efficiency for hot and cold pipes, tanks, and vessels in industrial and commercial environments. Custom designs can be manufactured for unique requirements.

- ▶ **Configurable system**
- ▶ **Easy-to-install**
- ▶ **Removable and reusable**
- ▶ **Economical solution**
- ▶ **Cut-to-length**
- ▶ **Moisture/chemical resistant**
- ▶ **Durable design**
- ▶ **Long service life**
- ▶ **High-temperature**
- ▶ **Fire-retardant**
- ▶ **Asbestos-free**



**Moisture and  
Chemical  
Resistant**

**NEW!**

### Specifications:

**Operating Temperature:** Up to 450°F (232°C)

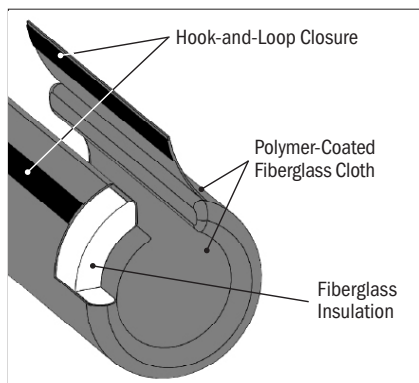
**Cloth:** polymer-coated fiberglass

**Insulation:** 1 in (25 mm) needle-punched fiberglass

**Thermal Performance:** R3.3, K0.21@75°F (24°C)

**Ingress Protection Rating:** IP54

### Quality Construction



### Cut-to-Length Versatility



Note: Color options available upon request

### Custom Design Options:

#### Cloth Materials/Max Exposure Temperature

- Polymer-Coated Fiberglass 450°F (232°C)
- High-Temperature Non-Coated Fiberglass 1100°F (593°C)

#### Closure Types

- Hook and Loop (Standard)
- D-Rings
- Draw Strings
- Built-in Magnets

#### Insulation Thickness

- 1 in (Standard)
- 1.5 in
- 2 in



**Custom Sizes and Designs Available for Pipe, Tank, Vessel, and Much More:**

**Contact your local distributor or BriskHeat® for more information.**



## MPC2 MULTI-POINT DIGITAL PID TEMPERATURE CONTROL PANEL

- ▶ Fully-configurable for enclosure material, sensor type, voltages, alarms, communication, and safety options
- ▶ Configure with one to dozens of zones
- ▶ Advanced Autotuning PID or on/off control
- ▶ On/off control operation available
- ▶ Indoor or outdoor use<sup>1</sup>
- ▶ Compatible with a broad range of heating blankets, tapes, and cables
- ▶ Stores up to 4 programs, 12 steps per control zone for easy repeatability in ramp/soak mode
- ▶ Large 2-line, 3-color display simultaneously shows PV (actual) and SV (set) temperatures
- ▶ 2 levels of password protection

### Applications:

Provides PID temperature control to cloth and silicone heating blankets, heating cable and tape, drum heaters and heating jackets for applications such as:

- Research laboratory experiments
- Vacuum Bake-out
- Industrial heating and drying
- Sintering processes
- Vacuum deposition

### Industries:

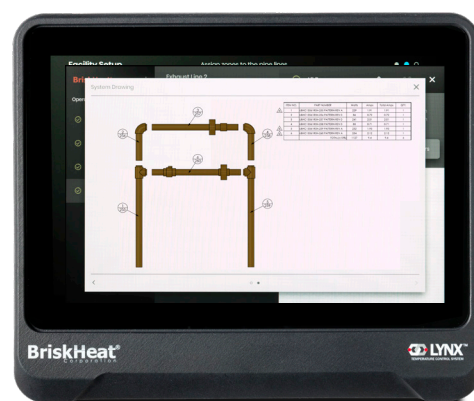
- Petrochemical
- Laboratory R & D
- General manufacturing
- Semiconductor
- Chemical
- Medical/Dental
- Plastics
- Aerospace



Contact your local distributor or BriskHeat for ordering information




## LYNX™ TEMPERATURE CONTROL SYSTEM



- ▶ 1:1 PID control to EACH heater
- ▶ Easy to use Operator Interface (OI) and Temperature Control Modules
- ▶ Can be used independently or as a system of up to 1,024 zones of control
- ▶ Can connect to CMS via Modbus
- ▶ Sends email alerts
- ▶ Idle mode option saves energy and time during maintenance

## SDX PID DIGITAL TEMPERATURE CONTROLLER

- ▶ Advanced PID temperature control
- ▶ Benchtop plug-and-play design\*
- ▶ Programmable in °F and °C
- ▶ 5 ft (1.5 m) temperature sensor included

Voltage	Sensor Type	Input Plug	Part No.	Price (EA)
100 - 125 VAC	Type-JT/C	NEMA 5-15	SDXJA	\$549
100 - 125 VAC	Type-KT/C		SDXKA	\$549
100 - 125 VAC	PT100-RTD		SDXRA	\$549


\*79 in (2 m) input power cord and plug included  
Standard 240 VAC models also available with different plug options



**NEW!**

## HL101 DIGITAL BENCHTOP TEMPERATURE LIMIT CONTROLLER

- ▶ Adds high-limit cutoff safety for critical temperature applications
- ▶ For use with a temperature controller
- ▶ Benchtop plug-and-play design
- ▶ 10 ft (3.0 m) thermocouple sensor included

Voltage	Sensor Type	Temperature Display	Input Plug/ Output Receptacle	Part No.	Price (EA)
115 VAC	Type-J T/C	°F	NEMA 5-15	HL120JA-F	\$450
115 VAC	Type-KT/C	°F		HL120KA-F	\$450
115 VAC	Type-J T/C	°C		HL120JA-C	\$450
115 VAC	Type-KT/C	°C		HL120KA-C	\$450

Standard 240 V models also available with NEMA 6-15 plug/receptacle



**NEW!**

## ABOUT BRISKHEAT

BriskHeat offers a full range of surface and immersion heating solutions. We help our customers decrease downtime, increase throughput, and maximize profits. Large projects or small, high volume or low, domestic or world-wide, BriskHeat stands by to help you with any surface or object heating application you might encounter. With an accessible staff of sales and application engineers experienced at helping you find the most economical solution for your needs, BriskHeat is your heating specialist.

**BriskHeat®**

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