



4 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, or an aluminum sheet metal/cast aluminum hybrid 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 Tempco 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		Zone Length Range	
			Min.	Max.	Min.	Max.
 1	Cool TO-THE Touch™, Page 3-23 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	30-1/2" 775 mm
 2	Multi-Versal, Page 3-29 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	30-1/2" 775 mm
 3	Polar Cast, Page 3-36 Inner Stainless Steel Solid Layer; Outer Cast Aluminum Vented Layer	Tempco Finned Cast Aluminum Heaters	4" 102 mm	16" 406 mm	8" 203 mm	30-1/2" 775 mm
 4	Arctic Cast®, Page 3-39 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



Multi-Versal Extruder Heat/Cool System

Tempco's Multi-Versal extruder heat/cool systems are designed for efficient heating and cooling. The shroud systems can be used with a many styles of band heaters. Due to the single layer design, the Multi-Versal shroud system has a low profile OD.

The reflective interior of the shroud decreases the heat-up cycle, reducing energy consumption. The unrestricted blower port directs inlet air to the hottest part of the heater and distributes it evenly over the entire cross section of the zone.

2 – Multi-Versal Construction

Multi-Versal Extruder

Solid, Stainless Steel Single Layer Shroud

Usage Requirements

A highly adaptable single layer shroud, suited for retrofit and/or new applications regardless of the type of barrel band heater being used.

Ordering Information

See Page 3-35 for complete Ordering Information.

Multi-Versal Construction Details

Single Layer Shroud

- * *Solid Stainless Steel Layer* – radiation shield that directs the cooling air flow over the heater

Shroud Assembly Features

- * *Hinge with Clamps (Clamshell)* – designed for ease of installation
- * *Two Individual Halves with Clamps (Two-Piece)* – used where installation space is tight or mounting is difficult
- * *Clamping: Standard Barrel Clamps or Optional Adjustable Clamps*
- * *Internal Support Straps or Support U-Bolt on blower mount half of shroud* permits shroud to be opened for servicing without removing unit from barrel
- * *Anti-Rotate Tabs* – used only with *Finned Cast-In Heaters* to prevent shroud from radial and axial movement around the barrel
 - *Tabs are cast as part of the heater and may require a Terminal Box*
- * *Blower Options* – See page 3-43 through 3-45 for Complete Details
 - *Single or Dual Tempco Recommended Blowers* available from 148 CFM up to 1210 CFM at 115V or 230V
 - *Customer Specified blower*
 - *Blower not required for Heat-Only Shrouds*
- * *Blower Location*
 - *Horizontal or Vertical Orientation*
 - *Extension Housings Available*
- * *Standard separate top Screened Air Outlet*
- * *Optional Screened Air Outlet Features Include:*
 - *Air Outlet combined with Terminal Box*
 - *Alternate Radial Air Outlet locations available*
- * *Shroud Air-Inlet Baffle Optional*



Multi-Versal shown with horizontally mounted blower and vertical combination terminal box and air outlet

Heater Type and Components

- * *Recommended Heater Types* – *Finned Cast-In Heaters* with standard 1/4" gap between heater halves, *Ceramic Band* and *Maxiband Heaters*
- * *Power Input Terminal Box* with 7/8" dia. K.O. for 1/2" conduit:
 - *Standard 10-32 stud termination* with ceramic or mica insulator
 - *With Louvered Cover* – used when terminal box is separate from air-outlet
 - *Stainless Steel Screen* – used when terminal box is combined with air outlet
- * *Power Input through Blower Mount* – input wiring through knock-outs in blower mount eliminates terminal box and facilitates ease of heater service
- * *Optional internal Bus Bars* for ceramic band heaters or *Bus Wiring* for other style heaters

Sensing and Controlling

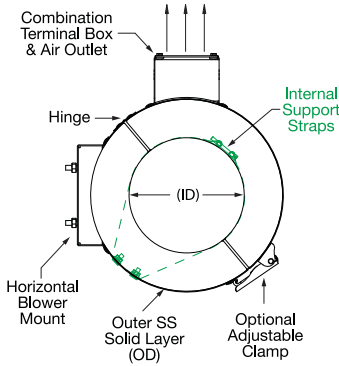
- * *Existing Zone Control Probe* – Shroud System can be designed per customer specifications
- * *Tempco supplied Zone Control Probe*
- * *Tempco customized Power Control Panel* designed to complete Your Thermal Loop System



Multi-Versal Extruder Heat/Cool System

Horizontal Blower Motor Mount Design Specifications

The following partial listings are part numbers and specifications for shroud designs that Tempco has engineered and manufactured. Each item listed below can be modified to fit customer requirements. Zone Control Probes are placed per customer specifications. See page 3-29 for complete details.

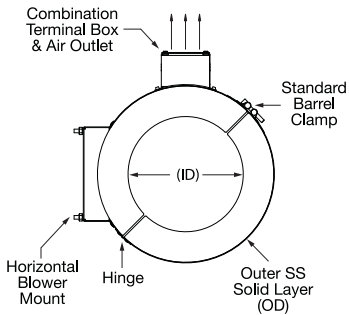


Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00171	6.00	10.00	9.50	148	7.00	BCH04428	3500	460-1 ϕ

Table MV_H1 Shroud Features

- * Combination Terminal Box and Air Outlet
- * Adjustable Clamps with Hinge
- * Internal Support Straps

Heater Part Number Prefix Key
BCH = Ceramic Band

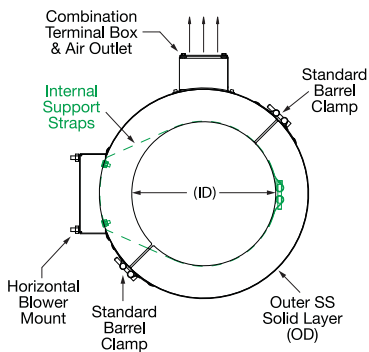


Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00117	8.00	12.25	24.38	(2) 550	11.50	CBH10732	9000	480-3 ϕ

Table MV_H2 Shroud Features

- * Combination Terminal Box and Air Outlet
- * Barrel Clamps with Hinge
- * No Internal Support

Heater Part Number Prefix Key
CBH = Cast-In Heater



Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00242	10.00	14.56	25.00	(2) 550	13.75	(2)CBH12393	25600	230-3 ϕ

Table MV_H3 Shroud Features

- * Combination Terminal Box and Air Outlet
- * Barrel Clamps (no Hinge)
- * Internal Support Straps

Heater Part Number Prefix Key
CBH = Cast-In Heater

Ordering Information

If you cannot find an existing shroud design that meets your requirements precisely, please use the ordering form on page 3-35 to process your quote request.

Tempco's engineering professionals will custom design a shroud system to meet your extruder process challenges.



Existing Multi-Versal Extruder Heat/Cool Systems

Horizontal Blower Motor Mount Design Specifications

The following partial listings are part numbers and specifications for shroud designs that Tempco has engineered and manufactured. Each item listed below can be modified to fit customer requirements. Zone Control Probes are placed per customer specifications. See page 3-29 for complete details.

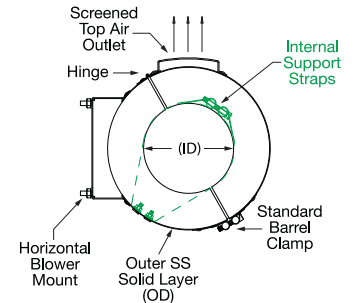
Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00080	5.00	9.00	14.00	550	6.00	BCH04356	4320	415-1 ϕ

Table MV_H4 Shroud Features

- * No Terminal Box
- * Screened Air Outlet
- * Barrel Clamps with Hinge
- * Internal Support Straps

Heater Part Number Prefix Key

BCH = Ceramic Band



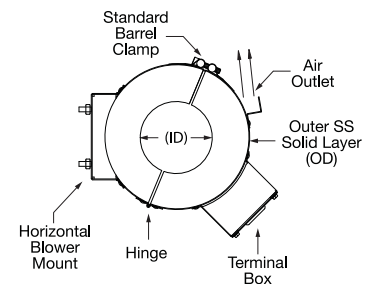
Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00053	3.75	7.50	3.75	56	4.75	BCH02971	800	460-1 ϕ
ASJ00054	3.75	7.50	3.75	56	4.75	BCH02975	800	460-1 ϕ

Table MV_H5 Shroud Features

- * Terminal Box
- * Separate Air Outlet
- * Barrel Clamps with Hinge
- * No Internal Support

Heater Part Number Prefix Key

BCH = Ceramic Band



Vertical Blower Motor Mount Design Specifications

The following partial listings are part numbers and specifications for shroud designs that Tempco has engineered and manufactured. Each item listed below can be modified to fit customer requirements. Zone Control Probes are placed per customer specifications. See page 3-29 for complete details.

Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00088	5.25	9.50	13.50	To Suit	8.50	CBH10173	7500	230-3 ϕ
*ASJ00149	10.63	14.56	14.75	550	13.81	CBH11140	6000	480-1 ϕ
*ASJ00163	9.75	14.50	22.00	550	13.75	CBH11410	22000	230-3 ϕ
*ASJ00164	9.75	14.00	11.00	265	13.25	CBH11409	11000	230-1 ϕ

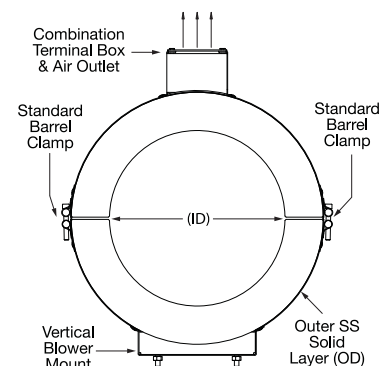
*No Internal Support for this design.

Table MV_V1 Shroud Features

- * Combination Terminal Box & Air Outlet
- * Barrel Clamps (no Hinge)
- * Internal Support Straps

Heater Part Number Prefix Key

CBH = Cast-In Band



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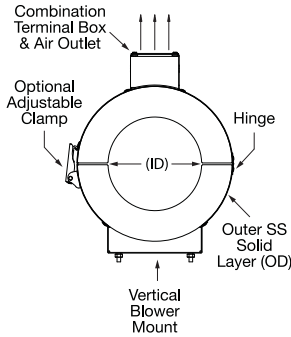


Multi-Versal Shroud System

Existing Multi-Versal Extruder Heat/Cool Systems

Horizontal Blower Motor Mount Design Specifications (continued)

The following partial listings are part numbers and specifications for shroud designs that Tempco has engineered and manufactured. Each item listed below can be modified to fit customer requirements. Zone Control Probes are placed per customer specifications. See page 3-29 for complete details.



Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00177	6.25	10.25	18.50	350	9.50	CBH11500	8800	460-1 ϕ
ASJ00181	6.25	10.50	13.00	350	9.75	CBH11544	8000	600-1 ϕ
ASJ00167	6.50	10.75	15.50	350	10.00	CBH11428	8000	575-1 ϕ

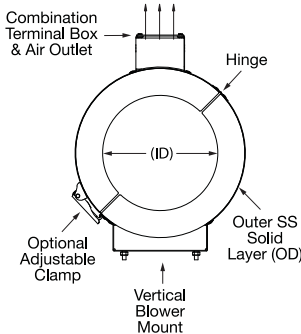
Table MV_V2A & MV_V2B Shroud Features

- * Combination Terminal Box & Air Outlet
- * Adjustable Clamps with Hinge
- * No Internal Support

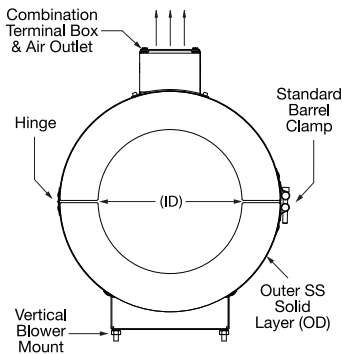


Note: Air Outlet and Shroud Opening Locations differ between tables CT_H2A and CT_H2B. See drawings for details.

Heater Part Number Prefix Key
BCH = Ceramic Band



Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00203	8.00	11.75	17.75	550	11.00	CBH11821	7000	240-1 ϕ
ASJ00202	8.75	13.00	22.00	(2) 350	12.25	CBH11822	15000	240-3 ϕ



Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00041	5.50	9.50	13.00	265	8.75	CBH07945	5600	600-1 ϕ
ASJ00042	6.63	10.63	18.50	550	9.88	CBH07946	8800	600-1 ϕ
ASJ00073	9.50	13.25	27.75	(2) 350	12.50	CBH09759	24000	230-3 ϕ
ASJ00078	9.75	13.75	11.50	382	12.63	CBH09965	9000	230-1 ϕ
ASJ00095	5.00	9.38	11.00	265	8.38	CBH10294	4000	240-1 ϕ
ASJ00112	9.75	13.50	23.50	(2) 350	12.75	CBH10719	16000	240-1 ϕ
ASJ00113	9.75	13.50	19.00	(2) 350	12.75	CBH10720	12600	240-1 ϕ
ASJ00114	5.00	9.25	16.63	550	8.50	CBH10731	3000	480-1 ϕ
ASJ00115	8.00	12.25	24.38	(2) 550	11.50	CBH10732	9000	480-3 ϕ
ASJ00116	9.00	13.25	27.75	(2) 550	12.50	CBH10733	11500	480-3 ϕ
ASJ00133	6.29	11.25	10.88	—	10.38	CBH10846	5000	347-1 ϕ
ASJ00138	5.50	9.50	15.00	350	8.75	CBH10930	6000	460-1 ϕ
ASJ00146	6.70	11.00	7.88	265	10.25	CBH11060	4500	240-1 ϕ
ASJ00239	9.50	13.25	27.75	(2) 550	12.50	CBH09759	24000	230-3 ϕ
ASJ00147	5.50	10.50	12.00	350	9.50	CBH11063	5050	240-1 ϕ

Table MV_V3 Shroud Features

- * Combination Terminal Box & Air Outlet
- * Barrel Clamps with Hinge
- * No Internal Support

Heater Part Number Prefix Key
CBH = Cast-In Band



Existing Multi-Versal Extruder Heat/Cool Systems

Vertical Blower Motor Mount Design Specifications (continued)

The following partial listings are part numbers and specifications for shroud designs that Tempco has engineered and manufactured. Each item listed below can be modified to fit customer requirements. Zone Control Probes are placed per customer specifications. See page 3-29 for complete details.

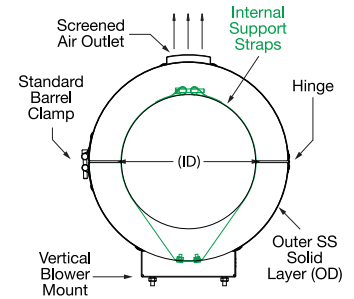
Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00076	9.75	15.00	19.50	1210	13.75	CBH08025	12000	230-1 ϕ
ASJ00081	9.50	15.00	21.50	1210	13.75	CBH10096	12000	230-1 ϕ
ASJ00150	9.50	15.75	14.75	1210	15.00	-----	-----	-----
ASJ00179	9.32	13.81	23.00	760	10.50	(2)BCH05552	15000	240-1 ϕ
ASJ00148	7.50	12.00	21.00	550	8.50	(2)BCH05289	8340	240-1 ϕ
ASJ00180	9.32	13.81	12.00	350	10.50	BCH05552	7500	240-1 ϕ

Table MV_V4 Shroud Features

- * No Terminal Box
- * Screened Air Outlet
- * Barrel Clamps with Hinge
- * Internal Support Straps

Heater Part Number Prefix Key

- BCH = Ceramic Band
- CBH = Cast-In Band



Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00198	8.66	12.57	11.00	283	11.66	CBH11762	6800	240-1 ϕ
*ASJ00131	9.75	13.75	11.50	350	12.63	CBH09965	9000	230-1 ϕ

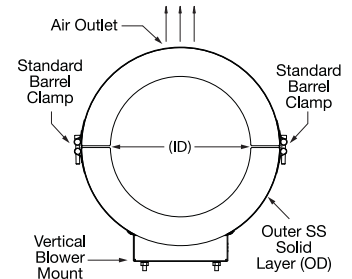
*No Internal Support for this design.

Table MV_V5 Shroud Features

- * No Terminal Box
- * Separate Air Outlet
- * Barrel Clamp (no Hinge)
- * Internal Support U-Bolt

Heater Part Number Prefix Key

- CBH = Cast-In Band



Ordering Information

If you cannot find an existing shroud design that meets your requirements precisely, please use the ordering form on page 3-35 to process your quote request.

Tempco's engineering professionals will custom design a shroud system to meet your extruder process challenges.

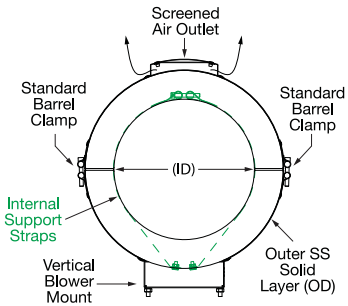
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Existing Multi-Versal Extruder Heat/Cool Systems

Vertical Blower Motor Mount Design Specifications (continued)

The following partial listings are part numbers and specifications for shroud designs that Tempco has engineered and manufactured. Each item listed below can be modified to fit customer requirements. Zone Control Probes are placed per customer specifications. See page 3-29 for complete details.



Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
*ASJ00210	4.00	8.31	10.25	265	7.50	CBH11936	3300	230-1 ϕ
*ASJ00204	5.00	8.31	13.50	265	5.25	—	—	—
ASJ00141	7.63	12.13	14.38	760	11.13	CBH11026	7000	230-1 ϕ
*ASJ00207	8.00	11.82	17.50	—	9.00	(3)BCH05789	15000	480-1 ϕ
*ASJ00208	8.00	11.82	22.50	—	9.00	(2)BCH05789 (2)BCH05790	14000	480-1 ϕ
ASJ00227	9.75	13.75	18.50	760	10.75	(3)BCH05949	13500	480-1 ϕ

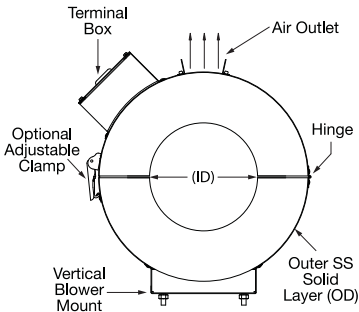
*Internal Support U-Bolt used in place of Internal Support Straps.

Table MV_V6 Shroud Features

- * No Terminal Box
- * Barrel Clamps (no Hinge)
- * Screened Air Outlet
- * Internal Support Straps

Heater Part Number Prefix Key

- BCH = Ceramic Band
- CBH = Cast-In Band
- MBH = Micaband



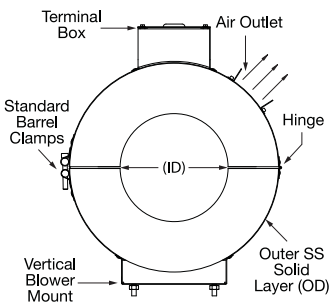
Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00038	3.75	7.50	7.75	265	4.75	—	—	—
ASJ00039	5.50	9.25	15.13	265	6.50	—	—	—
ASJ00040	4.50	8.25	11.25	265	5.50	—	—	—
ASJ00083	7.50	14.50	20.00	To Suit	13.75	CBH10129	12000	240-1 ϕ

Table MV_V7 Shroud Features

- * Terminal Box
- * Separate Air Outlet
- * Adjustable Clamps with Hinge
- * No Internal Support

Heater Part Number Prefix Key

- CBH = Cast-In Heater



Shroud Part Number	Barrel OD (Shroud ID) in	Shroud OD in	Shroud Width in	Blower CFM	Maximum Heater OD in	Heater Part Number	Wattage per Shroud	Heater Voltage
ASJ00045	4.50	8.25	10.00	265	5.50	BCH02473	3250	240V-1 ϕ
ASJ00046	3.75	7.50	6.50	265	4.75	BCH02475	2000	240V-1 ϕ
ASJ00047	3.75	7.50	7.75	265	4.75	BCH02479	3000	240V-1 ϕ
ASJ00050	6.75	10.50	14.75	265	7.75	—	—	—
ASJ00055	7.50	11.50	20.50	465	8.50	—	—	—

Table MV_V8 Shroud Features

- * Terminal Box
- * Separate Air Outlet
- * Barrel Clamps with Hinge
- * No Internal Support

Heater Part Number Prefix Key

- BCH = Ceramic Band

Ordering Information

See Page 3-35 for complete Ordering Information.



Made-To-Order Quote Request Form — Copy and Fax Us Your Requirements

Customer Information

Name: _____ Company: _____ City: _____ State: _____
 Phone: _____ Fax: _____ E-mail: _____
 Extruder Barrel Manufacturer: _____ Model Number: _____
 Resin Type: _____ Process Temperature: _____

When submitting this form, please be sure to include an extruder barrel sketch or drawing that includes the following:

- * Extruder Barrel Support(s) * Number of Heating Zones * Vent Location(s) * Zone Probe Location(s)
- * Input Feed Location * Pressure Tap Location(s) * Zone Length(s) * Additional Restriction(s)

Note: To assist Tempco in designing a shroud system, please provide digital images (in .jpg format) of the extruder barrel.

Shroud Specifications (For replacement of existing Tempco Shroud(s), please contact your Tempco Factory or Sales Representative.)

Shroud Style: Cool TO-THE Touch™ Multi-Versal Quantity Required: _____

Shroud Dimensions

Shroud Width / Zone Length: _____ Extruder Barrel OD / Shroud ID: _____
 Maximum Shroud OD: _____ (Determined by Engineering unless specified by customer.)
 Existing Heater OD (including terminations): _____ (Determined by Engineering when new Tempco Heater is purchased.)

Internal Shroud Support Required: Yes No

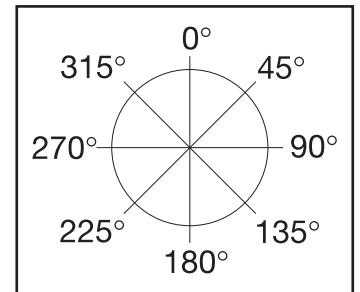
Shroud Components and Component Locations

Component Options (see page 3-23 for shroud component details)

1. Blower Mount:
 - Horizontal Vertical
2. Air Outlet:
 - Separate from Terminal Box Combined w/ Terminal Box
3. Terminal Box:
 - None Louvered (Separated from Air Outlet)
 - Screened (Combined with Air Outlet)
4. Clamping Method at Shroud Opening:
 - Barrel Clamps with Hinge Barrel Clamps (no Hinge) Hinge _____
 - Adjustable Clamps with Hinge Adjustable Clamps (no Hinge)
5. Zone T/C Probe(s) - Customer Specified: **5** Probe(s) _____
 Quantity: _____ Clearance Hole Diameter(s): _____

Component Radial Locations

- 1 _____
- 2 _____
- 3 _____
- 4 Clamp(s) _____
Hinge _____
- 5 Probe(s) _____



Blower Specifications (see page 3-43 for standard Tempco blowers & configuration details)

Configuration: Single Dual Customer Supplied (*see below)
 Stock Tempco Blower (Engineering will determine specifications if none specified)
 P/N: _____ or CFM: _____ Volts: _____ Operating Frequency: _____ Hz
 Optional Blower Extension: Horizontal Vertical Custom (Consult Tempco.)
 *Customer Supplied Blower (**Please attach mounting information when submitting this form.**)
 Manufacturer: _____ P/N: _____ CFM: _____ Volts: _____ Operating Frequency: _____ Hz

Heater Specifications

Existing Tempco Heater: P/N: _____ Replace Existing Heater Cover Existing Heater

If purchasing new Tempco Heater(s), please provide the following information if known:

Type and Quantity Required:
 _____ Cast-In(s) _____ Ceramic Band(s) _____ Micaband(s) _____ Maxiband(s) _____ Other: _____
 Inner Diameter: _____ Width(s): _____ Wattage per Shroud: _____ Voltage: _____