# **CB** Ceramic Band Heater

- 3-1/2" Barrel Dia.
- 1-1/2 6" Widths
- 500 5,000 Watts
- 120 and 240 Volts
- 19 40 W/In<sup>2</sup>
- Ceramic Fiber Insulated
- Up to 1500°F Operating Temp.
- Corrosion Resistant Alloy Shell

### **Applications**

- Blow Molding
- Die Heads
- Extruders
- Heating Pipes
- Injection Molding







#### *Features*

**Type CB** ceramic band heaters are best suited for applications up to 1500°F and provide even heating on injection and extrusion molding barrels. The ceramic segments and high temperature resistance wires are capable of highly efficient heat transfer. Ceramic fiber insulation, 1/4" thickness, provides an additional 25% energy savings over noninsulated types. Ceramic bands also contribute a radiant heating effect to the object being heated. They can be constructed in greater widths, allowing fewer heaters per zone, wider heating patterns, and simplified wiring.

Energy Efficient, 25% Savings

Radiant Heating Principle

Uniform Heating Pattern

Available in Special Configurations

**Thermal Insulation** 

1500°F Operating Temperatures

Flexible

Corrosion-Resistant Alloy Shell

High Temperature Resistance Wires

#### **Construction**

The use of ceramic inserts to support high temperature resistance wire allows the Chromalox Type CB ceramic heater band to operate at high temperatures reaching 1500°F. Corrosion resistant metal is slit along the edges to allow easy fitting of the shroud to the object being heated.

**Insulation** — 1/4" of ceramic fiber is placed between the inserts and the shell to provide a 25% energy savings over non-insulated heater bands. Additional insulation and metal liners can be supplied as an option.

**Clamping Method** — Mounting flanges are standard on Chromalox ceramic bands. Other clamping methods are available.

Terminations — Due to the high temperature capabilities of ceramic insulated heat bands, the use of lead wires is not recommended. When leads must be supplied, Chromalox will exit the heater with the use of ceramic wire insulating beads, and make a junction with the nickel alloy lead wire at the point outside the shroud. Terminals are generally best located 180° from the gap. Alternate locations are possible, consult factory.

Sensor Holes — Sensor holes should be positioned in the gap, and a shroud be supplied as a shell overlap construction. For holes through the elements, consult factory.



# **CB** CeramicBand Heater

### Variations

#### One-Piece

Standard completely flexible construction consists of flange lockup, 1/4" thick ceramic insulation, 10-24 screw terminals, located 180° from gap, on width center line.

Max. I.D. 21" Min. Width 1-1/2"



#### Two-Piece

Easy to apply when an obstruction prohibits the application of 1-piece heater. Heaters can be supplied with any termination or clamping variation. 2-piece heaters are rated at half of the voltage and each half is rated half of the total wattage. Larger diameters made in multiple segments.

Min. I.D. 4" Width 1-1/2" Max. I.D. 44"



#### **Partial Coverage**

Allows for the heating of the accessible portion of machine when full coverage is not possible. Heaters supplied with standard clamping and termination.

Min. length 6" Max. length 21".



#### Liner

Stainless steel liners inhibit contamination of the ceramic tiles.

Min. I.D. 3" Width 1-1/2" Max. I.D. 21"



#### Special Insulation

1/2" ceramic fiber insulation can be inserted. The thickness of the heater will expand to 3/4". When 3/4" ceramic fiber and an inner liner is inserted the heater will be 7/8" thick.



#### Clamping

#### Bent-Up Flange - F

Flange clamping is standard construction on ceramic heaters



#### Built-In Bracket - BB

Mounting bracket with barrel nut lockup, and 1/4-20 screws. Supplied in any construction on termination variation.



#### Latch and Trunion - LT

Quick Release Spring loaded latch & trunion. Recommended I.D. 12" or greater.



## **Chromalox**<sup>®</sup>

# **CB** Ceramic Band Heater *(cont'd.)*

### **Terminations**

#### Tandem T-2

Tandem terminals located 180° from gap, on center line with length of heater. Available with either 10-24 or 1/4-20 post terminals. Standard on widths under 3".

#### Min. I.D. 3"



#### Parallel T-3

Parallel terminals located 180° from gap with width of heater. Available with either 10-24 or 1/4-20 post terminals. Standard on all heaters greater than 3" width.

Min. I.D. 3" Min. Width 3"



#### Standoff Terminals - SO

Provides relief from direct heat. Available on any constrution or clamping variation. Single or 3-phase power, single or dual voltage.

Min. Width 3"



#### Euro Plug - EP

Quick disconnect cup assembly is a safe way to provide power to heater.

Min. Width 1-1/2" Max. Amps 15 at 240V, Max. Volts 240



### Lead Types

#### Stainless Steel Metal Braid - C

Provides abrasion resistant protection of fiberglass leads. Leads exit one point of heater surface through a strain relief. 10" braid over 12" leads.

Min. I.D. 3" Min. Width 1-1/2"



#### Metal Flexible Conduit - M

Stainless steel or galvanized. Flexible metal conduit to protect leads from abrasion. Available on any construction or clamping variation. 10" metal conduit over 12" fiberglass leads, standard.

Min. I.D. 3" Min. Width 1-1/2"



#### **Right Angle Connection - MR**

Stainless steel or galvanized flexible metal conduit attached by copper elbow to protect leads from abrasion. Available on any construction or clamping variation. 10" metal conduit over 12" fiberglass leads, standard.

Min. I.D. 3" Min. Width 1-1/2"



### **Options**

#### **Terminal Box Protection - TB**

Designed in standard height of 1-3/4" high, with 5/8" conduit knockout for standard metal conduit connections. Protects terminals from damage, spill leakage, grounding or short circuiting. Available for single or 3-phase construction.



# **CB** Ceramic Band Heater *(cont'd.)*

### Options (cont'd.)

#### Shroud Overlap

Shroud overlap designed to accommodate a thermocouple hole in gap. Heaters can be supplied with any termination or clamping variation.

Min. I.D. 5" Width 1-1/2" Max. I.D. 21"



Ceramic Caps - CC

Protects against electric shock, when used with insulated wire. Can be rotated at any angle - Screw size 10-24 standard.



### How to Order Ceramic Bands

- 1. Order by Catalog Code and PCN
- 2. Specify quantity
- 3. Specify Inside diameter (ID)
- 4. Specify Width (1/2" increments)
- 5. Wattage 2-piece bands each half is rated one-half the wattage.
- 6. Voltage on 2-piece bands, we recommend each piece is rated at half the operating voltage.
- 7. Terminal type post terminals are standard, specify terminal location.
- 8. Standard 1/4" insulated or optional 1/2" insulation.
- Indicate size and location of thermocouple holes, cutouts, partial coverage, gasps or other special features - Fax Drawing.

### **Specifications**

Sheath Material Maximum Temperature	Corrosion resistant alloy shell 1500°F
Insulation Material	Thickness of heater with $1/4$ " insulation = $5/8$
	Thickness of heater with $1/2$ " insulation = $3/4$ "
Minimum I.D.	3"
Minimum Width/Tolerance	1-1/2" wide
	Width in 1/2" increments
	Width tolerance: $\pm 1/8"$
Standard Gap When	
Tightened	3/8" ± 1/8"
Resistance Tolerance	NEMA standard + 10% -5%
Wattage Tolerance	NEMA standard +5% -10%
Watt Density	Depends on power, operating temperature
Ş	and heater size. See ordering information.
Maximum Volts	480 volts
Maximum Amps	25 amps



# **Chromalox**®

## Represented By: Ross & Pethtel Phone: 225-273-2202 Website

# **CB** Ceramic Band Heater *(cont'd.)*

## Specifications and Ordering Information

		Dimensi	ions (In.)	Torm	120V			240V		
Watts	W/In <sup>2</sup>	I.D.	Width	Туре	Model	Stock	PCN	Model	Stock	PCN
500 1000 700 1500 1350 1800	40 44 26 40 28 35	3 3 3 3 3 3 3 3	1-1/2 2-1/2 3 4 6 6	T2 T2 T3 T3 T3 T3 T3	CB3A1J1P1 CB3A1J1P1 CB3A3A1P1 CB3A4A1P1 CB3A6A1P1 CB3A6A1P3	ទទទទទទទទទទទទទទទទទទទទទទទទទទទទទទទ	160012 160039 160055 160071 160098 160119	CB3A1J1P2 CB3A1J1P2 CB3A3A1P2 CB3A4A1P2 CB3A6A1P2 CB3A6A1P4	ទ ទ ទ ទ ទ ទ ទ ទ	160020 160047 160063 160080 160100 160127
600 650 800 1200 1000 2000	38 30 37 30 23 42	3-1/2 3-1/2 3-1/2 3-1/2 3-1/2 3-1/2	1-1/2 2 3 4 4-1/2 6	T2 T2 T3 T3 T3 T3 T3	— CB3J2A1P1 CB3J3A1P1 — CB3J4J1P1 —	       	160143 160160  160194 	CB3J1J1P1 CB3J2A1P2 CB3J3A1P2 CB3J4A1P1 CB3J4J1P2 CB3J6A1P1	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	160135 160151 160178 160186 160207 160215
800 1200 1200 2500	22 35 26 38	4 4 4 4	2 3 4 6	T2 T3 T3 T3 T3	CB4A2A1P1 CB4A3A1P1 — —	s 	160223 160240 	CB4A2A1P2 CB4A3A1P2 CB4A4A1P1 CB4A6A1P1	S NS NS S	160231 160258 160266 160274
700 1100 1000 1300 2000	35 40 19 25 26	4-1/2 4-1/2 4-1/2 4-1/2 4-1/2	1-1/2 2 4 4 6	T2 T2 T3 T3 T3 T3	CB4A6A1P3 — CB4J4A1P1 CB4J4A1P3 —	S S S	160282 	— CB4J2A1P1 CB4J4A1P2 CB4J4A1P4 CB4J6A1P1		
800 1300 850 1250 1600 1250 2200 2750	35 44 19 28 35 24 38 32	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1-1/2 2 3 3 3-1/2 4 6	T2 T2 T3 T3 T3 T3 T3 T3 T3 T3		\$\$		CB5A1J1P1 CB5A2A1P1  CB5A3A1P3 CB5A3A1P4 CB5A3J1P2 CB5A4A1P2 CB5A6A1P2	ss   ss NS ss	160354 160362 160397 160400 160426 160442 160469
900 1000 1500 1200 1550 2000	38 30 38 25 25 24	5-1/2 5-1/2 5-1/2 5-1/2 5-1/2 5-1/2 5-1/2	1-1/2 2 2-1/2 3 4 5	T2 T2 T2 T3 T3 T3 T3	CB5J1J1P1 CB5J2A1P1 — CB5J3A1P1 CB5J4A1P1 CB5J5A1P1	S S S S S S	160477 160493 	CB5J1J1P2 CB5J2A1P2 CB5J2J1P1 CB5J3A1P2 CB5J4A1P2 CB5J5A1P2	S S S S S S S S	160485 160506 160514 160530 160557 160573
650 850 1250 1200	27 25 25 18	5-3/4 5-3/4 5-3/4 5-3/4	1-1/2 2 3 4	T2 T2 T3 T3	— CB5N2A1P1 CB5N3A1P1 CB5N4A1P1	្ទីនទទ		CB5N1J1P1 CB5N2A1P2 CB5N3A1P2 CB5N4A1P2	ទទទ	160581 160602 160629 160645
1100 1000 1500 1600 1450 1800 2000 2000 3000	40 28 41 35 29 21 20 22 19 28	6 6 6 6 6 6 6 6 6	1-1/2 2 2-1/2 3 4 5-1/2 6	T2 T2 T2 T3 T3 T3 T3 T3 T3 T3 T3		<u> </u> % % % % % % % % % % % % % % % % % % %		CB6A1J1P1 CB6A2A1P2 CB6A2A1P4 CB6A2J1P2 CB6A3A1P2 CB6A3A1P2 CB6A5A1P2 CB6A5J1P2 CB6A6A1P2 CB6A6A1P4	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	160653 160670 160696 160717 160733 160750 160776 160792 160813 160830



# **CB** Ceramic Band Heater *(cont'd.)*

## Specifications and Ordering Information

		Dimensi	ons (In.)	Torm	120V			240V		
Watts	W/In <sup>2</sup>	I.D.	Width	Туре	Model	Stock	PCN	Model	Stock	PCN
1000 1000 1600 2500 3000	33 26 35 26 24	6-1/2 6-1/2 6-1/2 6-1/2 6-1/2	1-1/2 2 3 5 6-1/2	T2 T2 T3 T3 T3 T3	CB6J1J1P1 CB6J2A1P1 — CB6J5A1P1 CB6J6J1P1	s - s	160848 160864  160899 160910	CB6J1J1P2 CB6J2A1P2 CB6J3A1P1 CB6J5A1P2 CB6J5A1P2 CB6J6J1P2	S S S S S	160856 160872 160880 160901 160928
1000 1250 2000 3000 3000	31 36 25 30 25	6-3/4 6-3/4 6-3/4 6-3/4 6-3/4	1-1/2 2 4 5 6	T2 T2 T3 T3 T3 T3	CB6N1J1P1 CB6N2A1P1 — CB6N5A1P1 —	\$       	160936 160952  160987 	CB6N1J1P2 CB6N2A1P2 CB6N4A1P1 CB6N5A1P2 CB6N6A1P1	S S S S S	160944 160960 161605 161613 161007
1400 1700 2500 2600 3000 5000	43 38 38 32 30 40	7 7 7 7 7 7 7	1-1/2 2 3 4 5 6	T2 T2 T3 T3 T3 T3 T3	— — — — — — — — — — — — — — — — — — —	I NS NS NS		CB7A1J1P1 CB7A2A1P1 CB7A311P1 CB7A4A1P2 CB7A5A1P2 CB7A6A1P2	S S S S S S S S	161015 161023 161621 161648 161664 161090
1200 1500 1800 2000 3000 2500 3500 3500 4500	35 35 30 20 30 22 32 33 33	7-1/2 7-1/2 7-1/2 7-1/2 7-1/2 7-1/2 7-1/2 7-1/2 7-1/2	1-1/2 2 3 4-1/2 4-1/2 5 5 5-1/2	T2 T2 T3 T3 T3 T3 T3 T3 T3 T3 T3	— — — — — — — — — — — — — — —		 161680 161162 	CB7J1J1P1 CB7J2A1P1 CB7J3A1P2 CB7J4J1P2 CB7J4J1P3 CB7J5A1P2 CB7J5A1P3 CB7J5J1P1 CB7J5J1P1	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	161103 161672 161120 161146 161699 161701 161701 161728 161728
4300 1250 1500 2000 3000 3500	23 33 21 28 30 28	8 8 8 8 8 8	0 1-1/2 2 3 4 6	T2 T2 T3 T3 T3 T3	CB8A1J1P1 CB8A3A1P1 CB8A3A1P1	S NS	<b>161218</b> 161242	CB736ATP1 CB8A1J1P2 CB8A2A1P1 CB8A3A1P2 CB8A4A1P1 CB8A6A1P1	5 5 5 5 5 5	161200 161226 161744 161250 161269 161277
1500 2400	39 42	8-1/2 8-1/2	1-1/2 3	T2 T3	CB8J1J1P1 CB8J3A1P1	NS NS	161285 161306	CB8J1J1P2 CB8J3A1P2	S S	161752 161760
1300 1750 2000 2800 2500 3000	31 32 30 34 19 20	9 9 9 9 9 9 9	1-1/2 2 2-1/2 3 5 5-1/2	T2 T2 T2 T3 T3 T3 T3	CB9A1J1P1 CB9A2A1P1 CB9A2J1P1 — — — —	NS NS NS —	161322 161349 161365 — — —	CB9A1J1P2 CB9A2A1P2 CB9A2J1P2 CB9A3A1P1 CB9A5A1P1 CB9A5J1P1	NS NS NS NS NS NS	161330 161779 161373 161381 161787 161402
2200 4200	25 32	9-1/2 9-1/2	3 6	T3 T3		_	_	CB9J3A1P1 CB9J6A1P1	NS NS	161795 161429
2400 3000 3500	26 20 25	10 10 10	3 5 5-1/2	T3 T3 T3				CB10A3A1P1 CB10A5A1P1 CB10A5J1P1	NS NS NS	161808 161445 161461
2500 4000	25 34	10-1/2 10-1/2	3 4-1/2	T3 T3		_	_	CB10J3A1P1 CB10J4J1P1	NS NS	161470 161488
2500 4000 4500	25 25 23	11 11 11	3 5 6	T3 T3 T3	 CB11A5A1P1 	NS —	161509	CB11A3A1P1 CB11A5A1P2 CB11A6A1P1	NS NS NS	161496 161824 161525
2000 2500 4000 5000	28 28 19 23	12 12 12 12 12	2 3 6 6	T2 T3 T3 T3 T3	— — CB12A6A1P1 CB12A6A1P3	NS NS	 161832 161576	CB12A2A1P1 CB12A3A1P1 CB12A6A1P2 CB12A6A1P4	NS NS NS NS	161533 161541 161568 161584