Cast-In Heaters

Air-Cooled Extruder Systems

Are You Operating Your Extruders with Liquid Cooling?

If You Answer Yes –

Then You Are SO Ready for a

TEMPCO

EXTREME MAKEOVER

With Our Exclusive

Cool To-The Touch™

Shroud Systems

A 4–Zone Cool TO–THE Touch Shroud System

Let Tempco's state-of-the-art technology convert your extruder's existing heating and cooling system from antiquated, inefficient and costly to modern, highly efficient, and cost-effective.

We invite you to energize your extrusion business with Cool TO-THE Touch. It can take your profits to the next level.

The Challenge

We understand that choosing to make a change can be challenging and full of "What-If's?" Not to worry – Tempco warranties the performance of our systems. Our expert team will be with you every step of the conversion to help you select the ideal system for your extrusion lines.

Cool TO-THE Touch is a fully integrated system that offers powerful functionality, user–friendly installation and operation, customizable features and other benefits you simply will not find in any existing extruder heating and cooling system.

These highly engineered products are designed for durability and trouble-free operating performance.

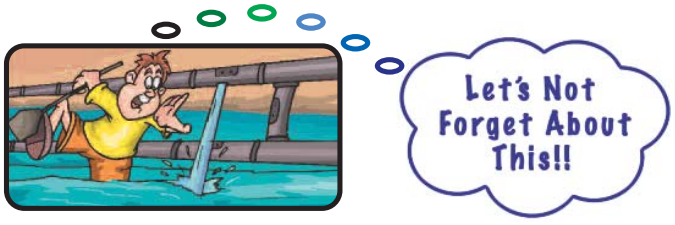
It can very well be the most important step you take when you purchase a new extruder or rebuild existing equipment.

Experience the benefits and advantages offered by upgrading to Cool TO-THE Touch Shroud Systems.

Take your extrusion operation to the next level of technology with Tempco at your side.

There is nothing to lose, except. . .

The entire closed loop recirculating system which includes: chiller, heat exchanger, heat transfer fluid, and all associated piping and electrical components.



Think about all the great changes ahead for your business – when you no longer have to babysit your unreliable, maintenance nightmare on your extruder heating and cooling system.

Cast-In Heaters

Air-Cooled Extruder Systems

It's a Reality – Extreme Makeover for Extruders Is Finally Here!

Take Advantage of It If You Are . . .

Purchasing a New Extruder

Specify to your machine builder to install one of Tempco's exclusive high-efficiency Cool TO-THE Touch heating and air cooling systems.

SMALL INVESTMENT

BIG RETURN

Retrofitting

Outdated air cooled systems can be retrofitted with Tempco's efficient air cooled shroud designs without replacing your existing heaters.

Add Value to Your Extrusion Process

Rebuilding

An outdated, high maintenance, low efficiency liquid cooled system can be rebuilt with one of Tempco's turnkey Cool TO-THE Touch heating and air cooling systems.

Improve Your Bottom Line

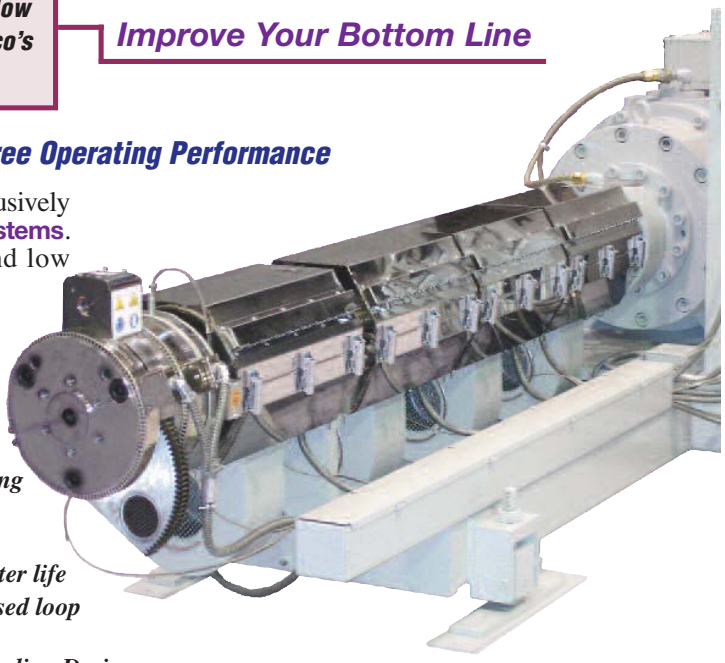
Designed for Durability and Trouble-Free Operating Performance

Tempco's Finned Cast-In Heaters with bolt clamping are exclusively designed to work with **Tempco's Cool TO-THE Touch Shroud Systems**. They are manufactured with special high-efficiency fins and low overall mass cross-section for maximizing thermodynamics.

Unmatched Quality Shroud System & Finned Cast-In Heater

Design Features

- *Reduced operating costs*
- *Quick, easy installation*
- *Greater Reliability*
- *Thermally efficient heating & cooling characteristics*
- *Reduces costly downtime*
- *Exceptional Cast-In Heater life*
- *Eliminates expensive closed loop liquid cooling systems*
- *Rugged, Durable & Appealing Design*



Liquid Cooling Cast-In Band Heaters vs. Cool TO-THE Touch Air Cooling Shroud Systems

Liquid Cooling

Up to now Liquid Cooling Cast-In Band Heaters have been the predominant method of controlling the melt temperature of extrusion barrels. Although effective in removing heat from the extrusion process, there are a number of drawbacks that are primarily maintenance related.

Extruders using liquid cooled Cast-In Heaters can be subject to unpredictable and untimely failures of the cooling tube assemblies, resulting in extremely costly downtime to the processor. Inherent maintenance problems include stress corrosion cracks, linear thermal expansion of the heater body, and clogging of the tubes due to accumulation of mineral deposits. Additionally, Liquid Cooled Cast-In Heaters require an expensive cooling tower or heat exchange system, extensive plumbing systems and labor for installation.

A Change Is In The Air

Tempco-designed air cooled systems have evolved considerably and become more thermally efficient as a result of geometric changes and implementation of sophisticated shrouding and air flow techniques. Optimized direction and ducting of airflow, coupled with selection of the proper blower CFM, are important to ensuring that the air cooling technique removes the proper amount of heat from the extrusion barrel. Air Cooled Cast-In Heaters are virtually maintenance free and therefore, when properly installed and applied, have the capability to far outlast and perform their liquid cooled counterparts.

Consult Tempco With Your Requirements. We Welcome Your Inquiries.

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 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 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

Cast-In Heaters

Cool TO-THE Touch™ Shroud System

Cool TO-THE Touch Extruder Heat/Cool System

Tempco's Cool TO-THE Touch extruder heat/cool systems are custom engineered to provide optimal heating and cooling while providing personnel safety with a Cool Touch perforated outer layer. These systems are designed with finned cast-in heaters that optimize overall system efficiency.

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

1 – Cool TO-THE Touch Construction

Cool TO-THE Touch

Dual Layer Shroud with Inner Stainless Steel Solid Layer (thermally isolated from heater) and Outer, Cool to the Touch, Perforated Stainless Steel Layer for Maximum Venting and Heat Dissipation

Usage Requirements

The Cool TO-THE Touch Construction Style achieves best results when built for Tempco's High-Efficiency Finned Cast-In Heaters.

Cool TO-THE Touch shown with optional dual blowers mounted vertically with knockouts for heater termination(s) and top vertical air outlet

Cool TO-THE Touch Construction Details

Dual Layer Shroud

- *Inner Stainless Steel solid layer – radiation shield that directs the cooling air flow over the heater*
- *Outer Stainless Steel perforated layer – isolates hot surfaces from contact (cool touch)*

Shroud Assembly Features

- *Two Mounting Styles are available:*
  - *Hinge with Barrel Clamps – designed for ease of installation*
  - *Two Individual Halves with Barrel Clamps (Two-Piece) – used where installation space is tight or mounting is difficult*
- *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 (may require a Terminal Box)*
- *Blower Options – See page 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 not required for Heat-Only Shrouds*
- *Blower Location*
  - *Horizontal or Vertical Orientation*
  - *Extension Housings Available*
- *Standard separate top Air Outlet*
- *Optional Air Outlet Features Include:*
  - *Air Outlet Shield deflects air flow out of shroud and shields shroud from external solid contamination*
  - *Air Outlet combined with Terminal Box*
  - *Alternate Radial Air Outlet locations available*
- *Air-Inlet Baffle Optional*
- *Vent Hole(s) Optional*

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 knockouts in blower mount eliminates terminal box and facilitates ease of heater service*

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

Cool TO-THE Touch™ Shroud System

Existing Cool TO-THE Touch Extruder Heat/Cool Systems

Horizontal and 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.

Barrel OD (Shroud ID)	Shroud Width	Shroud OD (in)	Blower Location (in)	Air Outlet Location (°)	Terminal Box Location (°)	Blower CFM (°)	Maximum Heater OD	Heater Part Number (in)	Wattage Per Shroud	Heater Voltage	Ref. Drawing Number	Shroud Part Number
4.25	9.25	10.06	270	90	0	273	7.75	CBH14315	3000	240	7	ASJ00421
4.5	10.06	9.81	180	0	45	358	7.5	CBH14322	3600	230	2	ASJ00423
5	9	10.56	180	0	0	273	8.25	CBH13803	4000	240	1	ASJ00367
5	13	10.81	180	0	0	358	8.5	CBH13011	6000	230	1	ASJ00281
5	13	11.56	180	0	45	458	9.25	CBH05677	4000	2300	2	ASJ00381
5	13.63	10.81	180	0	0	358	8.5	CBH13387	6600	230	1	ASJ00315
5	14	10.31	180	0	45	458	8	CBH14316	6000	230	2	ASJ00422
5	18	10.56	180	0	0	550	8.25	(2)CBH13803	8000	240	1	ASJ00366
5.12	12	10.94	270	0	0	358	8.63	CBH13659	5600	400	5	ASJ00350
5.5	18.5	11.81	180	0	90	N/A	9	CBH13012	7000	200-3PH	3	ASJ00279
6	10.5	11.81	270	90	90	550	9.5	CBH12250	4000	220	8	ASJ00238
6.25	13.63	11.56	180	0	0	485	9.25	CBH13664	6000	230	1	ASJ00346
6.25	15	11.56	180	0	0	550	9.25	CBH14306	8250	240	1	ASJ00417
6.38	8	12.19	270	90	0	273	9.88	CBH13572	4000	240	7	ASJ00333
6.38	16	12.19	270	90	0	358	9.88	CBH13573	7000	240	7	ASJ00332
6.5	11	12.81	180	0	90	265	9.75	CBH12061	4600	240	3	ASJ00223
6.5	15.63	12.06	180	0	0	550	9.75	CBH13388	10000	240	1	ASJ00316
6.5	18	11.81	270	0	0	550	9.5	N/A	N/A	N/A	5	ASJ00341
6.5	18	12.81	180	0	90	550	9.75	CBH12060	7600	240	3	ASJ00222
6.5	21	11.81	270	0	0	550	9.5	CBH14189	8800	230	5	ASJ00403
6.63	17.25	12.94	270	0	0	1200	10.38	CBH13936	8800	240	5	ASJ00378
6.63	17.5	12.19	270	0	0	550	9.88	CBH13659	7500	230	5	ASJ00344
6.64	17.63	12.45	270	0	0	550	10.14	CBH13806	8720	240	5	ASJ00371
7	19	13.06	270	90	90	1200	10.75	CBH14114	7200	480	8	ASJ00396
7	21.5	14.06	180	0	N/A	550	11.25	CBH12045	4700	480	4	ASJ00220
7.5	12	12.81	270	0	0	485	10.5	CBH13701	6500	240	5	ASJ00351
7.5	17.5	13.56	180	0	90	1200	10.75	CBH12000	7500	240	3	ASJ00213
7.5	18.5	12.69	270	0	0	550	10.38	CBH13852	9000	230-3PH	5	ASJ00372
7.5	18.5	13.31	270	0	0	1200	11	CBH14099	9000	575-3PH	5	ASJ00394
7.5	19.5	13.82	270	0	0	797	11	CBH12232	11250	240	5	ASJ00228
7.5	20	12.81	180	0	0	550	10.5	CBH13010	9500	230	1	ASJ00280
7.5	20.5	12.81	180	0	0	1200	10.38	CBH13495	10000	240-3PH	1	ASJ00323
7.5	22.5	13.31	180	0	90	797	10.5	(2)CBH13219	8600	208	3	ASJ00293
7.5	23.5	12.81	180	0	0	1200	10.5	CBH13652	10000	240-3PH	1	ASJ00342
7.5	24	12.81	270	0	0	550	10.5	CBH13700	12500	240	5	ASJ00352
7.63	12	12.95	270	0	0	358	10.63	CBH13762	5350	230	5	ASJ00362
7.63	13.5	12.95	270	0	0	358	10.63	CBH13714	3480	230	5	ASJ00359
7.63	14.38	13.44	270	0	0	550	11.125	CBH14329	7000	230	5	ASJ00426

Note: Reference Drawings can be found on page 3-32.

CONTINUED

These Energy Conserving Units Out-Perform All Other Plastic Extruder Barrel Heating & Cooling Products.

Existing Cool TO-THE Touch Extruder Heat/Cool Systems

Horizontal and 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.

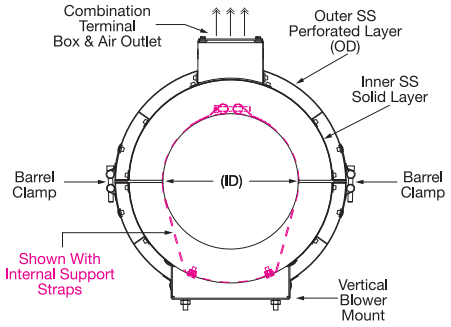
Barrel OD (Shroud ID)	Shroud Width	Shroud OD (in)	Blower Location (in)	Air Outlet Location (°)	Terminal Box Location (°)	Blower CFM (°)	Maximum Heater OD	Heater Part Number (in)	Wattage Per Shroud	Heater Voltage	Ref. Drawing Number	Shroud Part Number
7.63	14.5	12.95	270	0	0	550	10.63	CBH13713	7200	230	5	ASJ00373
7.63	15	12.95	270	0	0	550	10.63	CBH13713	7200	230	5	ASJ00358
7.63	18	12.95	270	0	0	550	10.63	CBH13712	9600	230	5	ASJ00357
7.63	21.25	13.06	270	90	90	550	10.75	CBH13364	7500	240-3PH	8	ASJ00314
8	20	13.81	270	90	0	550	11.5	CBH13571	12400	240	7	ASJ00330
8	22.5	14.06	270	90	0	550	11.75	CBH13677	11000	480	7	ASJ00347
8.25	12.5	14.06	270	0	180	550	11.75	CBH14072	5500	460-3PH	6	ASJ00390
8.25	14.5	14.06	270	0	180	550	11.75	CBH14071	7000	460-3PH	6	ASJ00391
8.5	18	14.56	270	90	90	1200	12.25	CBH12944	10800	240-3PH	8	ASJ00285
9.25	23.375	15.06	180	0	0	1200	12.75	CBH13562	15000	480-3PH	1	ASJ00327
9.31	23.25	15.2	270	0	0	(2) 550	12.88	CBH12703	15000	230-3PH	5	ASJ00264
9.5	12.5	14.81	270	0	0	485	12.5	CBH13699	8500	240	5	ASJ00353
9.5	19.5	15.56	180	0	0	1200	13.25	CBH14175	16000	240	1	ASJ00402
9.5	24	14.81	270	0	0	1200	12.5	CBH13698	15900	240-3PH	5	ASJ00354
9.5	24	14.81	270	0	0	(2) 459	12.5	CBH13327	16500	240-3PH	5	ASJ00308
9.5	24.5	15.31	180	0	90	(2) 550	12.5	CBH11891	14600	240-3PH	3	ASJ00205
9.5	24.875	15.31	270	0	0	(2) 550	13	CBH14352	20000	240 -3PH	5	ASJ00429
9.5	27	15.56	270	90	90	(2) 1200	13.25	CBH13123	20000	240-3PH	8	ASJ00289
9.5	27.38	15.56	180	0	0	(2) 550	13.25	CBH13389	2400	240	1	ASJ00317
9.5	27.75	15.56	180	0	0	(2) 550	13.25	CBH13922	20000	480-3PH	1	ASJ00375
9.75	16.5	14	270	0	0	550	13.25	CBH14126	12600	240	5	ASJ00399
9.75	19	15.81	270	0	0	1200	13.5	CBH14300	13500	480	5	ASJ00415
9.75	23.375	15.56	180	0	0	1200	13.25	CBH14419	15000	480	1	ASJ00435
9.75	24	14	270	0	0	(2) 550	13.25	CBH14125	18370	240	5	ASJ00398
9.75	24	15.31	180	0	0	1200	13	(2)CBH13801	7000	240-3PH	1	ASJ00370
9.76	12.5	15.82	270	0	0	550	13.5	CBH13799	10000	240-3PH	5	ASJ00365
9.88	15.5	16.06	270	90	0	550	13.38	CBH13319	9550	240-3PH	7	ASJ00307
9.88	24.5	16.06	270	90	0	(2) 550	13.38	CBH13318	14600	240-3PH	7	ASJ00306
9.94	18	16.31	180	0	90	1200	13.44	CBH12495	16000	440	3	ASJ00249
9.94	23	16.31	180	0	90	1200	13.44	CBH12496	18000	440	3	ASJ00250
10	28	16.06	270	90	90	(2) 550	13.75	CBH14193	11000	240	8	ASJ00404
10.75	7.5	16.56	270	0	0	485	14.25	CBH14203	7500	480	5	ASJ00406
12.5	34.5	18.81	180	0	0	(2) 1200	16.5	(2)CBH13888	35000	460-3PH	1	ASJ00374
13.5	12	19.56	180	0	90	550	17.25	CBH13359	9000	460	3	ASJ00313
13.5	17.5	19.56	180	0	90	550	17.25	(2)CBH13358	14000	460	3	ASJ00312
13.5	23	19.56	180	0	90	(2) 550	17.25	(2)CBH13359	18000	460	3	ASJ00311

Note: Reference Drawings can be found on page 3-32.

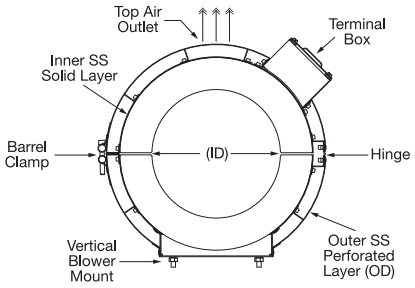
Cast-In Heaters

Cool TO-THE Touch™ Shroud System

Existing Cool TO-THE Touch Extruder Heat/Cool System Reference Shroud Drawings



Drawing 1 .....



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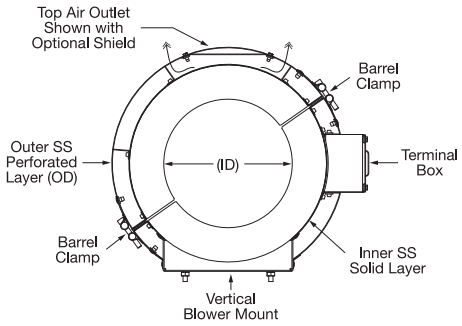

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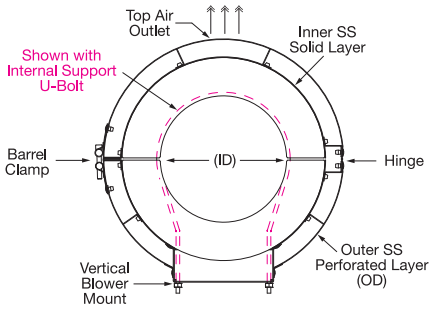

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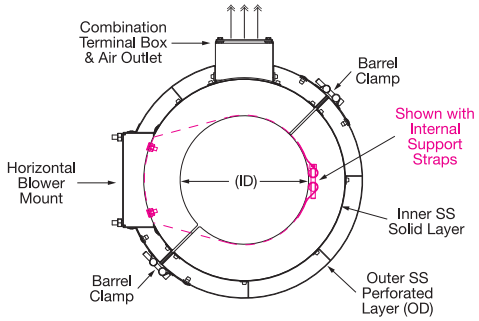

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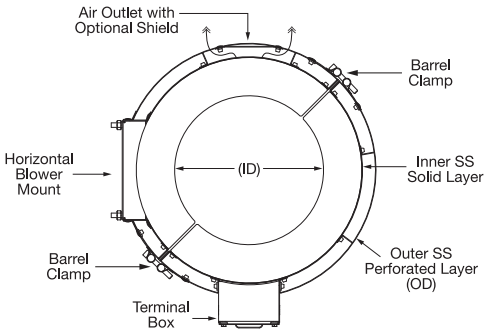

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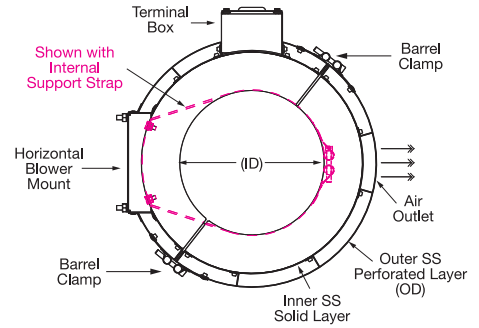

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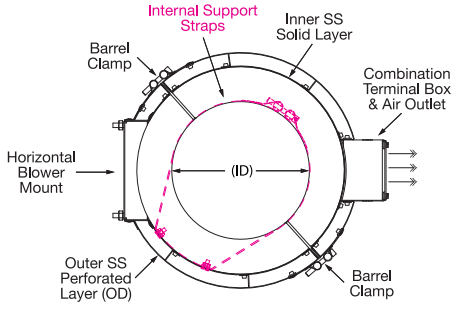

Drawing 8 .....