Cast-In Heaters

Air-Cooled Extruder Systems

3 Turnkey State-Of-The-Art Systems to Improve Operating Efficiencies in Plastic Extrusion Equipment

Designed for Durability, Ease of Installation and Trouble-Free Service . . .

These highly engineered heating and cooling systems are an innovative concept in product design, offering a very efficient means to heat and cool the barrels of plastic extruders. They provide cooling efficiencies equal to or better than conventional liquid cooled cast-in aluminum band heaters.

These shroud designs are made with stainless steel sheet metal, cast aluminum construction.

These systems are self-contained and can be supplied as turnkey ready-to-go, requiring minimum labor and installation cost, and drastically reducing downtime and maintenance upkeep compared to conventional liquid cooling and heating cast-in band heaters.

Experience all the advantages offered by Tempco's exclusive Cool TO-THE Touch High-Efficiency shroud and aluminum finned cast-in band heater designed system.

The engineering of these two components is perfectly matched to work in tandem, offering thermally efficient heating and air cooling characteristics and eliminating the shortcomings of liquid cool cast-in aluminum band heaters

Improve Efficiencies in Extrusion Processing

Need Assistance Selecting a System? We Welcome Your Inquiries.

If you have a special application requiring a custom manufactured system or need assistance selecting one of our standard systems for a new or existing installation, consult Thermal Devices with your requirements. We offer complete engineering services and support, working with you every step of the way to ensure customer satisfaction.

Selection Guide — Plastic Extruder Heating and Cooling Shroud Design Systems

	Shroud Style Construction	Recommended Heater Types	Barrel Diameter Range Min.	Barrel Diameter Range Max.	Zone Length Range Min.	Zone Length Range Max.
 1	**Cool TO-THE Touch™, Page 3-26** Inner Stainless Steel Solid Layer; Outer Stainless Steel Perforated Layer	Tempco Finned Cast Aluminum Heaters, Vented Ceramic Band or Maxiband Heaters	3" 76 mm	16" 406 mm	5" 127mm	36" 915 mm
 2	**Multi-Versal, Page 3-33** Single Stainless Steel Solid Layer	Tempco Finned Cast Aluminum Heaters, Vented Ceramic Band or Maxiband Heaters	3" 76 mm	16" 406 mm	3-3/4" 95 mm	36" 915 mm
 3	**Arctic Cast®, Page 3-37** Single Cast Aluminum Solid Layer	Tempco Finned Cast Aluminum Heaters	4" 102 mm	16" 406 mm	6-1/2" 165 mm	30-1/2" 775 mm

Arctic Cast® Extruder Heat/Cool System

Tempco's Arctic Cast Shroud System was our pioneer shroud design for the air-cooling of extruders. The cooling efficiency of the Arctic Cast shroud system meets or exceeds that of water-cooled systems when used with our field proven high-capacity blowers.

The Arctic Cast shroud features a vented 1/4" thick cast aluminum layer for durability. The cast-in heaters are designed with a large fin surface area to maximize cooling efficiency. The blower port directs inlet air to the hottest part of the heater, distributing it evenly over the entire cross section of the zone.

3 – Arctic Cast Construction

Arctic Cast Extruder

Single Layer Shroud – Vented Cast Aluminum layer bolted directly onto Tempco's Specially Designed Finned Cast-In Aluminum Band Heater

Usage Requirements

This rugged shroud design is recommended for installations where the shroud system could be exposed to physical damage, such as instances where the extruder barrel is low to the ground. It is suited to work with Tempco's Specially Designed Finned Cast-In Aluminum Heater and cannot be used on any existing finned cast-in heaters.

Arctic Cast Construction Details

Single Layer Shroud

- *Vented 1/4" thick Cast Aluminum layer – directs the cooling air flow over the heater*

Shroud Assembly Features

- *Two Individual Halves bolted together (Two-Piece) and clamped around finned cast heater*
- *Blower Options – See Pages 3-41 through 3-43 for complete details*
  - *Single or Dual Tempco Recommended Blowers available from 148 CFM up to 1210 CFM at 115V or 230V, or 480V 3-Phase*
  - *Customer Specified blower*
- *Blower Location*
  - *Vertical Orientation – at the bottom of the shroud*
  - *Custom location achieved only by rotating entire shroud system*
- *Standard top Air Outlet*
  - *Custom location achieved only by rotating entire shroud system*
- *Shroud Air-Inlet Baffle with built-in air deflector that breaks up incoming airflow, distributing it across the cast-in heater(s)*

Arctic Cast shown with Vertical Mount Option

Heater Type and Components

- *Recommended Heater Types – Tempco Finned Cast-In Heaters with standard 1/4" gap between heater halves and bolt and nut clamping*
- *Heater Strap Clamping is available*
- *Power Input with Standard 10-32 stud termination with ceramic or mica insulator*
  - *Bus Wiring between halves is optional*

Sensing and Controlling

- *Existing Zone Control Probe – Shroud System can be designed per customer specifications*
- *Tempco supplied Zone Control Probe*
- *Tempco customized Power Control Panel designed to complete Your Thermal Loop System*

Cast-In Heaters

Arctic Cast® Shroud System

Standard (Non-Stock) Arctic-Cast® Cast-In Heaters (319 Aluminum) and Shrouds

Heater I.D. in	Heater O.D. in	Heater Length in	Watts Each Half	Volts Each Half	Phase	Termination Type	Clamping Type	Cast-In Heater Part Number	Shroud Dimensions I.D. in	Length "L" in	"G" in	"H" in	Shroud Style	Shroud Part Number
3	7	5.5	650	240	1	R	Bolt	CBH13085	7	4.375	3.7	3.22	A	ASF01218
3	7	7	1000	240	1	E	Bolt	CBH13537	7	7	1.5	4.125	A	ASF01221
3.75	7.75	13	2300	240	1	E	Bolt	CBH09406	7.75	13	6	5	A	ASF01160
4.25	7.5	13	2910	230	3	E	Strap	CBH08563	7.5	13	3.5	2.5	B	ASF01138
4.5	9	10.75	1620	230	1	E	Strap	CBH02937	9	10.75	5	6	A	ASF01006
4.5	7.75	12.25	1500	230	1	E	Strap	CBH05676	7.75	12.25	4.406	4.375	C	ASF01052
4.5	8.25	12.5	2500	240	1	C4	Bolt	CBH14435	8.25	12.5	6	5	A	ASF01232
5	9	12.438	2000	230	1	E	Strap	CBH05677	9	12.438	4.406	4.375	C	ASF01053
5.25	8.5	13.5	3750	190	3	E	Strap	CBH08561	8.5	13.5	3.5	2.5	B	ASF01136
5.5	10	11	2100	230	1	E	Strap	CBH02803	10	11	5	6	A	ASF01002
5.5	10	15.5	4000	240	1	E	Bolt	CBH10185	10	15.5	6.25	7.25	A	ASF01183
5.5	9.5	18	1200	277	1	E	Strap	CBH10258	9.5	18	8.813	2.188	A	ASF01186
6	10	11	3300	230	1	S	Strap	CBH04243	10	11	5	6	A	ASF01002
6	10	18	5000	240	1	E	Bolt	CBH09383	10	18	6.25	7.25	A	ASF01158
6	10	16	4000	240	1	E	Bolt	CBH11316	10	16	6.25	7.25	A	ASF01199
6	10	10	3750	240	3	T	Bolt	CBH12072	10	10	4.875	4.375	A	ASF01211
6	9.75	18	5000	240	1	S	Bolt	CBH14604	9.75	18	7.75	4	A	ASF01236
6.25	10.5	15	4800	230	1	E	Strap	CBH07349	10.5	15	4.875	4.375	A	ASF01095
6.5	11	17.5	3600	230	1	E	Strap	CBH02802	11	17.5	5	6	A	ASF01003
6.5	10	10.75	2280	240	1	E	Strap	CBH06509	10	10.75	4.875	2.375	A	ASF01076
6.5	11	17.5	3600	230	1	E	Strap	CBH07372	11	17.5	4.625	5.625	A	ASF01098
6.5	10.5	13	4000	240	1	E	Strap	CBH09413	10.5	13	4.875	4.375	A	ASF01161
6.5	10.5	16	4000	240	3	E	Strap	CBH09414	10.5	16	4.875	4.375	A	ASF01162
6.635	11	17.5	4360	240	1	S	Bolt	CBH06070	11	17.5	4.86	4.37	A	ASF01008
7	11	13.5	2400	230	1	E	Strap	CBH05871	11	13.5	4.406	4.375	C	ASF01057
7	10.25	18	6000	230	3	E	Strap	CBH08425	10.25	18	4.438	4.375	C	ASF01134
7	11	17.5	6000	240	1	S	Strap	CBH08635	11	17.5	4.375	4.875	A	ASF01143
7	11	19	6000	240	3	E	Bolt	CBH09362	11	19	6.5	7.25	A	ASF01157
7.5	12	18	3500	230	1	E	Strap	CBH05574	12	18	5	5	A	ASF01048
7.5	12	17	3000	480	1	E	Strap	CBH06561	12	17	3.5	3.5	A	ASF01035
7.5	11.5	18	6000	240	3	E	Strap	CBH08685	11.5	18	4.875	2.375	A	ASF01066
7.5	10.75	19	7500	190	3	C4	Bolt	CBH14386	10.75	19	8.75	4	A	ASF01227
7.5	10.75	19	7500	240	3	C4	Bolt	CBH15013	10.75	19	8.75	4	A	ASF01227
8	12	14	3250	230	1	E	Strap	CBH03738	12	14	5	5	A	ASF01013
8	12	18	5000	480	3	C4	Bolt	CBH06432	12	18	3.875	3.875	A	ASF01069
8	11.25	16	2750	230	1	E	Bolt	CBH13777	11.25	16	8.813	4.375	A	ASF01224
8.25	12.25	13	3850	230	1	S	Strap	CBH03994	12.25	13	5	4.875	A	ASF01019
8.5	11.75	10	4425	230	3	E	Strap	CBH08562	11.75	10	4.406	4.375	C	ASF01137
8.5	12	17	5900	240	1	E	Strap	CBH10213	12	17	6	5	A	ASF01185
9	13	18.75	5000	230	1	E	Strap	CBH08278	13	18.75	4.375	5.5	C	ASF01126
9.5	13.25	13	3000	240	0	E	Bolt	CBH13600	13.25	13	4.96	5.94	A	ASF01222
9.75	13.75	19	7500	480	3	S	Bolt	CBH05684	13.75	19	3.875	3.875	A	ASF01054
9.75	13.75	22	6000	230	1	E	Bolt	CBH08024	13.75	22	6.452	6.452	A	ASF01119
9.75	13.75	19	6000	230	1	E	Bolt	CBH08025	13.75	19	5	6	B	ASF01120
9.75	13.75	22	11000	200	3	F	Bolt	CBH10086	13.75	22	6.452	6.452	A	ASF01181
10	9	12	6480	230	3	S	Strap	CBH05102	9	12	5	6	A	ASF01006
10	13.5	24	11000	600	3	R1A	Bolt	CBH07294	13.5	24	6.25	6.25	A	ASF01094
10	14	12	6480	230	1	E	Strap	CBH07404	14	25	6	5	B	ASF01101
10	13.25	12	6480	230	3	E	Strap	CBH08424	13.25	12	4.406	4.375	C	ASF01129
10	14	12	6480	480	1	E	Strap	CBH14775	14	12	6	5	B	ASF01101
12	16	14.5	4250	240	3	E	Strap	CBH09876	16	14.5	5.504	5.504	A	ASF01172
12	16	23	6500	480	1	E	Bolt	CBH11446	16	23	6.5	4	C	ASF01203
13	16.25	13.75	6750	190	3	E	Strap	CBH09878	16.25	13.75	4.406	4.375	C	ASF01173

The typical Arctic Cast System consists of

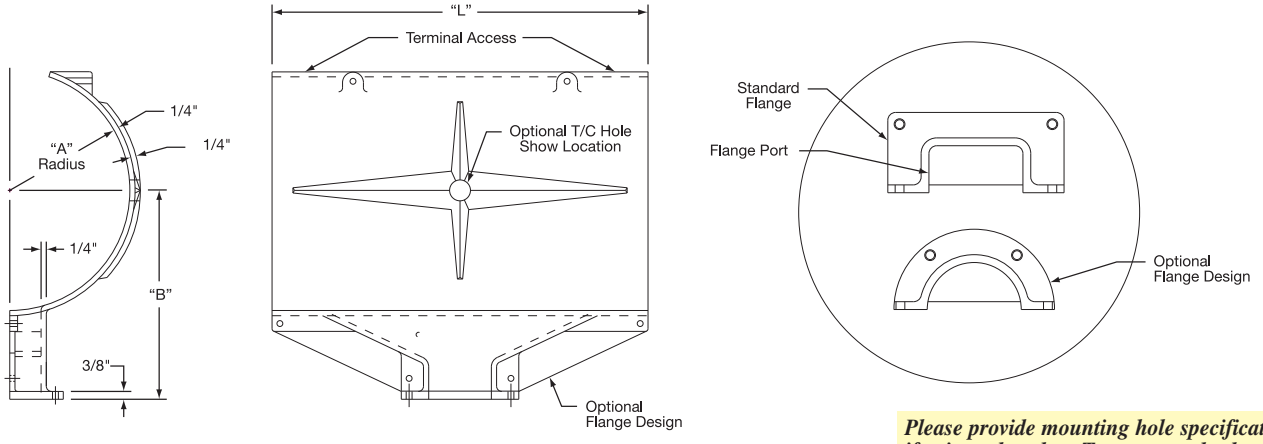
- ***A Cast-In Aluminum Finned Band Heater***
- ***A Cast Aluminum Shroud***
- ***An appropriately rated Forced Air Blower***

Page 3-37 illustrates the complete system as well as the components that make up each assembly. Envelope dimensions for the shrouds shown on page 3-39 are also provided. Pages 3-41 through 3-43 display different forced air blower styles and specifications.

Note: For additional information on sizing and selecting Cast-In Band Heaters for your application, see page 3-39. To order an Arctic-

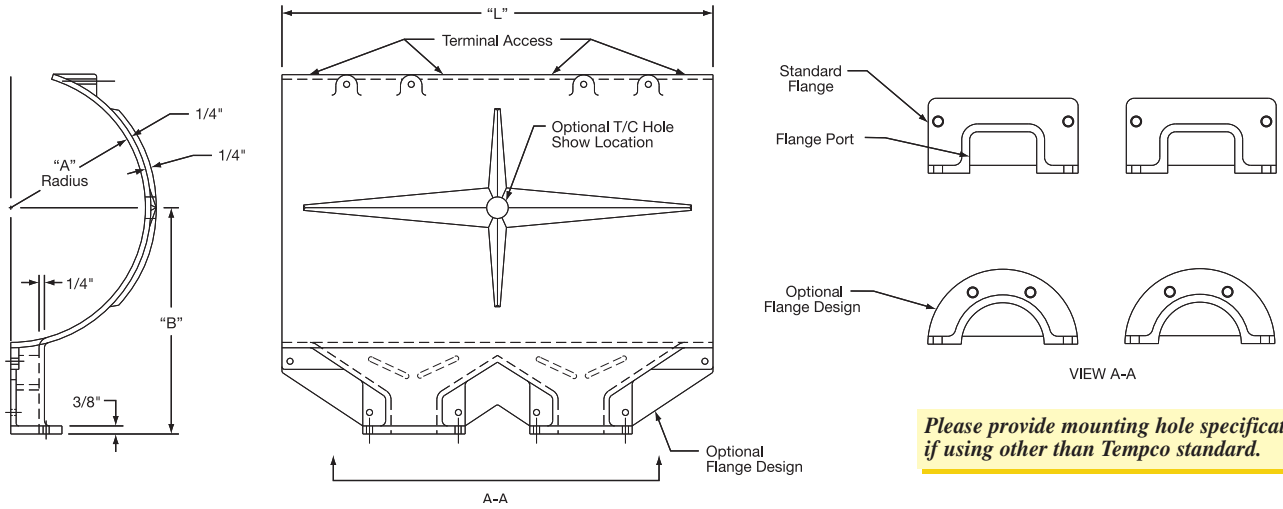
Selection of Arctic Cast® Shroud Design Styles

Shroud Style A



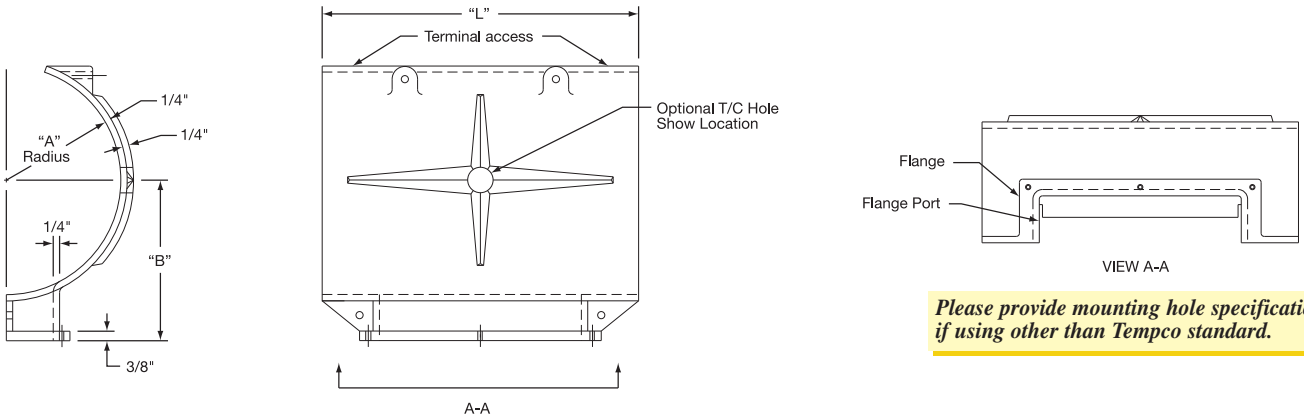
Please provide mounting hole specifications if using other than Tempco standard.

Shroud Style B



Please provide mounting hole specifications if using other than Tempco standard.

Shroud Style C



Please provide mounting hole specifications if using other than Tempco standard.