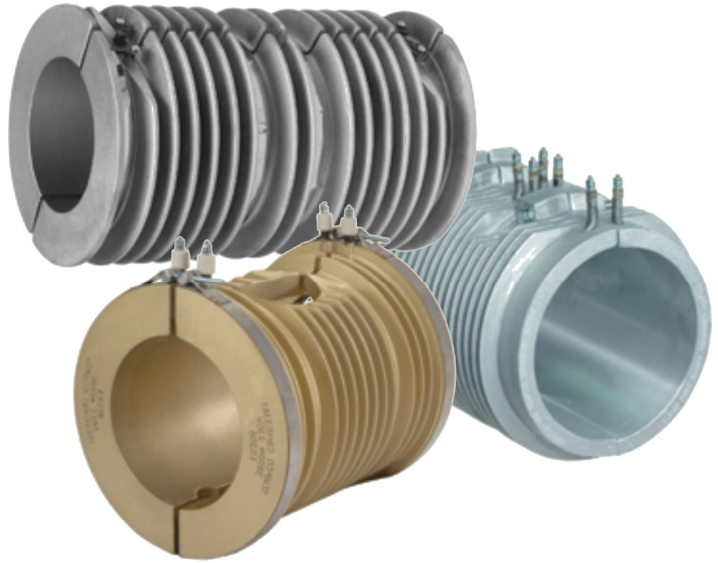


## Standard Cast-In Finned Heater Designs for Air-Cooled Extruder Systems

Aluminum Finned Cast-In Band Heaters are used as an alternative to Liquid Cooled Cast-In Band Heaters for heating and cooling the barrels of plastic extruders. As a standard, Finned Cast-In Band Heaters are manufactured in aluminum alloys because this material provides very good thermal conductive properties. For applications requiring higher operating temperatures and/or higher watt densities, bronze or brass alloys can be used. Precision machining of the inside diameter yields superior heat transfer between the heater and the machine barrel, thereby ensuring uniform heating and cooling of the extrusion process. The heaters are secured to the barrel either by Stainless Steel Clamp Bands or by means of Bolt Clamping the heater halves together. Finned Cast-In Band Heaters can be designed to meet the mechanical and physical constraints of existing extruder shroud systems. They are manufactured for Original Equipment Manufacturers (OEM) and maintenance (MRO) applications to customer specifications.

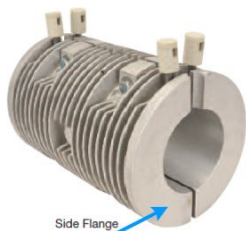


## Finned Cast-In Heater End Types



### Type FS1 — Finned Cast-In Heater without Side Flanges

These cast-in band heaters are normally made to be used in conjunction with the Cool to-the Touch and Multi-Versal Shroud Systems. They can also be used as stand-alone replacements for other heating and cooling extrusion systems. The standard mounting method for these designs is bolt clamping. An alternative mounting method is to use stainless steel straps. Type "T" screw terminals are the standard termination.



### Type FS2 — Finned Cast-In Heater with Side Flanges

These cast-in band heaters are normally made to be used in conjunction with the Arctic Cast Shroud System. They can also be used as stand-alone replacements for other heating and air cooling extrusion systems. The standard mounting method for these designs is bolt clamping. An alternative mounting method is to use stainless steel straps. Type "E" screw terminals are the standard termination.

### Stock and Standard (Non-Stock) Finned Aluminum Cast-In Band Heaters for Extrusion Processing

Standard Sizes and Ratings Listed by Extruder Size – **Stock Items Are Shown in RED**

These Sizes and Ratings are among the most commonly used. They will provide the shortest delivery times.

ID (in)	OD (in)	Length (in)	Material	Watts Ea Half	Volts Ea Half	Phase	Term Type	Clamp Type	Htr End Type	Part Number
2.250	4.000	5.500	Bronze	600	230	1	R	Bolt	FS2	CBH12388
3.000	4.750	7.500	Bronze	1000	230	1	R	Bolt	FS2	CBH12387
3.750	8.000	9.875	Alum 319	1350	207	1	S	Bolt	FS2	CBH10404
4.000	8.000	8.750	Alum 319	2000	230	1	S	Strap	FS1	CBH09461
4.000	8.000	9.000	Alum 319	1500	230	1	S	Strap	FS1	CBH08712
4.000	8.000	11.000	Alum 319	1850	230	1	S	Strap	FS1	CBH08713
<b>4.375</b>	<b>8.250</b>	<b>12.250</b>	<b>Alum 319</b>	<b>2000</b>	<b>230</b>	<b>1</b>	<b>R</b>	<b>Strap</b>	<b>FS1</b>	<b>CBH01139</b>
4.500	8.250	12.500	Alum 319	2500	190	1	C4	Bolt	FS2	CBH14634
4.500	8.500	12.000	Alum 319	2750	240	1	R	Bolt	FS2	CBH06640
4.500	8.500	12.000	Alum 319	2750	200	1	R	Bolt	FS2	CBH08651
4.500	9.000	11.500	Alum 319	2000	230	1	S	Strap	FS1	CBH05533
4.921	8.421	9.000	Bronze	2500	480	3	C4	Strap	FS1	CBH08576
4.922	7.500	5.906	Alum 319	1630	230	1	T7	Bolt	FS2	CBH10044
4.922	7.500	7.087	Alum 319	2180	230	1	T7	Bolt	FS2	CBH10045
5.000	7.750	12.750	Alum 319	2625	200	1	R	Bolt	FS2	CBH11859
5.000	9.000	13.000	Alum 319	2750	240	1	S	Strap	FS1	CBH12840
5.002	9.250	12.250	Alum 319	2000	240	1	T	Strap	FS1	CBH03319
5.500	8.750	12.500	Alum 319	2800	600	1	S	Bolt	FS1	CBH07945
5.500	8.750	12.500	Alum 319	2800	460	1	S	Bolt	FS1	CBH07952
5.500	8.750	12.500	Alum 319	2800	240	1	S	Bolt	FS1	CBH10362
5.500	9.500	12.000	Alum 319	2300	240	1	S	Strap	FS1	CBH06724
5.500	9.500	12.500	Alum 319	2800	240	1	S	Bolt	FS2	CBH04982
5.500	9.500	12.500	Alum 319	2800	415	1	S	Bolt	FS2	CBH12906
6.000	10.500	11.500	Alum 319	2700	230	1	S	Strap	FS1	CBH02588
6.000	10.500	14.500	Alum 319	3500	230	1	T7	Strap	FS1	CBH02432
6.250	10.250	6.250	Alum 319	1400	200	1	S	Bolt	FS2	CBH08653
6.250	10.250	6.250	Alum 319	1700	240	1	R	Bolt	FS2	CBH06373
<b>6.250</b>	<b>10.250</b>	<b>13.688</b>	<b>Alum 319</b>	<b>3000</b>	<b>230</b>	<b>1</b>	<b>R</b>	<b>Strap</b>	<b>FS2</b>	<b>CBH01406</b>
6.250	10.250	17.750	Alum 319	5800	240	1	R	Bolt	FS2	CBH06623
6.250	11.250	15.875	Alum 319	5000	230	1	S	Bolt	FS1	CBH03365
6.300	9.550	15.750	Alum 319	5000	240	1	C4	Strap	FS1	CBH03793
6.300	9.550	15.750	Alum 319	5000	380	1	S	Strap	FS1	CBH11795
6.300	10.050	15.750	Alum 319	5000	380	1	S	Bolt	FS1	CBH12907
6.300	10.050	15.750	Alum 319	5000	415	1	S	Bolt	FS1	CBH12908
6.300	10.050	15.750	Alum 319	5000	440	1	S	Bolt	FS1	CBH12668
6.500	9.500	15.000	Alum 319	3250	230	1	T7	Bolt	FS1	CBH14207
6.500	9.500	17.500	Alum 319	3400	230	1	T	Bolt	FS2	CBH07553
6.500	10.500	13.000	Alum 319	4300	230	1	E	Bolt	FS2	CBH09631
6.500	10.500	13.000	Alum 319	4300	190	1	E	Bolt	FS2	CBH09424
6.600	10.625	14.750	Alum 319	3250	240	1	S	Strap	FS1	CBH07649
6.625	9.875	18.000	Alum 319	4400	600	1	S	Bolt	FS1	CBH07946
7.000	10.250	18.000	Alum 319	6000	290	3	E	Strap	FS2	CBH09420
7.500	11.000	16.500	Bronze	5100	230	1	R	Strap	FS2	CBH11105
7.500	11.250	19.000	Alum 319	8000	380	1	S	Bolt	FS1	CBH12447

#### Key for Abbreviations found under the Termination Column

**C4** = Screw Terminal with Ceramic Cover  
**E** = Right-Angle Lug  
**S** = Screw Terminal w/HD Ceramic Insulator  
**R** = 90° Blockhead Screw Terminal  
**R1** = Flexible Armor Cable

**R1A** = Stainless Steel Wire Overbraid  
**R2** = Blockhead Screw Terminal  
**F** = Flexible Lead Wire  
**T** = Screw Terminal with Mica Insulator  
**T7** = Screw Terminal with Ceramic Insulator

### Stock and Standard (Non-Stock) Finned Aluminum Cast-In Band Heaters (continued)

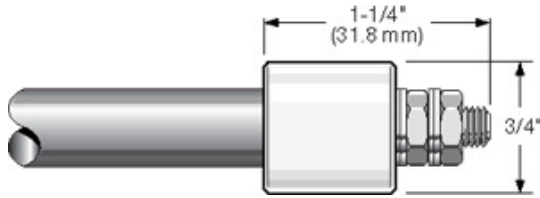
ID	OD	Length	Material	Watts	Volts	Phase	Term	Clamp	Htr End	Part
(in)	(in)	(in)		Ea Half	Ea Half		Type	Type	Type	Number
7.500	11.500	19.500	Alum 319	6000	240	1	C4	Strap	FS1	CBH10129
7.500	12.000	18.000	Alum 319	4500	230	1	S	Strap	FS2	CBH07058
7.625	11.625	14.438	Alum 319	3500	230	1	R	Strap	FS2	CBH01401
7.680	12.000	8.460	Alum 319	4000	230	1	R1A	Bolt	FS2	CBH10371
7.680	13.430	8.460	Alum 319	4000	230	1	R1A	Bolt	FS2	CBH07906
7.680	13.430	8.460	Alum 319	4000	230	1	C4	Bolt	FS2	CBH09690
8.000	12.000	8.000	Alum 319	2500	240	1	S	Bolt	FS2	CBH06574
8.000	12.000	8.000	Alum 319	2500	300	1	S	Bolt	FS2	CBH06144
8.000	12.000	8.000	Alum 319	2850	240	1	S	Bolt	FS2	CBH06642
8.000	12.000	10.000	Alum 319	3550	240	1	R	Bolt	FS2	CBH06643
8.000	12.000	17.500	Alum 319	4600	575	3	S	Bolt	FS1	CBH08418
8.000	12.000	20.000	Alum 319	5600	240	1	S	Bolt	FS2	CBH11002
8.000	12.010	12.625	Alum 319	2875	240	1	R	Bolt	FS2	CBH13795
8.250	12.250	16.000	Alum 319	7000	230	3	E	Bolt	FS2	CBH10653
8.250	12.250	16.000	Alum 319	10000	200	3	R1	Bolt	FS2	CBH11081
8.268	11.504	21.457	Alum 319	7500	240	3	C4	Strap	FS1	CBH04167
8.500	11.000	12.750	Alum 319	4500	460	3	S	Bolt	FS1	CBH12389
8.500	11.500	20.500	Alum 319	6300	240	3	T	Bolt	FS1	CBH10923
8.500	11.750	10.000	Alum 319	4425	190	3	E	Strap	FS2	CBH14903
8.500	12.000	8.500	Alum 319	2750	230	1	S	Strap	FS1	CBH05417
8.500	12.250	6.000	Alum 319	2250	230	1	S	Bolt	FS1	CBH13082
8.502	13.500	12.750	Alum 319	4500	415	3	S	Bolt	FS1	CBH09902
8.502	13.500	12.750	Alum 319	4500	480	3	S	Bolt	FS1	CBH07212
9.500	12.500	27.250	Alum 319	12000	230	3	T	Bolt	FS1	CBH09759
9.500	13.000	5.000	Alum 319	2250	480	1	R2	Bolt	FS2	CBH14691
9.500	13.250	25.500	Alum 319	15000	380	1	S	Bolt	FS1	CBH12448
9.500	13.750	20.500	Alum 319	6000	575	3	E	Bolt	FS1	CBH10947
9.502	14.500	13.000	Alum 319	5250	480	3	T7	Bolt	FS2	CBH07231
9.750	13.250	21.250	Alum 319	7500	480	3	T	Bolt	FS1	CBH14419
9.750	13.250	25.000	Alum 319	9000	230	3	T	Bolt	FS1	CBH10138
9.750	13.750	17.750	Alum 319	7500	230	1	S	Bolt	FS1	CBH07658
9.750	13.750	22.000	Alum 319	7000	230	1	C4	Bolt	FS2	CBH10177
9.750	13.750	22.000	Alum 319	11000	200	3	F	Bolt	FS2	CBH11080
9.750	13.875	23.875	Alum 319	6000	230	1	R	Strap	FS2	CBH02945
9.750	14.000	19.438	Alum 319	6000	230	1	R	Strap	FS2	CBH01262
9.840	14.156	6.060	Alum 319	4000	230	1	R1A	Bolt	FS2	CBH10372
9.875	13.875	8.500	Alum 319	3500	240	1	R	Bolt	FS2	CBH06644
10.000	13.000	8.000	Alum 319	4600	240	1	T	Bolt	FS2	CBH06570
10.039	13.289	12.992	Alum 319	6000	230	3	C4	Strap	FS1	CBH04738
10.623	13.625	13.750	Alum 319	3000	480	1	T	Strap	FS1	CBH11140
12.250	18.500	11.563	Alum 319	5500	460	1	R1A	Bolt	FS1	CBH11575
13.000	17.000	7.000	Alum 319	3450	190	1	R	Bolt	FS2	CBH09810
13.000	17.000	7.000	Alum 319	3450	240	1	R	Bolt	FS2	CBH06583
15.750	20.875	3.250	Alum 319	2000	282	1	F	Bolt	FS2	CBH10084
18.897	24.020	3.346	Alum 319	2250	266	1	F	Bolt	FS2	CBH10224

#### Key for Abbreviations found under the Termination Column

- |  |   |
|--|---|
| <b>C4</b> = Screw Terminal with Ceramic Cover    | <b>R1A</b> = Stainless Steel Wire Overbraid       |
| <b>E</b> = Right-Angle Lug                       | <b>R2</b> = Blockhead Screw Terminal              |
| <b>S</b> = Screw Terminal w/HD Ceramic Insulator | <b>F</b> = Flexible Lead Wire                     |
| <b>R</b> = 90° Blockhead Screw Terminal          | <b>T</b> = Screw Terminal with Mica Insulator     |
| <b>R1</b> = Flexible Armor Cable                 | <b>T7</b> = Screw Terminal with Ceramic Insulator |

**Terminations for Cast-In Heaters**

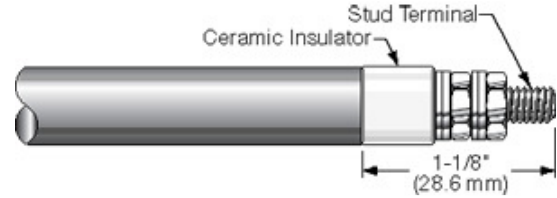
Select the termination style that meets your requirements for space, accessibility and reliability.



**Type S Standard**

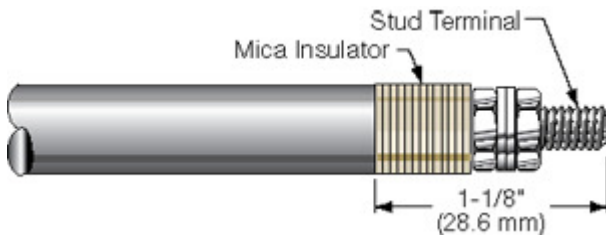
**Heavy Duty Ceramic Insulators**

.315" diameter heater has 8-32 screw terminals.  
.430" diameter heater has 10-32 screw terminals



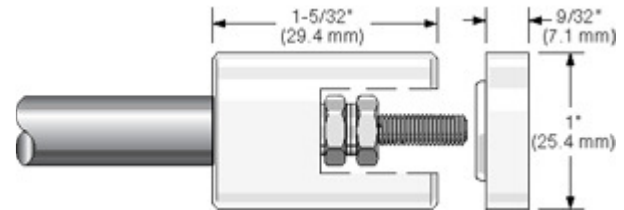
**Type T7 Ceramic Insulator**

.260" diameter heater has 6-32 screw terminals  
.315" diameter heater has 8-32 screw terminals  
.430" diameter heater has 10-32 screw terminals



**Type T - MICA Insulator**

.260" diameter heater has 6-32 screw terminals.  
.315" diameter heater has 8-32 screw terminals.  
.430" diameter heater has 10-32 screw terminals.



**Type C4**

**Heavy duty ceramic insulator**

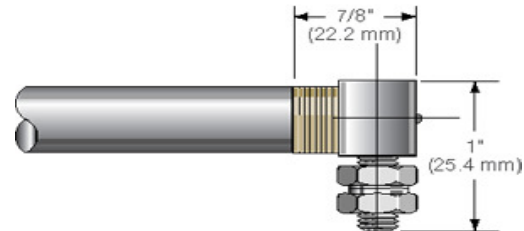
.315" diameter heater has 10-32 screw terminals.  
.430" diameter heater has 10-32 screw terminals.



**Type P - Plain Pin**

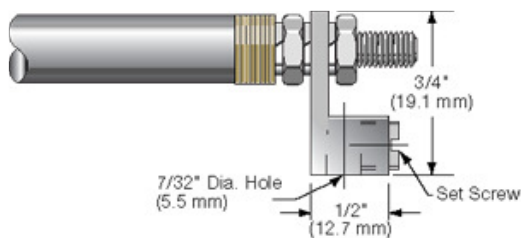
Plain terminal pin. Specify Length Std 1/2" pin length

Element Dia.		Nominal Pin Dia.	
In.	mm	in.	mm
.260	6.6	.091	2.3
.315	8.0	.100	2.5



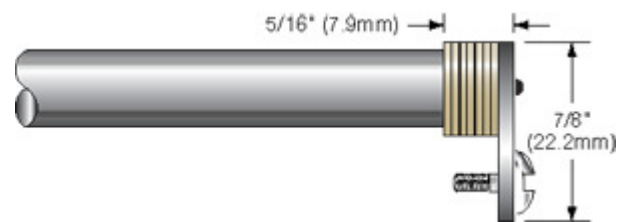
**Type R - MICA Washers w/Screw Terminal**

Mica washers with 90° blockhead screw terminal with 10-32 screw threads. Available for .315" and .430" diameter heaters.



**Type R2 - MICA Washers w/Blockhead**

Mica washers with blockhead and through hole for lead wire connection. Available for .315" and .430" diameter heaters. Accepts 6-14 gauge wire.

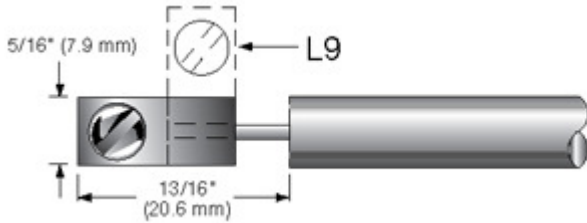


**Type E - Right Angle Lug**

Right-angle lug welded to pin with mica washer insulators and 10-32 binding head screw. Available for .260", .315" and .430" diameter heaters.

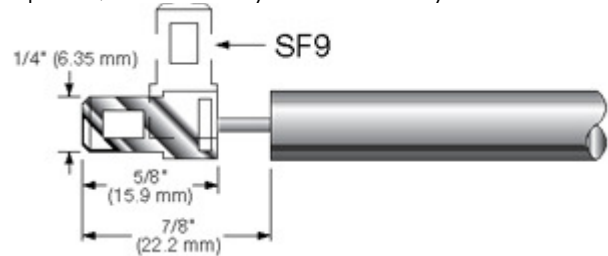
**Terminations for Cast-In Heaters** *(continued)*

Select the termination style that meets your requirements for space, accessibility and reliability.



**Type L & L9 – Terminal Lug Spot**

Terminal lug spot welded to pin with 10-32 binding head screw. Available for .260", .315" and .430" diameter heaters. Type L represents straight; Type L9 represents 90° to pin. Specify lug orientation.



**Type SF & SF9 – Quick Disconnect**

Quick-disconnect spade tabs spot welded to pin. Available for .260", .315" and .430" diameter heaters. Type SF represents straight. Type SF9 represents 90° to pin. Specify tab orientation.



**Type F – Flexible Lead**

Insulated stranded wire crimped to cold pin. Crimp connection is insulated with fiberglass sleeving. Available for .260", .315" and .430" diameter heaters. Specify lead length.



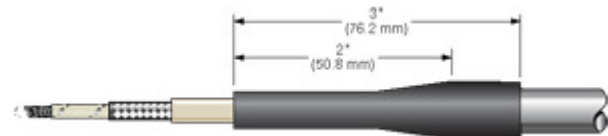
**Type R1 - Flexible Stainless Steel Armor Cable**

Available for .260", .315" and .430" diameter heaters. Specify cable length and lead length. Style may vary from depiction depending on heater diameter and cable diameter used.



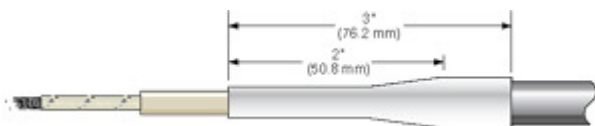
**Type R1A - Stainless Steel Wire Overbraid**

Provides flexibility and protection to lead wires. Available for .260", .315" and .430" diameter heaters. Specify stainless steel wire overbraid length and lead length.



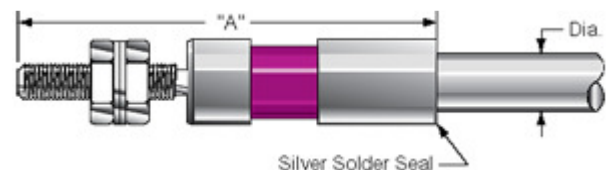
**Type MR – Moisture Resistant**

Strain relief and lead wire with or without stainless steel overbraid. Available for .260", .315" and .430" diameter heaters. Specify lead wire and overbraid length. Max operating temperature is 350°F (177°C).



**Type TS – Teflon Seal**

Contamination seal shrink-down Teflon® sleeving over the heater and lead wire splice. Maximum operating temperature 500°F (260°C). Available for .260", .315" and .430" and diameter heaters. Specify lead length.



**Type H – Hermetic Seal**

Ceramic to metal hermetic seal screw terminal. Maximum operating temperature is 1000°F (538°C).

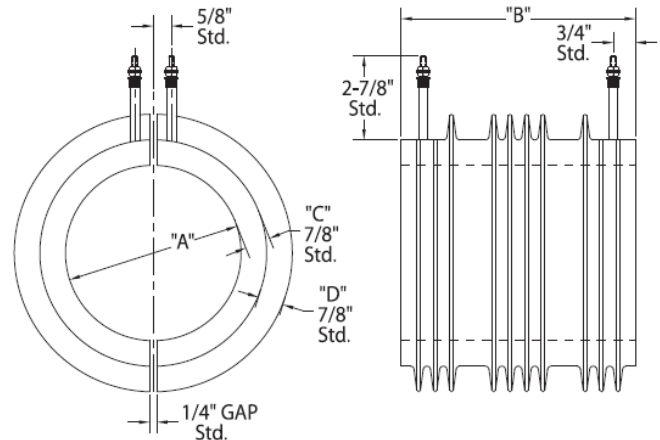
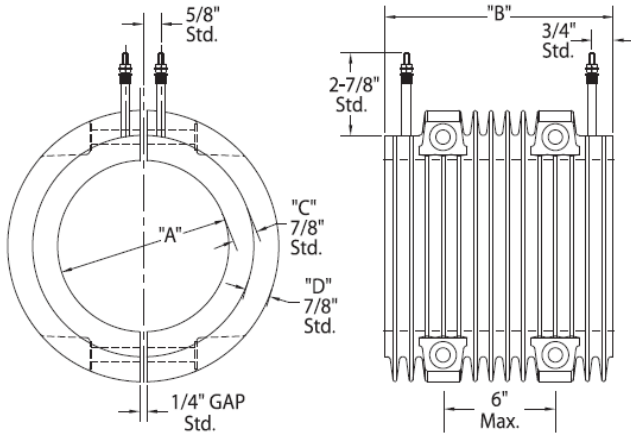
<b>Diameter</b>	.260"	.315"	.430"
<b>"A" Dim.</b>	1-11/16"	1-11/16"	2-1/8"
<b>Thread</b>	8-32	10-32	1/4-28



**Cast-In Finned Band Heaters Quote Request Form**

**Finned Cast-In Band Heater Bolt Clamping**

**Finned Cast-In Band Heater Strap Clamping**



Recommended dimensions shown.

**Ordering Information**

To process your order or quotation, please specify the following information.

<b>DIMENSIONS</b>	Inside Dia "A" _____	Length "B" _____
	Thickness "C" _____	Fin Height "D" _____
<b>MATERIAL SPECIFICATIONS</b>	<input type="checkbox"/> Aluminum	<input type="checkbox"/> Bronze
	<input type="checkbox"/> Type FS1	<input type="checkbox"/> Type FS2
<b>HEATER END TYPE</b>	<input type="checkbox"/> Straps	<input type="checkbox"/> Bolt Clamp
<b>CLAMPING STYLE</b>	Watts Each Half _____	Volts Each Half _____ Phase _____
<b>ELECTRICAL SPECIFICATIONS</b>	<input type="checkbox"/> "S" Post Terms	<input type="checkbox"/> "T" Washers
<b>TERMINAL STYLE</b>	<input type="checkbox"/> "F" Plain Leads	<input type="checkbox"/> "T7" Post Terminals
	<input type="checkbox"/> "E" Rt Angle Lugs	<input type="checkbox"/> "C" Ceramic
	<input type="checkbox"/> Other: (Specify) _____	<input type="checkbox"/> "TS" Leads and Shrink Sleeve
<b>SURFACE FINISH</b>	125 RMS Standard or to Customer Specifications	
<b>SPECIAL CAST-IN FEATURES</b>	Holes, Cutouts, Slots, Bevels, Mounting Studs, Stand-Offs and Taper Angles For special features a detailed drawing is required.	



**Note:** For additional cooling, fin castings can be designed with cooling tubes. Consult Thermal Solutions with your requirements.