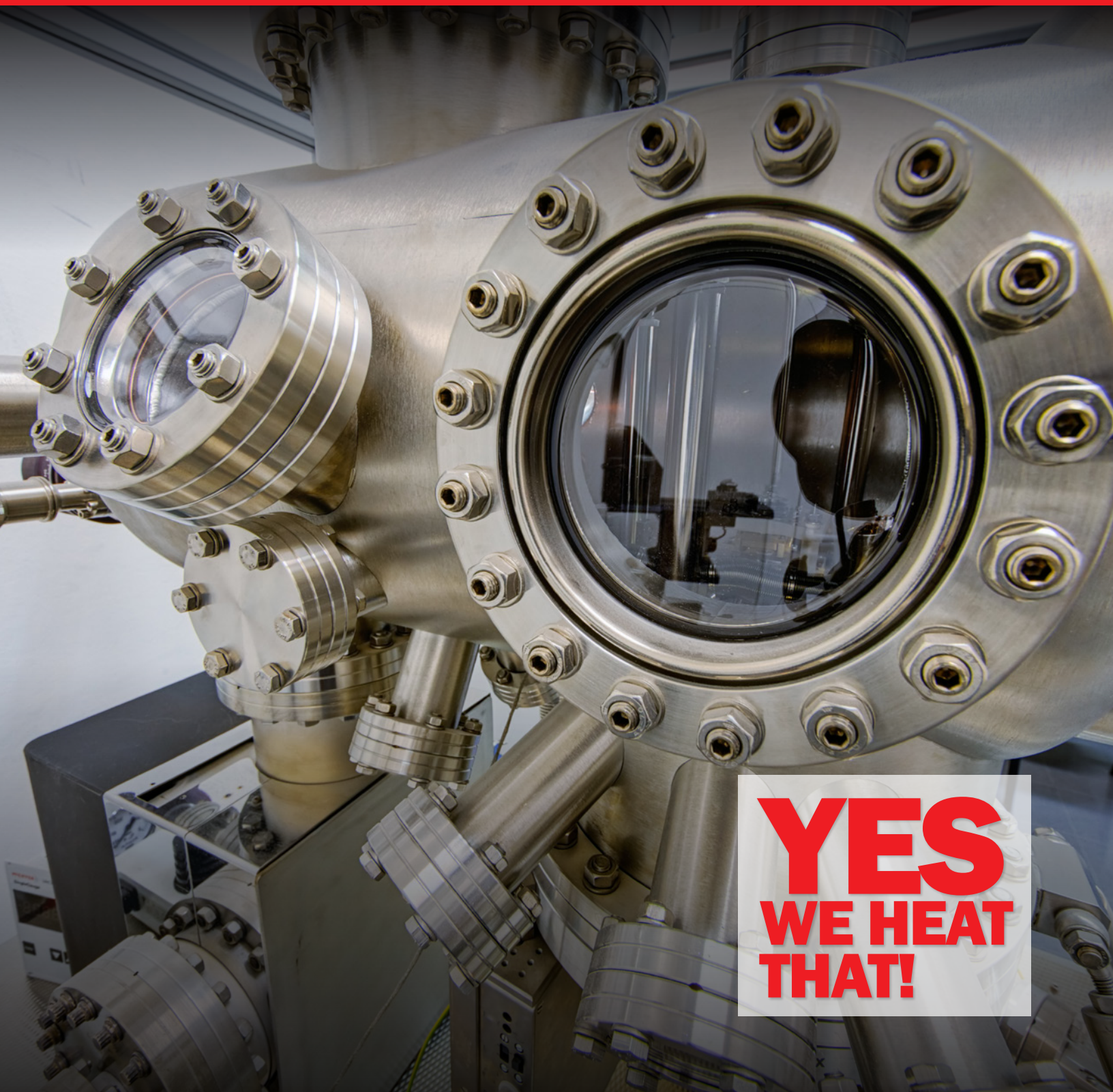
BriskHeat® Your *Heating* Specialist since **1949**

HIGH VACUUM HEATING SOLUTIONS

European Edition



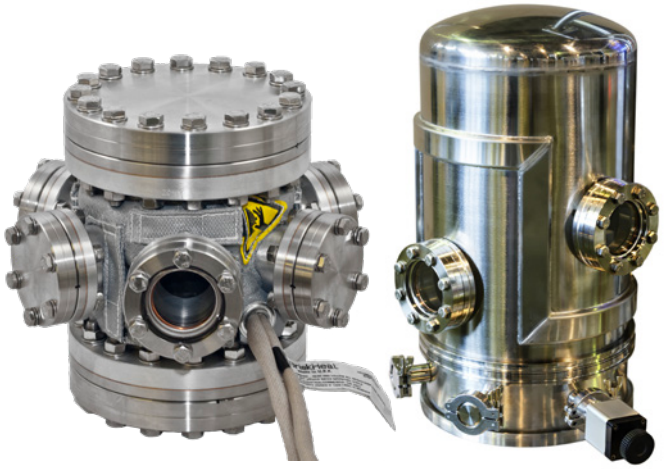
APPLICATION NOTE

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 200˚C (392 °F)) 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 fileds
- 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 1000°C (1832°F) and a 250 W/m (76.2 W/ft) watt density.

Products

Cloth Heating Jackets

Types of Users

Lab Managers	Scientists
Process Engineers	Project Managers

Industries

Laboratory	High Physics
Universities R & D	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 6 mm (¼ in)
  - 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® BIHE EXTRA-HEAVY INSULATED HEATING TAPES

- **Exceptional flexibility and durability**
- **Power densities: 150 W/m, 300 W/m, or 500 W/m**
- **Maximum exposure temperature:**
- **Removable & Reusable up to 450 °C (842 °F)**
- **Single install use up to 760 °C (1400 °F)**
- **1,5 m (5 ft) long ferrule-terminated leads**

Width mm (ft)	Length m (ft)	Volts	Part No. 150 W/m	Total Watts	Part No. 500 W/m	Total Watts
25 (1,0)	1,0 (3,3)	240	**BIHE25210150L**	150	**BIHE25210500L**	500
25 (1,0)	1,5 (4,9)	240	**BIHE25215150L**	225	**BIHE25215500L**	750
25 (1,0)	2,0 (6,6)	240	**BIHE25220150L**	300	**BIHE25220500L**	1000
25 (1,0)	2,5 (8,2)	240	**BIHE25225150L**	375	**BIHE25225500L**	1250
25 (1,0)	3,0 (9,8)	240	**BIHE25230150L**	450	**BIHE25230500L**	1500
25 (1,0)	3,5 (11,5)	240	**BIHE25235150L**	525	**BIHE25235500L**	1750

Other standard sizes and voltages available

XTREMEFLEX® HTCE EXTRA-HEAVY INSULATED HEATING CORDS

- **Small diameter for tight bend radius**
- **Grounded for enhanced safety**
- **Power densities: 60 W/m, or 120 W/m**
- **Maximum exposure temperature:**
  - Removable & Reusable up to 450 °C (842 °F)
  - Single install use up to 760 °C (1400 °F)
- **1,5 m (5 ft) long ferrule-terminated leads**
- **High temperature tie-downs**

Length m (ft)	Volts	Part No. 60 W/m	Total Watts	Part No. 120 W/m	Total Watts
0,5 (1,6)	240	**HTCE205060L**	30	**HTCE205120L**	60
1,0 (3,3)	240	**HTCE210060L**	60	**HTCE210120L**	120
1,5 (4,9)	240	**HTCE215060L**	90	**N/A**	N/A
2,0 (6,6)	240	**HTCE220060L**	120	**HTCE220120L**	240
2,5 (8,2)	240	**HTCE225060L**	150	**HTCE225120L**	300
3,0 (9,8)	240	**HTCE230060L**	180	**HTCE230120L**	360
3,5 (11,5)	240	**HTCE235060L**	210	**HTCE235120L**	420

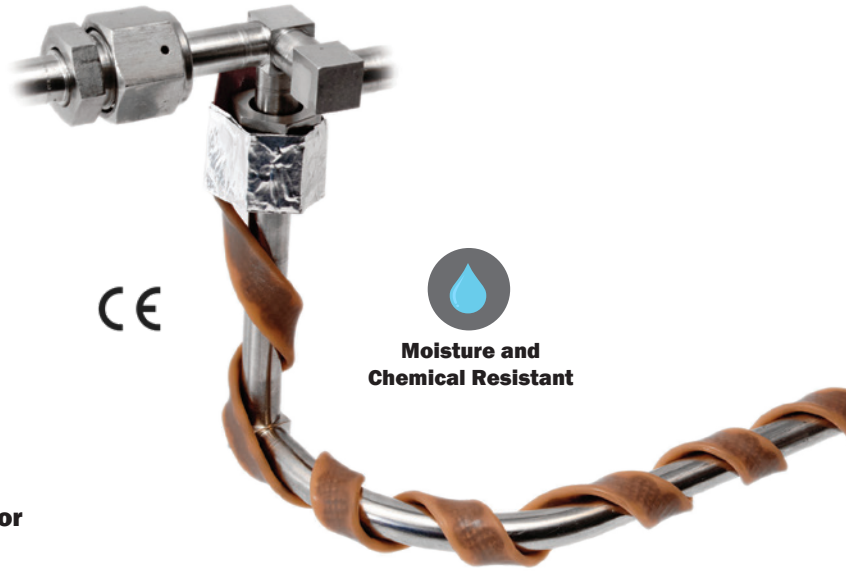
XTREMEFLEX® BS0 SILICONE RUBBER HEATING TAPES

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

Tape Width mm (in)	Tape Length m (ft)	Watts	Part No. 240 V
13 (0,5)	0,6 (2)	52	**BS0052020L**
13 (0,5)	1,2 (4)	104	**BS0052040L**
13 (0,5)	1,8 (6)	156	**BS0052060L**
13 (0,5)	2,4 (8)	209	**BS0052080L**
25 (1,0)	0,6 (2)	104	**BS0102020L**
25 (1,0)	1,2 (4)	209	**BS0102040L**
25 (1,0)	1,8 (6)	313	**BS0102060L**
25 (1,0)	2,4 (8)	418	**BS0102080L**

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

Other standard sizes and voltages available



XTREMEFLEX® RKF LONG-LENGTH SILICONE RUBBER HEATING TAPES

- **Exceptional flexibility and durability**
- **Maximum exposure temperature 232 °C (450 °F)**
- **Moisture and chemical resistant**
- **1,5 m (5 ft) long ferrule-terminated leads**
- **Extruded silicone rubber with 6 mm (0,25 in) bend radius**

Width mm (in)	Length m (ft)	Volts	Part No. 240 V	Total Watts
13 (0,5)	3,0 (10)	240	**RKF052400120**	60
13 (0,5)	6,1 (20)	240	**RKF052400240**	120
13 (0,5)	12,2 (40)	240	**RKF052400480**	240
13 (0,5)	18,3 (60)	240	**RKF052400720**	360
13 (0,5)	24,4 (80)	240	**RKF052400960**	480
13 (0,5)	30,5 (100)	240	**RKF052401200**	600
13 (0,5)	45,7 (150)	240	**RKF052401800**	900
13 (0,5)	61,0 (200)	240	**RKF052402400**	1200

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

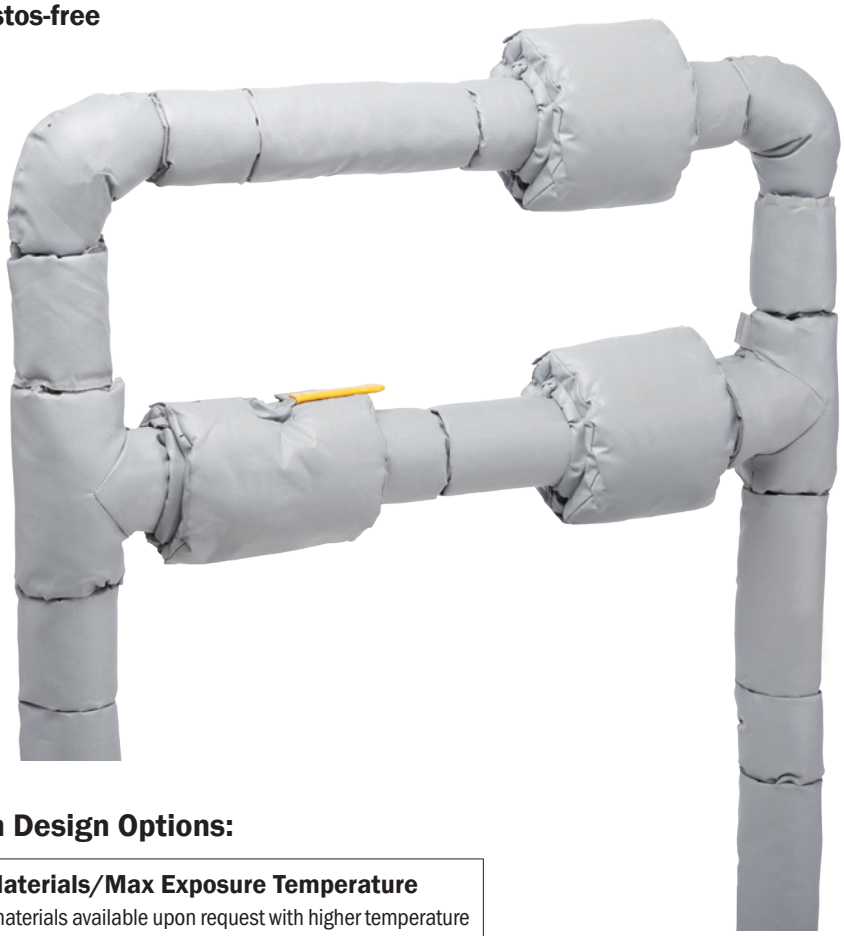
SILVER-SERIES CLOTH JACKET INSULATORS

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

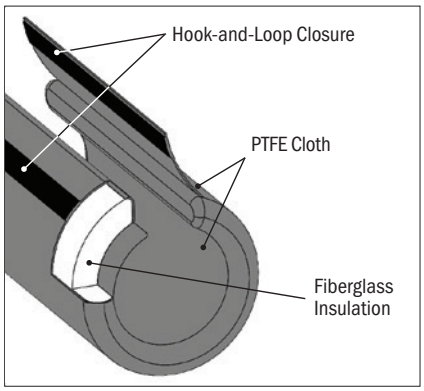
NEW!



Specifications:

Operating Temperature: Up to 260°C (500°F)
Exterior Material: PTFE cloth
Insulation: 25 mm (1 in) fiberglass
Thermal Performance: R3.3, K0.21@ 24°C (75°F)
Ingress Protection Rating: IP54

Quality Construction



Cut-to-Length Versatility

Note: Color options available upon request

Custom Design Options:

Cloth Materials/Max Exposure Temperature
- Other materials available upon request with higher temperature ratings up to 593°C (1100°F)

Closure Types
- Hook and loop (Standard)
- D-Rings
- Hook and lace
- Grommets
- Rope draw-cord

Insulation Thickness
- 25 mm (1 in) (standard) or your choice of thickness

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[1]**
- **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

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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

NEW!

- **Advanced PID temperature control**
- **Benchtop plug-and-play design***
- **Programmable in °C and °F**
- **1,5 m (5 ft) temperature sensor included**

Voltage	Sensor Type	Input Plug	Part No.
100 - 240 VAC	Type-J T/C	Schuko	**SDXJD**
100 - 240 VAC	Type-K T/C		**SDXKD**
100 - 240 VAC	PT100-RTD		**SDXRD**
100 - 240 VAC	Type-J T/C	Ferrule Ends	**SDXJB**
100 - 240 VAC	Type-K T/C		**SDXKB**
100 - 240 VAC	PT100-RTD		**SDXRB**
100 - 240 VAC	Type-J T/C	UK Type G	**SDXJE**
100 - 240 VAC	Type-K T/C		**SDXKE**
100 - 240 VAC	PT100-RTD		**SDXRE**

**2 m (79 in) input power cord and plug included*
Also available with different plug options

SDCE DIGITAL BENCHTOP CONTROLLER

- **Benchtop plug-and-play On/Off control**
- **4-Key touch pad displays °C or °F**
- **Includes 2 m (6,6 ft) power cord and 1,5 m (4,9 ft) temperature sensor**

Voltage	Sensor Type	Input	Part No.
230 VAC	Type-J T/C	Ferrules	**SDCEJB**
230 VAC	Type-J T/C	NEMA-6-15	**SDCEJC**
230 VAC	Type-J T/C	Schuko	**SDCEJD**
230 VAC	Type-J T/C	UK Type G	**SDCEJE**

Type K Sensor - Replace J in part number with K.
Type PT100-RTD Sensor, replace J in part number with R

230 VAC

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.

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