

Hot Sprue Bushings



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Hot Sprue Bushing Product Overview



PCS Mini Hot Sprue Bushings



- Designed to fit standard industry tooling inserts including FITS[®], MUD[®], RTI[®] and others
- Compact design for small part and/or runner applications in A or B series mold bases
- Reduces material waste
- Helps minimize cycle time
- Available in standard inch dimensions
- With and without head heater (one or two zones of control)
- Capability to process commodity and engineered resins filled or unfilled
- Heaters rated at 240 VAC
- J type thermocouple
- In stock at PCS
- Various tip configurations
- Locating Rings in stock at PCS
- Designed for maximum part weights up to 70 grams
- 2D & 3D CAD data online at www.pcs-company.com

PCS Standard Hot Sprue Bushings



- Replaces the standard cold sprue bushing
- Reduces material waste
- Helps minimize cycle time
- Available in standard inch dimensions
- With or without head heater (one or two zones of control)
- Capability to process commodity and engineered resins filled or unfilled
- Heaters rated at 240 VAC
- J type thermocouple
- Spare thermocouple for the nozzle body
- In stock at PCS
- Various tip configurations
- Locating Rings in stock at PCS
- Designed for maximum part weights up to 800 grams
- 2D & 3D CAD data online at www.pcs-company.com

Hot Sprue Bushing Product Overview

Polimold® Polimax® Hot Sprue Bushings

- Reduces material waste
- Helps minimize cycle time
- Available in metric sizes only
- Five flow channel diameters from 6mm (.236") to 18mm (.708")
- Hot Sprue Bushing lengths from 55mm (2.165") to 500mm (19.685")
- Standard and High Performance hot sprue bushing assemblies available
- Capability to process commodity and engineered resins filled or unfilled
- Heaters rated at 240 VAC
- J type thermocouple
- Contact PCS for availability
- Various tip configurations
- Locating rings for the 200 and 500 series hot sprue bushings in stock at PCS
- Locating rings for the 800 and 1000 series hot sprue bushings designed per application
- Designed for maximum part weights up to 3000 grams
- 2D & 3D CAD data online at www.pcs-company.com



Volastic® Hot Sprue Bushings

- A modern alternative to the DME® Medium and Jumbo Gate Mate® hot sprue bushings
- Helps to prevent tip unscrewing and improves molded part cosmetics
- Patented nozzle design helps lowers the processing temperature
- Helps minimize cycle time
- Heaters rated at 240 VAC
- J type thermocouple
- Standard inch dimensions
- Capability to process commodity and engineered resins filled or unfilled
- Standard and wear resistant tip materials available
- Locating Rings in stock at PCS
- Designed for maximum part weights up to 1500 grams
- 2D & 3D CAD data online at www.pcs-company.com



PCS Hot Sprue Bushing Selection Guide

Resin Application Legend

Good Resin Application
Contact PCS for Application Recommendations
Not Recommended for this Resin Application

Amorphous = A
Crystalline = C

Nozzle	Tip	Maximum Flow Capacities (Grams)										Filled Resins Capabilities																									
		Recommended Gate Diameter Range		Gate Diameter		Resin Melt Flow Index (MFI)				Yes / No			SB	RUR	PEI	PVC/Fluor	SAN	PS	PC	PPD	PE	PP	PEEK	PPS	PET	PBT	PA	TPB	POM	PMMA	ABS	TPO	Acrylic	PVC	PSU	LCP	
		Minimum (mm)	Maximum (mm)	Minimum (inch)	Maximum (inch)	Low MFI 0.2 - 7	Med MFI 7 - 16	High MFI 16 +	Grains																												mm
PCS Standard Mini Hot Sprue Bushing	Sprue Gate Tip	1.00	1.52	0.040	0.060	1.52	0.060	17	35	70																											
	Ring Gate Tip	1.00	1.52	0.040	0.060	1.52	0.060	8	15	35																											
	Point Gate Tip	0.50	1.52	0.025	0.060	1.52	0.060	8	15	35																											
PCS High Performance Mini Hot Sprue Bushing	Sprue Gate Tip	1.00	1.52	0.040	0.060	1.52	0.060	17	35	70																											
	Ring Gate Tip	1.00	1.52	0.040	0.060	1.52	0.060	8	15	35																											
	Point Gate Tip	0.50	1.52	0.025	0.060	1.52	0.060	8	15	35																											
PCS Standard Hot Sprue Bushing	Sprue Gate Tip	2.00	2.00	0.078	0.078	2.00	0.078	200	400	800																											
	Ring Gate Tip	2.00	2.00	0.078	0.078	2.00	0.078	52	105	210																											
	Sprue Gate Tip	2.00	2.00	0.078	0.078	2.00	0.078	200	400	800																											
Polimax 200 Series Standard Hot Sprue Bushing	Sprue Gate Tip	1.50	2.00	0.059	0.078	2.00	0.078	52	105	210																											
	Ring Gate Tip	1.50	2.00	0.059	0.078	2.00	0.078	52	105	210																											
	Point Gate Tip	1.00	2.60	0.039	0.102	2.60	0.102	52	105	210																											
Polimax 200 Series High Performance Hot Sprue Bushing	Sprue Gate Tip	2.00	2.00	0.078	0.078	2.00	0.078	200	400	800																											
	Ring Gate Tip	2.00	2.00	0.078	0.078	2.00	0.078	200	400	800																											
	Point Gate Tip	1.50	2.00	0.059	0.078	2.00	0.078	52	105	210																											
Polimax 500 Series Standard Hot Sprue Bushing	Sprue Gate Tip	1.00	3.00	0.039	0.118	3.00	0.118	210	490	980																											
	Ring Gate Tip	1.00	3.00	0.039	0.118	3.00	0.118	210	490	980																											
	Point Gate Tip	1.00	3.00	0.039	0.118	3.00	0.118	210	490	980																											
Polimax 500 Series High Performance Hot Sprue Bushing	Sprue Gate Tip	3.20	3.20	0.126	0.126	3.20	0.126	300	700	1400																											
	Ring Gate Tip	3.20	3.20	0.126	0.126	3.20	0.126	300	700	1400																											
	Point Gate Tip	2.00	2.50	0.078	0.098	2.50	0.098	210	490	980																											
Polimax 800 Series Standard Hot Sprue Bushing	Sprue Gate Tip	1.00	4.50	0.177	0.177	4.50	0.177	450	1000	2000																											
	Ring Gate Tip	2.50	3.00	0.098	0.118	3.00	0.118	315	700	1400																											
	Point Gate Tip	2.00	4.50	0.078	0.177	4.50	0.177	315	700	1400																											
Polimax 800 Series High Performance Hot Sprue Bushing	Sprue Gate Tip	4.50	4.50	0.177	0.177	4.50	0.177	450	1000	2000																											
	Ring Gate Tip	2.50	3.00	0.098	0.118	3.00	0.118	315	700	1400																											
	Point Gate Tip	2.00	4.50	0.078	0.177	4.50	0.177	315	700	1400																											
Polimax 1000 Series Standard Hot Sprue Bushing	Sprue Gate Tip	5.00	5.00	0.197	0.197	5.00	0.197	1000	1500	3000																											
	Ring Gate Tip	3.00	3.50	0.118	0.138	3.50	0.138	700	1050	2100																											
	Point Gate Tip	3.00	6.50	0.118	0.256	6.50	0.256	700	1050	2100																											
Polimax 1000 Series High Performance Hot Sprue Bushing	Sprue Gate Tip	5.00	5.00	0.197	0.197	5.00	0.197	1000	1500	3000																											
	Ring Gate Tip	3.00	3.50	0.118	0.138	3.50	0.138	700	1050	2100																											
	Point Gate Tip	3.00	6.50	0.118	0.256	6.50	0.256	700	1050	2100																											
Volastic Medium HSB	Sprue Gate Tip	1.00	2.20	0.039	0.087	2.20	0.087	200	400	500																											
	Point Gate Tip	1.00	2.20	0.039	0.087	2.20	0.087	200	400	500																											
Volastic Jumbo HSB	Sprue Gate Tip	2.00	2.50	0.078	0.098	2.50	0.098	500	1000	1500																											
	Point Gate Tip	2.00	2.50	0.078	0.098	2.50	0.098	500	1000	1500																											

DECIMAL EQUIVALENTS AND TAP DRILL SIZES									
DRILL SIZE	DECIMAL	TAP SIZE	DRILL SIZE	DECIMAL	TAP SIZE	DRILL SIZE	DECIMAL	TAP SIZE	DECIMAL
80	0.0135		39	0.0995	5-40	A	0.2340		37/64
79	0.0145		38	0.1015	5-44	15/64	0.2344		19/32
1/64	0.0156		37	0.1040	6-32	B	0.2380		39/64
78	0.0180		36	0.1065		C	0.2420		5/8
77	0.0180			0.1084		D	0.2460		41/64
76	0.0200		35	0.1100		E	0.2560		21/32
75	0.0210		34	0.1110		F	0.2570	5/16-18	43/64
74	0.0225		33	0.1130	6-40	G	0.2610		11/16
73	0.0240		32	0.1160			0.2656		45/64
72	0.0250		31	0.1200		H	0.2660		23/32
71	0.0260			0.1250		I	0.2720	5/16-24	47/64
70	0.0280		30	0.1285		J	0.2770		3/4
69	0.0292		29	0.1360	8-32,36	K	0.2810		49/64
68	0.0310		28	0.1405			0.2812		25/32
1/32	0.0312			0.1406		9/32	0.2900		51/64
67	0.0320		27	0.1440			0.2950		13/16
66	0.0330		26	0.1470	10-24	19/64	0.2969		53/64
65	0.0350		25	0.1495		N	0.3020	3/8-16	27/32
64	0.0360		24	0.1520			0.3125		55/64
63	0.0370		23	0.1540		5/16	0.3160		7/8
62	0.0380			0.1562			0.3230		29/32
61	0.0390		22	0.1570	10-32	21/64	0.3281		59/64
60	0.0400		21	0.1590			0.3320	3/8-24	15/16
59	0.0410		20	0.1610		Q	0.3390		61/64
58	0.0420		19	0.1660		R	0.3438		1
57	0.0430		18	0.1695			0.3480		31/32
56	0.0465	0-80		0.1719		S	0.3580		63/64
3/64	0.0469		17	0.1730		23/64	0.3594	7/16-14	1"
55	0.0520		16	0.1770	12-24		0.3680		1 3/64
54	0.0550		15	0.1800		3/8	0.3750		1 7/64
53	0.0595	1-64,72	14	0.1820	12-28	V	0.3770		1 1/8
1/16	0.0625		13	0.1850		W	0.3860	7/16-20	1 11/64
52	0.0635			0.1875		25/64	0.3906		1 7/32
51	0.0670		12	0.1890			0.3970		1 1/4
50	0.0700	2-56,64	11	0.1910		X	0.4040		1 19/64
49	0.0730		10	0.1935		Y	0.4062		1 11/32
48	0.0760		9	0.1960			0.4130		1 3/8
5/64	0.0781	3-48	8	0.1990	1/4-20	27/64	0.4219	1/2-13	1 27/64
47	0.0785		7	0.2010		7/16	0.4375		1 1/2
46	0.0810			0.2031		29/64	0.4531		
45	0.0820	3-56	6	0.2040		15/32	0.4688	1/2-20	
44	0.0860		5	0.2055		31/64	0.4844	9/16-12	
43	0.0890	4-40	4	0.2090		1/2	0.5000	9/16-18	
42	0.0935	4-48	3	0.2130	1/4-28	33/64	0.5156	5/8-11	
3/32	0.0938			0.2188		17/32	0.5312		
41	0.0960		2	0.2210		35/64	0.5469		
40	0.0980		1	0.2280		9/16	0.5625		
PIPE THREAD SIZES									
DRILL	THREAD	DRILL	THREAD	CONVERSION CHART					
R	1/8-27	1	5/32	1 INCH = 25.4mm	1 PSI = .0689 BAR	1 Metric Ton = 2204.6lbs=1000Kg	240 V = 15 Amps = 3600 W Volts x Amps = Watts Watts / Volts = Amps Watts / Amps = Volts Ohms Law		
7/16	1/4-18	1 1/2	1 1/2	1 LBS = 453.59 g	1 mile = 1.609Kilom	1 long Ton = 2240lbs=1016kg			
37/64	3/8-18	1 1/2	1 1/2	1 Oz = 28.349g	1 Ft = .3048M	1 short Ton = 2000lbs=907.18kg			
23/32	1/2-14	2	7/32	Temp (T° f-32°+1.8 =T° c)	1 F/LBS = 1.356Nm	1 US Gal= 833 Imp Gal=3.785L			
59/64	3/4-14			1 BTU = .0002929 Kw	Area of circle = π R ²	SAE Bolt rating =#(0-1-2) weakest to #8 strongest			
				1 Horse Power = 746 Watts	Circumference = 2 π r				

Resin Technical Section

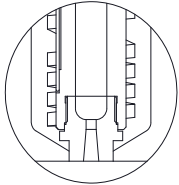
PLASTIC MATERIAL PROCESS CONDITIONS											
MATERIAL	SYMBOL	Process Temperature		Mold Temperature		Hot Runner Temperature		Density Melting		Solid Density	
		°C	°F	°C	°F	°C	°F	g/cm3	lbs./in3	g/cm3	lbs./in3
Styrene Butadiene	SB	210	410	70	158	230	446	0.93	0.0366	1.02	0.0369
Polyurethane	PUR	220	428	45	113	240	464	0.93	0.0366	1.11	0.0401
Polyvinyl chloride	PVC/FLEX	175	347	35	95	200	392	1.02	0.0405	1.38	0.0499
Styrene-acrylonite	SAN	230	446	80	176	255	491	0.99	0.0358	1.08	0.0390
Polystyrene	PS	210	410	45	113	230	446	0.95	0.0343	1.05	0.0379
Polycarbonate	PC	300	572	80	176	330	626	1.08	0.0390	1.20	0.0434
Polyphenylene Oxide-Styrene	PPO	260	500	80	176	300	572	0.99	0.0358	1.13	0.0408
Polyethylene	PE	200	392	25	77	225	437	0.74	0.0267	0.96	0.0347
Polypropylene	PP	225	437	40	104	245	473	0.73	0.0265	0.91	0.0329
Polyether-etherketone	PEEK	330	626	165	329	370	698	1.13	0.0408	1.37	0.0495
Polyphenylene Sulfide	PPS	300	572	110	230	330	626	1.53	0.0553	1.70	0.0614
Polyethylene Terephthalate	PBT	265	509	60	140	290	554	1.44	0.0520	1.57	0.0567
Polyamide 6	PA 6	220	428	90	194	250	482	0.98	0.0354	1.14	0.0412
Polyamide 66	PA66	255	491	90	194	280	536	1.09	0.0394	1.26	0.0455
Thermal Plastic Elastomers	TPE	240	464	35	95	265	509	0.78	0.0282	0.90	0.0325
Polyoxymethylene (Ployacetal)	POM	180	356	100	212	200	392	1.16	0.0419	1.42	0.0513
Polymethyl Methacrylate	PPMA	235	455	70	158	250	482	1.09	0.0394	1.18	0.0426
Acrylonitrile Butdadiene Styrene	ABS	225	437	70	158	250	482	0.95	0.0343	1.08	0.0390

PLASTIC MATERIAL FLOW INDEX				
HIGH MFI	MEDIUM MFI		LOW MFI	
PS	ABS	PA66	PVC/FLEX	PC
PE	SAN	POM	PEI	PBT
PP	PPO	PMMA	PEEK	PUR
	PPS			
	PET			

Note:

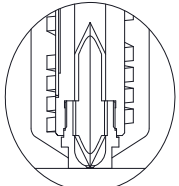
The above temperatures and densities are general guidelines and may not apply to your current application. Refer to the resin manufacturers processing data guide for your current application.

PCS Mini Hot Sprue Bushing Resin Selection Guide



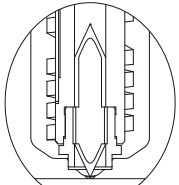
Sprue Gate Tip

Use when the best flow rate for maximum gram weight is required with an allowable gate vestige. Extended tips provide extra material for customer modifications.



Ring Gate Tip

Ideal for applications requiring low gate vestiges processing high viscosity resins. Available with standard and wear resistant needles providing the ability to process commodity and engineered resins (filled or unfilled). Extended tips provide extra material for customer modifications.



Point Gate Tip

Suited for applications processing high viscosity resins where minimal gate vestige is required. Available with standard and wear resistant needles providing the ability to process commodity and engineered resins (filled or unfilled).

Nozzle	THERMOPLASTIC RESIN TYPE																			
	SB	PUR	PEI	PVC/FLEX	SAN	PS	PC	PPO	PE	PP	PEEK	PPS	PET	PBT	PA	TPE	POM	PMMA	ABS	TPO
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●
● Green - Recommended with this resin ◆ Yellow - Contact PCS for technical guidance ■ Red - Not recommended																				

PCS Mini Hot Sprue Bushing Flow Capacity Table

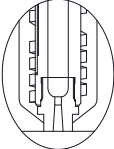
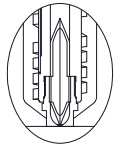
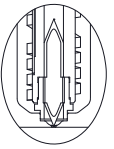


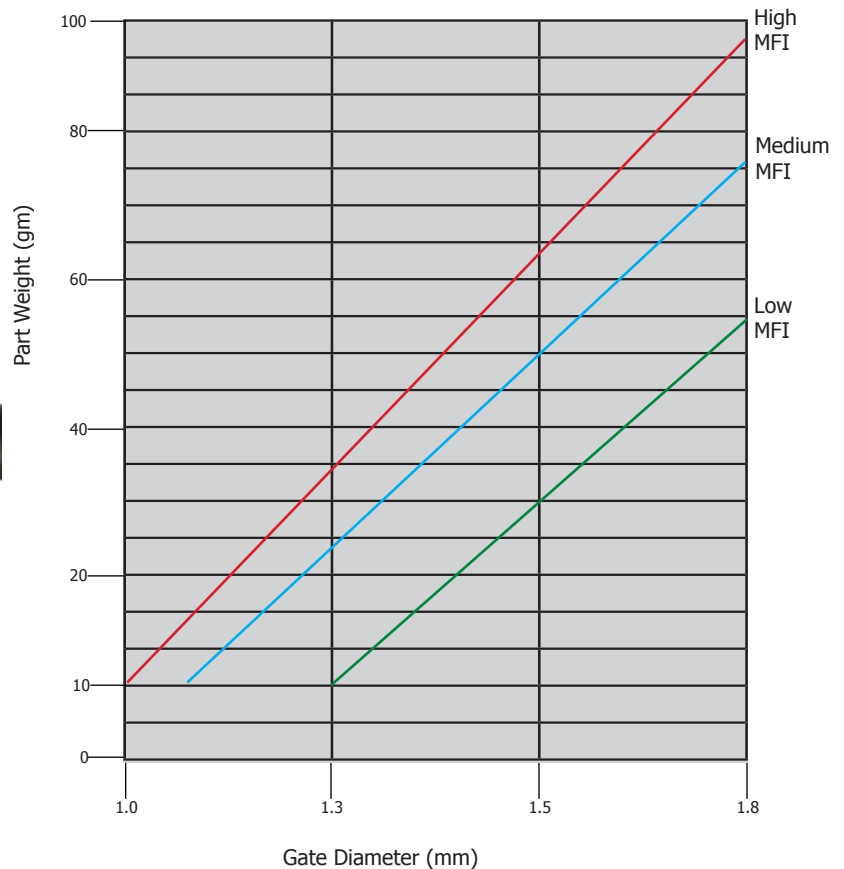
DEFINITION OF RESIN INPUT

The optimal gate diameter will vary according to the resin, Melt Flow Index (MFI) and molded part weight.

Please refer to the table for guidelines. Other factors to consider when defining gate requirements:

- Part geometry
- Resin type
- Mold and injection machine conditions

Maximum Part Weight in Grams		
Nozzle	PCS Mini	MFI (Melt Flow Index)
 Sprue Gate Tip	70	High
	35	Medium
	17	Low
 Ring Gate Tip	35	High
	15	Medium
	8	Low
 Point Gate Tip	35	High
	15	Medium
	8	Low

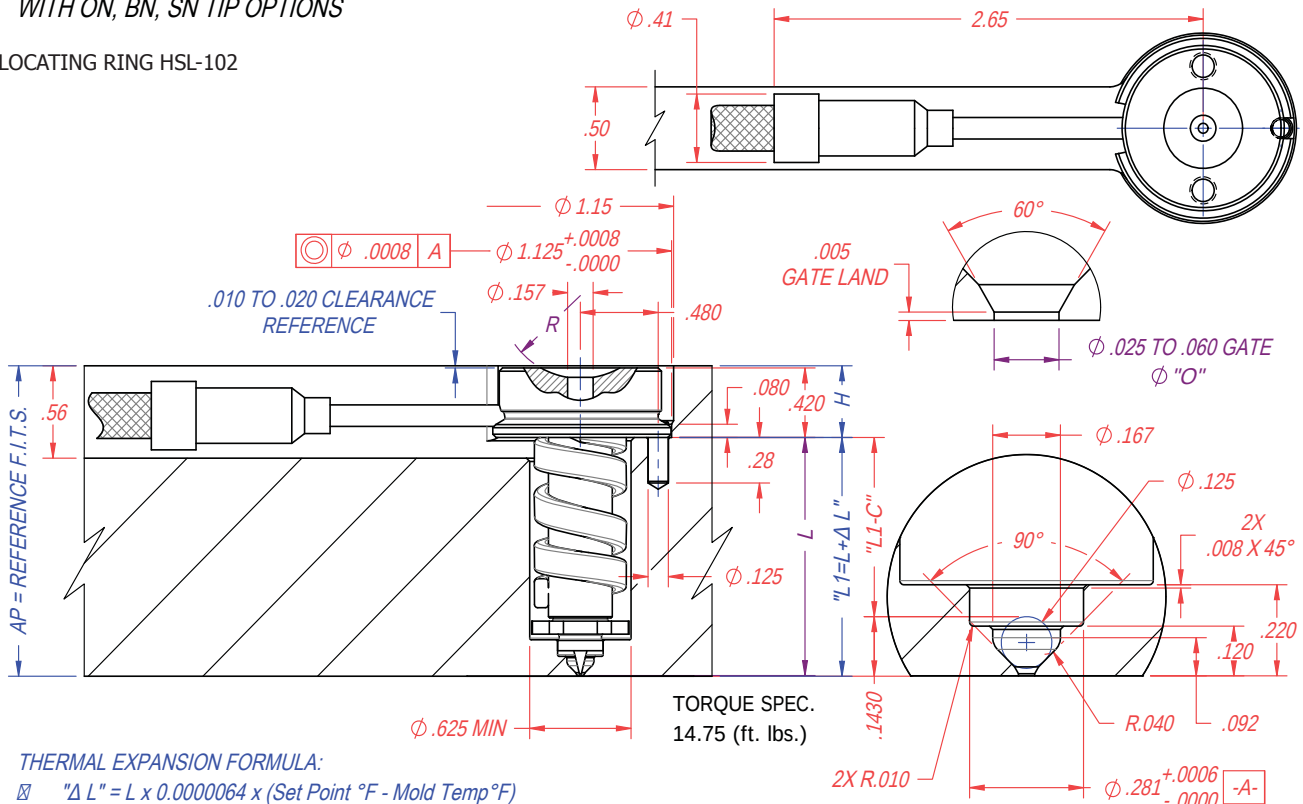


PCS Mini *Standard* Hot Sprue Bushing



STANDARD SERIES
WITH ON, BN, SN TIP OPTIONS

LOCATING RING HSL-102



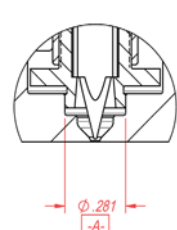
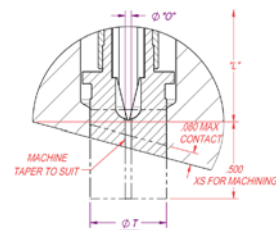
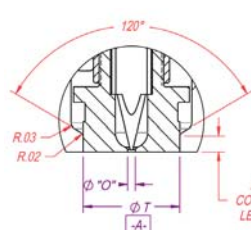
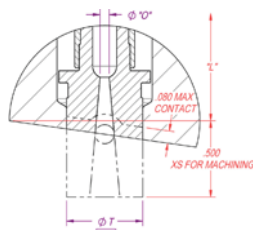
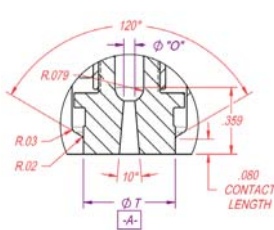
THERMAL EXPANSION FORMULA:

$$\Delta L = L \times 0.0000064 \times (\text{Set Point } ^\circ\text{F} - \text{Mold Temp } ^\circ\text{F})$$

Part Number Configurator

FSB - 17 - 1 - 1BN - 4 - S

L Dimension	Radius	Tip Style +.0006 - .0000	Orifice	Needle Type
1.438" = 17	.500" = 1	Open Nut = ON	.04" = 4	Standard = S
1.938" = 23	.750" = 2	1/2" Bush Nut = 1BN	.06" = 6	Wear Resistant = W
2.438" = 27		3/8" Bush Nut = 3BN	.04" = 4XS	Sprue Nut = Blank
2.938" = 33		1/2" Sprue Nut = 1SN	.06" = 6XS	
		3/8" Sprue Nut = 3SN	Open Nut = Blank	



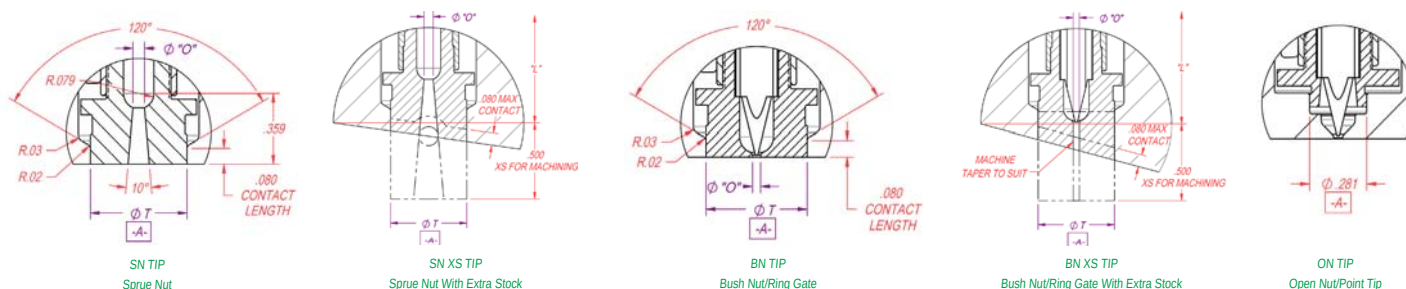
LOCATING RING HSL-102



- ☒ $\Delta L = L \times 0.0000064 \times (\text{Set Point } ^\circ\text{F} - \text{Mold Temp } ^\circ\text{F})$
- ☒ $H = AP - L1$

FSBH	-	17	-	1	-	1BN	-	4	-	S
------	---	----	---	---	---	-----	---	---	---	---

L Dimension	Radius	Tip Style +.0006 - .0000	Orifice	Needle Type
1.125" = ⑰	.500" = ①	Open Nut = ON	.04" = ④	Standard = ⑤
1.625" = 23	.750" = 2	1/2" Bush Nut = ①BN	.06" = 6	Wear Resistant = W
2.125" = 27		3/8" Bush Nut = 3BN	.04"= 4XS	Sprue Nut = Blank
2.625" = 33		1/2" Sprue Nut = 1SN	.06"= 6XS	
		3/8" Sprue Nut = 3SN	Open Nut = Blank	



PCS FSB & FSBH Mini Hot Sprue Bushing Spare Parts & Accessories



FSB



Item Number	Item Description
FSB-17 FSB-23 FSB-27 FSB-33	Nozzle Body



Item Number	Wattage	Item Description
FSH-17 FSH-23 FSH-27 FSH-33	150W 200W 225W 250W	Body heater with built in Thermocouple



Item Number	Item Description
FSN-S FSN-W	Standard Needle-ON, BN, Tips Wear-Resistant Needle-ON, BN Tips



Item Number	Item Description
FSB-3BN-4 FSB-3BN-6 FSB-1BN-4 FSB-1BN-6 FSB-ON	Bush Nut, .040" Orifice, T=3/8" Bush Nut, .060" Orifice, T=3/8" Bush Nut, .040" Orifice, T=1/2" Bush Nut, .060" Orifice, T=1/2" Open Nut Tip
FSB-1SN-4 FSB-1SN-6 FSB-3SN-4 FSB-3SN-6	Sprue Nut, .040" Orifice, T=1/2" Sprue Nut, .060" Orifice, T=1/2" Sprue Nut, .040" Orifice, T=3/8" Sprue Nut, .060" Orifice, T=3/8"
FSB-3BN-4XS FSB-3BN-6XS FSB-1BN-4XS FSB-1BN-6XS FSB-1SN-4XS FSB-1SN-6XS	Bush Nut, XS .040" Orifice, T=3/8" Bush Nut, XS .060" Orifice, T=3/8" Bush Nut, XS .040" Orifice, T=1/2" Bush Nut, XS .060" Orifice, T=1/2" Sprue Nut, XS .040" Orifice, T=1/2" Sprue Nut, XS .060" Orifice, T=1/2"

Accessories



Item Number	Item Description
HSL-101	Locating Ring for FSB

FSBH

Item Number	Item Description
HS-200	Snap Ring



Item Number	Item Description
HHR-200	Head Heater Cover



Item Number	Wattage	Item Description
HH-200	125W	Head Heater with built in Thermocouple



Item Number	Item Description
FSBH-17 FSBH-23 FSBH-27 FSBH-33	Nozzle Body



Item Number	Wattage	Item Description
FSHH-17 FSHH-23 FSHH-27 FSHH-33	125W 200W 200W 225W	Body heater with built in Thermocouple



Item Number	Item Description
FSN-S FSN-W	Standard Needle Wear-Resistant Needles



Item Number	Item Description
FSB-3BN-4 FSB-3BN-6 FSB-1BN-4 FSB-1BN-6 FSB-ON	Bush Nut, .040" Orifice, T=3/8" Bush Nut, .060" Orifice, T=3/8" Bush Nut, .040" Orifice, T=1/2" Bush Nut, .060" Orifice, T=1/2" Open Nut Tip
FSB-1SN-4 FSB-1SN-6 FSB-3SN-4 FSB-3SN-6	Sprue Nut, .040" Orifice, T=1/2" Sprue Nut, .060" Orifice, T=1/2" Sprue Nut, .040" Orifice, T=3/8" Sprue Nut, .060" Orifice, T=3/8"
FSB-3BN-4XS FSB-3BN-6XS FSB-1BN-4XS FSB-1BN-6XS FSB-1SN-4XS FSB-1SN-6XS	Bush Nut, XS .040" Orifice, T=3/8" Bush Nut, XS .060" Orifice, T=3/8" Bush Nut, XS .040" Orifice, T=1/2" Bush Nut, XS .060" Orifice, T=1/2" Sprue Nut, XS .040" Orifice, T=1/2" Sprue Nut, XS .060" Orifice, T=1/2"



PCS Standard HSB Hot Sprue Bushing Spare Parts & Accessories



Item Number	Item Description
HS-100	Snap Ring



Item Number	Item Description
HR-100	Head Heater Cover



Item Number	Wattage	Item Description
HH-100	250W	Head Heater with built in Thermocouple



Item Number	Item Description
HSB-13 HSB-18 HSB-23 HSB-28 HSB-33 HSB-38 HSB-43	Nozzle Body



Item Number	Item Description
HST-13 HST-18-23 HST-28-33 HST-28-33 HST-38 HST-43	Spare Nozzle Body Thermocouple



Item Number	Wattage	Item Description
HS-13 HS-18 HS-23 HS-28 HS-33 HS-38 HS-43	225W 250W 300W 350W 400W 450W 450W	Body Heater with built in Thermocouple



Item Number	Item Description
HSR-13 HSR-18 HSR-23 HSR-28 HSR-33 HSR-38 HSR-43	Body Heater Cover



Item Number	Item Description
TE-10 WTE-10 TN-10 WTN-10	Standard Needle-SE Tip Wear Resistant Needle-SE Tip Standard Needle-SN, ON Tip Wear Resistant Needle-SN, ON Tip



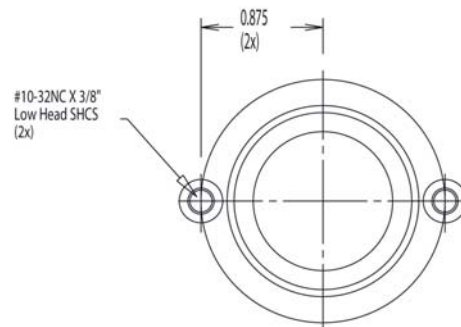
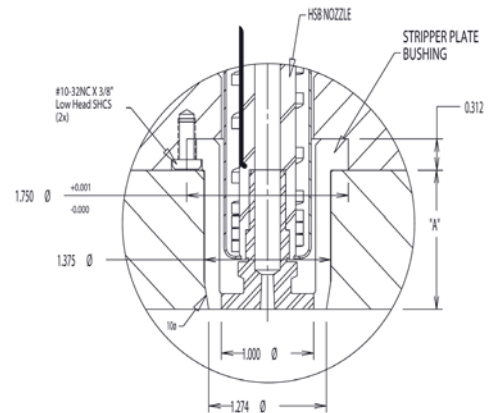
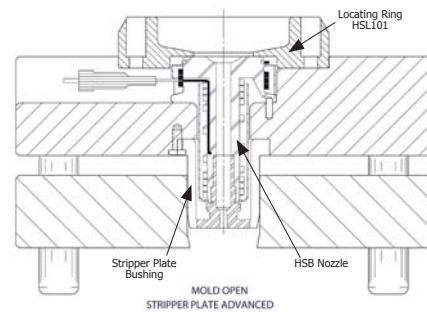
Item Number	Item Description	Item Number	Item Description
EF-075 EF-075XS EF-075XS-078 SN-075 SN-075XS SE-075	EF Style, Tip Dia.=.075" EF Style, XS, O=.125" Tip Dia.=.075" EF Style, XS, O=.078" Tip Dia.=.075" SN Style, Tip Dia.=.075" SN Style, XS, Tip Dia.=.075" SE Style, Tip Dia.T=.075"	EF-100 EF-100XS SN-100 SN-100XS SE-100 HSB-ON	EF Style, Tip Dia.=1.000" EF Style, XS, Tip Dia.=1.000" SN Style, Tip Dia.=1.000" SN Style, XS, Tip Dia.=1.000" SE Style, Tip Dia.=1.000" Open Nut Tip

Accessories

Item Number	A Dimension	Item Description
HSPB-13 HSPB-18	1.375 1.875	HSB Stripper Plate Bushing



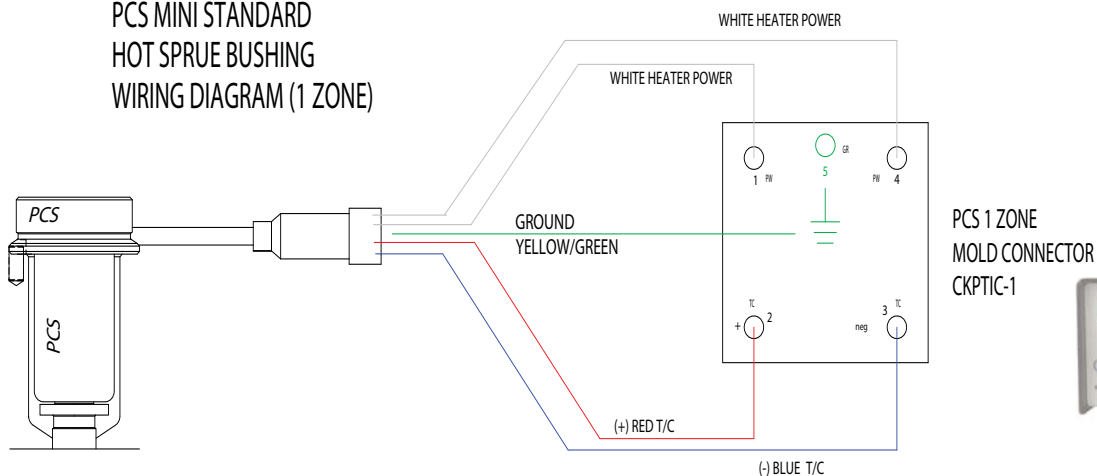
HSB Stripper Plate Bushing Installation instruction



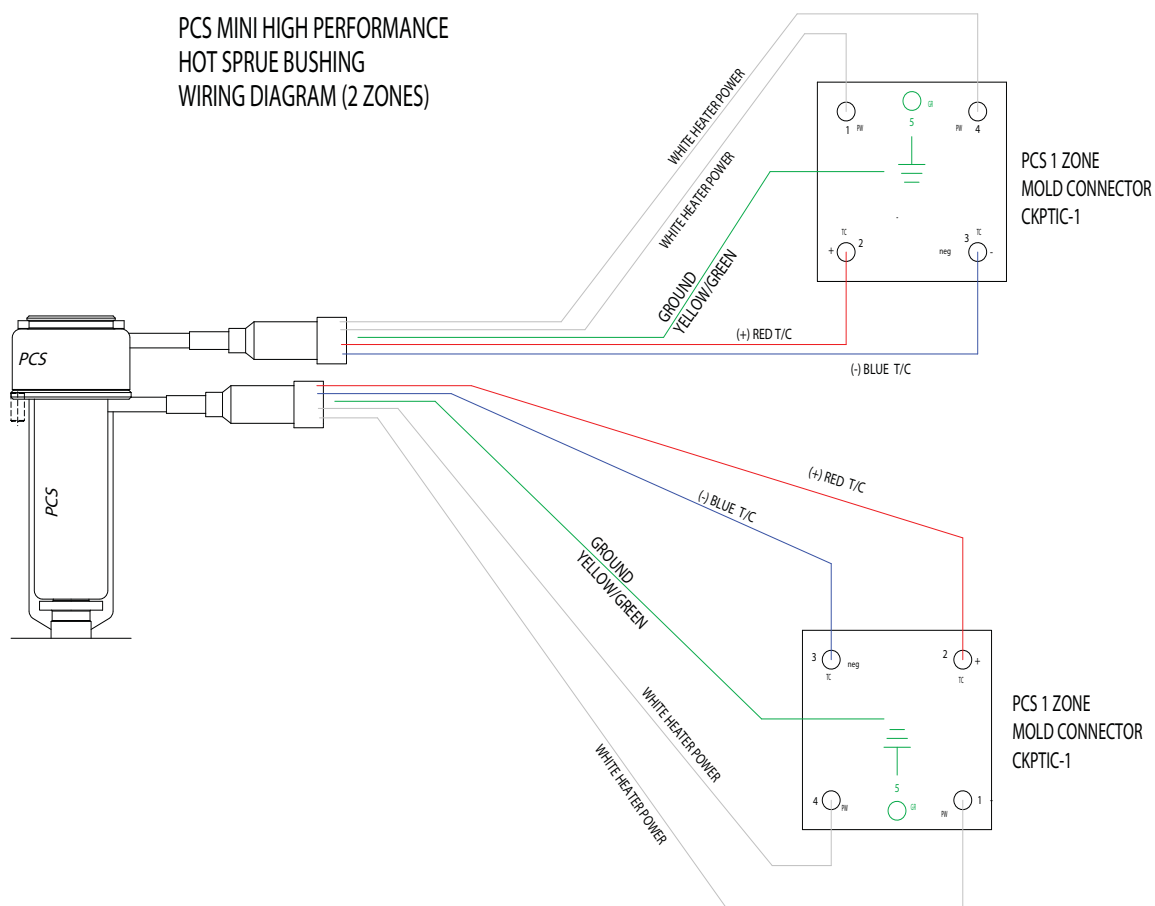
PCS Mini Hot Sprue Bushing Wiring Diagrams



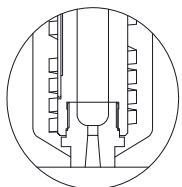
PCS MINI STANDARD
HOT SPRUE BUSHING
WIRING DIAGRAM (1 ZONE)



PCS MINI HIGH PERFORMANCE
HOT SPRUE BUSHING
WIRING DIAGRAM (2 ZONES)

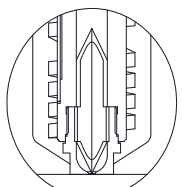


PCS Hot Sprue Bushing Resin Selection Guide



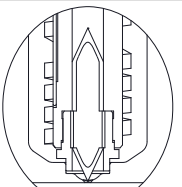
Sprue Gate Tip
Standard/Extended

For use when the best flow rate for maximum gram weight is required with an allowable gate vestige. Extended tips provide extra material for customer modifications.



Ring Gate Tip

Ideal for applications requiring low gate vestiges processing high viscosity resins. Available with standard and wear resistant needles providing the ability to process commodity and engineered resins (filled and unfilled). Extended tips provide extra material for customer modifications.



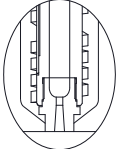
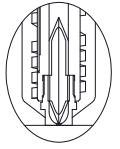
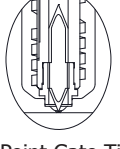
Point Gate Tip

Suited for applications processing high viscosity resins where minimal gate vestige is required. Available with standard and wear resistant needles providing the ability to process commodity and engineered resins (filled or unfilled).

Nozzle	THERMOPLASTIC RESIN TYPE																			
	SB	PUR	PEI	PVC/FLEX	SAN	PS	PC	PPO	PE	PP	PEEK	PPS	PET	PBT	PA	TPE	POM	PMMA	ABS	TPO
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●
	●	●	●	■	●	●	●	●	●	●	■	●	●	●	●	●	●	●	●	●
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●
● Green - Recommended with this resin ◆ Yellow - Contact PCS for technical guidance ■ Red - Not recommended																				

PCS Hot Sprue Bushing Flow Capacity Table



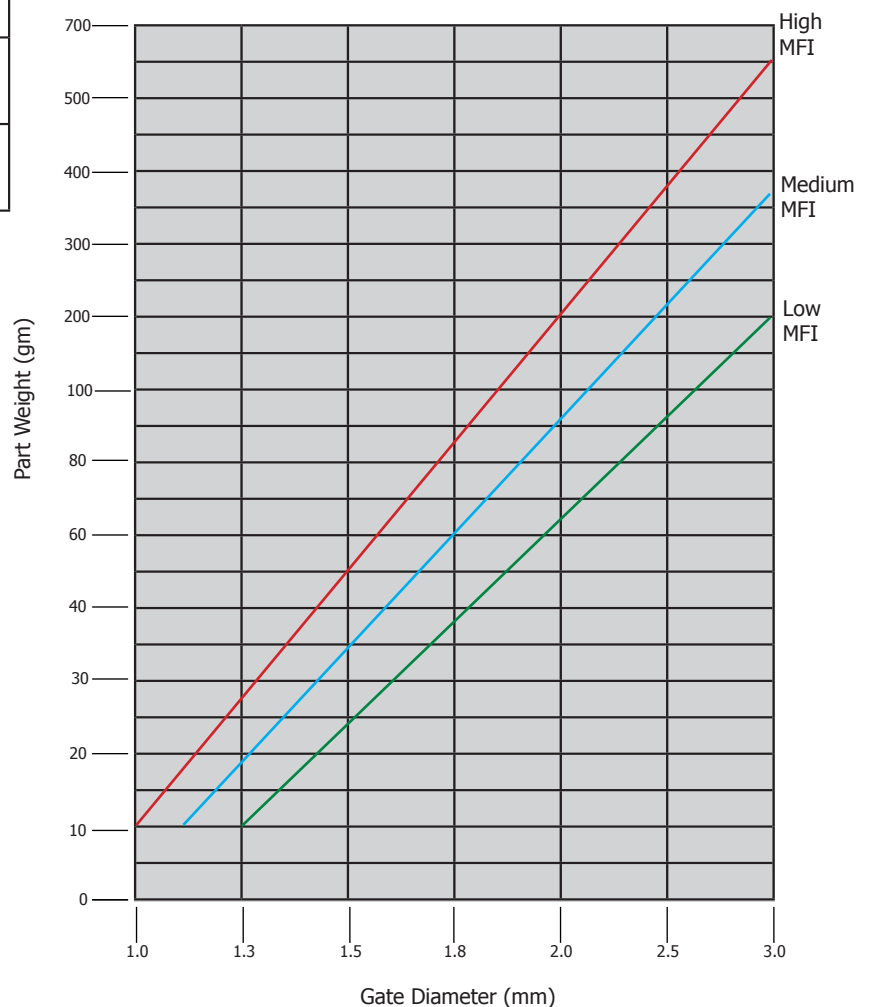
Maximum Part Weight in Grams		
Nozzle	HSB	MFI (Melt Flow Index)
 Sprue Gate Tip Standard/Extended	800	High
	400	Medium
	200	Low
 Ring Gate Tip	210	High
	105	Medium
	52	Low
 Point Gate Tip	210	High
	105	Medium
	52	Low

DEFINITION OF RESIN INPUT

The optimal gate diameter will vary according to the resin, Melt Flow Index (MFI) and molded part weight.

Please refer to the table for guidelines. Other factors to consider when defining gate requirements:

- Part geometry
- Resin type
- Mold and injection machine conditions

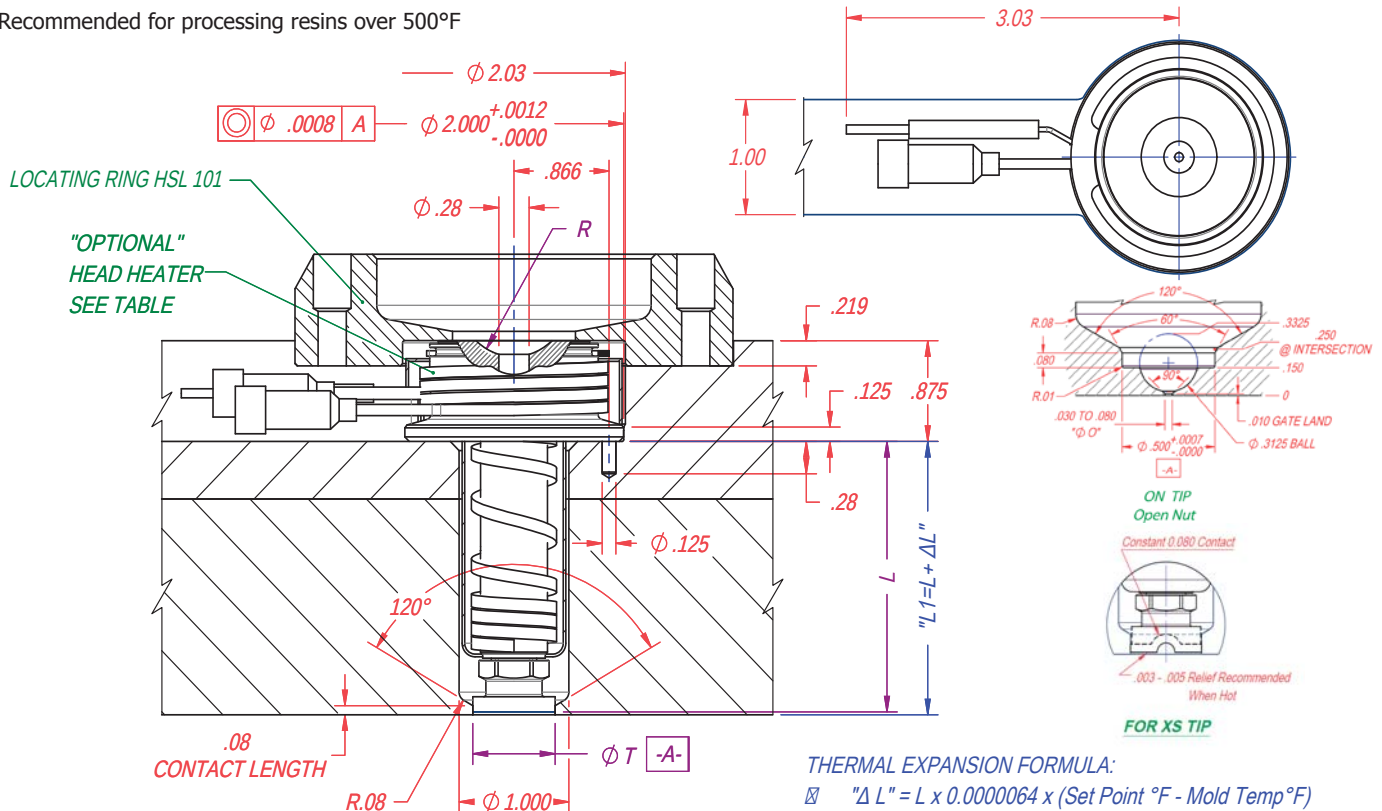


PCS Hot Sprue Bushing With Optional Head Heater



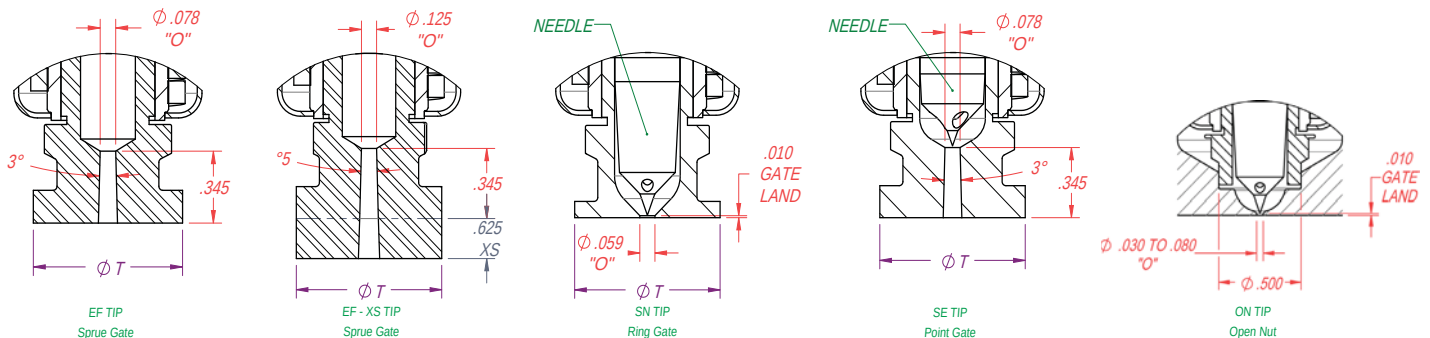
EF SN & SE TIP OPTIONS

Recommended for processing resins over 500°F



Part Number Configurator

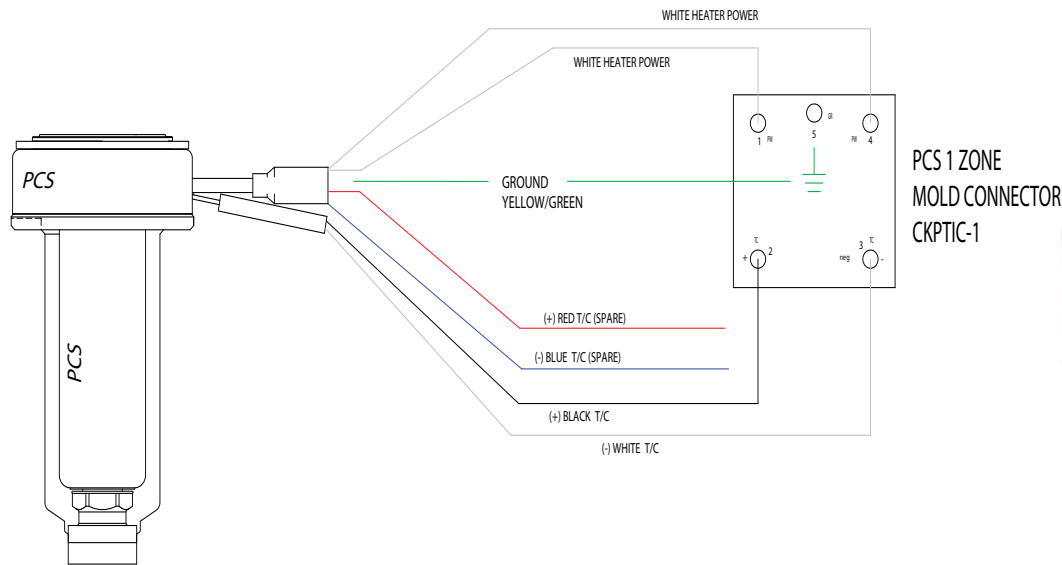
HSB	- 13	- 1	- EF	- 075	- 1
L Dimension	Radius	Tip Style	T Dimension +.0008 - .0000	Head Heater	
1.375" = 13	.500" = 1	EF	0.750" = 075	Excluded = 1	
1.875" = 18	.750" = 2	SE	1.000" = 100	Included = 2	
2.375" = 23		SN	.750" extra stock = 075XS		
2.625" = 28		ON	1.000" extra stock = 100XS		
3.375" = 33			.750" wear resistant = 075W		
3.875" = 38			1.000" wear resistant = 100W		
4.375" = 43			Open Nut Standard Needle=Blank		
			Open Nut Wear Resistant Needle = W		



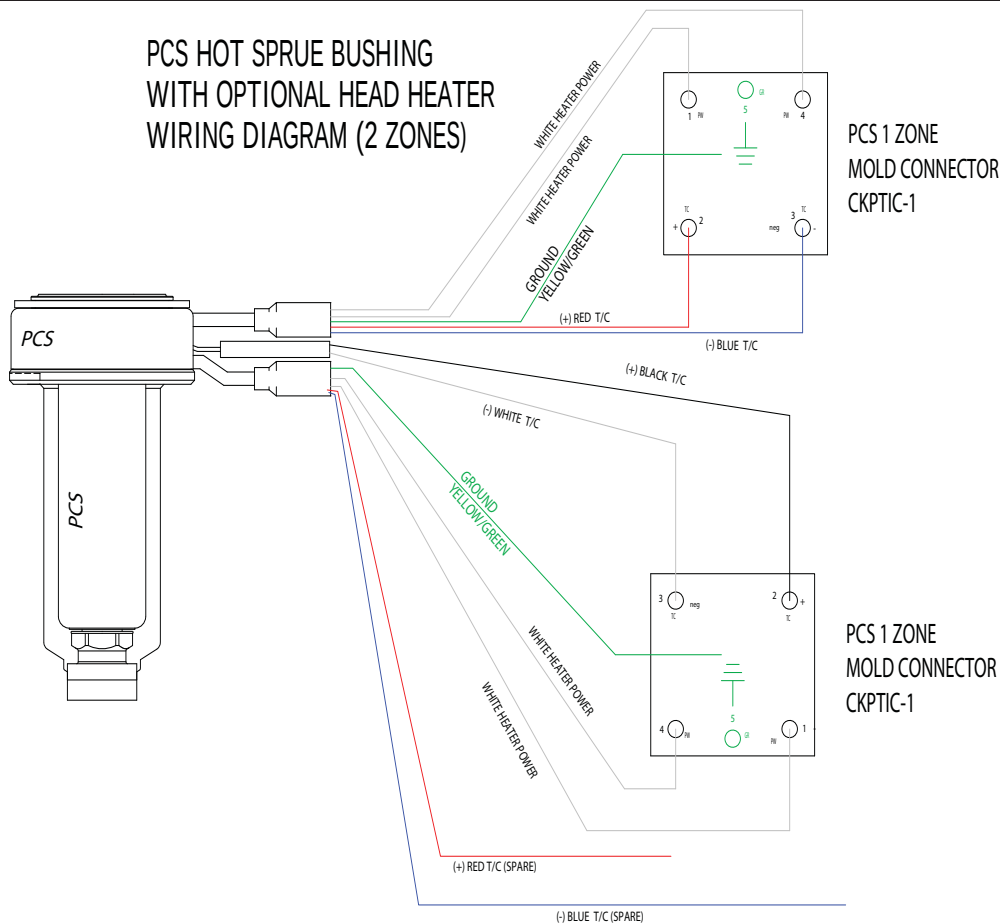
PCS Hot Sprue Bushing Wiring Diagrams



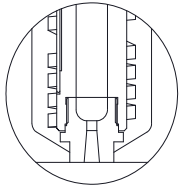
PCS HOT SPRUE BUSHING
WIRING DIAGRAM (1 ZONE)



PCS HOT SPRUE BUSHING
WITH OPTIONAL HEAD HEATER
WIRING DIAGRAM (2 ZONES)

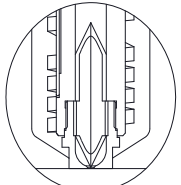


Polimold® Polimax® Hot Sprue Bushing Resin Selection Guide



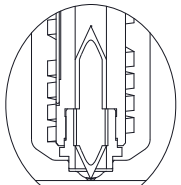
Sprue Gate Tip
Standard/Extended

Use when the best flow rate for maximum gram weight is required with an allowable gate vestige. Extended tips provide extra material for customer modifications.



Ring Gate Tip
Standard/Extended

Ideal for applications requiring low gate vestiges processing high viscosity resins. Available with standard and wear resistant needles providing the ability to process commodity and engineered resins (filled or unfilled). Extended tips provide extra material for customer modifications.



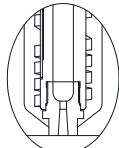
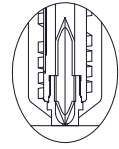
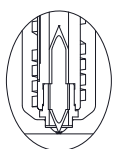
Point Gate Tip

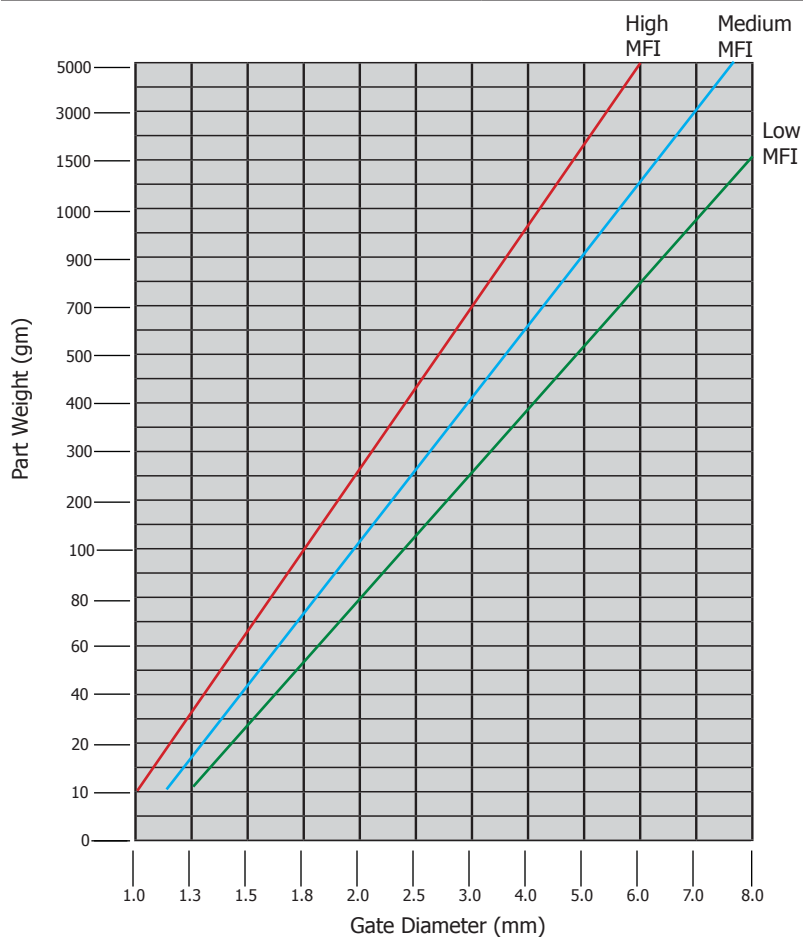
Suited for applications processing high viscosity resins where minimal gate vestige is required. Available with standard and wear resistant needles providing the ability to process commodity and engineered resins (filled or unfilled).

Nozzle	THERMOPLASTIC RESIN TYPE																			
	SB	PUR	PEI	PVC/FLEX	SAN	PS	PC	PPO	PE	PP	PEEK	PPS	PET	PBT	PA	TPE	POM	PMMA	ABS	TPO
	◆	◆	◆	■	◆	●	◆	◆	●	◆	■	◆	◆	◆	◆	◆	◆	◆	◆	◆
	◆	◆	◆	■	◆	●	◆	◆	●	◆	■	◆	◆	◆	◆	◆	◆	◆	◆	◆
	◆	◆	◆	■	◆	●	◆	◆	●	◆	■	◆	◆	◆	◆	◆	◆	◆	◆	◆
● Green - Recommended with this resin ◆ Yellow - Contact PCS for technical guidance ■ Red - Not recommended																				

Polimold® Polimax® Hot Sprue Bushing Flow Capacity Table



Maximum Part Weight in Grams					
Nozzle	200 Series	500 Series	800 Series	1000 Series	MFI (Melt Flow Index)
 Sprue Gate Tip Standard/Extended	800	1400	2000	3000	High
	400	700	1000	1500	Medium
	200	300	450	1000	Low
 Ring Gate Tip Standard/Extended	210	980	1400	2100	High
	105	490	700	1050	Medium
	52	210	315	700	Low
 Point Gate Tip	210	980	1400	2100	High
	105	490	700	1050	Medium
	52	210	315	700	Low



DEFINITION OF RESIN INPUT

The optimal gate diameter will vary according to the resin, Melt Flow Index (MFI) and molded part weight.

Please refer to the table for guidelines. Other factors to consider when defining gate requirements:

- Part geometry
- Resin type
- Mold and injection machine conditions

Polimold® Polimax® 200 Series *Standard* Hot Sprue Bushing



Recommended for processing resins under 500°F

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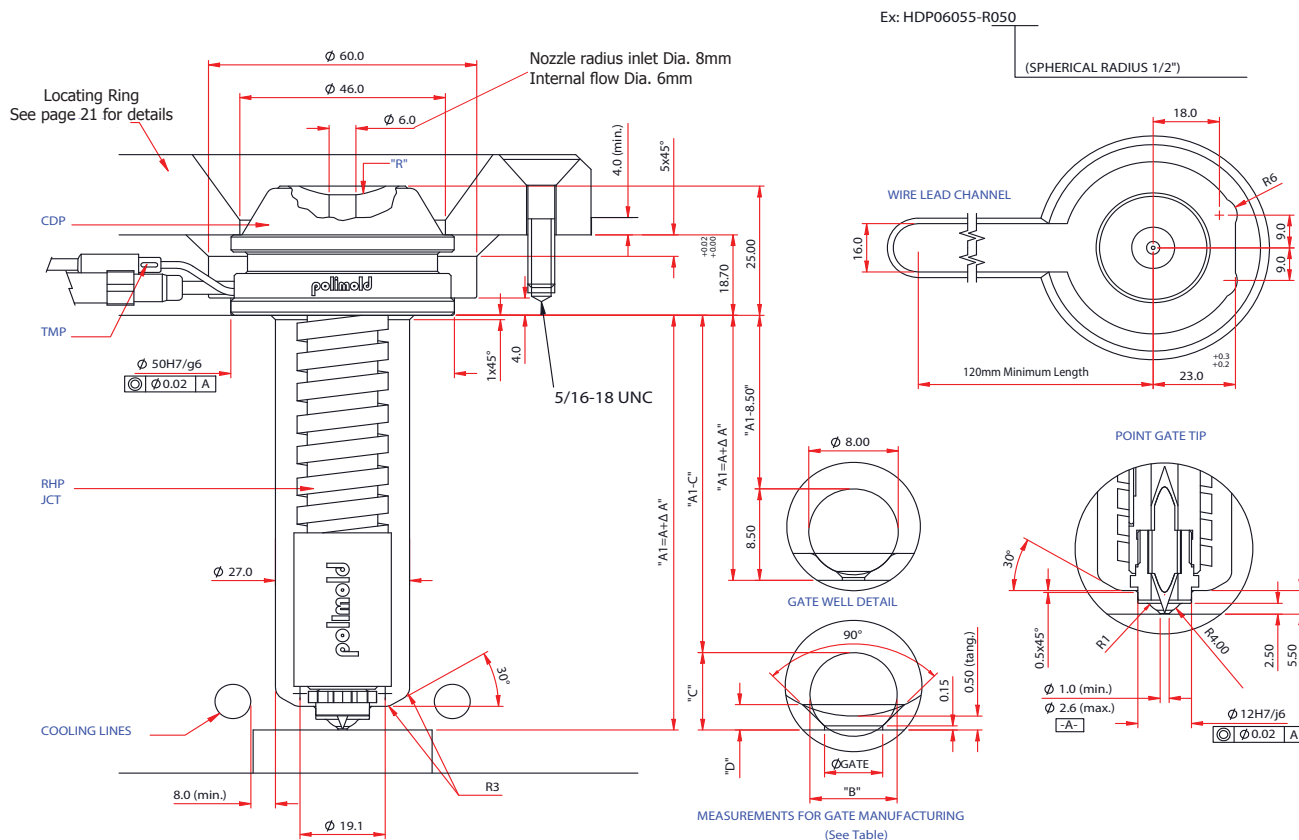


TABLE FOR GATE MANUFACTURING

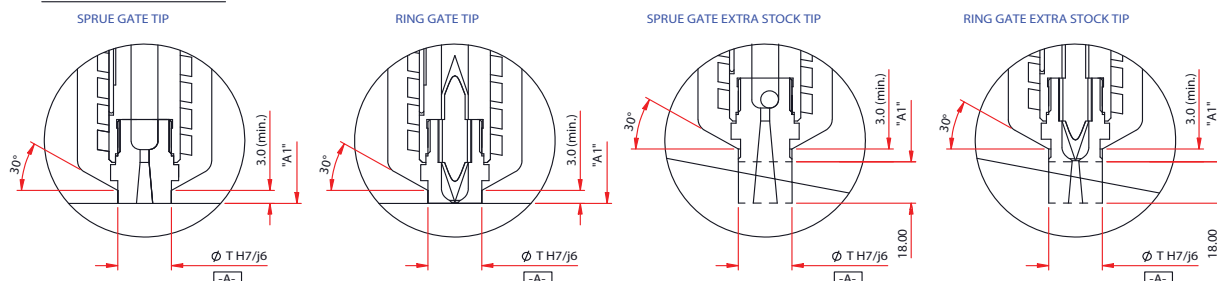
NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS						
ASSEMBLY PART NUMBER	DIMENSION "A"	COMPONENTS				
		NOZZLE BODY	NOZZLE BODY HEATER	JACKETS	WATTS	THERMOCOUPLE
HDP06035-R...	35.00	CDP06034	RHP06031	JCT06030	260W	TMP01080
HDP06055-R...	55.00	CDP06055	RHP06051	JCT06050	350W	TMP01080
HDP06067-R...	67.50	CDP06067	RHP06063	JCT06050	350W	TMP01100
HDP06080-R...	80.00	CDP06080	RHP06076	JCT06050	400W	TMP01120
HDP06092-R...	92.50	CDP06092	RHP06089	JCT06050	400W	TMP01140
HDP06105-R...	105.00	CDP06105	RHP06102	JCT06100	500W	TMP01160
HDP06130-R...	130.00	CDP06130	RHP06127	JCT06100	500W	TMP01180
HDP06155-R...	155.00	CDP06155	RHP06153	JCT06100	610W	TMP01200

RADIUS CODE FOR NOZZLE	DIMENSION "R"
...-R050	1/2"
...-R075	3/4"

GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"
Ø 1.0	Ø 2.00	2.06	0.62
Ø 1.2		1.96	0.66
Ø 1.4		1.86	0.70
Ø 1.6		2.97	0.75
Ø 1.8	Ø 3.00	2.87	0.82
Ø 2.0		2.77	0.91
Ø 2.2	Ø 4.00	3.88	1.02
Ø 2.4		3.78	1.18
Ø 2.6		3.68	1.54

BUSHING THERMAL EXPANSION "Δ A" = A x 0.0000064 x (Setpoint "F" - 68°F)

TIP OPTIONS

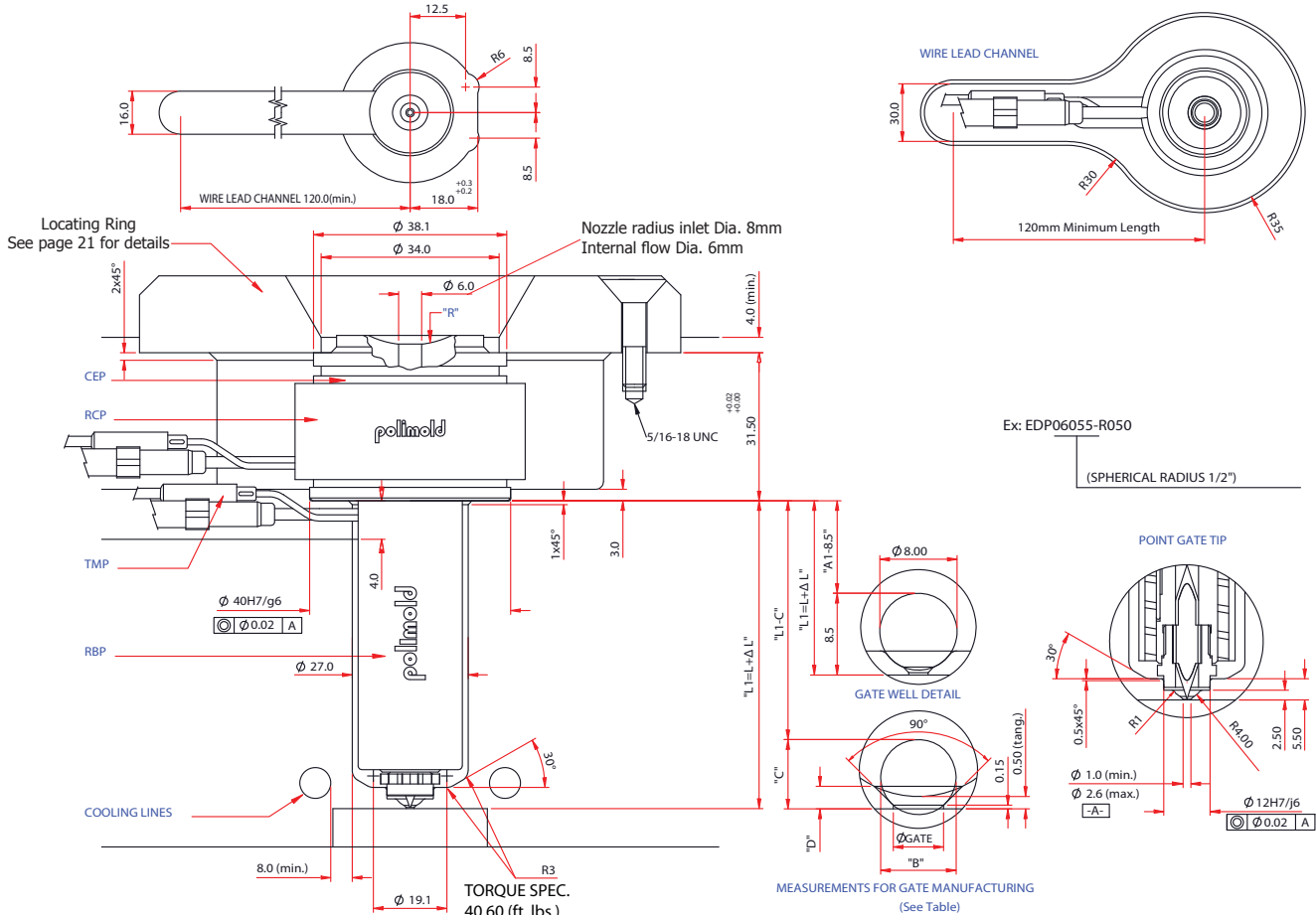


Polimold® Polimax® 200 Series High Performance Hot Sprue Bushing



Recommended for processing resins over 500°F

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Ex: EDP06055-R050

(SPHERICAL RADIUS 1/2")

POINT GATE TIP

MEASUREMENTS FOR GATE MANUFACTURING
(See Table)

NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS

ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS					
		NOZZLE BODY	NOZZLE BODY HEATER	WATTS	HEAD HEATER	WATTS	THERMOCOUPLE
EDP06035-R...	35.00	CEP06034	RBP06033	460W	RCP38020	295W	TMP01080
EDP06055-R...	55.00	CEP06055	RBP06053	460W			TMP01080
EDP06067-R...	67.50	CEP06067	RBP06065	460W			TMP01100
EDP06080-R...	80.00	CEP06080	RBP06078	690W			TMP01120
EDP06092-R...	92.50	CEP06092	RBP06092	690W			TMP01140
EDP06105-R...	105.00	CEP06105	RBP06104	760W			TMP01160
EDP06130-R...	130.00	CEP06130	RBP06129	850W			TMP01180
EDP06155-R...	155.00	CEP06155	RBP06155	1100W			TMP01200

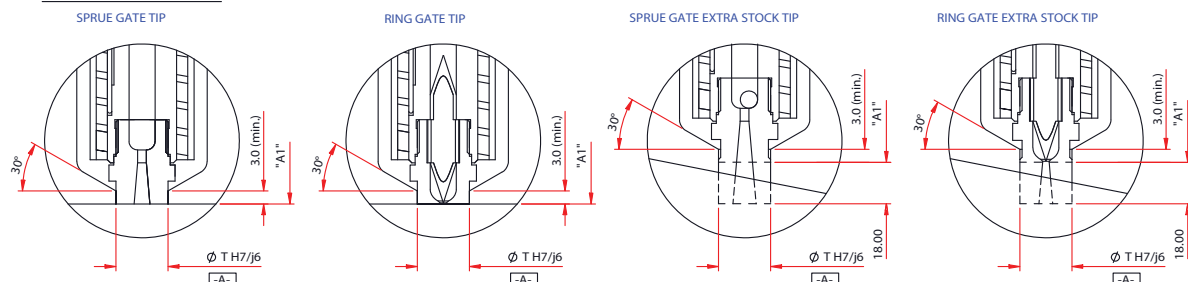
BUSHING THERMAL EXPANSION $\Delta L = L \times 0.0000064 \times (\text{Setpoint } ^\circ\text{F} - 68^\circ\text{F})$

RADIUS CODE FOR NOZZLE	DIMENSION "R"
...R050	1/2"
...R075	3/4"

TABLE FOR GATE MANUFACTURING

GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"
Ø 1.0	Ø 2.00	2.06	0.62
Ø 1.2		1.96	0.66
Ø 1.4		1.86	0.70
Ø 1.6		2.97	0.75
Ø 1.8	Ø 3.00	2.87	0.82
Ø 2.0		2.77	0.91
Ø 2.2		3.88	1.02
Ø 2.4		3.78	1.18
Ø 2.6	Ø 4.00	3.68	1.54

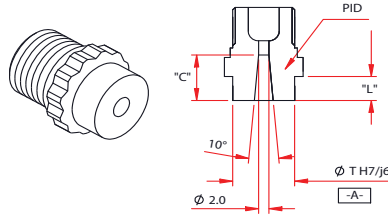
TIP OPTIONS



Polimold® Polimax® 200 Series Tips



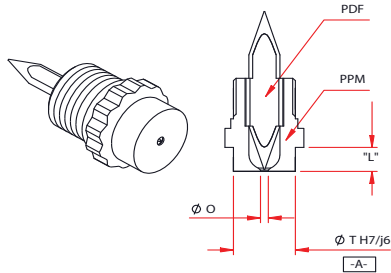
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INDUSTRIAL S.A.



SPRUE GATE TIP (* Extended Tip Length)

PART NUMBER	TIP DIMENSION		
	DIMENSION "T"	DIMENSION "L"	DIMENSION "C"
PID06001	12.00	5.50	9.00
PID06002	18.00	5.50	9.00
PID06002-1**	1.00"	.216"	.354"
PID06003	12.00	23.50	27.00*
PID06004	18.00	23.50	27.00*
PID06004-1**	1.00"	.925"	1.063**

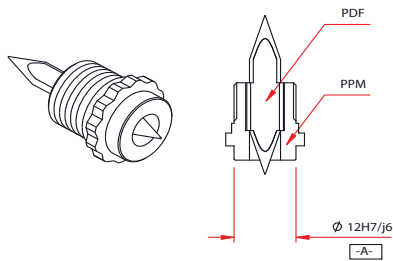
RING GATE TIP (* Extended Tip Length)



TORQUE SPECIFICATION

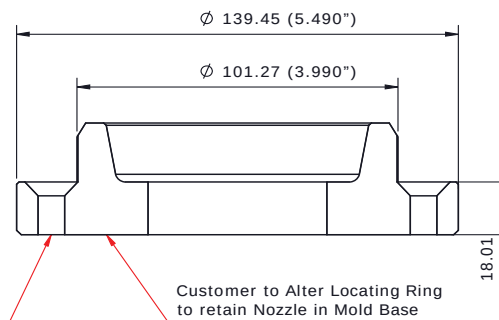
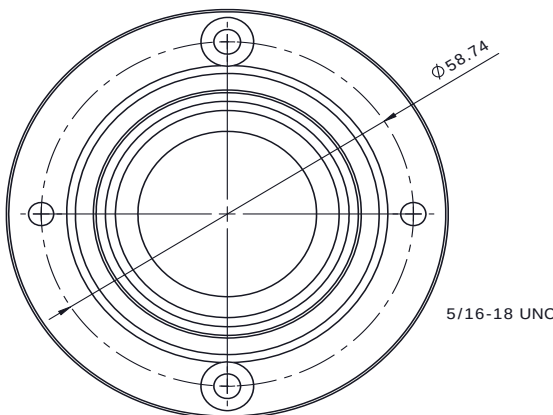
55Nm
(40.5 Ft/Lbs)

ASSEMBLY	TIP DIMENSIONS		MATERIAL	DIMENSION "T"	DIMENSION "O"	DIMENSION "L"
	ASSEMBLY COMPONENTS	RETAINER TIP				
PMA06101-A	PDF06602	PPM06601	ABRASION RESISTANT NEEDLE	12.00	1.50	5.50
PMA06102-A		PPM06602		12.00	2.00	
PMA06103-A		PPM06603		18.00	1.50	
PMA06104-A		PPM06604		18.00	2.00	
PMA06105-A		PPM06605		12.00	1.50	23.50*
PMA06106-A		PPM06606		12.00	2.00	
PMA06107-A		PPM06607		18.00	1.50	
PMA06108-A		PPM06608		18.00	2.00	
PMA06109-A	PDF06802	PPM06601	STANDARD NEEDLE (COATED IN "Ni")	12.00	1.50	5.50
PMA06110-A		PPM06602		12.00	2.00	
PMA06111-A		PPM06603		18.00	1.50	
PMA06112-A		PPM06604		18.00	2.00	
PMA06113-A		PPM06605		12.00	1.50	23.50*
PMA06114-A		PPM06606		12.00	2.00	
PMA06115-A		PPM06607		18.00	1.50	
PMA06116-A		PPM06608		18.00	2.00	



POINT GATE TIP

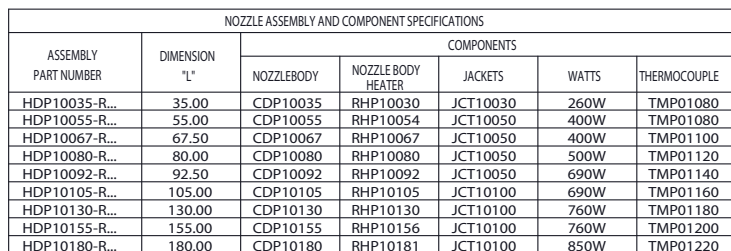
ASSEMBLY	POINT GATE COMPONENTS		
	NEEDLE	RETAINER TIP	MATERIAL
PVM06008-A	PDF06602	PPM06609	ABRASION RESISTANT NEEDLE
PVM06009-A	PDF06802	PPM06609	STANDARD NEEDLE (COATED IN "Ni")



LOCATING RINGS

Part Number	Nozzle Type
PML-200	STANDARD
PML-200H	HIGH PERFORMANCE

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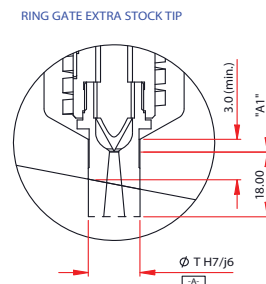


BUSHING THERMAL EXPANSION "Δ L" = L x 0.0000064 x (Setpoint °F - 68°F)

TABLE FOR GATE MANUFACTURING

GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"
Ø 1.0	Ø 2.00	2.06	0.58
Ø 1.2		1.96	0.60
Ø 1.4		1.86	0.63
Ø 1.6	Ø 3.00	2.97	0.66
Ø 1.8		2.87	0.69
Ø 2.0		2.77	0.73
Ø 2.2	Ø 4.00	3.88	0.78
Ø 2.4		3.78	0.83
Ø 2.6		3.68	0.89
Ø 2.8	Ø 5.00	4.78	0.96
Ø 3.0		4.68	1.05

SPRUE GATE TIP



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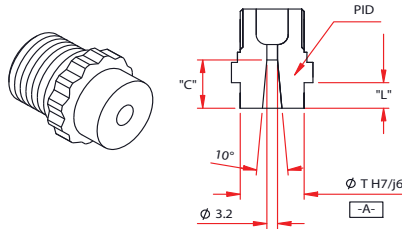
GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"
Ø 1.0		2.06	0.58
Ø 1.2	Ø 2.00	1.96	0.60
Ø 1.4		1.86	0.63
Ø 1.6		2.97	0.66
Ø 1.8	Ø 3.00	2.87	0.69
Ø 2.0		2.77	0.73
Ø 2.2		3.88	0.78
Ø 2.4	Ø 4.00	3.78	0.83
Ø 2.6		3.68	0.89
Ø 2.8		4.78	0.96
Ø 3.0	Ø 5.00	4.68	1.05

RADIUS CODE FOR NOZZLE	DIMENSION "R"	DIMENSION "D"
...-R050	1/2"	
...-R075	3/4"	
...-D090		90°

Polimold® Polimax® 500 Series Tips



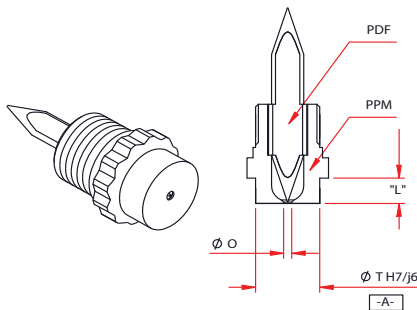
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SPRUE GATE TIP (* Extended Tip Length)

TIP DIMENSIONS			
PART NUMBER	DIMENSION "T"	DIMENSION "L"	DIMENSION "C"
PID10001	14.00	6.00	9.00
PID10002	18.00	6.00	9.00
PID10002-1	1.00***	.236"	.354"
PID10003	14.00	24.00	27.00*
PID10004	18.00	24.00	27.00*
PID10004-1	1.00***	.945"	1.063"*

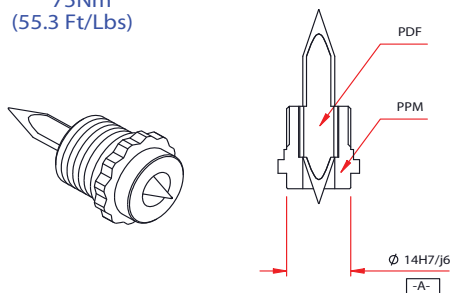
RING GATE TIP (* Extended Tip Length)



TIP DIMENSIONS						
ASSEMBLY	ASSEMBLY COMPONENTS		MATERIAL	DIMENSION "T"	DIMENSION "O"	DIMENSION "L"
	NEEDLE	RETAINER TIP				
PMA10101-A	PDF10602	PPM10601	ABRASION RESISTANT NEEDLE	14.00	2.00	6.00
PMA10102-A		PPM10602		14.00	2.50	
PMA10103-A		PPM10603		18.00	2.00	
PMA10104-A		PPM10604		18.00	2.50	
PMA10105-A		PPM10605		14.00	2.00	24.00 *
PMA10106-A		PPM10606		14.00	2.50	
PMA10107-A		PPM10607		18.00	2.00	
PMA10108-A		PPM10608		18.00	2.50	
PMA10109-A	PDF10802	PPM10601	STANDARD NEEDLE (COATED IN "Ni")	14.00	2.00	6.00
PMA10110-A		PPM10602		14.00	2.50	
PMA10111-A		PPM10603		18.00	2.00	
PMA10112-A		PPM10604		18.00	2.50	
PMA10113-A		PPM10605		14.00	2.00	24.00 *
PMA10114-A		PPM10606		14.00	2.50	
PMA10115-A		PPM10607		18.00	2.00	
PMA10116-A		PPM10608		18.00	2.50	

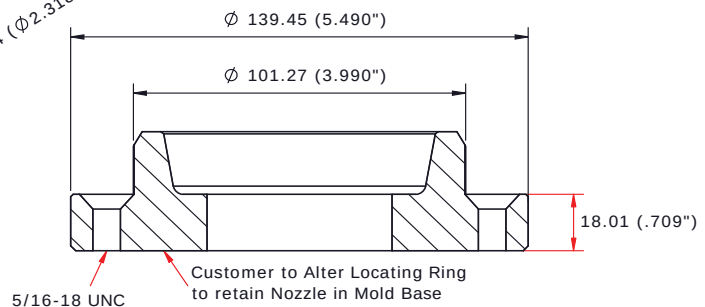
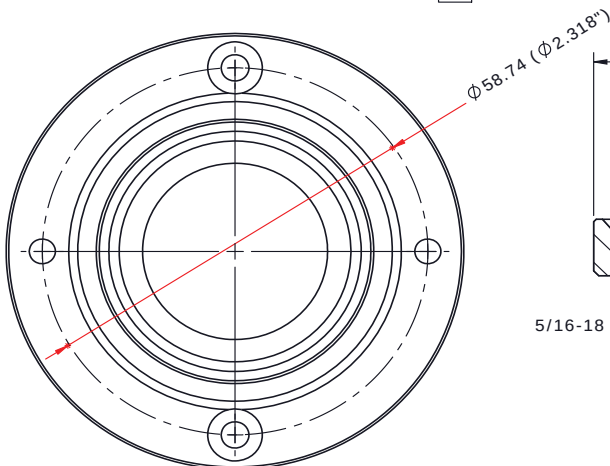
TORQUE SPECIFICATION

75Nm
(55.3 Ft/Lbs)



POINT GATE TIP

ASSEMBLY	POINT GATE COMPONENTS		
	NEEDLE	RETAINER TIP	MATERIAL
PVM10008-A	PDF10602	PPM10609	ABRASION RESISTANT NEEDLE
PVM10009-A	PDF10802	PPM10609	STANDARD NEEDLE (COATED IN "Ni")



LOCATING RINGS

Part Number	Nozzle Type
PML-500	STANDARD
PML-500H	HIGH PERFORMANCE

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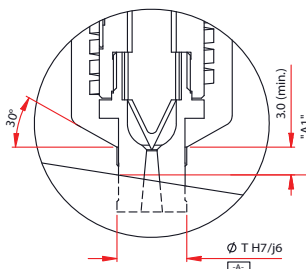


GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 2.0	Ø 5.00	5.29	1.28
Ø 2.2		5.19	1.32
Ø 2.4		5.09	1.36
Ø 2.6		4.99	1.42
Ø 2.8		6.10	1.47
Ø 3.0	Ø 6.00	6.00	1.53
Ø 3.2		5.90	1.60
Ø 3.4		5.80	1.68
Ø 3.6		8.11	1.78
Ø 3.8		8.01	1.88
Ø 4.0	Ø 8.00	7.91	2.01
Ø 4.5		7.66	2.49

RADIUS CODE	DIMENSION "R"
...-R050	1/2"
...-R075	3/4"

BUSHING THERMAL EXPANSION " ΔL " = $L \times 0.0000064 \times (\text{Setpoint } ^\circ\text{F} - 68^\circ\text{F})$

SPRUE GATE TIP



Polimold® Polimax® 800 Series Standard Hot Sprue Bushing

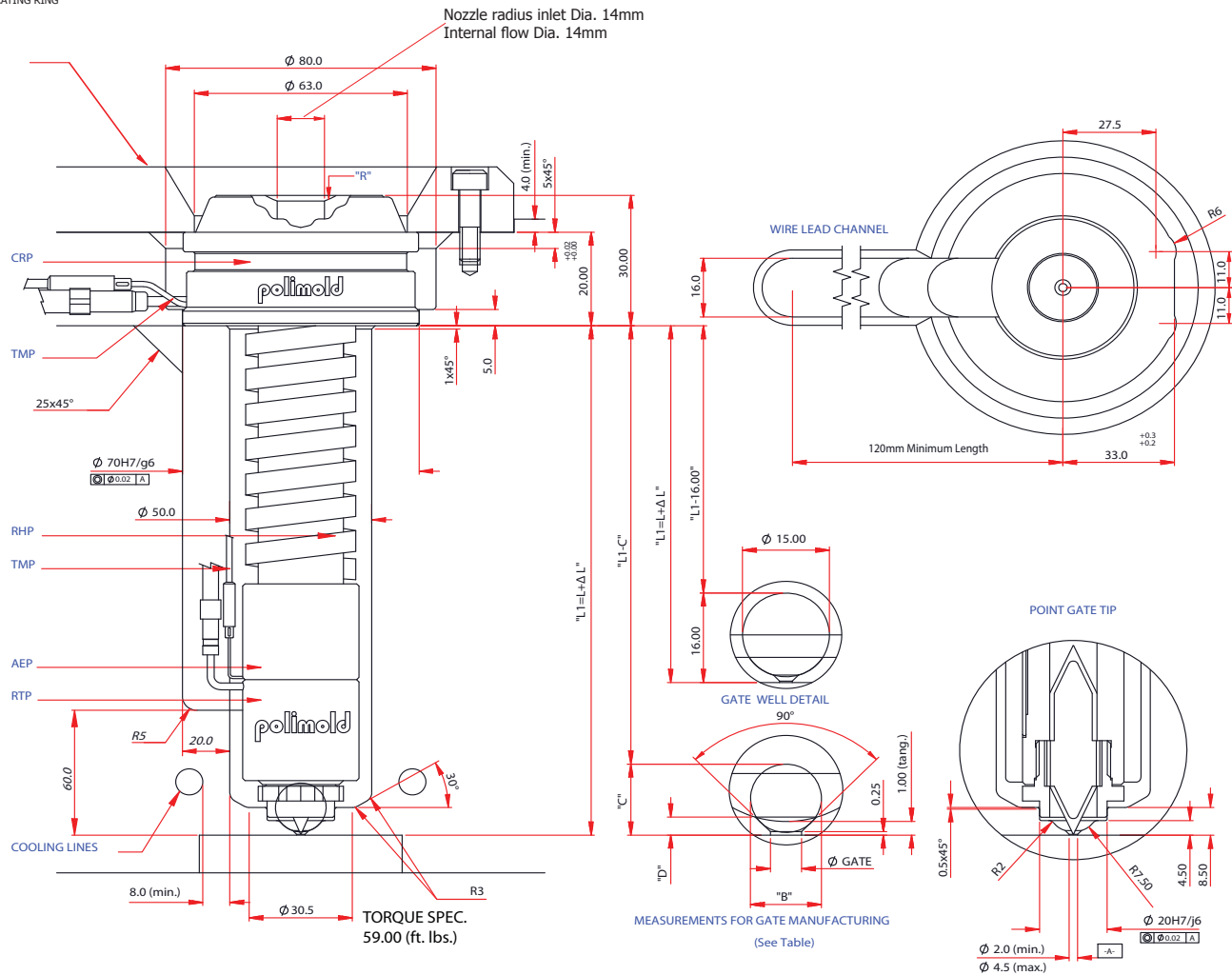


NOTE: THIS HOT SPRUE BUSHING REQUIRES 2 ZONES OF CONTROL

Recommended for processing resins under 500°F

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CUSTOMER TO SUPPLY
LOCATING RING



ASSEMBLY PART NUMBER	DIMENSION "L"	NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS							
		COMPONENTS							
		NOZZLE BODY	NOZZLE BODY HEATER	HEATER REFLECTOR	WATTS	THERMOCOUPLE	LOWER NOZZLE BODY HEATER	WATTS	NOZZLE BODY SPACER RING
HDP14325-A-R...	325.00	CDP14325	RHP14220	TUBO14220	900W	TMP01220			
HDP14375-A-R...	375.00	CDP14375	RHP14270	TUBO14270	1100W	TMP01360	RTP14045	610W	AEP14603
HDP14425-A-R...	425.00	CDP14425	RHP14320	TUBO14320	1100W	TMP01400			
HDP14475-A-R...	475.00	CDP14475	RHP14370	TUBO14370	1100W	TMP01460			

Ex: HDP14075-R075

BUSHING THERMAL EXPANSION " ΔL " = $L \times 0.0000064 \times (\text{Setpoint } ^\circ\text{F} - 68^\circ\text{F})$

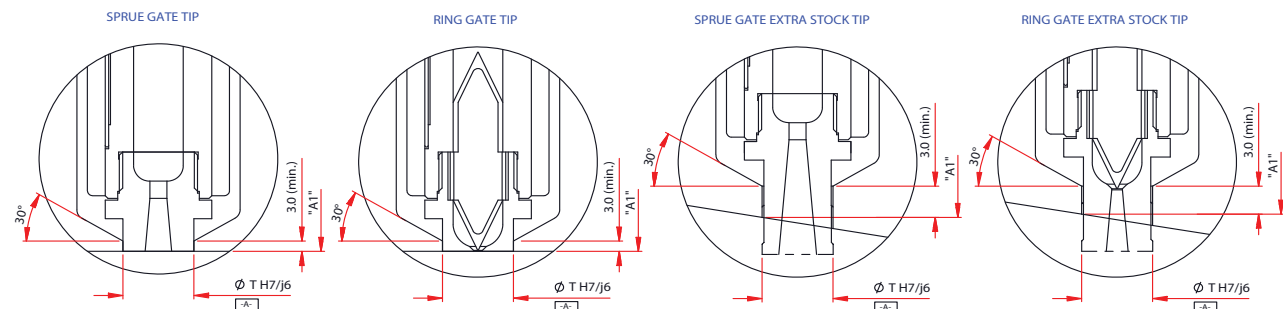
(SPHERICAL RADIUS 3/4")

RADIUS CODE	DIMENSION "R"
...-R050	1/2"
...-R075	3/4"

TABLE FOR GATE MANUFACTURING

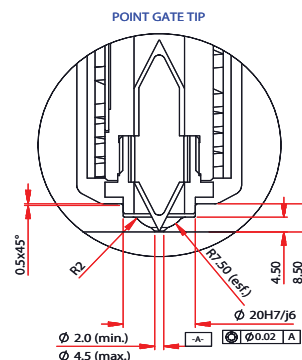
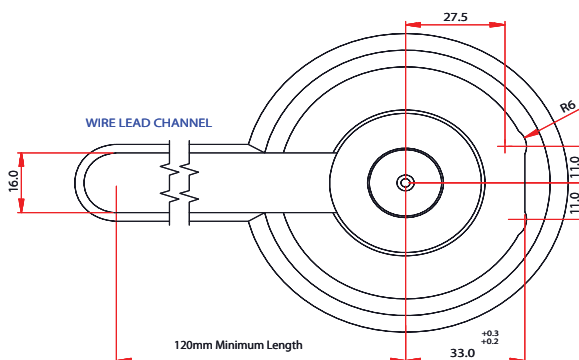
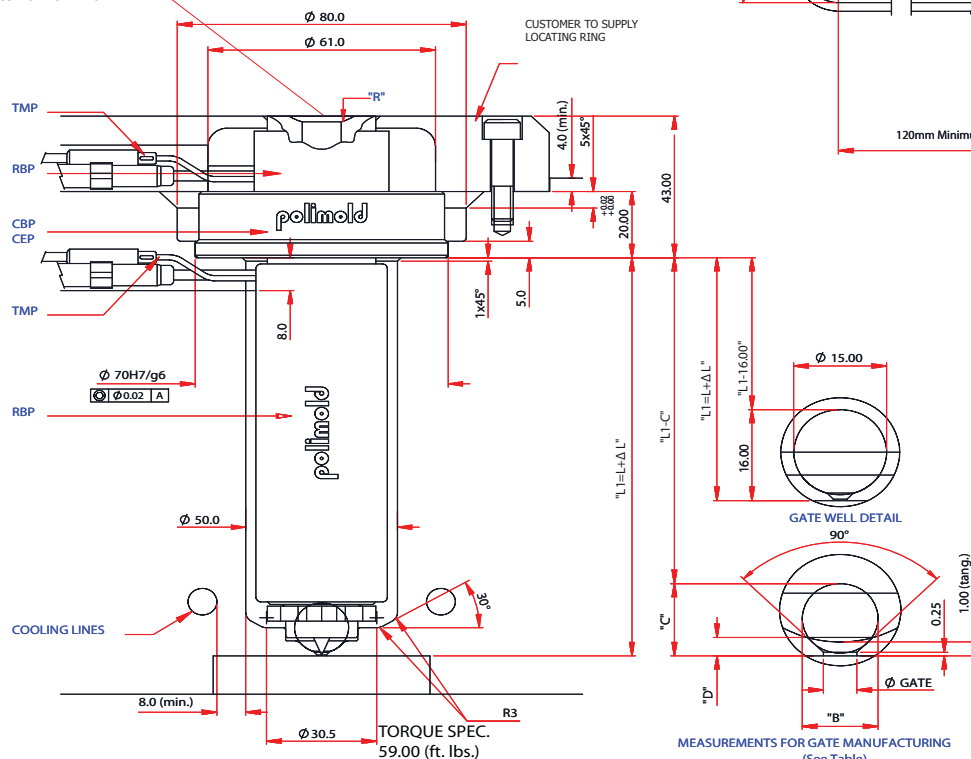
GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 2.0		5.29	1.28
Ø 2.2		5.19	1.32
Ø 2.4	Ø 5.00	5.09	1.36
Ø 2.6		4.99	1.42
Ø 2.8		6.10	1.47
Ø 3.0	Ø 6.00	6.00	1.53
Ø 3.2		5.90	1.60
Ø 3.4		5.80	1.68
Ø 3.6		8.11	1.78
Ø 3.8	Ø 8.00	8.01	1.88
Ø 4.0		7.91	2.01
Ø 4.5		7.66	2.49

TIP OPTIONS



NOTE: THIS HOT SPRUE BUSHING REQUIRES 2 ZONES OF CONTROL

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MEASUREMENTS FOR GATE MANUFACTURING
(See Table)

TABLE FOR GATE MANUFACTURING

NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS								
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS						
		NOZZLE BODY	HEAD BUSHING	NOZZLE BODY HEATER	WATTS	THERMOCOUPLE	HEAD HEATER	WATTS
EDP14090-R...	90.00	CEP14090	CBP14001	RBP14070	850W	TMP01100	RBP14020	260W
EDP14115-R...	115.00	CEP14115		RBP14095	1100W	TMP01140		
EDP14140-R...	140.00	CEP14140		RBP14120	1100W	TMP01160		
EDP14165-R...	165.00	CEP14165		RBP14145	1300W	TMP01180		
EDP14190-R...	190.00	CEP14190		RBP14170	1300W	TMP01200		

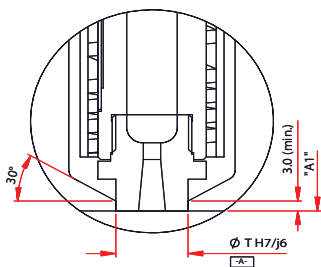
(SPHERICAL RADIUS 3/4")

BUSHING THERMAL EXPANSION " ΔL " = $L \times 0.0000064 \times (\text{Setpoint } ^\circ\text{F} - 68^\circ\text{F})$

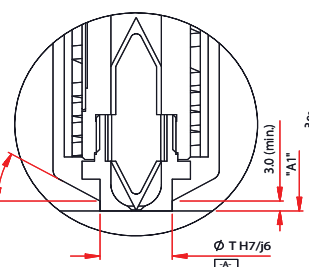
RADIUS CODE	DIMENSION "R"
...-R050	1/2"
-R075	3/4"

GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 2.0	Ø 5.00	5.29	1.28
Ø 2.2		5.19	1.32
Ø 2.4		5.09	1.36
Ø 2.6		4.99	1.42
Ø 2.8		6.10	1.47
Ø 3.0	Ø 6.00	6.00	1.53
Ø 3.2		5.90	1.60
Ø 3.4		5.80	1.68
Ø 3.6	Ø 8.00	8.11	1.78
Ø 3.8		8.01	1.88
Ø 4.0		7.91	2.01
Ø 4.5		7.66	2.49

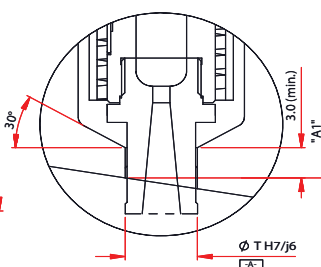
SPRUE GATE TIP



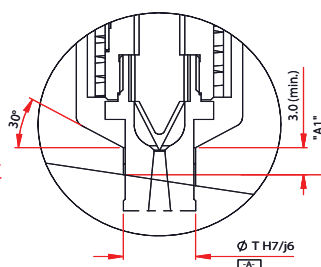
RING GATE TIP



SPRUE GATE EXTRA STOCK TIP



RING GATE EXTRA STOCK TIP



Polimold® Polimax® 800 Series High Performance Hot Sprue Bushing



Recommended for processing resins over 500°F

NOTE: THIS HOT SPRUE BUSHING REQUIRES 4 ZONES OF CONTROL

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Nozzle radius inlet Dia. 14mm
Internal flow Dia. 14mm

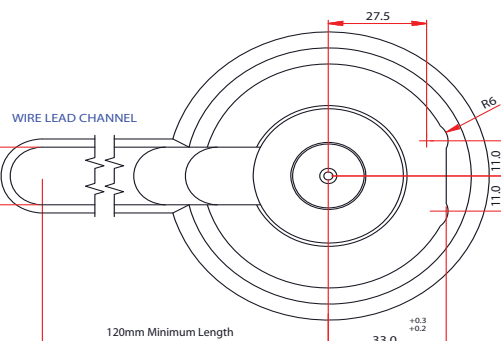
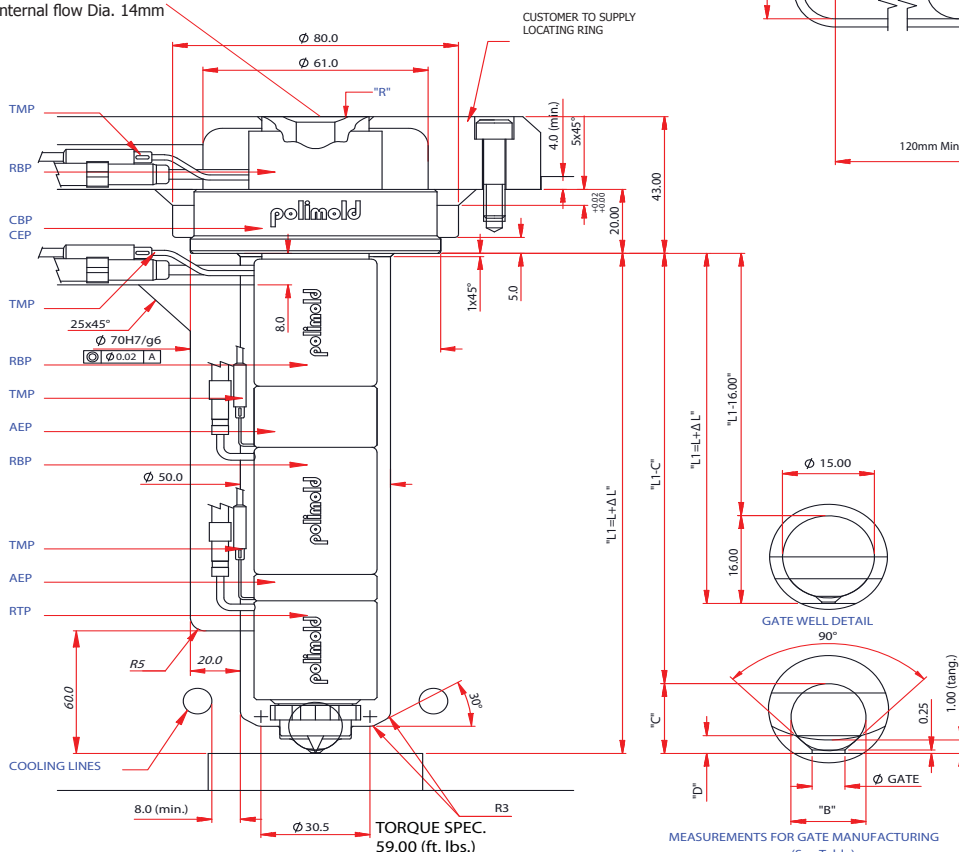
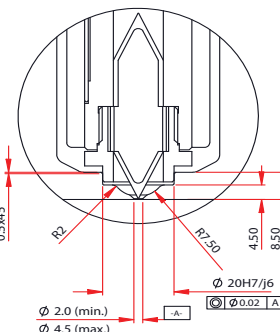


TABLE FOR GATE MANUFACTURING

GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 2.0	Ø 5.00	5.29	1.28
Ø 2.2		5.19	1.32
Ø 2.4		5.09	1.36
Ø 2.6		4.99	1.42
Ø 2.8	Ø 6.00	6.10	1.47
Ø 3.0		6.00	1.53
Ø 3.2		5.90	1.60
Ø 3.4		5.80	1.68
Ø 3.6	Ø 8.00	8.11	1.78
Ø 3.8		8.01	1.88
Ø 4.0		7.91	2.01
Ø 4.5		7.66	2.49

POINT GATE TIP



MEASUREMENTS FOR GATE MANUFACTURING
(See Table)

NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS														
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS												
		NOZZLE BODY	HEAD BUSHING	NOZZLE BODY HEATER			QUANTITY	HEAD RING SPACER	HEAD HEATER	WATTS	HEATER REFLECTOR	WATTS	RING SPACER	THERMOCOUPLE
				HEATER	WATTS	THERMOCOUPLE								
EDP14350-R...	350.00	CEP14350	CBP14001	RBP14120	1100W	TMP01160	02	AEP14602	RBP14020	260W	RTP14045	610W	AEP14601	TMP01080
EDP14400-R...	400.00	CEP14400		RBP14145	1300W	TMP01180								
EDP14450-R...	450.00	CEP14450		RBP14170	1300W	TMP01200								

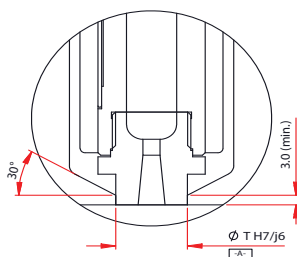
Ex: EDP14350-R075

(SPHERICAL RADIUS 3/4")

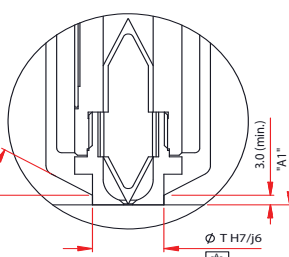
BUSHING THERMAL EXPANSION $\Delta L = L \times 0.0000064 \times (\text{Setpoint } ^\circ\text{F} - 68^\circ\text{F})$

TIP OPTIONS

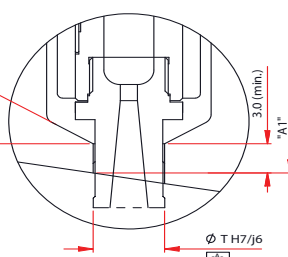
SPRUE GATE TIP



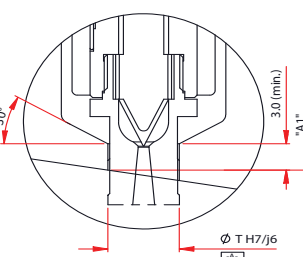
RING GATE TIP



SPRUE GATE EXTRA STOCK TIP



RING GATE EXTRA STOCK TIP



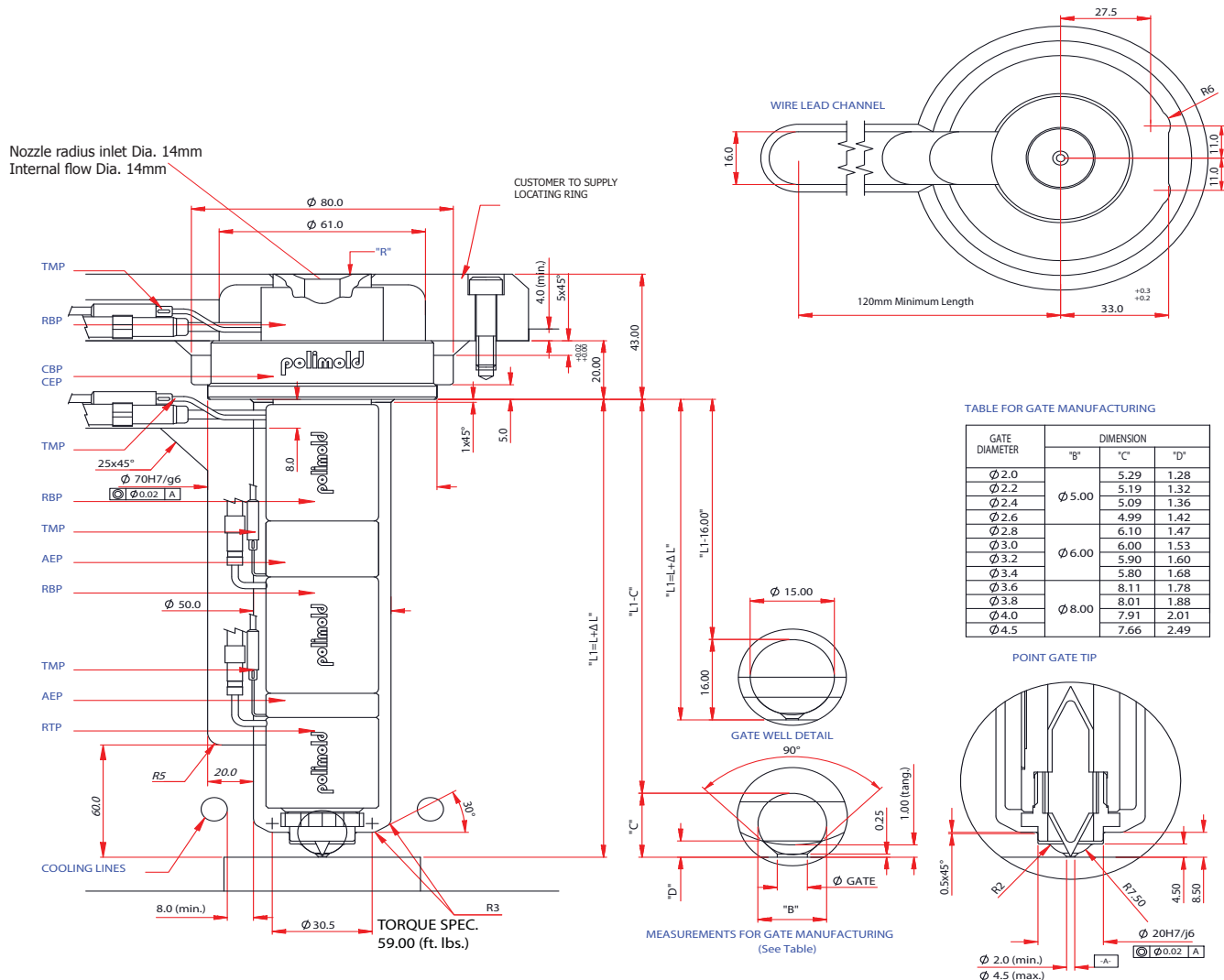
Polimold® Polimax® 800 Series High Performance Hot Sprue Bushing



Recommended for processing resins over 500°F

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NOTE: THIS HOT SPRUE BUSHING REQUIRES 4 ZONES OF CONTROL



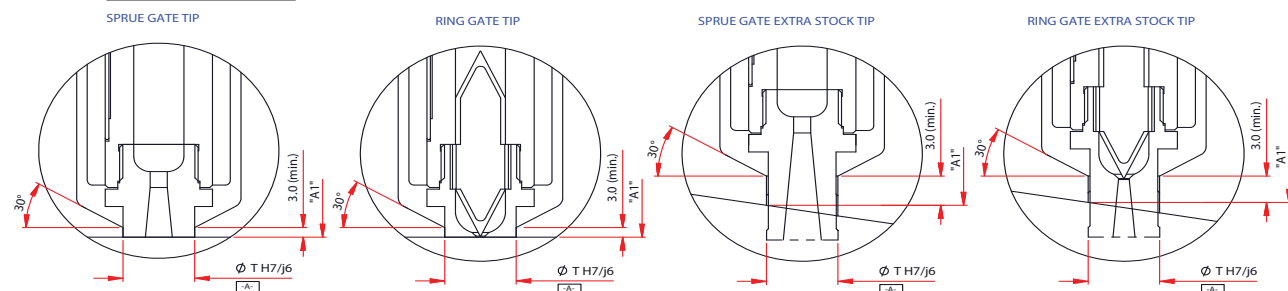
NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS														
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS												
		NOZZLE BODY	HEAD BUSHING	NOZZLE BODY HEATER				HEAD RING SPACER	HEAD HEATER	WATTS	HEATER REFLECTOR	WATTS	RING SPACER	THERMOCOUPLE
				HEATER	WATTS	THERMOCOUPLE	QUANTITY							
EDP14350-R...	350.00	CEP14350	CBP14001	RBP14120	1100W	TMP01160	02	AEP14602	RBP14020	260W	RTP14045	610W	AEP14601	TMP01080
EDP14400-R...	400.00	CEP14400		RBP14145	1300W	TMP01180								
EDP14450-R...	450.00	CEP14450		RBP14170	1300W	TMP01200								

Ex: EDP14350-R075

(SPHERICAL RADIUS 3/4")

BUSHING THERMAL EXPANSION "Δ L" = L x 0.0000064 x (Setpoint °F - 68°F)

TIP OPTIONS

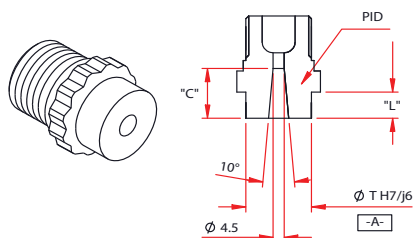


Polimold® Polimax® 800 Series Tips



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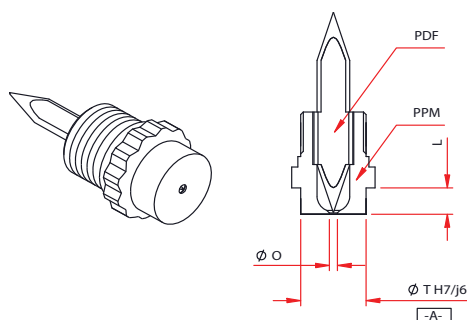
SPRUE GATE TIP (*Extended Tip Length)



TIP DIMENSIONS			
PART NUMBER	DIMENSION "T"	DIMENSION "L"	DIMENSION "C"
PID14001	20.00	9.00	13.00
PID14002	30.00	9.00	13.00
PID14003	20.00	27.50	31.00*
PID14004	30.00	27.50	31.00*

1" T Dimension available upon request

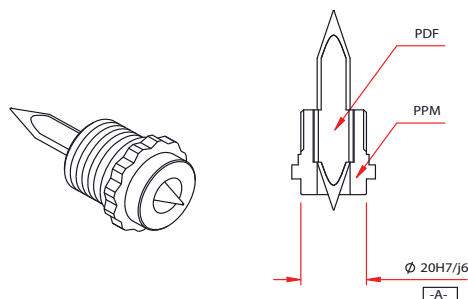
RING GATE TIP (*Extend Tip Length)



TIP DIMENSIONS						
ASSEMBLY	ASSEMBLY COMPONENTS		MATERIAL	DIMENSION		
	NEEDLE	RETAINER TIP		"T"	"O"	"L"
PMA14009-A	PDF14502	PPM14601	HIGH PERFORMANCE	20.00	2.50	9.00
PMA14010-A		PPM14602		20.00	3.00	
PMA14011-A		PPM14603		30.00	2.50	
PMA14012-A		PPM14604		30.00	3.00	
PMA14013-A		PPM14605		20.00	2.50	27.50*
PMA14014-A		PPM14606		20.00	3.00	
PMA14015-A		PPM14607		30.00	2.50	
PMA14016-A		PPM14608		30.00	3.00	
PMA14109-A	PDF14802	PPM14601	STANDARD NEEDLE (COATED IN "Ni")	20.00	2.50	9.00
PMA14110-A		PPM14602		20.00	3.00	
PMA14111-A		PPM14603		30.00	2.50	
PMA14112-A		PPM14604		30.00	3.00	
PMA14113-A		PPM14605		20.00	2.50	27.50*
PMA14114-A		PPM14606		20.00	3.00	
PMA14115-A		PPM14607		30.00	2.50	
PMA14116-A		PPM14608		30.00	3.00	

TORQUE SPECIFICATION

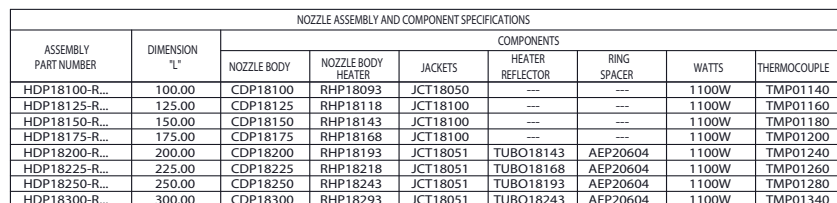
80 Nm
(59 Ft/Lbs)



POINT GATE TIP

ASSEMBLY	POINT GATE COMPONENTS		
	NEEDLE	RETAINER	MATERIAL
PVM14002-A	PDF14502	PPM14609	HIGH PERFORMANCE NEEDLE
PVM14009-A	PDF14802	PPM14609	STANDARD NEEDLE (COATED IN "Ni")

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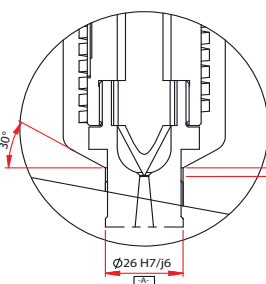


RADIUS CODE	DIMENSION "R"
...-R050	1/2"
...-R075	3/4"

GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 3.0	Ø 6.00	6.09	1.33
Ø 3.5		5.84	1.43
Ø 4.0		5.59	1.56
Ø 4.5	Ø 10.00	10.17	1.71
Ø 5.0		9.92	1.91
Ø 5.5		9.67	2.17
Ø 6.0		9.42	2.55
Ø 6.5		9.17	3.33

(SPHERICAL RADIUS 3/4")

SPRUE GATE TIP



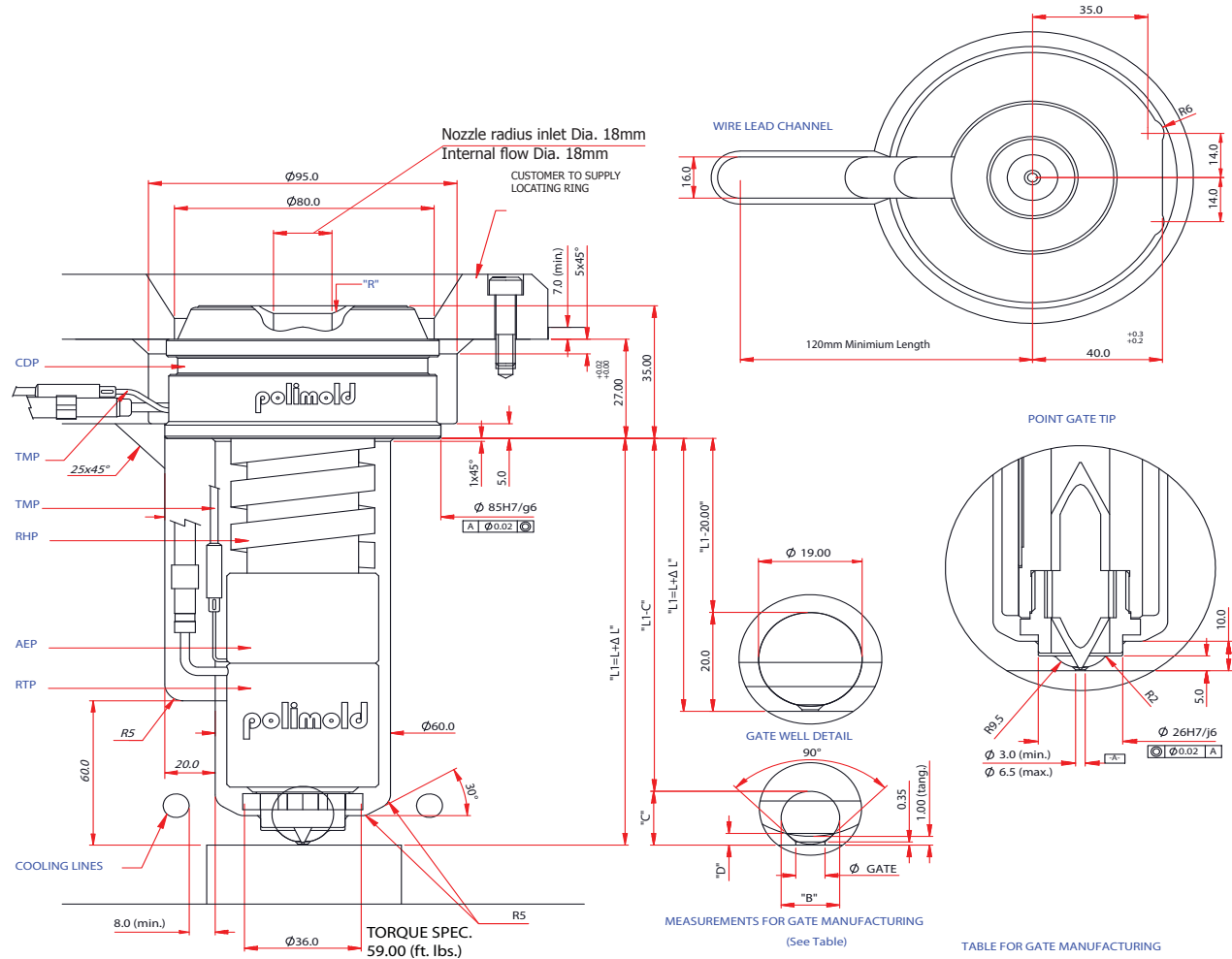
Polimold® Polimax® 1000 Series Standard Hot Sprue Bushing



Recommended for processing resins under 500°F

polimold
INDUSTRIAL S.A.

NOTE: THIS HOT SPRUE BUSHING REQUIRES 2 ZONES OF CONTROL



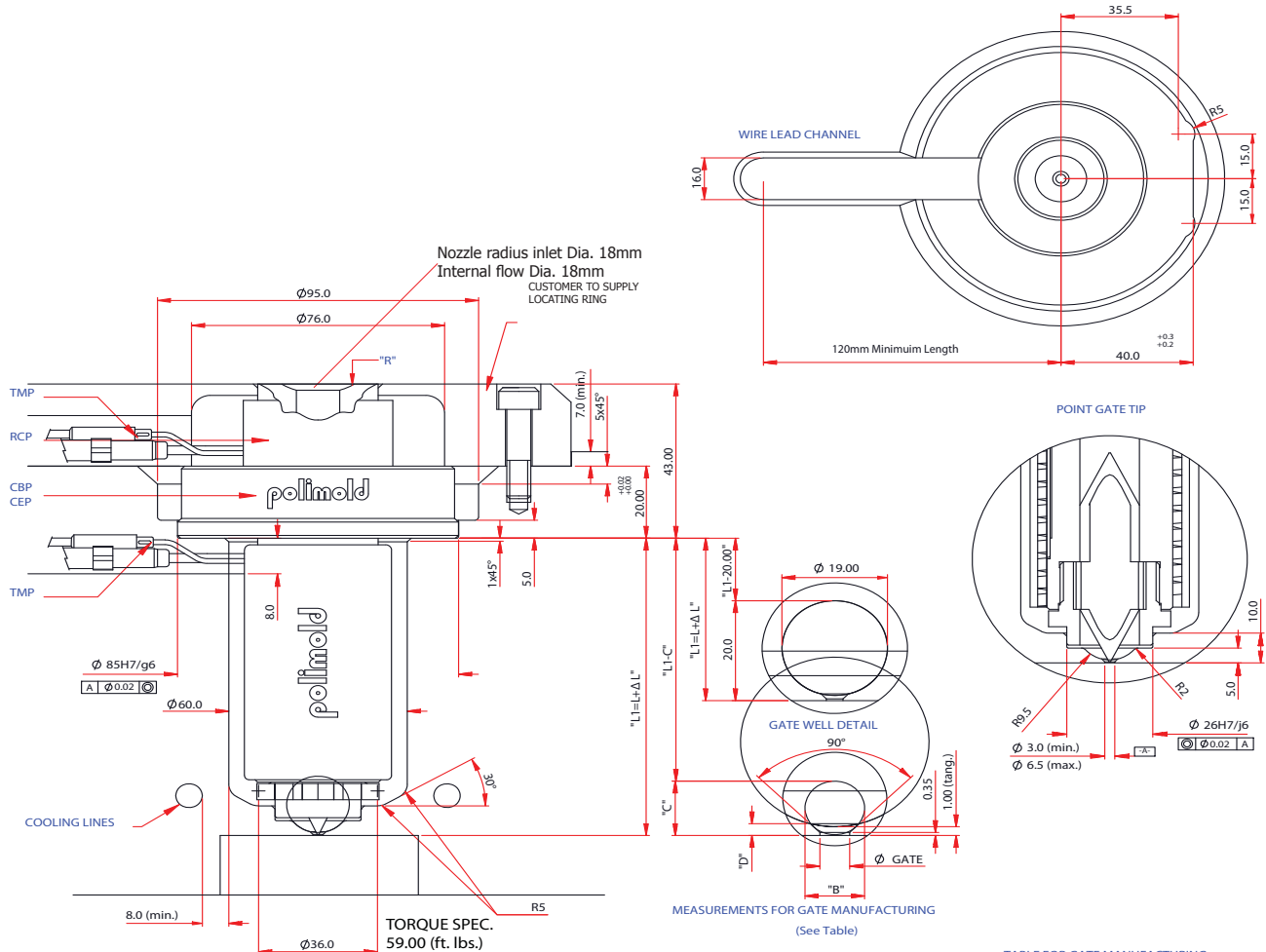
Polimold® Polimax® 1000 Series High Performance Hot Sprue Bushing



Recommended for processing resins over 500°F

polimold
INDUSTRIAL S.A.

NOTE: THIS HOT SPRUE BUSHING REQUIRES 2 ZONES OF CONTROL



MEASUREMENTS FOR GATE MANUFACTURING
(See Table)

TABLE FOR GATE MANUFACTURING

GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 3.0	6.09	1.33	
Ø 3.5	5.84	1.43	
Ø 4.0	5.59	1.56	
Ø 4.5	10.17	1.71	
Ø 5.0	9.92	1.91	
Ø 5.5	9.67	2.17	
Ø 6.0	9.42	2.55	
Ø 6.5	9.17	3.32	

NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS							
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS					
		NOZZLE BODY	HEAD BUSHING	NOZZLE BODY HEATER	WATTS	THERMOCOUPLE	HEAD HEATER
EDP18115-R...	115.00	CEP18115	CBP18001	RBP18093	1100W	TMP01120	RCP38020
EDP18140-R...	140.00	CEP18140		RBP18118	1100W	TMP01160	
EDP18165-R...	165.00	CEP18165		RBP18143	1300W	TMP01180	
EDP18190-R...	190.00	CEP18190		RBP18168	1300W	TMP01200	

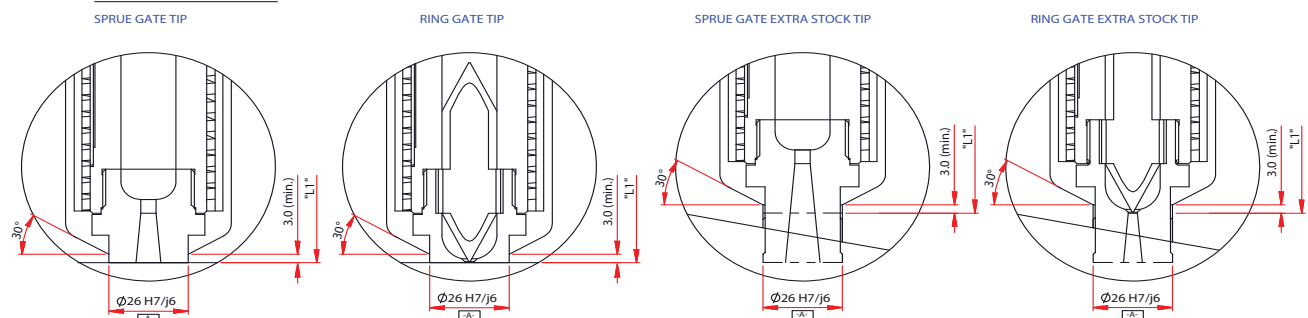
Ex: EDP18115-R075

(SPHERICAL RADIUS 3/4")

RADIUS CODE	DIMENSION "R"
...R050	1/2"
...R075	3/4"

BUSHING THERMAL EXPANSION $\Delta L = L \times 0.0000064 \times (\text{Setpoint } ^\circ\text{F} - 68^\circ\text{F})$

TIP OPTIONS



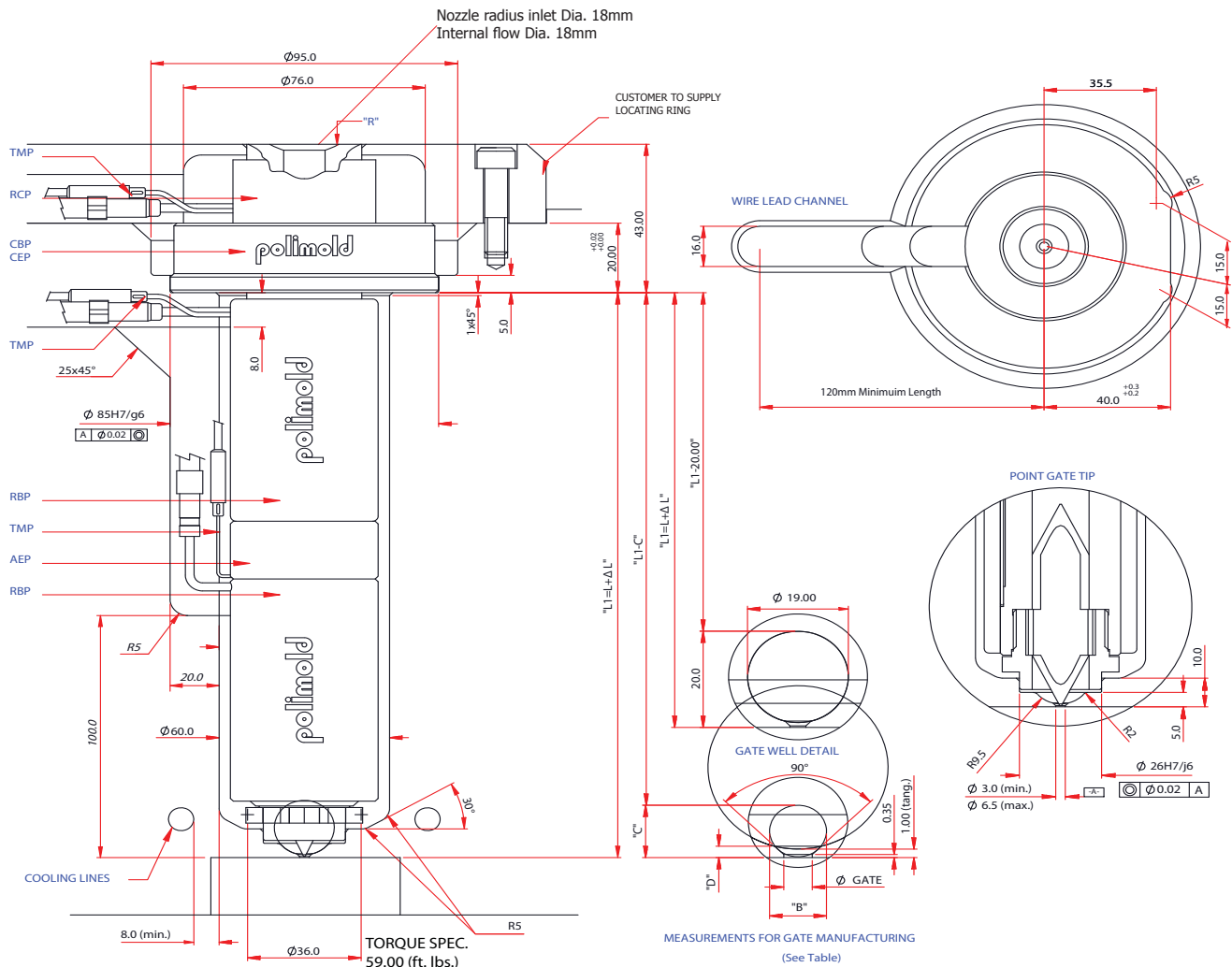
Polimold® Polimax® 1000 Series

High Performance Hot Sprue Bushing



Recommended for processing resins over 500°F
NOTE: THIS HOT SPRUE BUSHING REQUIRES 3 ZONES OF CONTROL

polimold
INDUSTRIAL S.A.



ASSEMBLY PART NUMBER	DIMENSION "L"	NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS							
		NOZZLE BODY	HEAD BUSHING	COMPONENTS				NOZZLE BODY RING SPACER	HEAD HEATER
EDP18250-R...	250.00	CEP18250	CBP18001	NOZZLE BODY HEATER	WATTS	THERMOCOUPLE	QUANTITY	NOZZLE BODY RING SPACER	HEAD HEATER
EDP18300-R...	300.00	CEP18300	CBP18001	RBP18093	1100W	TMP01120	02	AEP20602	RCP38020
				RBP18118	1100W	TMP01160			295W

Ex: EDP18300-R075

(SPHERICAL RADIUS 3/4")

BUSHING THERMAL EXPANSION "Δ L" = L x 0.0000064 x (Setpoint °F - 68°F)

RADIUS CODE	DIMENSION "R"
...R050	1/2"
...R075	3/4"

TABLE FOR GATE MANUFACTURING

GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 3.0	Ø 6.00	6.09	1.33
Ø 3.5		5.84	1.43
Ø 4.0		5.59	1.56
Ø 4.5		10.17	1.71
Ø 5.0		9.92	1.91
Ø 5.5	Ø 10.00	9.67	2.17
Ø 6.0		9.42	2.55
Ø 6.5		9.17	3.32

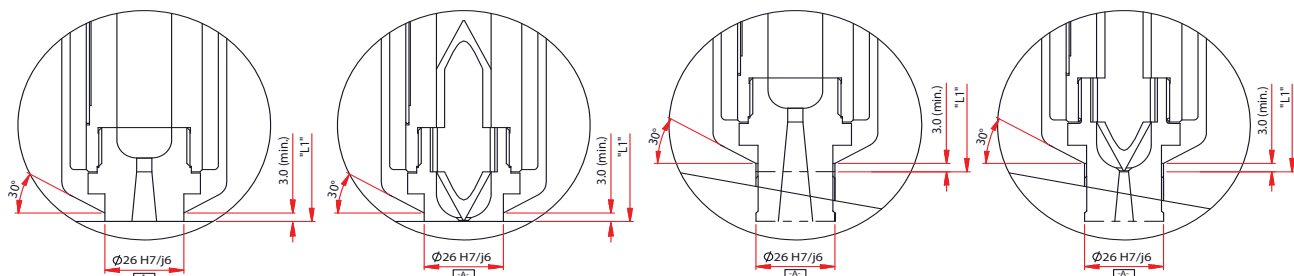
TIP OPTIONS

SPRUE GATE TIP

RING GATE TIP

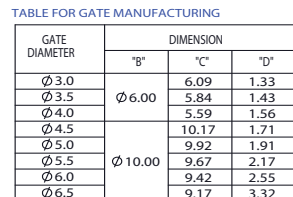
SPRUE GATE EXTRA STOCK TIP

RING GATE EXTRA STOCK TIP



NOTE: THIS HOT SPRUE BUSHING REQUIRES 4 ZONES OF CONTROL

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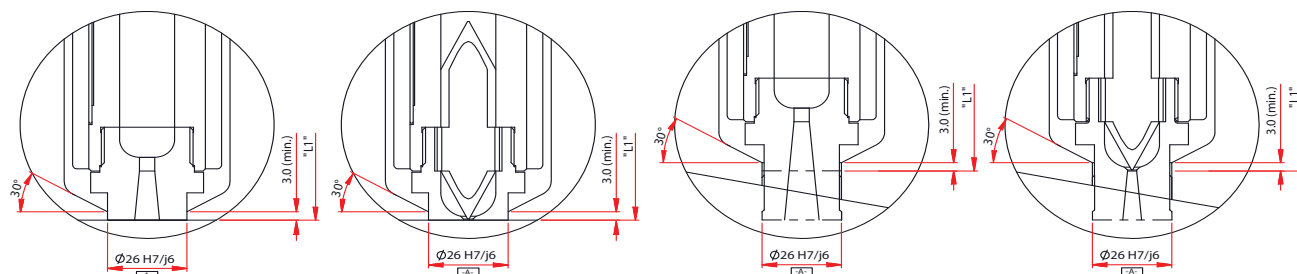


Ex: EDP18350-R075
(SPHERICAL RADIUS 3/4")

BUSHING THERMAL EXPANSION " ΔL " = $L \times 0.0000064 \times (\text{Setpoint } ^\circ\text{F} - 68^\circ\text{F})$

RADIUS CODE	DIMENSION "R"
...-R050	1/2"
...-R075	3/4"

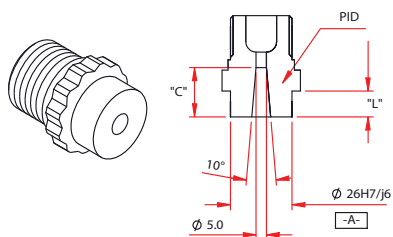
SPRUE GATE TIP



Polimold® Polimax® 1000 Series Tips



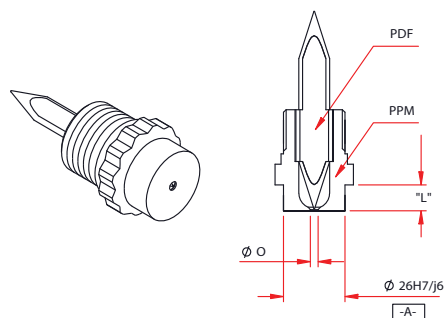
polimold
INDUSTRIAL S.A.



SPRUE GATE TIP (* Extended Tip Length)

TIP DIMENSIONS			
PART NUMBERS	DIMENSION "T"	DIMENSION "L"	DIMENSION "C"
PID18001	26.00	10.50	17.00
PID18002	26.00	28.50	35.00*

1" T Dimension available upon request

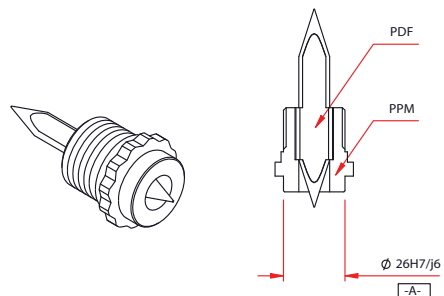


RING GATE TIP (* Extended Tip Length)

TIP DIMENSIONS					
ASSEMBLY	ASSEMBLY COMPONENTS		MATERIAL	DIMENSION	
	NEEDLE	RETAINER		"O"	"L"
PMA18005-A	PDF18502	PPM18601	HIGH PERFORMANCE NEEDLE	3.00	10.50
PMA18006-A		PPM18602		3.50	
PMA18007-A		PPM18603		3.00	
PMA18008-A		PPM18604		3.50	
PMA18105-A	PDF18802	PPM18601	STANDARD NEEDLE (COATED IN "Ni")	3.00	10.50
PMA18106-A		PPM18602		3.50	
PMA18107-A		PPM18603		3.00	
PMA18108-A		PPM18604		3.50	

TORQUE SPECIFICATION

80 Nm
(59 Ft/Lbs)



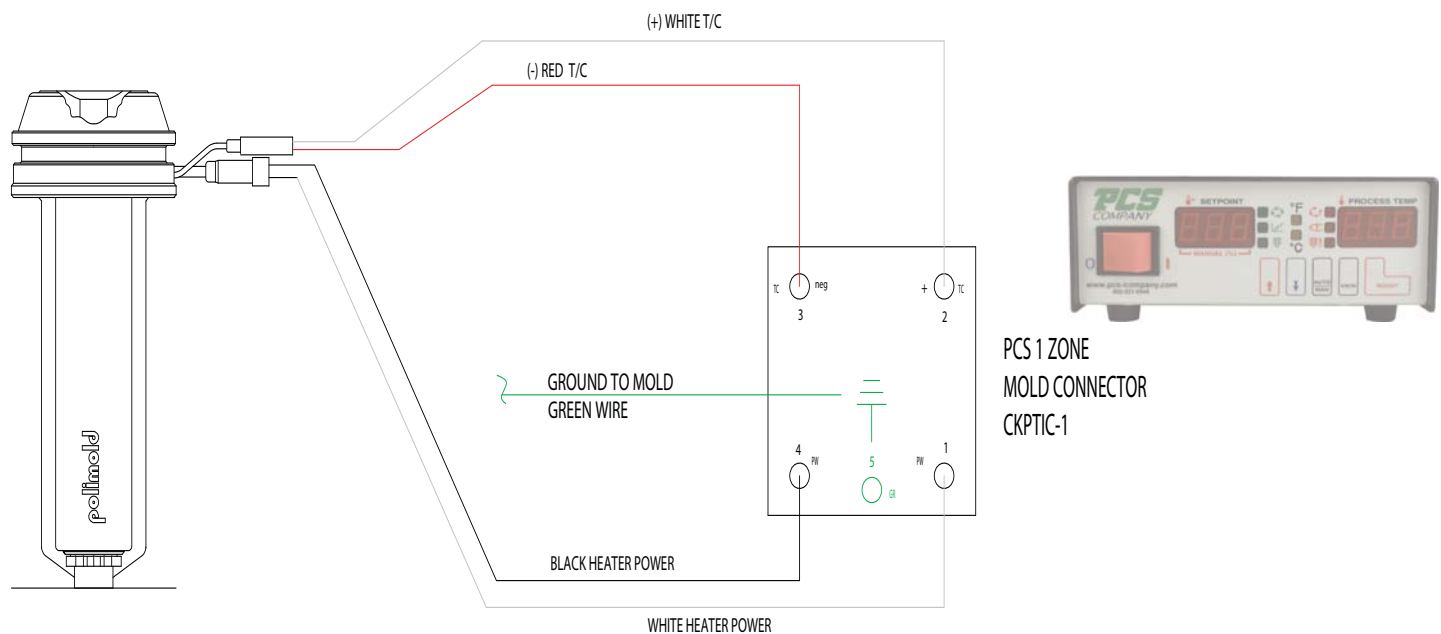
POINT GATE TIP

ASSEMBLY	POINT TIP COMPONENTS		
	NEEDLE	RETAINER	MATERIAL
PVM18002-A	PDF18502	PPM18609	HIGH PERFORMANCE NEEDLE
PVM18009-A	PDF18802	PPM18609	STANDARD NEEDLE (COATED IN "Ni")

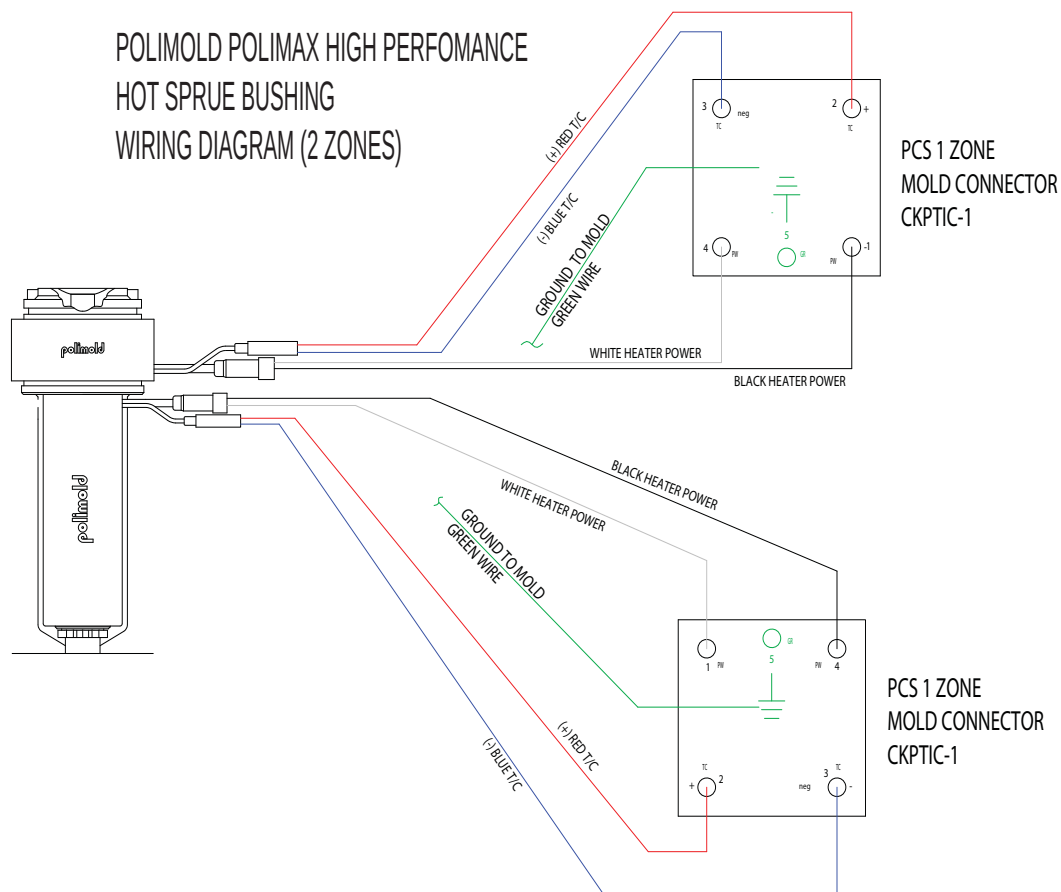
Polimold® Polimax® Hot Sprue Bushing Wiring Diagrams



POLIMOLD POLIMAX STANDARD
HOT SPRUE BUSHING
WIRING DIAGRAM (1 ZONE)



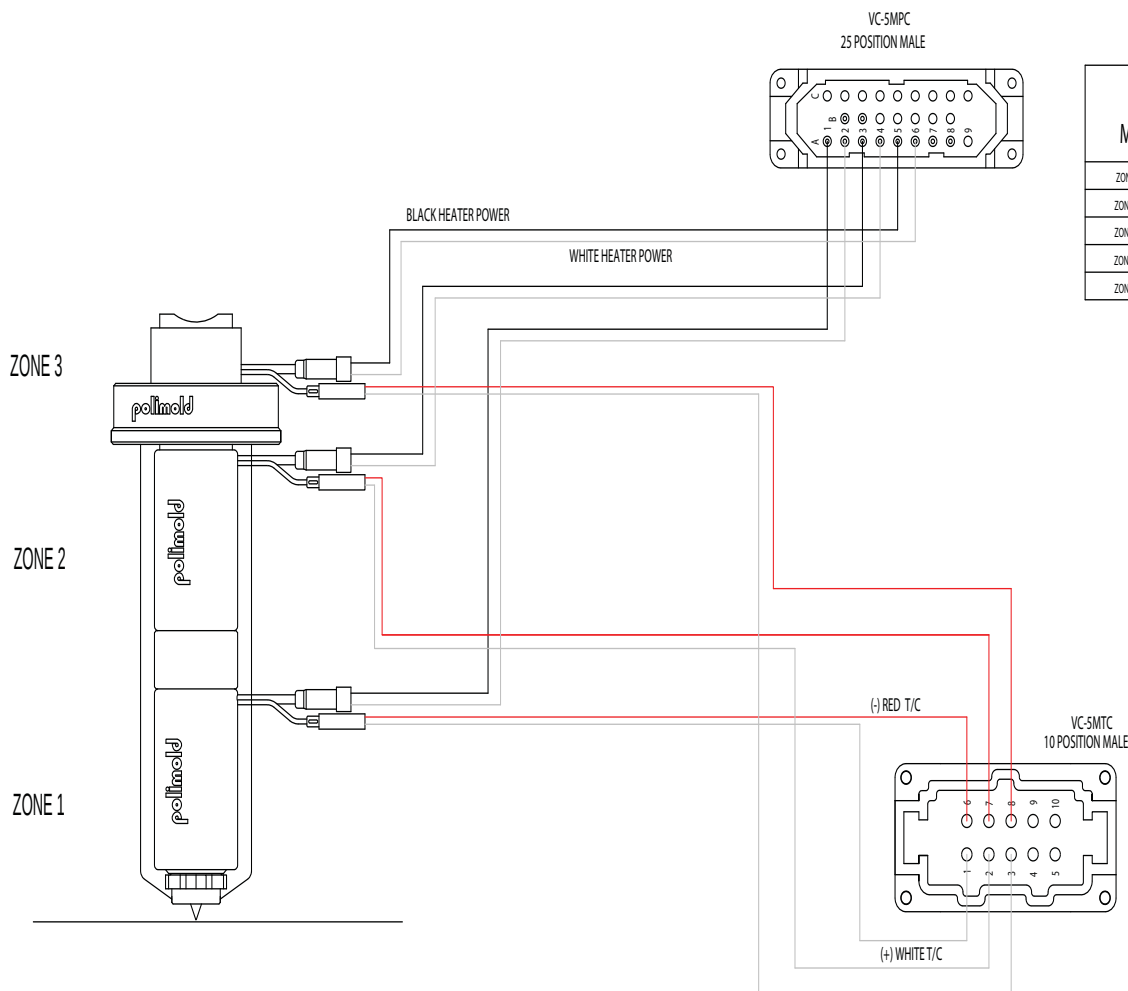
POLIMOLD POLIMAX HIGH PERFORMANCE
HOT SPRUE BUSHING
WIRING DIAGRAM (2 ZONES)



Polimold® Polimax® Hot Sprue Bushing Wiring Diagrams

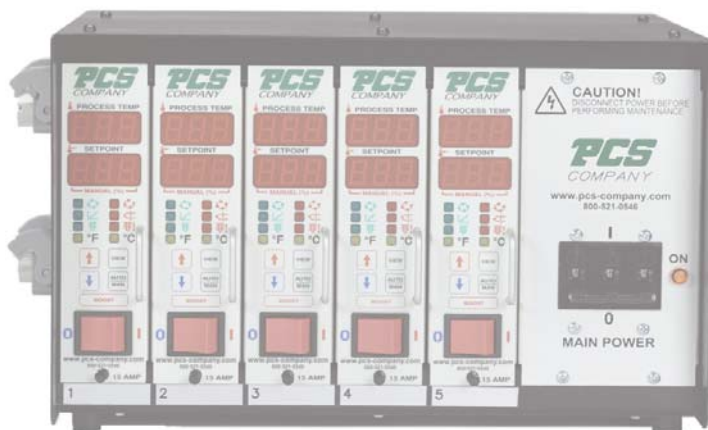


POLIMOLD 3 ZONE HOT SPRUE WIRING DIAGRAM



VC-5MPC MOLD POWER CONN		
ZONE #1	A1	A2
ZONE #2	A3	A4
ZONE #3	A5	A6
ZONE #4	A7	A8
ZONE #5	B2	B3

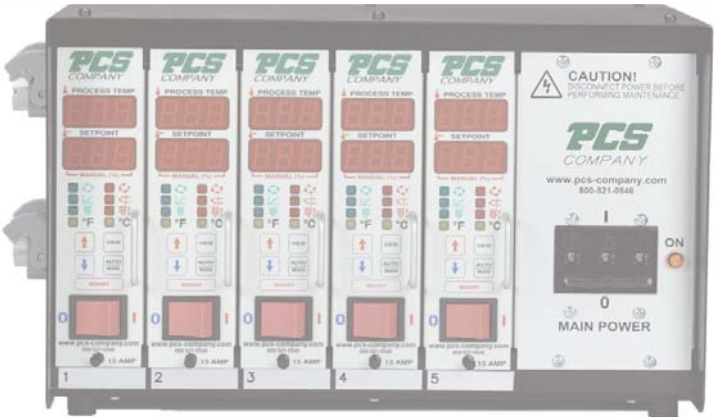
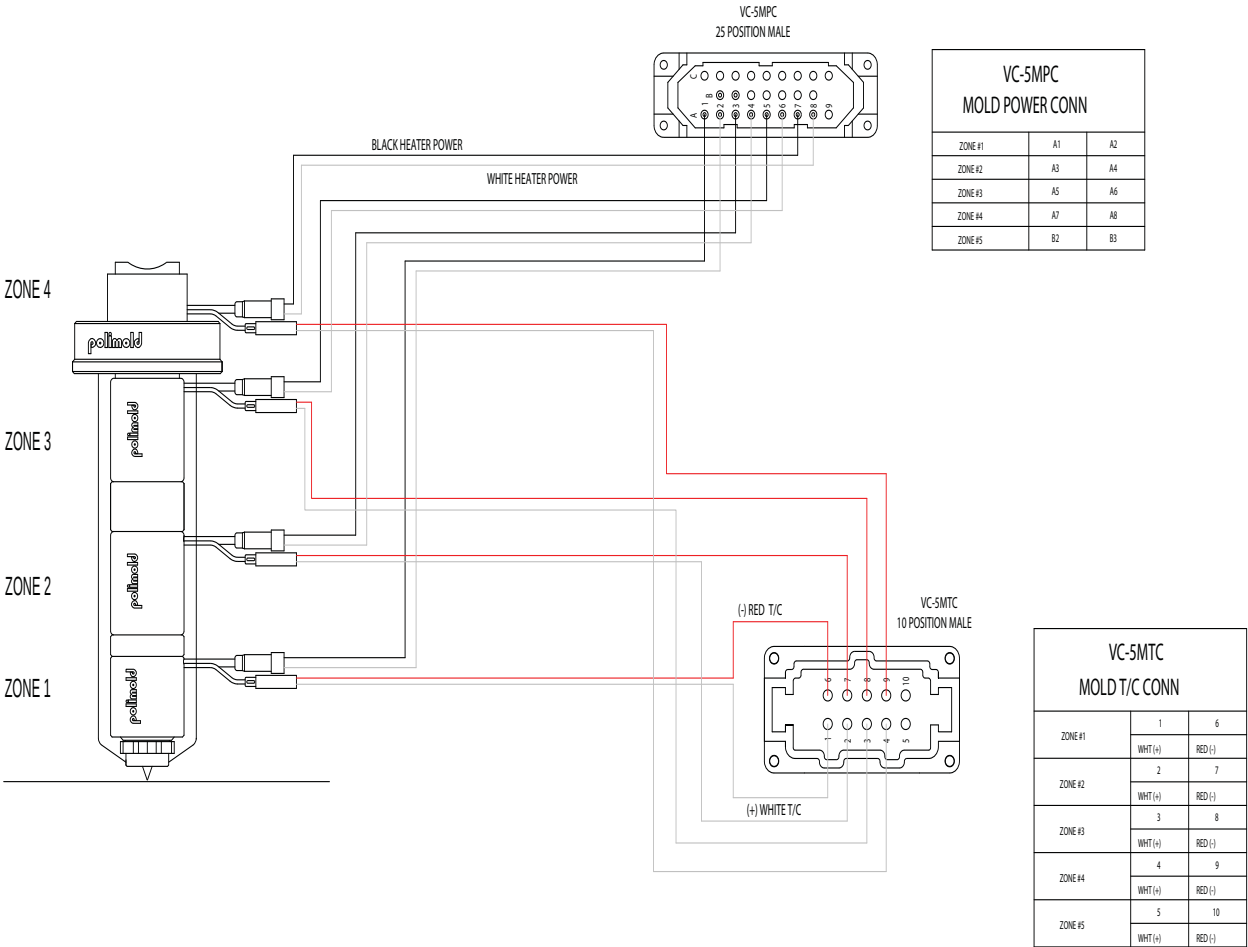
VC-5MTC MOLD T/C CONN		
ZONE #1	1	6
	WHT (+)	RED (-)
ZONE #2	2	7
	WHT (+)	RED (-)
ZONE #3	3	8
	WHT (+)	RED (-)
ZONE #4	4	9
	WHT (+)	RED (-)
ZONE #5	5	10
	WHT (+)	RED (-)



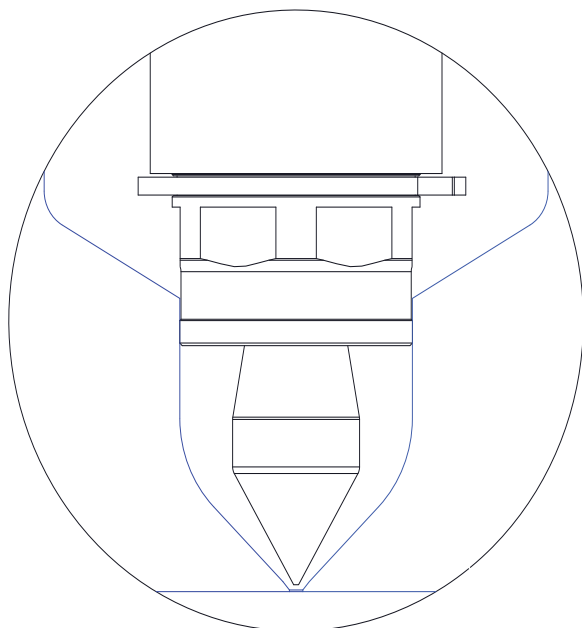
Polimold® Polimax® Hot Sprue Bushing Wiring Diagrams



POLIMOLD 4 ZONE HOT SPRUE WIRING DIAGRAM



Volastic® Hot Sprue Bushing Resin Selection Guide



A modern alternative to the DME® Medium and Jumbo Gate Mate® hot sprue bushings.

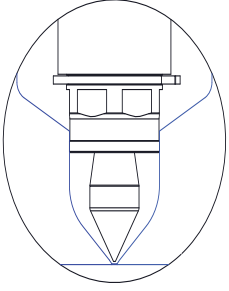
- Utilizes Volastic® tip technology
- Helps to prevent tip unscrewing
- Improves molded part cosmetics

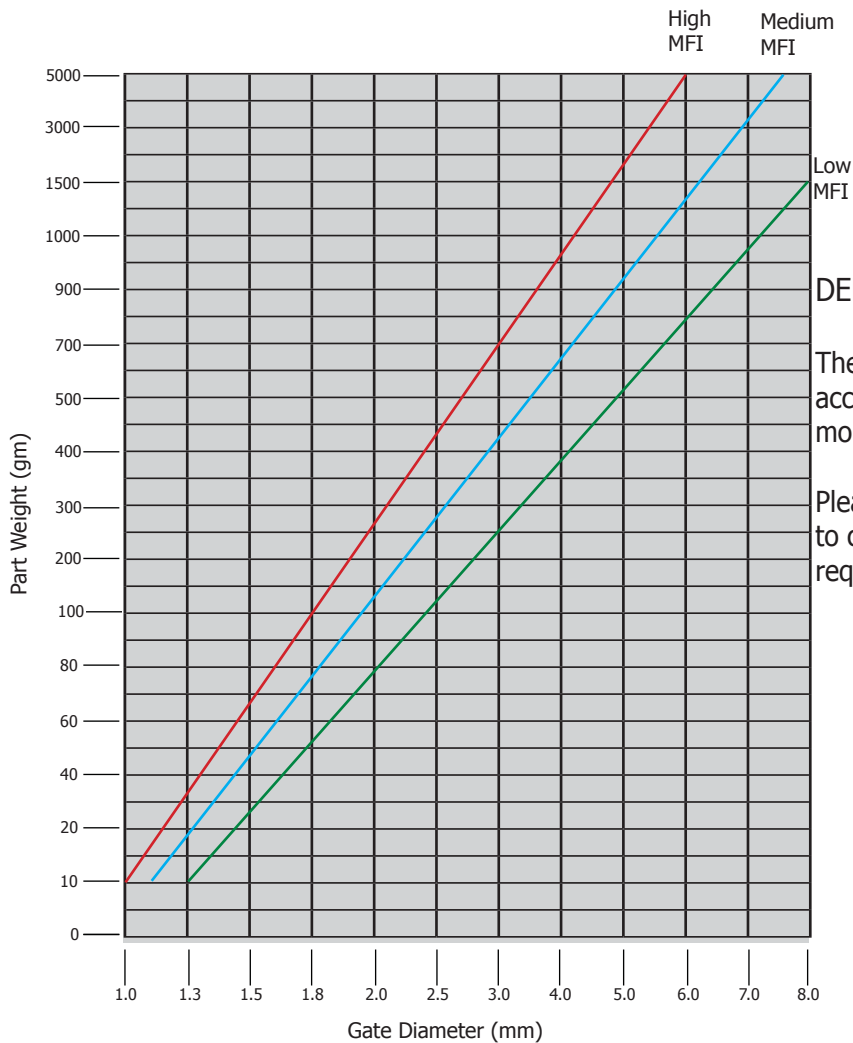
Suitable for high viscosity resins, engineering plastics and applications requiring optimum gate cosmetics with minimal gage vestige. Available with standard or wear resistant tips.

Nozzle	THERMOPLASTIC RESIN TYPE																			
	AMORPHOUS								SEMI-CRYSTALLINE											
	SB	PUR	PEI	PVC/FLEX	SAN	PS	PC	PPO	PE	PP	PEEK	PPS	PET	PBT	PA	TPE	POM	PMMA	ABS	TPO
	●	●	●	●	●	●	●	●	●	●	◆	●	●	●	●	●	●	■	●	●
● Green - Recommended with this resin ◆ Yellow - Contact PCS for technical guidance ■ Red - Not recommended																				

Volastic® Flow Hot Sprue Bushing Flow Capacity Table



Maximum Part Weight in Grams				
Nozzle	Medium GMR 5232	Medium GMR 5332	Jumbo GMR	MFI (Melt Flow Index)
	500	500	1500	High
	400	400	1000	Medium
	200	200	500	Low



DEFINITION OF RESIN INPUT

The optimal gate diameter will vary according to the resin, Melt Flow Index (MFI) and molded part weight.

Please refer to the table for guidelines. Other factors to consider when defining gate requirements:

- Part geometry
- Resin type
- Mold and injection machine conditions

Volastic® Medium Hot Sprue Bushing

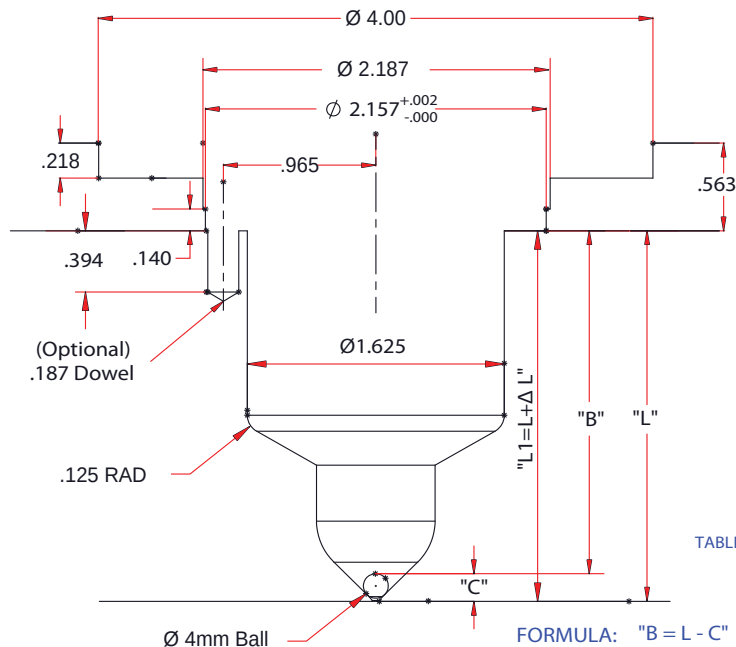
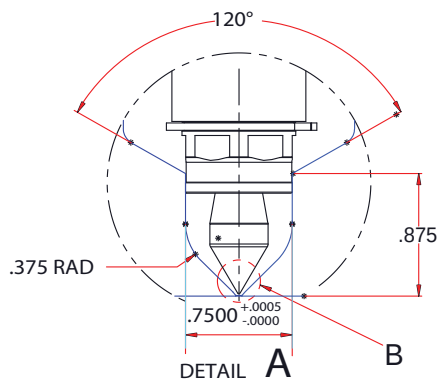
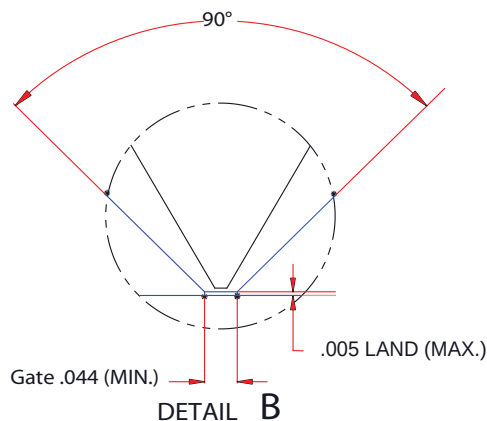
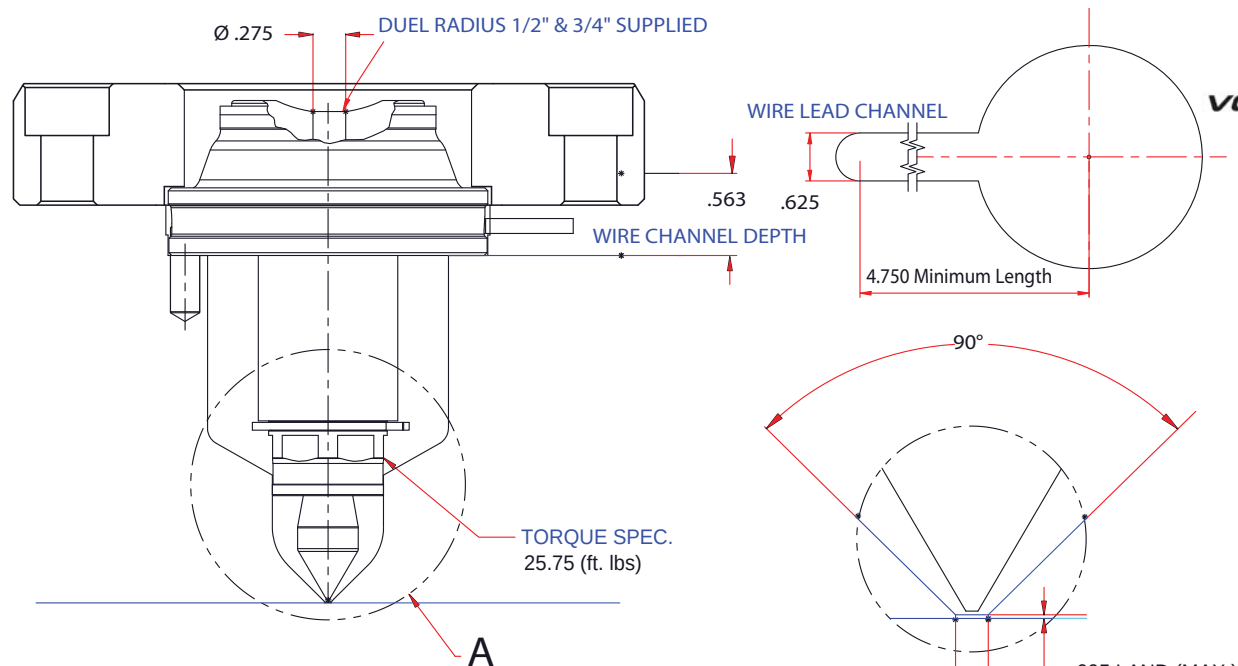


TABLE FOR GATE MANUFACTURING
(For Reference Only)

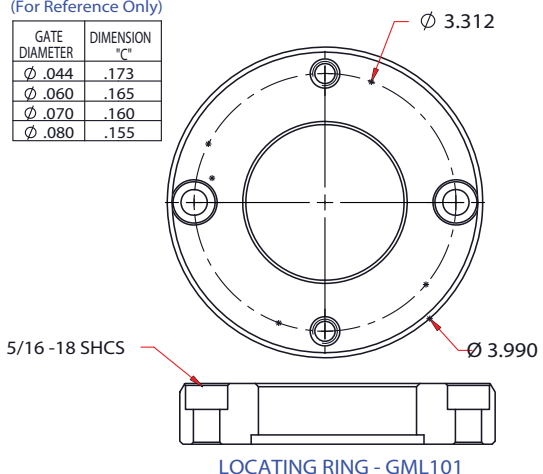
GATE DIAMETER	DIMENSION "C"
Ø .044	.173
Ø .060	.165
Ø .070	.160
Ø .080	.155

NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS					
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS			
		NOZZLE BODY	NOZZLE HEATER	WATTS	THERMOCOUPLE
GMR5232	2.375	GMB0523	GMH0523	290	VN-20-SR
GMR5332	3.375	GMB0533	GMH0533	300	VN-20-SR
* GMR5232WR	2.375	GMB0523	GMH0523	290	VN-20-SR
* GMR5332WR	3.375	GMB0533	GMH0533	300	VN-20-SR

TIPS		NUT
TYPE	PART NUMBER	
STANDARD	GMT0002	
* WEAR RESISTANT	GMT0002WR	GMN0001

* WR - WEAR RESISTANT NEEDLE

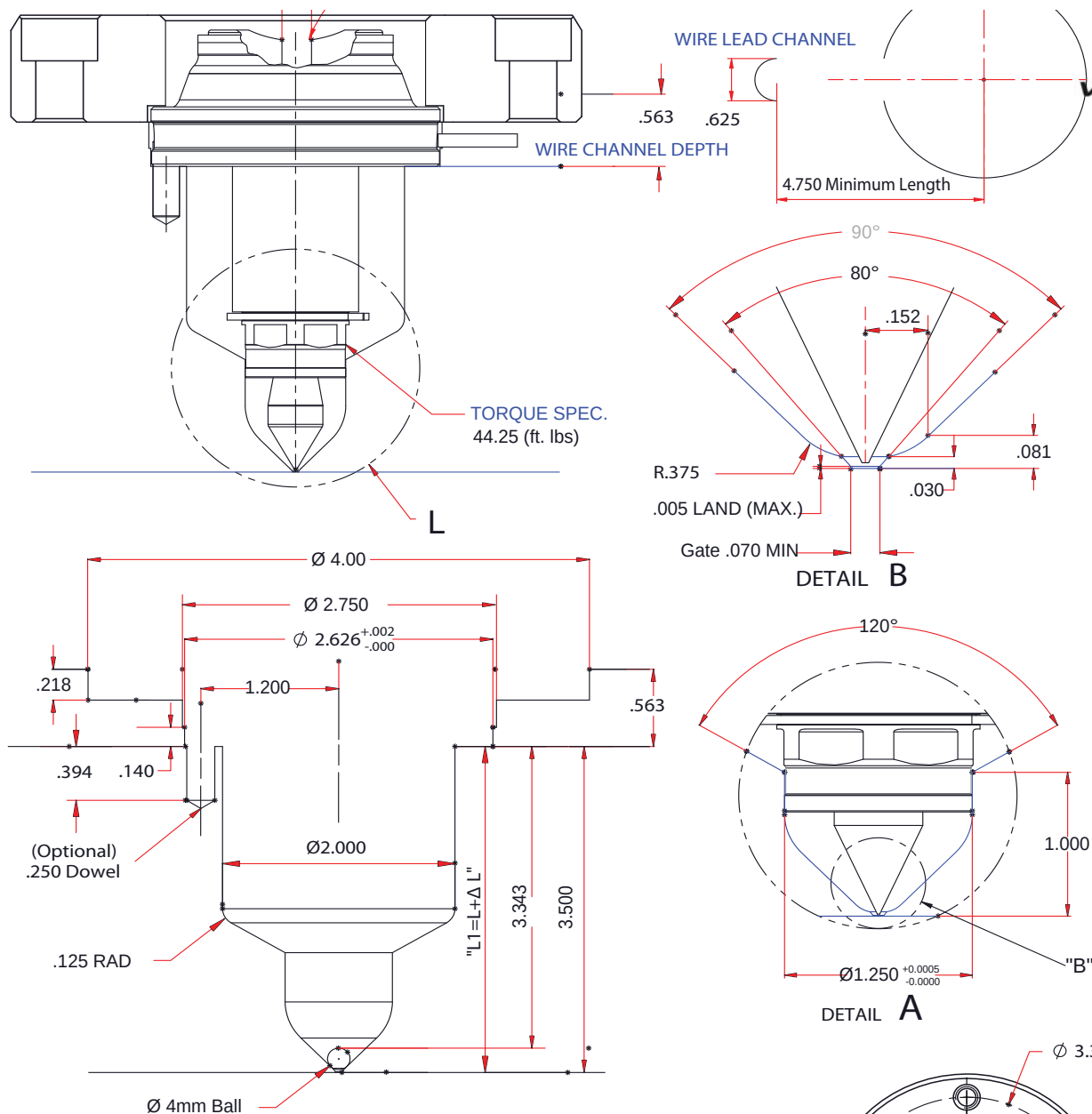
THERMAL EXPANSION FORMULA: "Δ L" = L x 0.0000064 x (Setpoint °F - 68°F)



Volastic® Jumbo Hot Sprue Bushing



VOLASTIC



THERMAL EXPANSION FORMULA: $\Delta L = L \times 0.0000064 \times (\text{Setpoint } ^\circ\text{F} - 68^\circ\text{F})$

NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS					
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS			
		NOZZLE BODY	NOZZLE HEATER	WATTS	THERMOCOUPLE
*GMR0009	2.375	VN-35-BD	GMH0001	290	VN-35-SR

TABLE FOR GATE MANUFACTURING

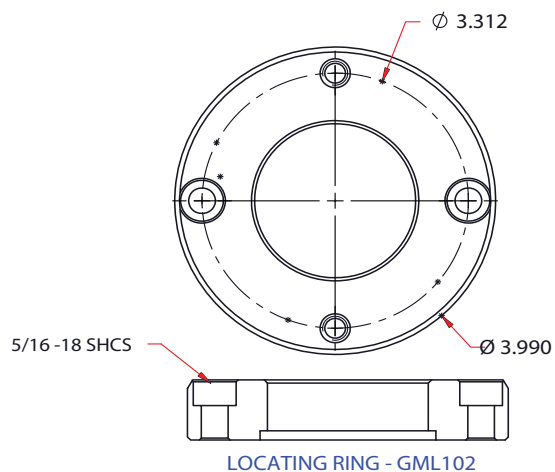
(For Reference Only)

TIPS	
TYPE	PART NUMBER
STANDARD	GMT0009
WEAR RESISTANT	GMT0009WR

GATE DIAMETER	DIMENSION "C"
Ø .044	.173
Ø .060	.165
Ø .070	.160
Ø .080	.155

NUT
GMN0001

*CALL FOR AVAILABILITY

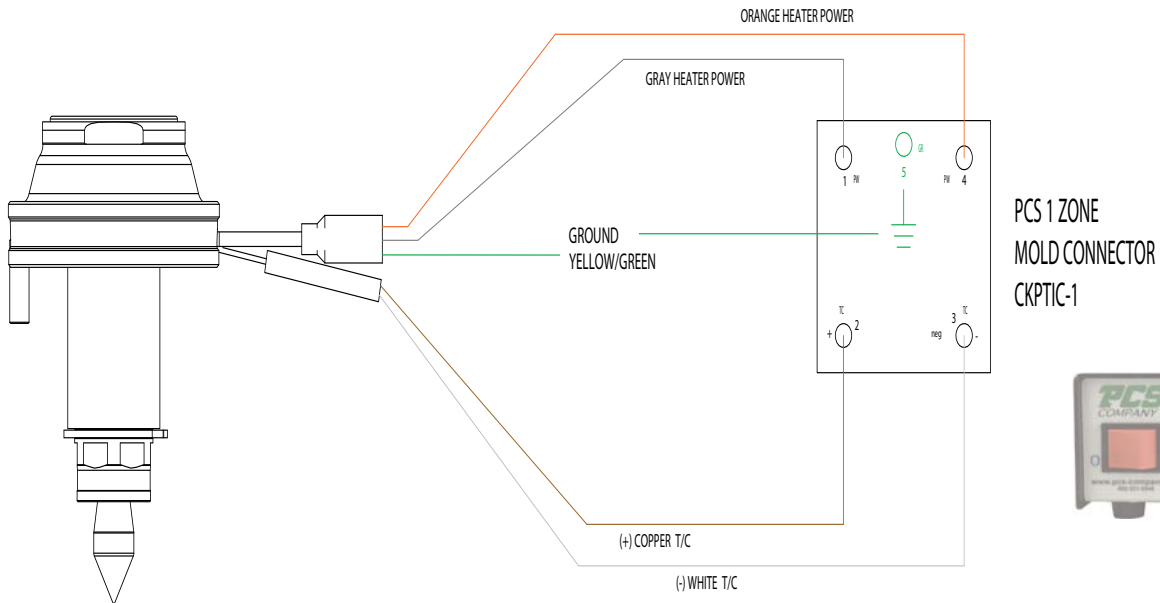


LOCATING RING - GML102

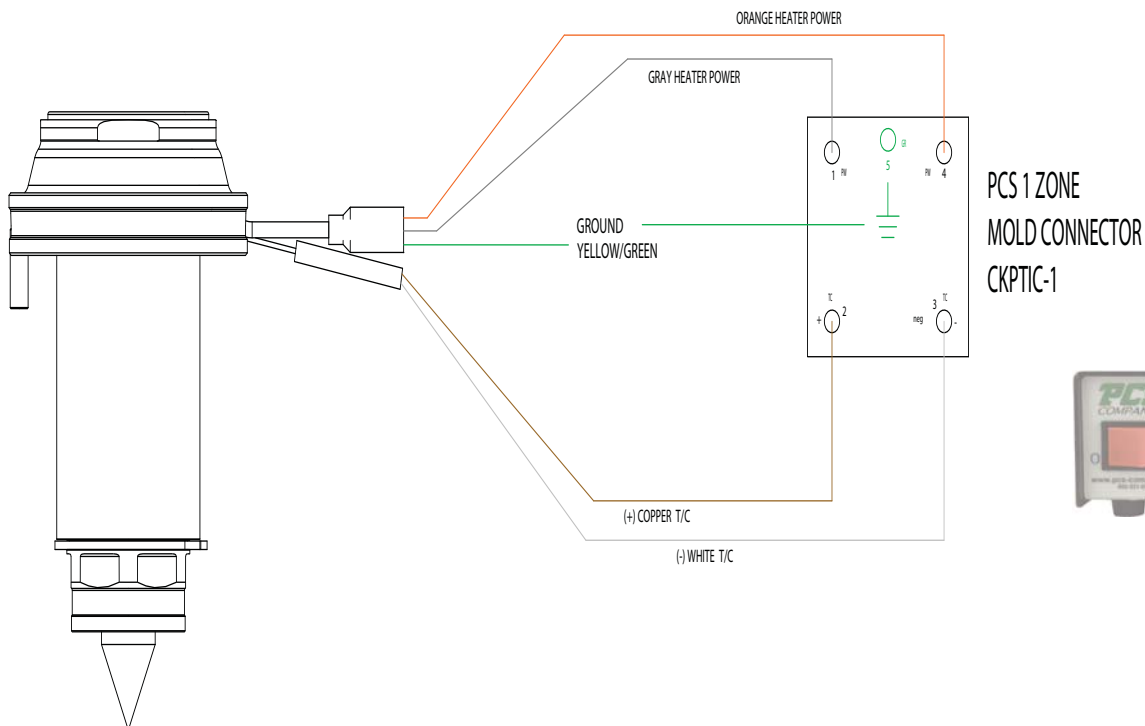
Volastic® Hot Sprue Bushing Wiring Diagrams



Volastic® MEDIUM 1 ZONE



Volastic® JUMBO 1 ZONE



Injection Molding Troubleshooting Guide



Recommended Solutions	PROBLEMS																		
	Nozzle Drool	Short Shot	Screw Does Not Return	Sink Marks	Burning	Blemishes	Flashing	Dull Surface	Part Lamination	Sticking Parts	Runner Breaks	Distortion	Discoloration of Sprue	Flow Lines	Brittle Parts	Wavy Surfaces	Melt Temp. Too High	Streaks On Part	Voids in Part
Increase injection pressure		•												•		•			
Decrease injection pressure							•					•							
Increase resin temperature		•				•		•	•			•		•	•	•		•	
Decrease resin temperature					•		•			•			•			•	•	•	•
Increase holding pressure and time				•												•			•
Increase nozzle temperature		•		•		•			•										•
Increase screw r.p.m.			•			•		•	•						•				
Decrease screw r.p.m.																	•	•	
Tighten nozzle tip													•					•	
Inject with rotating screw		•				•		•	•			•		•	•				
Increase clamping pressure							•												
Start injection speed	•																		
Decrease injection speed				•	•	•	•	•	•	•		•	•		•	•		•	•
Increase injection speed		•												•		•			
Increase back pressure		•				•		•	•			•		•	•			•	
Decrease back pressure			•	•													•		
Increase nozzle orifice		•		•	•			•	•				•	•		•			
Increase mold temperature		•				•		•	•	•		•	•	•	•				•
Decrease mold temperature				•		•	•	•		•	•	•			•	•	•		•
Polish sprue, runners and gates						•					•								
Increase size of gates		•		•	•	•		•	•				•	•	•				•
Check for proper venting		•			•									•					
Enlarge cold slug well						•							•		•				
Ensure dry material when required			•			•		•	•					•	•			•	
Check for resin contamination								•	•										
Increase shot size		•		•										•		•			•
Use mold release NanoMoldCoating™										•									
Adjust nozzle pressure	•																		
Check radius of nozzle & of sprue bushing	•									•	•								
Reduce temperature-rear zone			•																
Balance mold filling, rework runners				•															
Provide air for ejection										•									
Lengthen cooling and mold-open time											•	•				•		•	
Shorten cooling and mold-open time																	•		

Wattage / Amperage / Resistance Chart

Watts	Amps	Ohms	Watts	Amps	Ohms	Watts	Amps	Ohms
50	0.21	1152.00	1850	7.71	31.14	4800	20.00	12.00
100	0.42	576.00	1900	7.92	30.32	4900	20.42	11.76
150	0.63	384.00	1950	8.13	29.54	5000	20.83	11.52
200	0.83	288.00	2000	8.33	28.80	5100	21.25	11.29
250	1.04	230.40	2050	8.54	28.10	5200	21.67	11.08
300	1.25	192.00	2100	8.75	27.43	5300	22.08	10.87
350	1.46	164.57	2150	8.96	26.79	5400	22.50	10.67
400	1.67	144.00	2200	9.17	26.18	5500	22.92	10.47
450	1.88	128.00	2250	9.38	25.60	5600	23.33	10.29
500	2.08	115.20	2300	9.58	25.04	5700	23.75	10.11
550	2.29	104.73	2350	9.79	24.51	5800	24.17	9.93
600	2.50	96.00	2400	10.00	24.00	5900	24.58	9.76
650	2.71	88.62	2450	10.21	23.51	6000	25.00	9.60
700	2.92	82.29	2500	10.42	23.04	6100	25.42	9.44
750	3.13	76.80	2600	10.83	22.15	6200	25.83	9.29
800	3.33	72.00	2700	11.25	21.33	6300	26.25	9.14
850	3.54	67.76	2800	11.67	20.57	6400	26.67	9.00
900	3.75	64.00	2900	12.08	19.86	6500	27.08	8.86
950	3.96	60.63	3000	12.50	19.20	6600	27.50	8.73
1000	4.17	57.60	3100	12.92	18.58	6700	27.92	8.60
1050	4.38	54.86	3200	13.33	18.00	6800	28.33	8.47
1100	4.58	52.36	3300	13.75	17.45	6900	28.75	8.35
1150	4.79	50.09	3400	14.17	16.94	7000	29.17	8.23
1200	5.00	48.00	3500	14.58	16.46	7100	29.58	8.11
1250	5.21	46.08	3600	15.00	16.00	7200	30.00	8.00
1300	5.42	44.31	3700	15.42	15.57	7300	30.42	7.89
1350	5.63	42.37	3800	15.83	15.16	7400	30.83	7.78
1400	5.83	41.14	3900	16.25	14.77	7500	31.25	7.68
1450	6.04	39.72	4000	16.67	14.40	7600	31.67	7.58
1500	6.25	38.40	4100	17.08	14.05	7700	32.09	7.48
1550	6.46	37.16	4200	17.50	13.71	7800	32.50	7.38
1600	6.67	36.00	4300	17.92	13.40	7900	32.92	7.29
1650	6.88	34.91	4400	18.33	13.09	8000	33.33	7.20
1700	7.08	33.88	4500	18.75	12.80	8100	33.75	7.11
1750	7.29	32.91	4600	19.17	12.52	8200	34.17	7.02
1800	7.50	32.00	4700	19.58	12.26	8300	34.58	6.94

Note: This chart is based on a Voltage of 240 VAC

Mini Hot Sprue Companion Products Temperature Controllers & F.I.T.S.



(Photos: Installation example only)



VC-1F



VC-1ZF



VC-2F



VC-M



VC-MPTC-15



CKPTIC-1

PCS Mini Hot Sprue Bushing and F.I.T.S Sizing Chart

	FSB-17 / FSBH-17		FSB-23 / FSBH-23		FSB-27 / FSBH-27	FSB-33/FSBH-33
	L = 1 7/8"		L = 2 3/8"		L = 2 7/8"	L=3 3/8"
	Solid	Laminated	Solid	Laminated	Laminated	To be used with thicker plates and standard mold bases
F.I.T.S Part Numbers	FTS-0809-223-X	FTL-0809-284-X	FTS-0809-226	FTL-0809-286	FTL-0809-289	
	FTS-0809-224-X	FTL-0809-284	FTS-0809-227	FTL-0809-287	FTL-0809-290	
	FTS-0809-223	FTL-0809-285	FTS-0810-226	FTL-0809-288	FTL-0810-289	
	FTS-0809-224	FTT-0809-203	FTS-0810-227	FTT-0809-206	FTL-0810-290	
	FTS-0809-225	FTL-0810-284	FTS-8490-226	FTL-0810-286	FTL-8490-286	
	FTS-0810-223	FTL-0810-285	FTS-8490-227	FTL-0810-287	FTL-8490-287	
	FTS-0810-224	FTL-0810-285	FTS-1012-226	FTL-0810-288	FTL-1012-288	
	FTS-0810-225	FTT-0810-203	FTS-1012-227	FTT-0810-206	FTL-1012-289	
	FTS-8490-223	FTL-8490-281		FTL-8490-283		
	FTS-8490-224	FTL-8490-282		FTL-8490-284		
	FTS-8490-225	FTT-8490-204		FTL-8490-285		
	FTS-1012-224			FTT-8490-207		
	FTS-1012-225			FTL-1012-285		
				FTL-1012-286		



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