



# 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<sup>®</sup>, MUD<sup>®</sup>, RTI<sup>®</sup> 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 total shot weights up to 70 grams  
— Refer to Hot Sprue Selection or call PCS Company
- 2D & 3D CAD data online at [www.pcs-company.com](http://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 total shot weights up to 800 grams  
— Refer to Hot Sprue Selection or call PCS Company
- 2D & 3D CAD data online at [www.pcs-company.com](http://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 total shot weights up to 3000 grams  
— Refer to Hot Sprue Selection or call PCS Company
- 2D & 3D CAD data online at [www.pcs-company.com](http://www.pcs-company.com)







**DECIMAL EQUIVALENTS AND TAP DRILL SIZES**

DRILL SIZE	DECIMAL	TAP SIZE	DRILL SIZE	DECIMAL	TAP SIZE	DRILL SIZE	DECIMAL	TAP SIZE	DRILL SIZE	DECIMAL	TAP SIZE	DRILL SIZE	DECIMAL	TAP SIZE
80	0.0135		39	0.0995		15/64	0.2344		37/64	0.5781		37/64	0.5781	
79	0.0145		38	0.1015		15/64	0.2344		19/32	0.5938		19/32	0.5938	
78	0.0156		37	0.1040		15/64	0.2380		39/64	0.6094		39/64	0.6094	
77	0.0180		36	0.1065		15/64	0.2420		5/8	0.6250		5/8	0.6250	
76	0.0200		35	0.1094		1/4	0.2460		41/64	0.6406		41/64	0.6406	
75	0.0210		34	0.1100		1/4	0.2560		21/32	0.6562		21/32	0.6562	3/4-10
74	0.0225		33	0.1110		1/4	0.2570		43/64	0.6719		43/64	0.6719	
73	0.0240		32	0.1130		1/4	0.2610		11/16	0.6875		11/16	0.6875	3/4-16
72	0.0250		32	0.1160		17/64	0.2656		45/64	0.7031		45/64	0.7031	
71	0.0260		31	0.1200		17/64	0.2660		23/32	0.7188		23/32	0.7188	
70	0.0280		30	0.1250		1/8	0.2720		47/64	0.7344		47/64	0.7344	
69	0.0292		29	0.1285		1/8	0.2770		3/4	0.7500		3/4	0.7500	7/8-9
68	0.0310		29	0.1360		1/8	0.2810		49/64	0.7656		49/64	0.7656	
67	0.0312		28	0.1405		9/32	0.2812		25/32	0.7812		25/32	0.7812	
66	0.0320		27	0.1406		9/32	0.2812		51/64	0.7969		51/64	0.7969	
65	0.0330		26	0.1440		19/64	0.2969		13/16	0.8125		13/16	0.8125	7/8-14
64	0.0350		25	0.1470		19/64	0.2969		53/64	0.8281		53/64	0.8281	
63	0.0360		24	0.1495		5/16	0.3020		27/32	0.8438		27/32	0.8438	
62	0.0370		24	0.1520		5/16	0.3125		55/64	0.8594		55/64	0.8594	1-8
61	0.0380		23	0.1540		5/16	0.3160		7/8	0.8750		7/8	0.8750	
60	0.0390		22	0.1562		21/64	0.3230		57/64	0.8906		57/64	0.8906	
59	0.0400		21	0.1570		21/64	0.3281		29/32	0.9062		29/32	0.9062	
58	0.0410		21	0.1590		21/64	0.3320		59/64	0.9219		59/64	0.9219	1-12
57	0.0420		20	0.1610		21/64	0.3390		15/16	0.9375		15/16	0.9375	
56	0.0430		19	0.1660		11/32	0.3438		61/64	0.9531		61/64	0.9531	
55	0.0465		18	0.1695		11/32	0.3480		31/32	0.9688		31/32	0.9688	1 1/8-7
54	0.0469	0-80	17	0.1719		23/64	0.3580		63/64	0.9844		63/64	0.9844	
53	0.0520		16	0.1730		23/64	0.3594		1"	1.0000		1"	1.0000	
52	0.0550		15	0.1770		3/8	0.3680		1 3/64	1.0469		1 3/64	1.0469	1 1/8-12
51	0.0595	1-64,72	14	0.1800		3/8	0.3750		1 7/64	1.094		1 7/64	1.094	1 1/4-7
50	0.0625		14	0.1820		3/8	0.3770		1 1/8	1.1250		1 1/8	1.1250	
49	0.0635		13	0.1850		25/64	0.3860		1 11/64	1.1719		1 11/64	1.1719	1 1/4-12
48	0.0670	2-56,64	12	0.1875		25/64	0.3906		1 7/32	1.2188		1 7/32	1.2188	1 3/8-6
47	0.0700		11	0.1890		13/32	0.3970		1 1/4	1.2500		1 1/4	1.2500	1 3/8-12
46	0.0730		10	0.1910		13/32	0.4040		1 19/64	1.2969		1 19/64	1.2969	1 1/2-6
45	0.0760		9	0.1935		13/32	0.4062		1 11/32	1.3438		1 11/32	1.3438	
44	0.0785	3-48	8	0.1960		27/64	0.4130		1 3/8	1.3750		1 3/8	1.3750	
43	0.0810	3-56	7	0.1990		27/64	0.4219		1 27/64	1.4219		1 27/64	1.4219	1 1/2-12
42	0.0820		6	0.2010		7/16	0.4375		1 1/2	1.5000		1 1/2	1.5000	
41	0.0860	4-40	5	0.2031		7/16	0.4419							
40	0.0890	4-48	4	0.2055		29/64	0.4531							
39	0.0935		3	0.2090		15/32	0.4688							
38	0.0938		3	0.2130		31/64	0.4844							
37	0.0960		2	0.2188		1/2	0.5000							
36	0.0980		2	0.2210		33/64	0.5156							
35	0.0980		1	0.2280		17/32	0.5312							
34	0.0980		1	0.2280		35/64	0.5469							
33	0.0980		1	0.2280		9/16	0.5625							

**Ohms Law**  
 240 V = 15 Amps = 3600 W  
 Volts x Amps = Watts  
 Watts / Volts = Amps  
 Watts / Amps = Volts

**CONVERSION CHART**

DRILL	THREAD	DRILL	THREAD
R	1/8-27	1	5/32
7/16	1/4-18	1	1/2
37/64	3/8-18	1	1 1/2-11 1/2
23/32	1/2-14	2	7/32
59/64	3/4-14		

1 PSI = .0689 BAR  
 1 mile = 1.609Kilom  
 1 FT = .3048M  
 1 F/LBS = 1.356Nm  
 Area of circle = π R<sup>2</sup>  
 Circumference = 2 π R

1 INCH = 25.4mm  
 1 LBS = 453.59 g  
 1 Oz = 28.349g  
 Temp (T° F-32° +1.8 = T° C)  
 1 BTU = .0002929 Kw  
 1 Horse Power = 746 Watts

1 Metric Ton = 2204.6lbs=1000Kg  
 1 long Ton = 2240lbs=1016Kg  
 1 short Ton = 2000lbs=907.18Kg  
 1 US Gal= 833 Imp Gal=3.785L  
 SAE Bolt rating =#(0-1-2) weakest to  
 #8 strongest

# Resin Technical Section

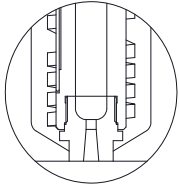
PLASTIC MATERIAL PROCESS CONDITIONS											
MATERIAL	SYMBOL	Process Temperature		Mold Temperature		Hot Runner Temperature		Density Melting		Solid Density	
		°C	°F	°C	°F	°C	°F	g/cm3	lbs./in3	g/cm3	lbs./in3
Styrene Butadiene	SB	210	410	70	158	230	446	0.93	0.0366	1.02	0.0369
Polyurethane	PUR	220	428	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
Polybutylene 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:**

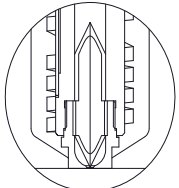
The above temperatures and densities are general guidelines and may not apply to your current application. Refer to the resin manufacturers processing data guide for your current application.

# PCS Mini Hot Sprue Bushing Resin Selection Guide



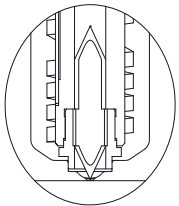
Sprue Gate Tip

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	ABS/PC	PPE/PS	PSU	LCP
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●	●	●	◆	◆
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●	●	●	◆	◆
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●	●	●	◆	◆
	<ul style="list-style-type: none"> <li>● Green - Recommended with this resin</li> <li>◆ Yellow - Contact PCS for technical guidance</li> <li>■ Red - Not recommended</li> </ul>																							



# PCS Mini Hot Sprue Bushing Flow Capacity Table

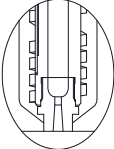
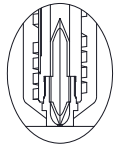
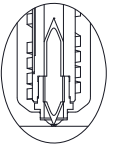


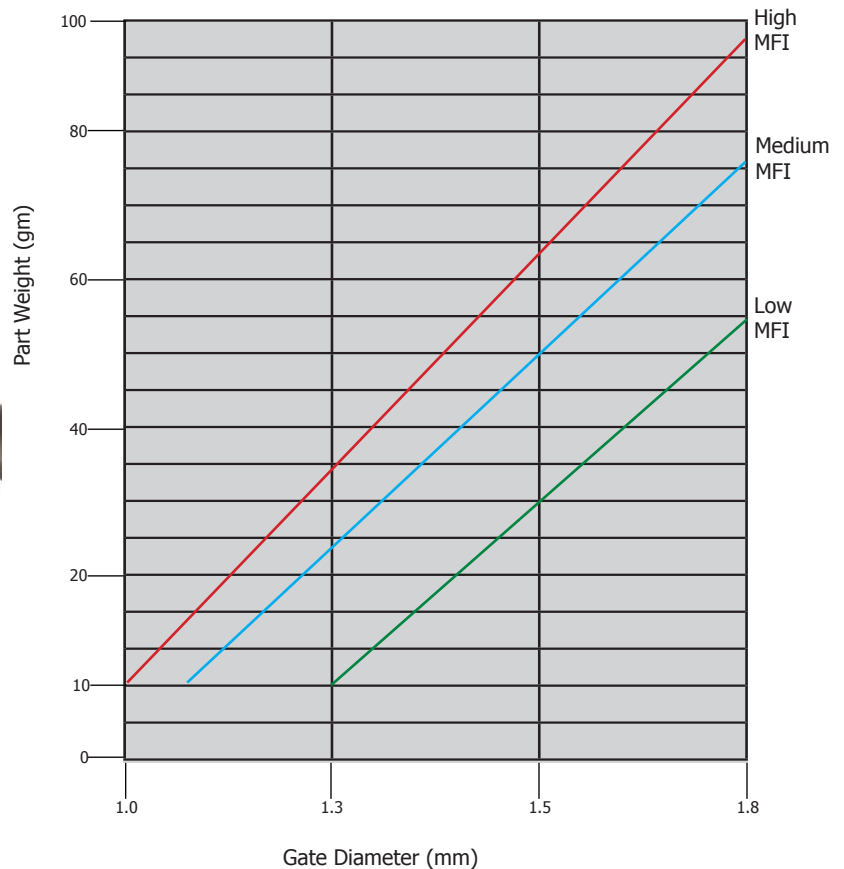
## DEFINITION OF RESIN INPUT

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

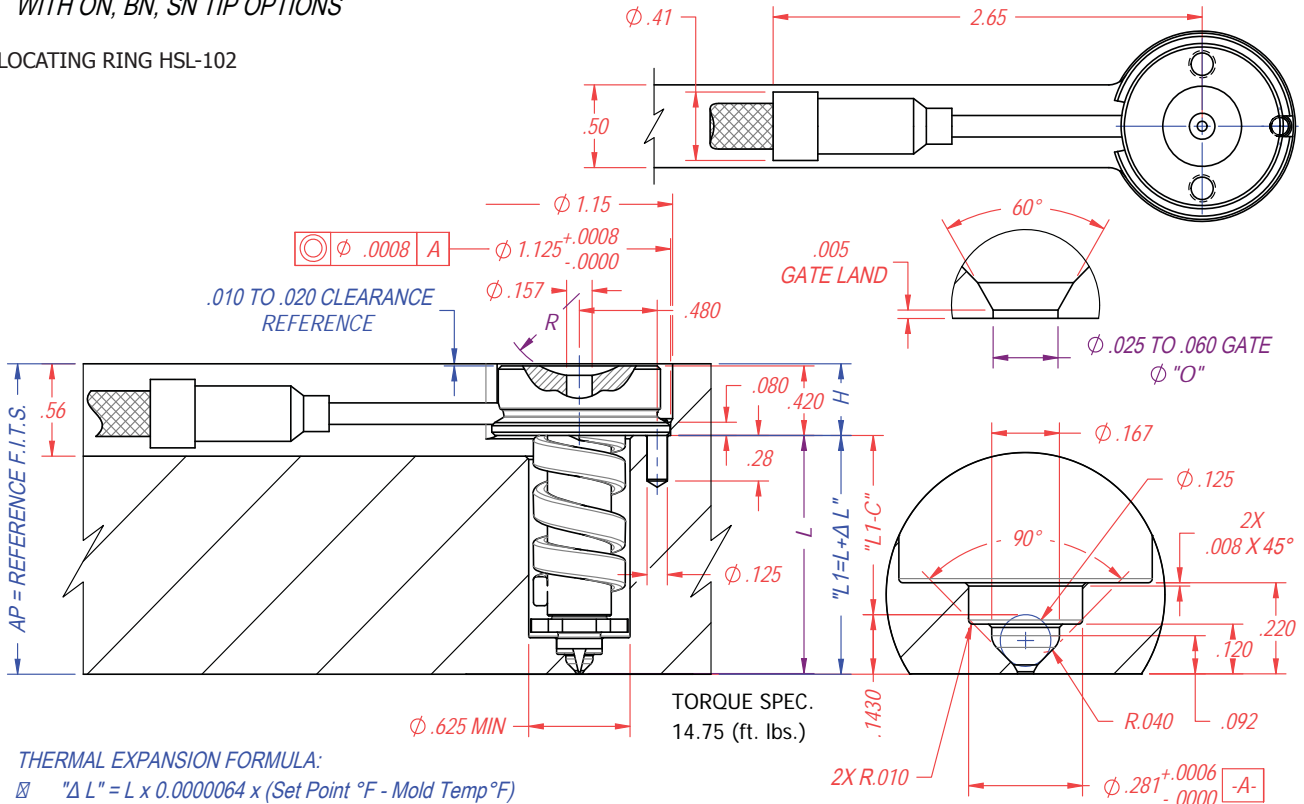


# PCS Mini Standard Hot Sprue Bushing



STANDARD SERIES  
WITH ON, BN, SN TIP OPTIONS

LOCATING RING HSL-102

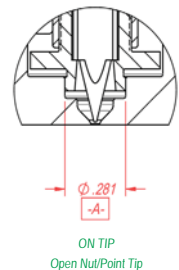
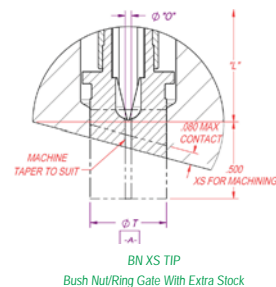
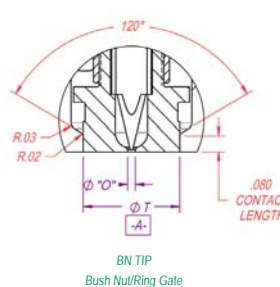
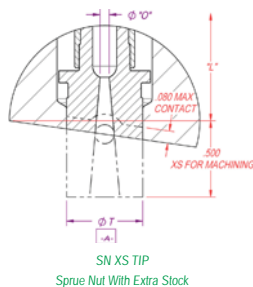
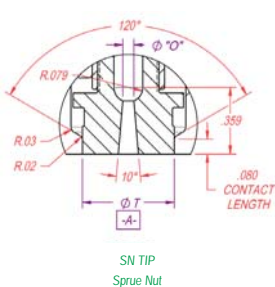


THERMAL EXPANSION FORMULA:  
 $\Delta L = L \times 0.0000064 \times (\text{Set Point } ^\circ\text{F} - \text{Mold Temp } ^\circ\text{F})$

## 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	





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



## FSB



Item Number	Item Description
FSB17-1-BD	L=1.875" R=.500"
FSB17-2-BD	L=1.875" R=.750"
FSB23-1-BD	L=2.375" R=.500"
FSB23-2-BD	L=2.375" R=.750"
FSB27-1-BD	L=2.875" R=.500"
FSB27-2-BD	L=2.875" R=.750"
FSB33-1-BD	L=3.375" R=.500"
FSB33-2-BD	L=3.375" R=.750"



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



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



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

## Accessories



Item Number	Item Description
HSL-102	Locating Ring for HSB

## 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-17-1-BD	L=1.875" R=.500"
FSBH-17-2-BD	L=1.875" R=.750"
FSBH-23-1-BD	L=2.375" R=.500"
FSBH-23-2-BD	L=2.375" R=.750"
FSBH-27-1-BD	L=2.875" R=.500"
FSBH-27-2-BD	L=2.875" R=.750"
FSBH-33-1-BD	L=3.375" R=.500"
FSBH-33-2-BD	L=3.375" R=.750"



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



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



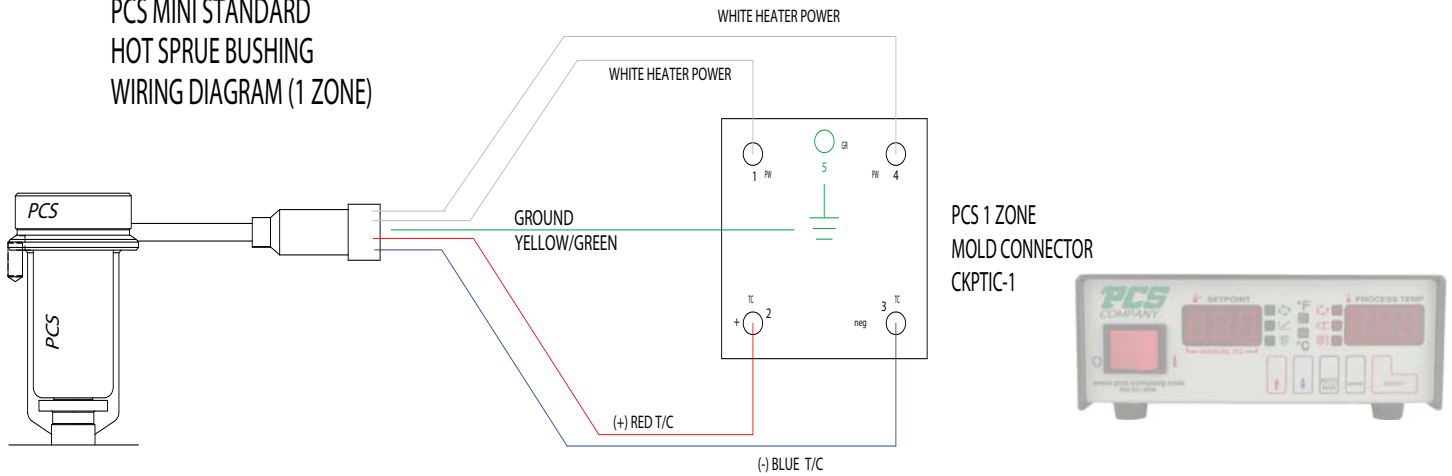
Item Number	Item Description
FSB-3BN-4	Bush Nut, .040" Orifice, T=3/8"
FSB-3BN-6	Bush Nut, .060" Orifice, T=3/8"
FSB-1BN-4	Bush Nut, .040" Orifice, T=1/2"
FSB-1BN-6	Bush Nut, .060" Orifice, T=1/2"
FSB-ON	Open Nut Tip
FSB-1SN-4	Sprue Nut, .040" Orifice, T=1/2"
FSB-1SN-6	Sprue Nut, .060" Orifice, T=1/2"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



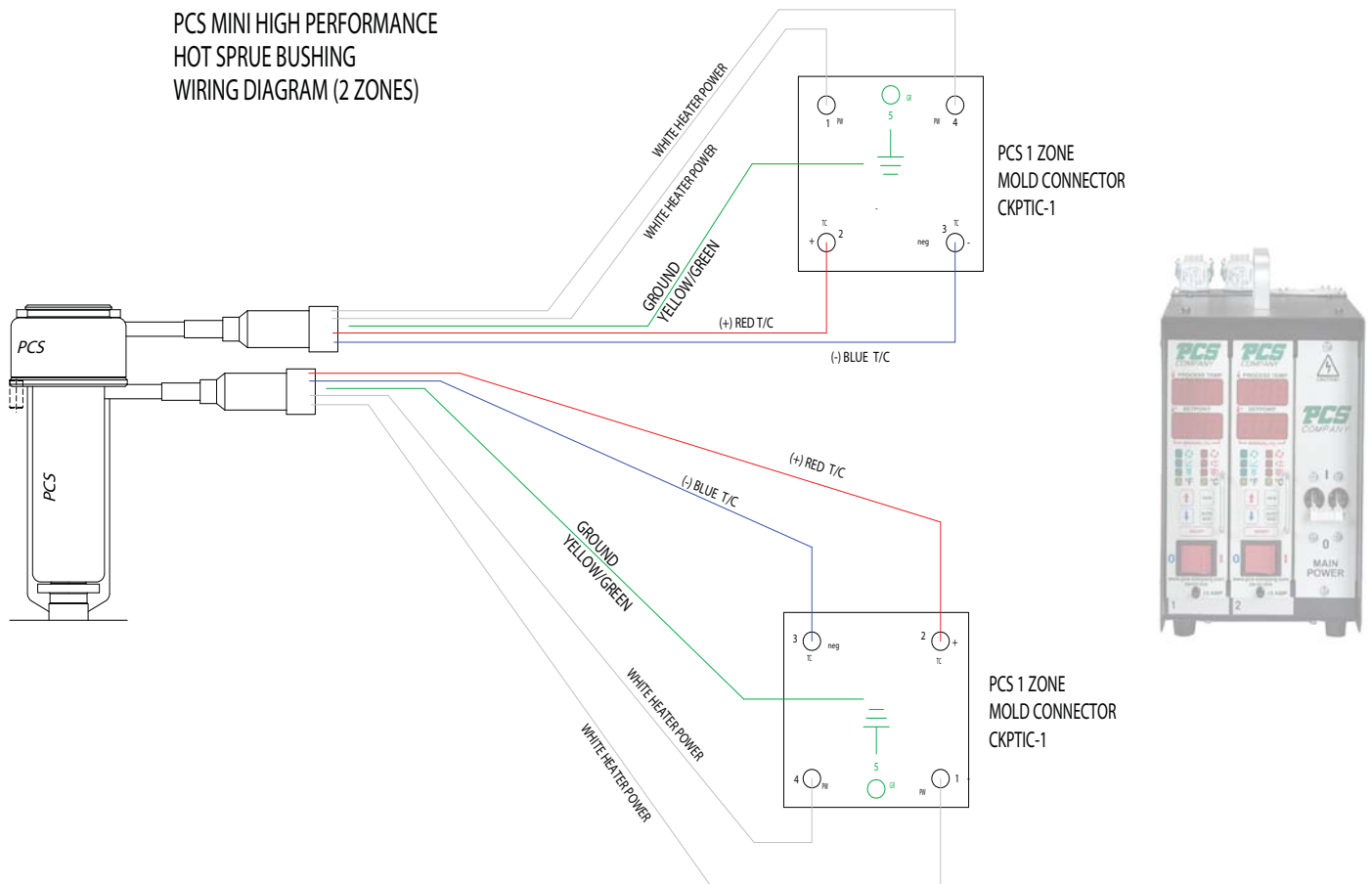
# PCS Mini Hot Sprue Bushing Wiring Diagrams



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



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

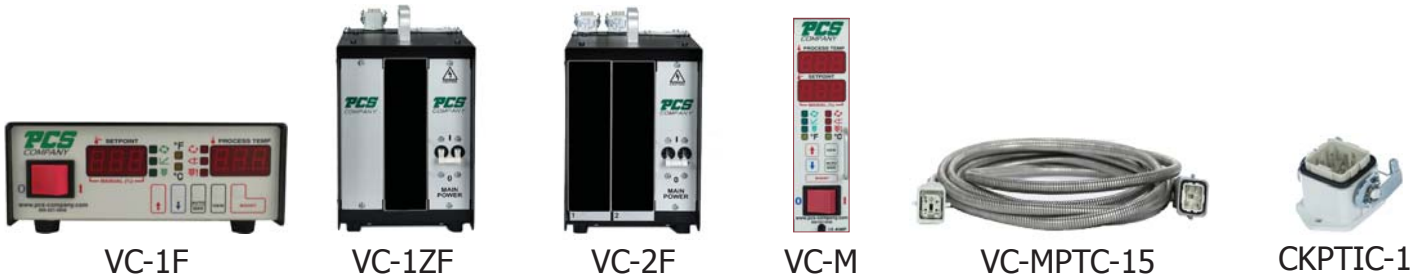




# Mini Hot Sprue Companion Products Temperature Controllers & F.I.T.S.



(Photos: Installation example only)



VC-1F

VC-1ZF

VC-2F

VC-M

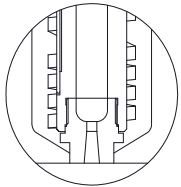
VC-MPTC-15

CKPTIC-1

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

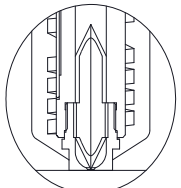
	FSB-17 / FSBH-17		FSB-23 / FSBH-23		FSB-27 / FSBH-27	FSB-33/FSBH-33
	L = 1 7/8"		L = 2 3/8"		L = 2 7/8"	L=3 3/8"
F.I.T.S Part Numbers	Solid	Laminated	Solid	Laminated	Laminated	To be used with thicker plates and standard mold bases
	FTS-0809-223-X	FTL-0809-284-X	FTS-0809-226	FTL-0809-286	FTL-0809-289	
	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			

# PCS Hot Sprue Bushing Resin Selection Guide



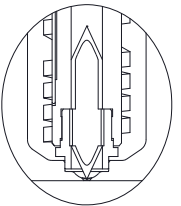
Sprue Gate Tip  
Standard/Extended

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.



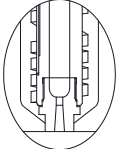
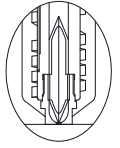
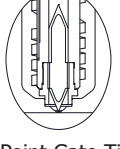
Point Gate Tip

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	ABS/PC	PPE/PS	PSU	LCP
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●	●	●	◆	◆
	●	●	●	■	●	●	●	●	●	●	■	●	●	●	●	●	●	●	●	●	●	●	■	■
	●	●	●	◆	●	●	●	●	●	●	◆	●	●	●	●	●	●	●	●	●	●	●	◆	◆
<ul style="list-style-type: none"> <li>● Green - Recommended with this resin</li> <li>◆ Yellow - Contact PCS for technical guidance</li> <li>■ Red - Not recommended</li> </ul>																								

# PCS Hot Sprue Bushing Flow Capacity Table



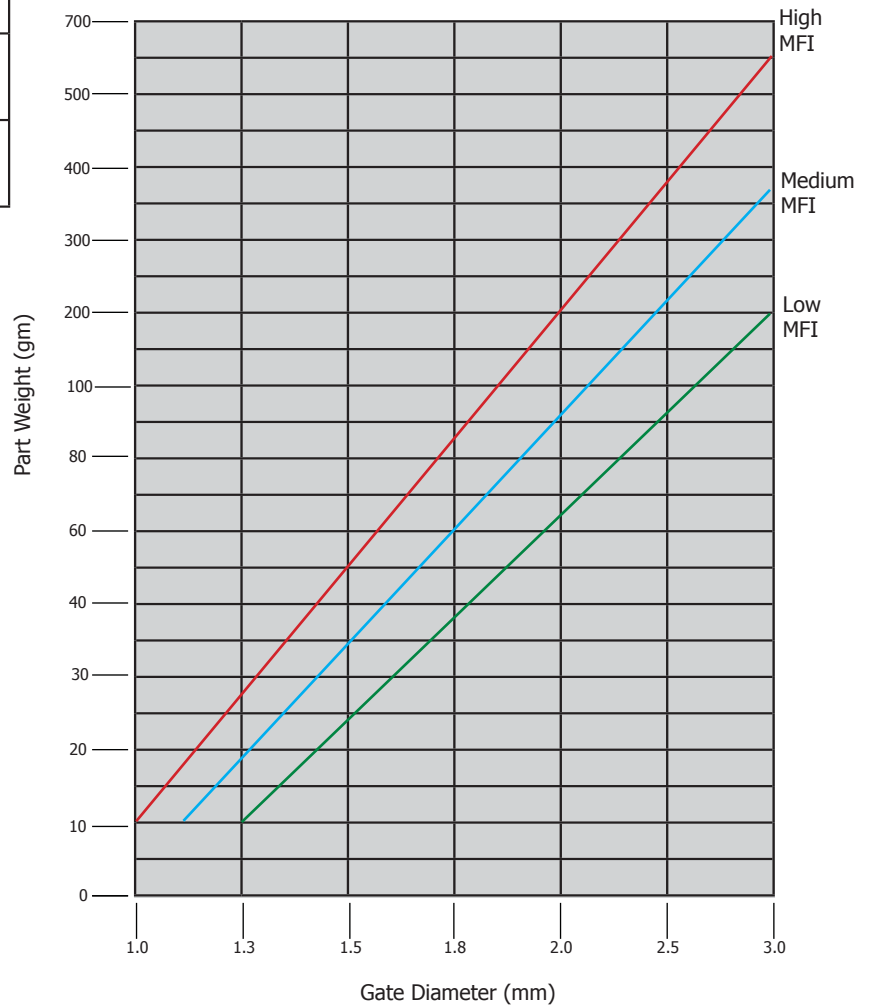
Maximum Part Weight in Grams		
Nozzle	HSB	MFI (Melt Flow Index)
 Sprue Gate Tip Standard/Extended	800	High
	400	Medium
	200	Low
 Ring Gate Tip	210	High
	105	Medium
	52	Low
 Point Gate Tip	210	High
	105	Medium
	52	Low

## 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:

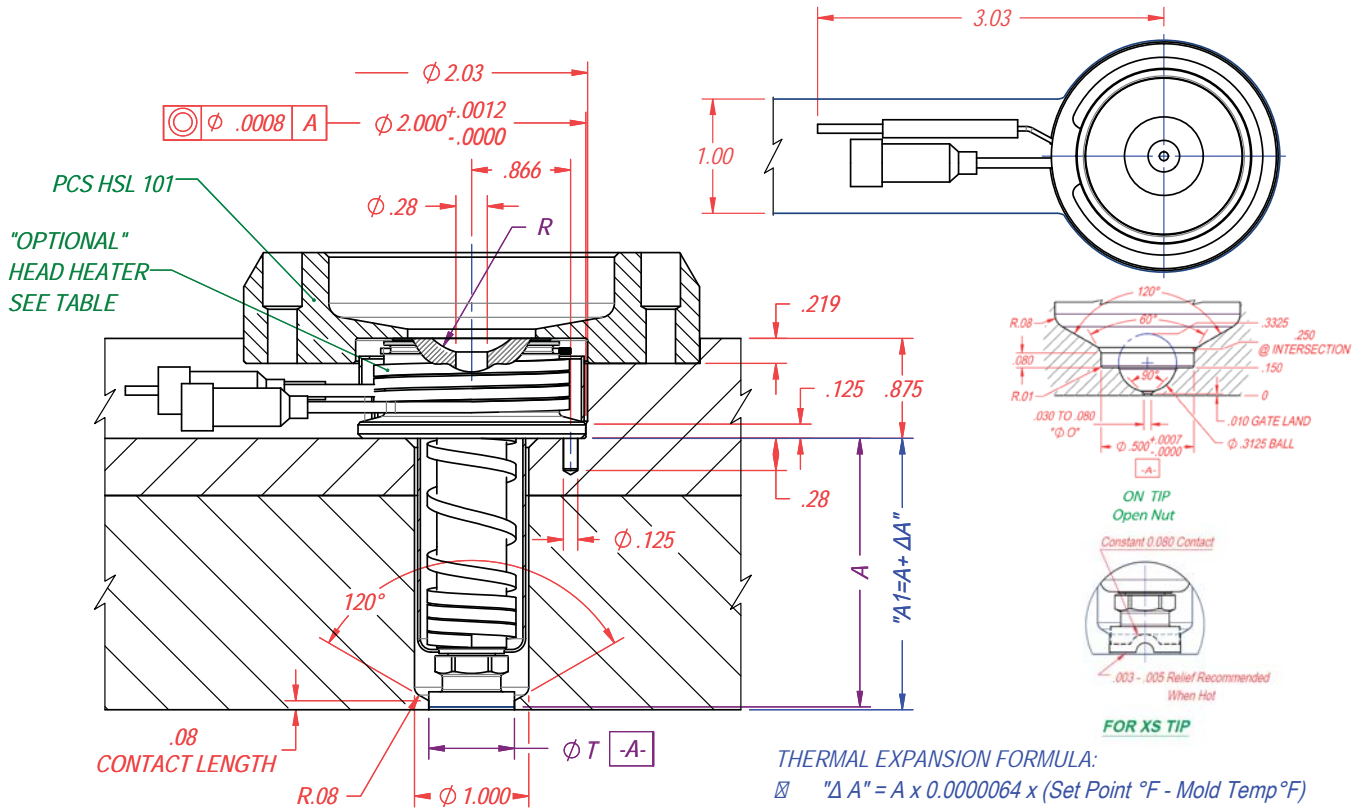
- Part geometry
- Resin type
- Mold and injection machine conditions



# PCS Hot Sprue Bushing With Optional Head Heater



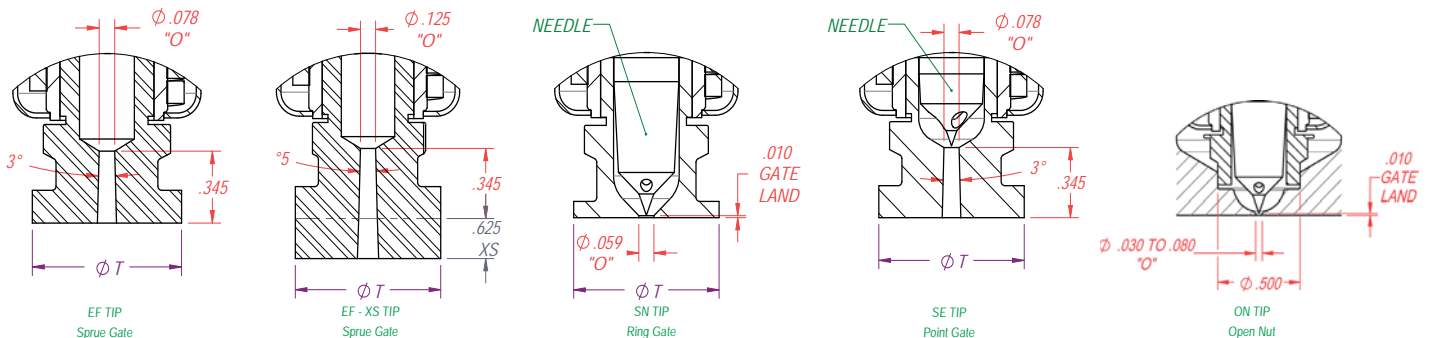
EF, SN, SE & ON TIP OPTIONS



## 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	
2.875" = 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 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-13-1-BD	L=1.375" R=.500"
HSB-13-2-BD	L=1.375" R=.750"
HSB-18-1-BD	L=1.875" R=.500"
HSB-18-2-BD	L=1.875" R=.750"
HSB-23-1-BD	L=2.375" R=.500"
HSB-23-2-BD	L=2.375" R=.750"
HSB-28-1-BD	L=2.875" R=.500"
HSB-28-2-BD	L=2.875" R=.750"
HSB-33-1-BD	L=3.375" R=.500"
HSB-33-2-BD	L=3.375" R=.750"
HSB-38-1-BD	L=3.875" R=.500"
HSB-38-2-BD	L=3.875" R=.750"
HSB-43-1-BD	L=4.375" R=.500"
HSB-43-2-BD	L=4.375" R=.750"



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



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



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

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



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



## Accessories

Item Number	Item Description
HSL-101	Locating Ring for HSB



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



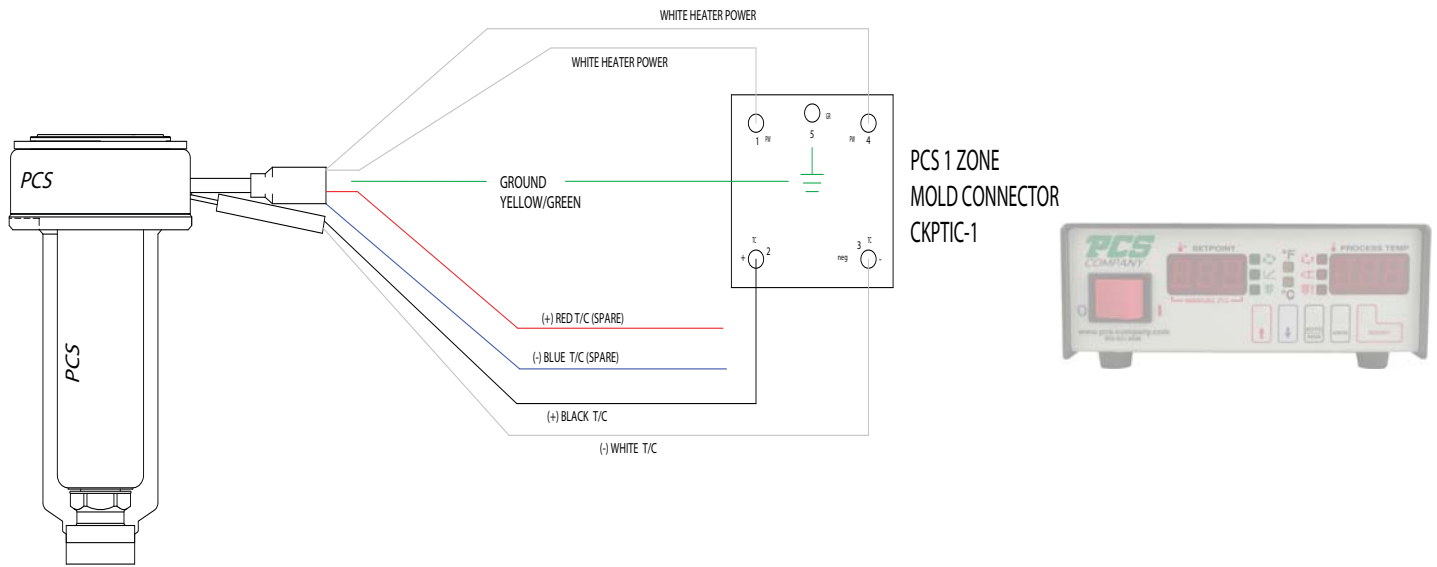
\*Refer to [www.pcs-company.com](http://www.pcs-company.com) for installation instructions.



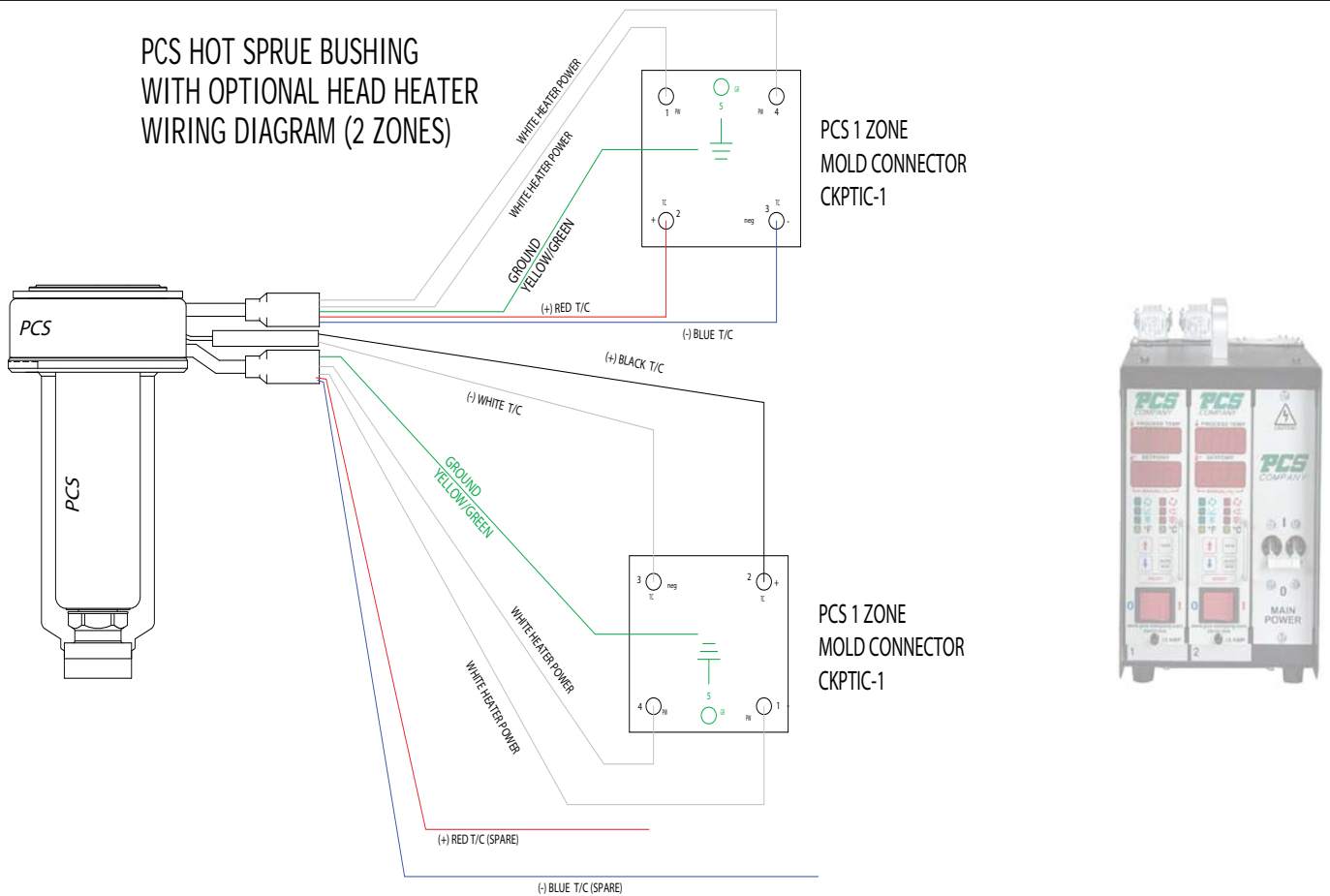
# PCS Hot Sprue Bushing Wiring Diagrams



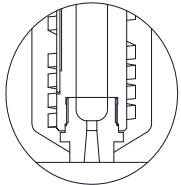
PCS HOT SPRUE BUSHING  
WIRING DIAGRAM (1 ZONE)



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

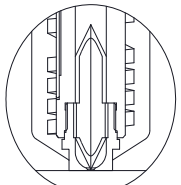


# Polimold® Polimax® Hot Sprue Bushing Resin Selection Guide



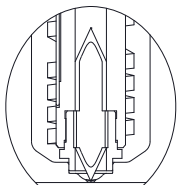
Sprue Gate Tip  
Standard/Extended

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.



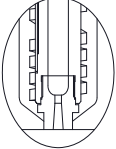
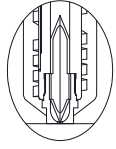
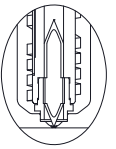
Point Gate Tip

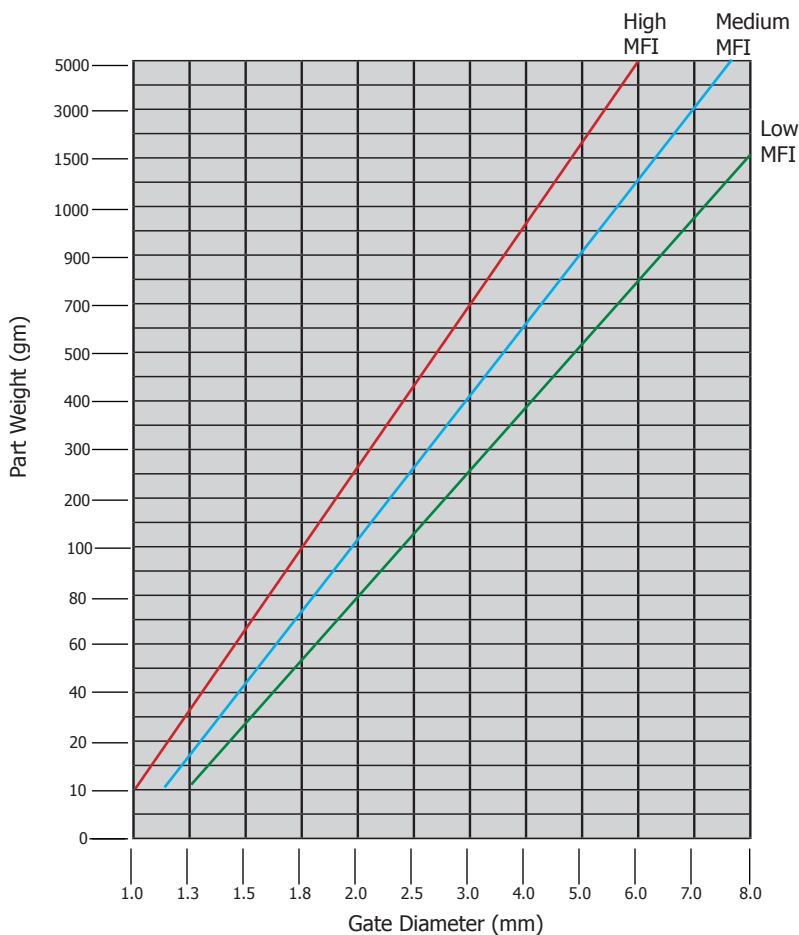
Suited for applications processing high viscosity resins where minimal gate vestige is required. Available with standard and wear resistant needles providing the ability to process commodity and engineered resins (filled or unfilled).

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	ABS/PC	PPE/PS	PSU	LCP
	◆	◆	◆	■	◆	●	◆	◆	●	◆	■	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	■	■
	◆	◆	◆	■	◆	●	◆	◆	●	◆	■	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	■	■
	◆	◆	◆	■	◆	●	◆	◆	●	◆	■	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	■	■
	<ul style="list-style-type: none"> <li>● Green - Recommended with this resin</li> <li>◆ Yellow - Contact PCS for technical guidance</li> <li>■ Red - Not recommended</li> </ul>																							

# 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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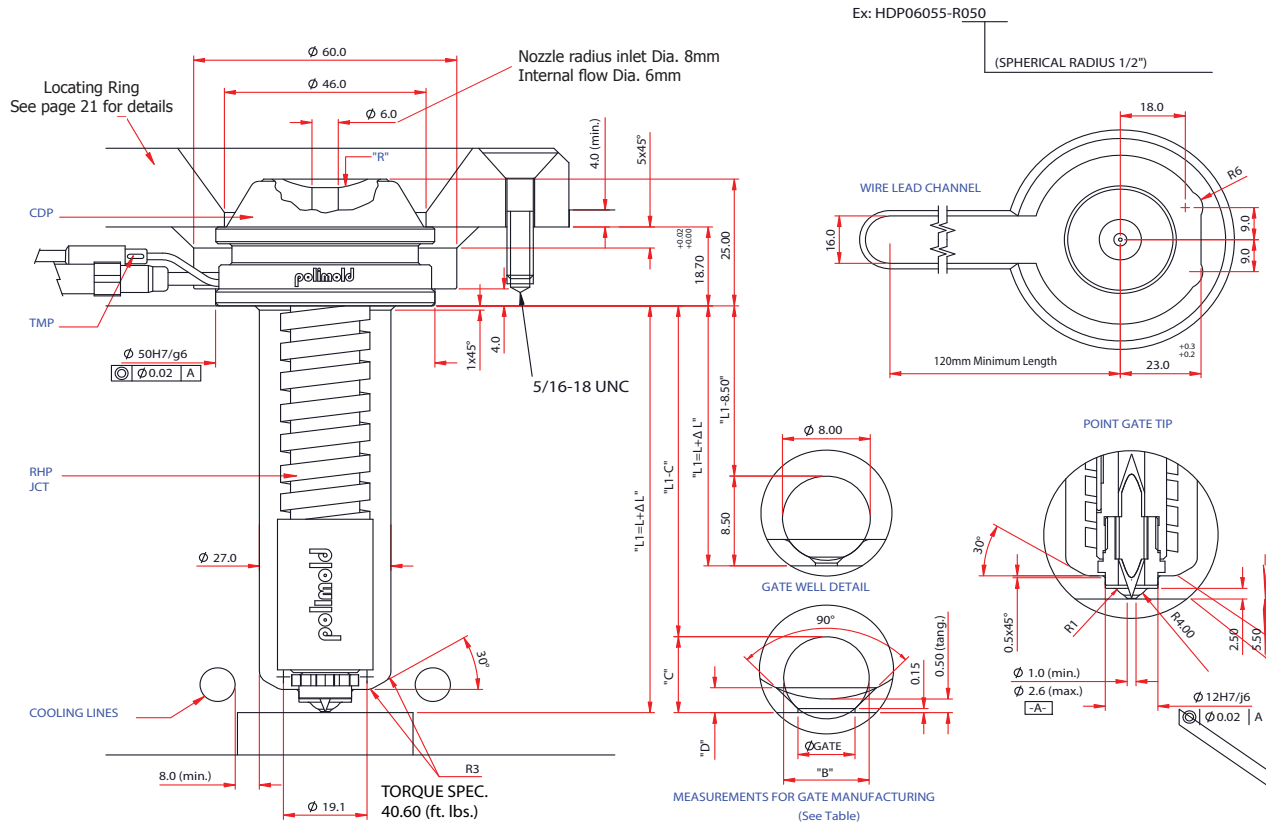


TABLE FOR GATE MANUFACTURING

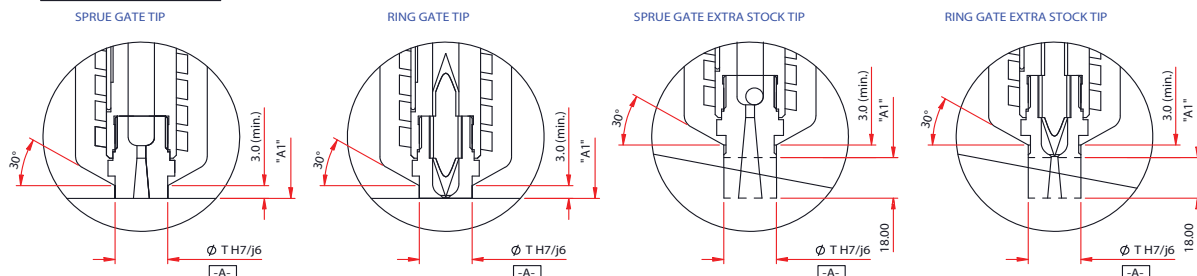
NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS						
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS				
		NOZZLE BODY	NOZZLE BODY HEATER	JACKETS	WATTS	THERMOCOUPLE
HDP06034-R...	34.00	CDP06034	RHP06031	JCT06033	260W	TMP01080
HDP06055-R...	55.00	CDP06055	RHP06051	JCT06050	350W	TMP01080
HDP06067-R...	67.50	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"	GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"
...R050	1/2"	Ø 1.0	2.06	0.62	
...R075	3/4"	Ø 1.2	2.96	0.66	
		Ø 1.4	1.86	0.70	
		Ø 1.6	2.97	0.75	
		Ø 1.8	2.77	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	3.68	1.54	

BUSHING THERMAL EXPANSION "Δ L" = L 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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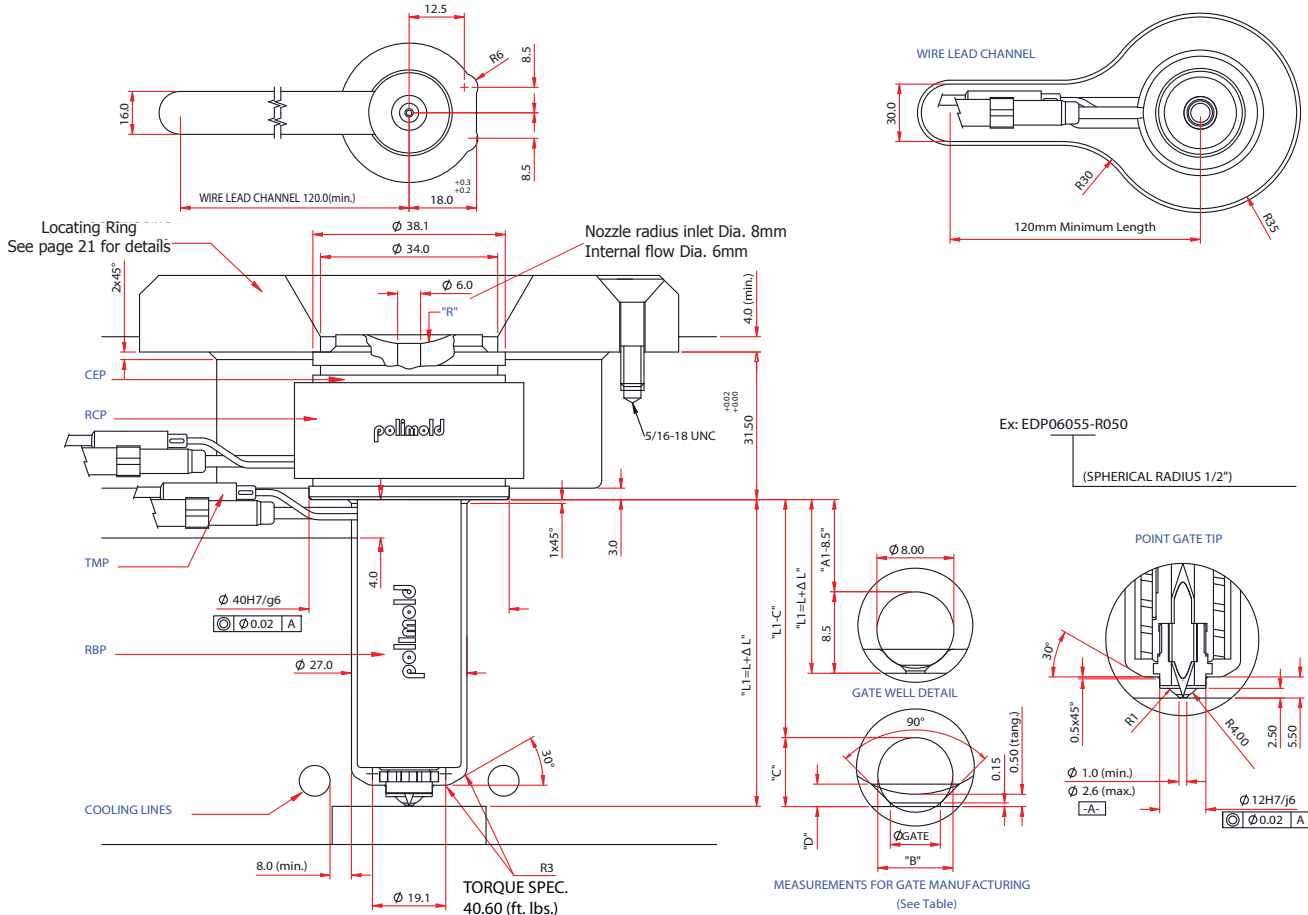


TABLE FOR GATE MANUFACTURING

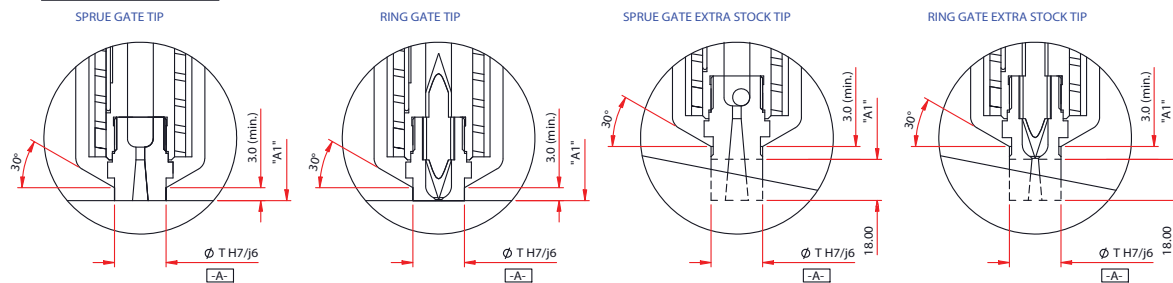
NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS							
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS					
		NOZZLE BODY	NOZZLE BODY HEATER	WATTS	HEAD HEATER	WATTS	THERMOCOUPLE
EDP06034-R...	35.00	CEP06034	RBPO6033	295W	RCP38020	295W	TMP01080
EDP06055-R...	55.00	CEP06055	RBPO6053	460W			TMP01080
EDP06067-R...	67.50	CEP06067	RBPO6065	460W			TMP01100
EDP06080-R...	80.00	CEP06080	RBPO6078	690W			TMP01120
EDP06092-R...	92.50	CEP06092	RBPO6092	690W			TMP01140
EDP06105-R...	105.00	CEP06105	RBPO6104	760W			TMP01160
EDP06130-R...	130.00	CEP06130	RBPO6129	850W			TMP01180
EDP06155-R...	155.00	CEP06155	RBPO6155	1100W			TMP01200

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

GATE DIAMETER FOR NOZZLE	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	Ø 3.00	1.86	0.70
Ø 1.6		2.97	0.75
Ø 1.8		2.87	0.82
Ø 2.0	Ø 4.00	2.77	0.91
Ø 2.2		3.88	1.02
Ø 2.4		3.78	1.18
Ø 2.6		3.68	1.54

BUSHING THERMAL EXPANSION "Δ L" = L x 0.000064 x (Setpoint °F - 68°F)

## TIP OPTIONS

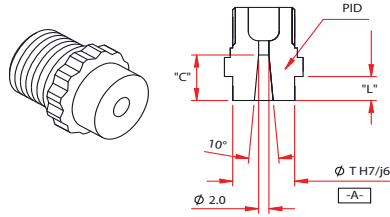




# Polimold® Polimax® 200 Series Tips



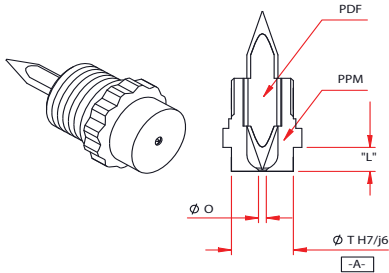
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## SPRUE GATE TIP (\* Extended Tip Length)

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**

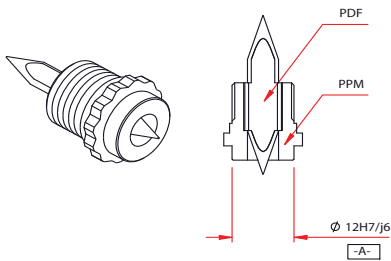
## RING GATE TIP (\* Extended Tip Length)



ASSEMBLY	ASSEMBLY COMPONENTS		MATERIAL	DIMENSION "T"	DIMENSION "O"	DIMENSION "L"
	NEEDLE	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	23.50*
PMA06105-A		PPM06605		12.00	1.50	
PMA06106-A		PPM06606		12.00	2.00	
PMA06107-A		PPM06607		18.00	1.50	
PMA06108-A		PPM06608		18.00	2.00	5.50
PMA06109-A	PPM06601	STANDARD NEEDLE (COATED IN "Ni")	12.00	1.50		
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		
PMA06114-A	PPM06606		12.00	2.00		
PMA06115-A	PPM06607		18.00	1.50		
PMA06116-A	PPM06608		18.00	2.00	23.50*	

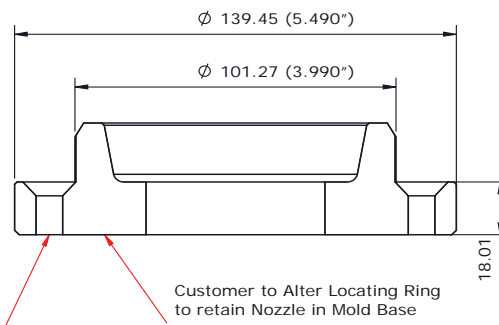
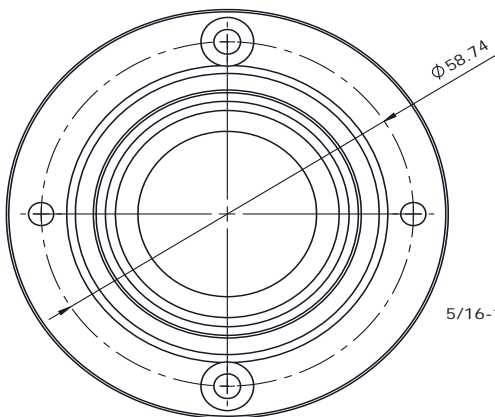
## TORQUE SPECIFICATION

55Nm  
(40.5 Ft/Lbs)



## 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

# Polimold® Polimax® 500 Series Standard Hot Sprue Bushing



Recommended for processing resins under 500°F

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Nozzle radius inlet Dia. 12mm  
Internal flow Dia. 10mm

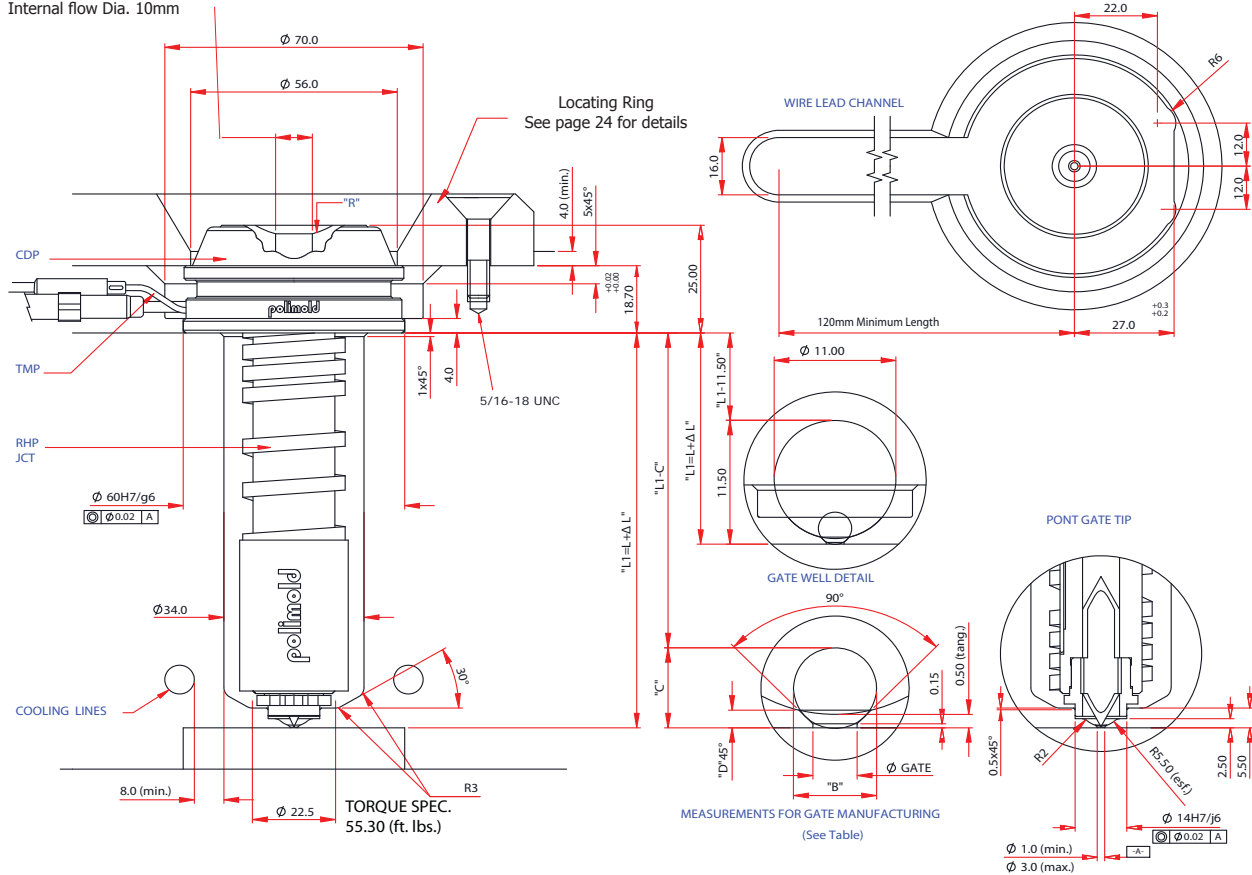


TABLE FOR GATE MANUFACTURING

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

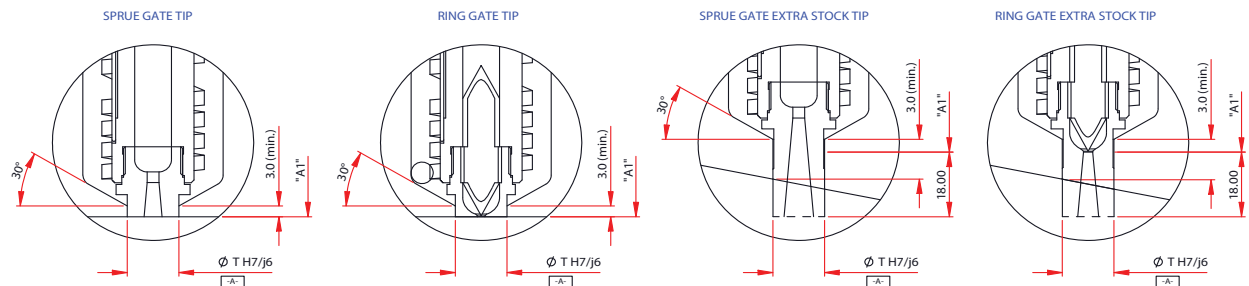
GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"
Ø 1.0		2.06	0.58
Ø 1.2	Ø 2.00	1.96	0.60
Ø 1.4		1.86	0.63
Ø 1.6		2.97	0.66
Ø 1.8	Ø 3.00	2.87	0.69
Ø 2.0		2.77	0.73
Ø 2.2		3.88	0.78
Ø 2.4	Ø 4.00	3.78	0.83
Ø 2.6		3.68	0.89
Ø 2.8		4.78	0.96
Ø 3.0	Ø 5.00	4.68	1.05

NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS						
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS				
		NOZZLE BODY	NOZZLE BODY HEATER	JACKETS	WATTS	THERMOCOUPLE
HDP10035-R...	35.00	CDP10035	RHP10030	JCT10030	260W	TMP01080
HDP10055-R...	55.00	CDP10055	RHP10054	JCT10050	400W	TMP01080
HDP10067-R...	67.50	CDP10067	RHP10067	JCT10050	400W	TMP01100
HDP10080-R...	80.00	CDP10080	RHP10080	JCT10050	500W	TMP01120
HDP10092-R...	92.50	CDP10092	RHP10092	JCT10050	690W	TMP01140
HDP10105-R...	105.00	CDP10105	RHP10105	JCT10100	690W	TMP01160
HDP10130-R...	130.00	CDP10130	RHP10130	JCT10100	760W	TMP01180
HDP10155-R...	155.00	CDP10155	RHP10156	JCT10100	760W	TMP01200
HDP10180-R...	180.00	CDP10180	RHP10181	JCT10100	850W	TMP01220

Ex: HDP10055-R050

BUSHING THERMAL EXPANSION "Δ L" = L x 0.000064 x (Setpoint °F - 68°F)

## TIP OPTIONS

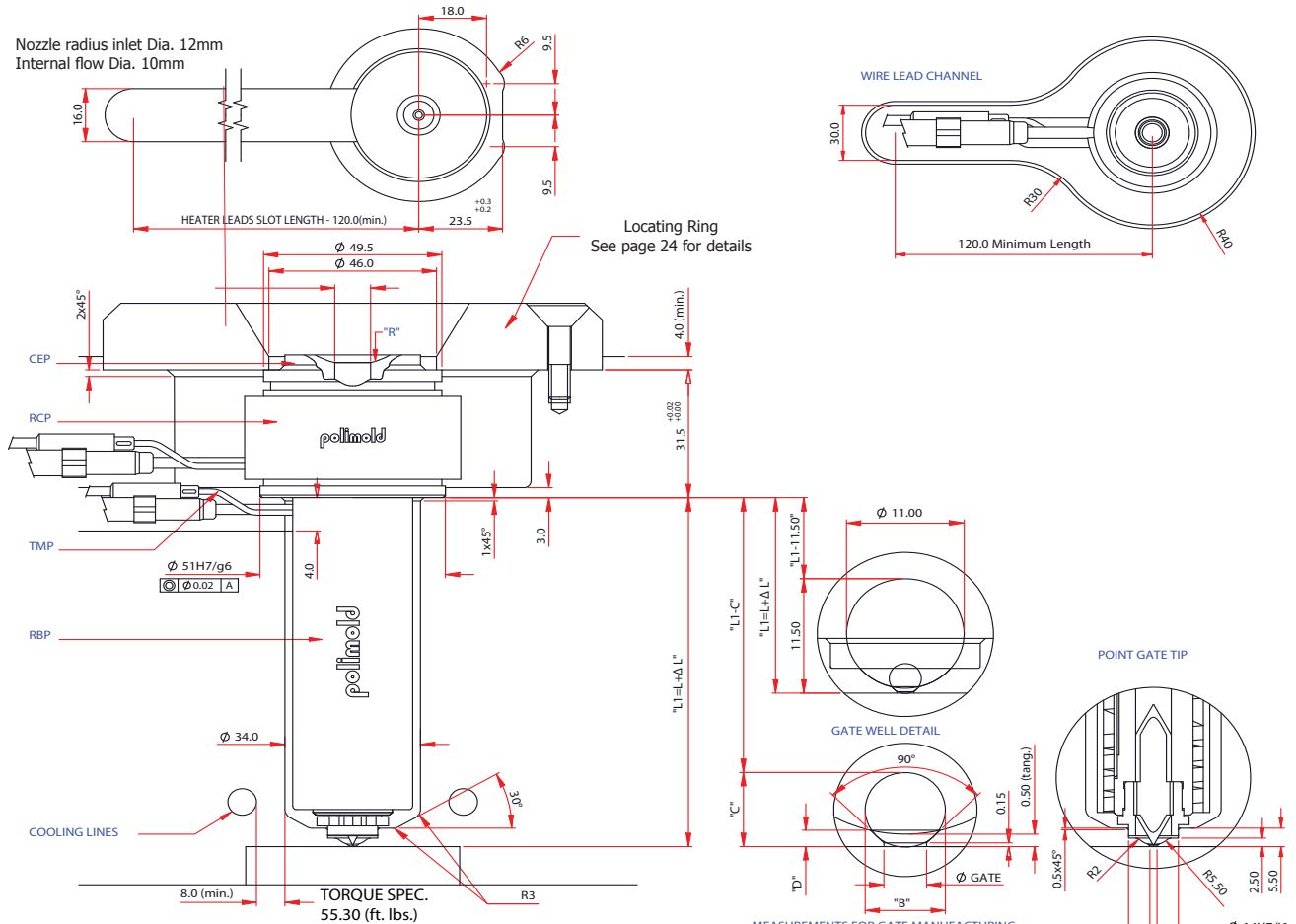


# Polimold® Polimax® 500 Series High Performance Hot Sprue Bushing



Recommended for processing resins over 500°F

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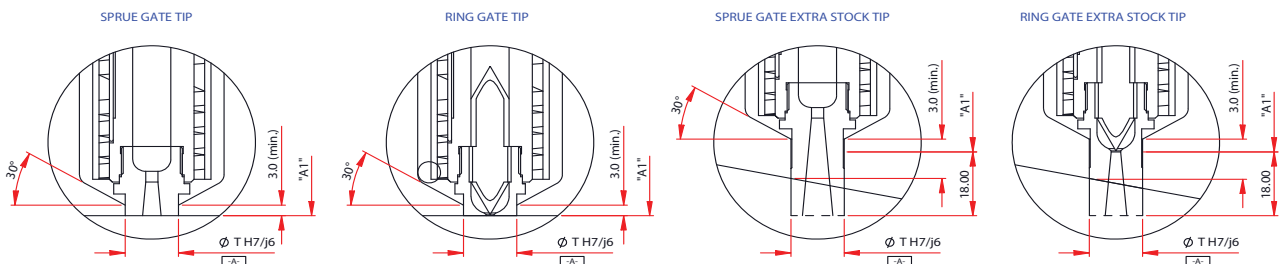


NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS							
ASSEMBLY PART NUMBER	DIMENSION "L"	ASSEMBLY COMPONENTS					
		NOZZLEBODY	HEATER	WATTS	HEAD HEATER	WATTS	THERMOCOUPLE
EDP10035-R...	35.00	CEP10035	RBP10036	350W	RCP50020	400W	TMP01080
EDP10060-R...	60.00	CEP10060	RBP10056	500W			TMP01080
EDP10072-R...	72.50	CEP10072	RBP10069	690W			TMP01100
EDP10085-R...	85.00	CEP10085	RBP10081	760W			TMP01120
EDP10097-R...	97.50	CEP10097	RBP10094	760W			TMP01140
EDP10110-R...	110.00	CEP10110	RBP10107	760W			TMP01160
EDP10135-R...	135.00	CEP10135	RBP10131	850W			TMP01180
EDP10160-R...	160.00	CEP10160	RBP10158	1100W			TMP01200
EDP10185-R...	185.00	CEP10185	RBP10183	1300W			TMP01220

Ex: EDP10060-R050  
(SPHERICAL RADIUS 1/2")

BUSHING THERMAL EXPANSION "Δ L" = L x 0.000064 x (Setpoint °F - 68°F)

## TIP OPTIONS



MEASUREMENTS FOR GATE MANUFACTURING (See Table)

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

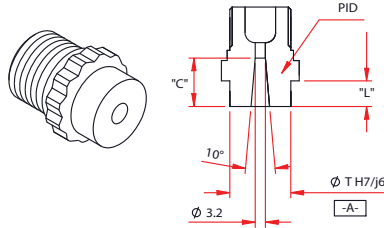
RADIUS CODE FOR NOZZLE	DIMENSION "R"	DIMENSION "D"
...R050	1/2"	
...R075	3/4"	
...D090		90°

# Polimold® Polimax® 500 Series Tips



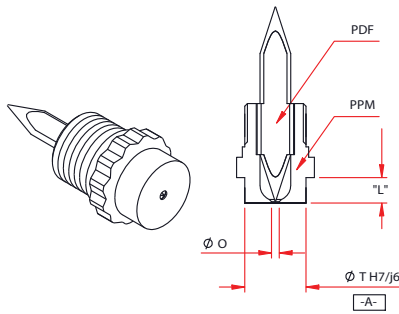
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## SPRUE GATE TIP (\* Extended Tip Length)



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**

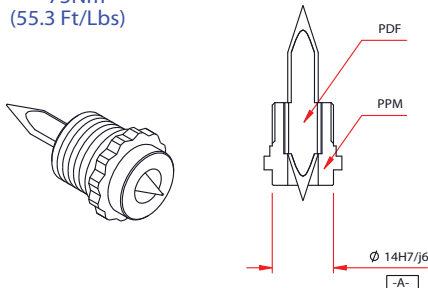
## RING GATE TIP (\* Extended Tip Length)



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		PPM10606	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		PPM10606	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		

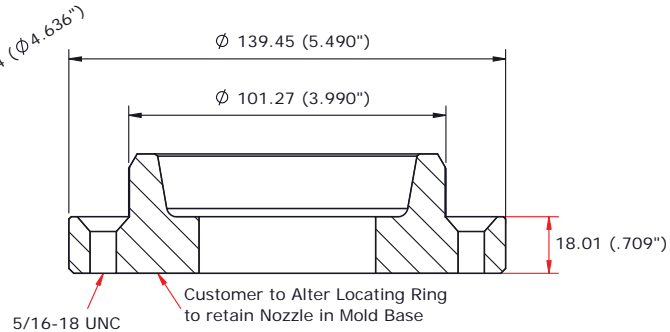
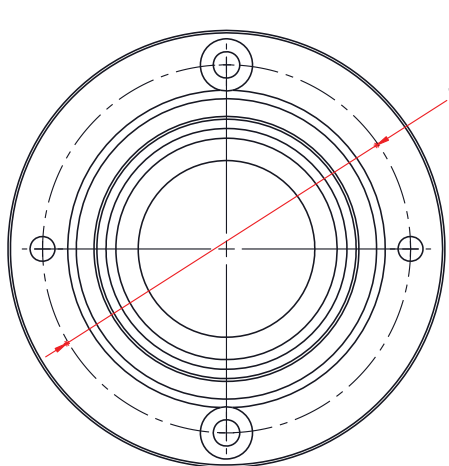
## TORQUE SPECIFICATION

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

# Polimold® Polimax® 800 Series Standard Hot Sprue Bushing



Recommended for processing resins under 500°F

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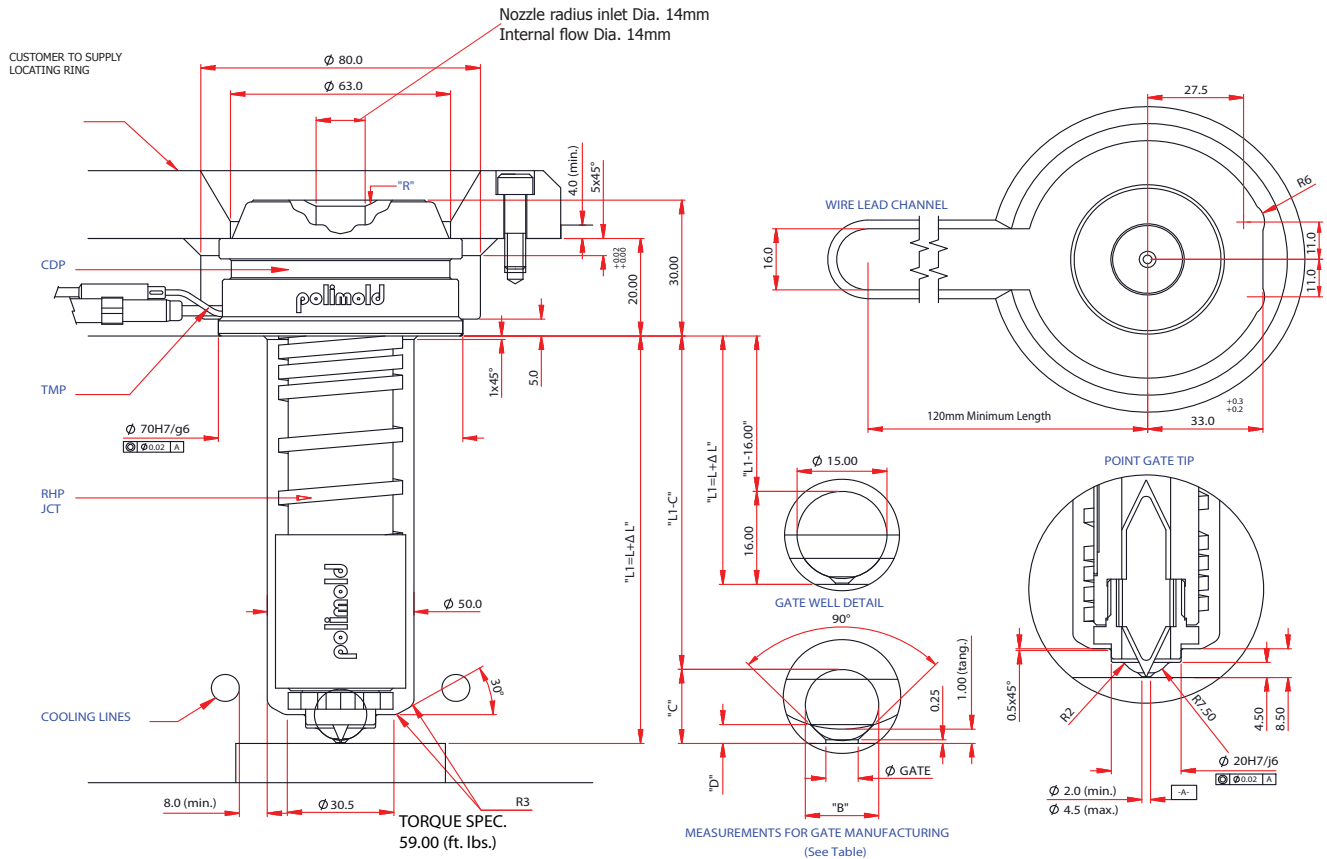


TABLE FOR GATE MANUFACTURING

GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 2.0	5.29	1.28	
Ø 2.2	5.19	1.32	
Ø 2.4	5.09	1.36	
Ø 2.6	4.99	1.42	
Ø 2.8	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	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	

NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS								
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS						
		NOZZLE BODY	NOZZLE BODY HEATER	JACKETS	HEATER REFLECTOR	NOZZLE BODY SPACER RING	WATTS	THERMOCOUPLE
HDP14075-R...	75.00	CDP14075	RHP14070	JCT14050	---	---	610W	TMP01100
HDP14100-R...	100.00	CDP14100	RHP14095	JCT14050	---	---	690W	TMP01140
HDP14125-R...	125.00	CDP14125	RHP14120	JCT14100	---	---	760W	TMP01160
HDP14150-R...	150.00	CDP14150	RHP14145	JCT14100	---	---	850W	TMP01180
HDP14175-R...	175.00	CDP14175	RHP14170	JCT14100	---	---	1100W	TMP01200
HDP14200-R...	200.00	CDP14200	RHP14195	JCT14051	TUBO14145	AEP14604	900W	TMP01220
HDP14225-R...	225.00	CDP14225	RHP14220	JCT14051	TUBO14170	AEP14604	900W	TMP01260
HDP14275-R...	275.00	CDP14275	RHP14270	JCT14051	TUBO14220	AEP14604	1100W	TMP01300

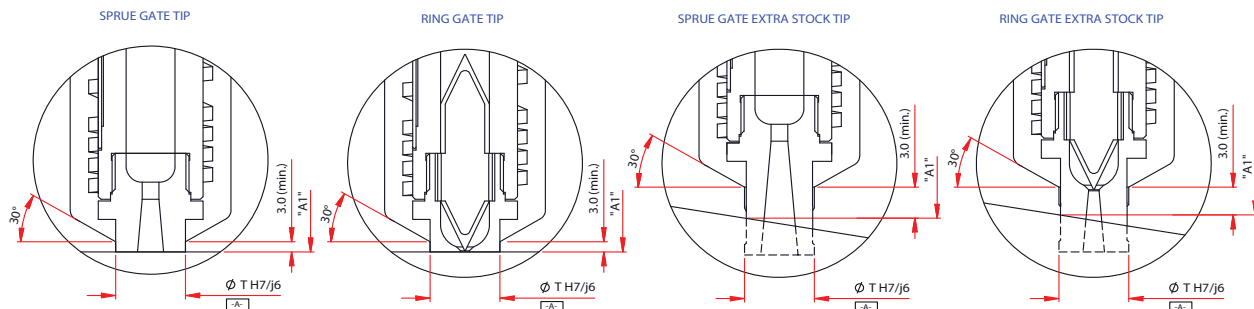
Ex: HDP14075-R075

(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"

## TIP OPTIONS



# Polimold® Polimax® 800 Series Standard Hot Sprue Bushing

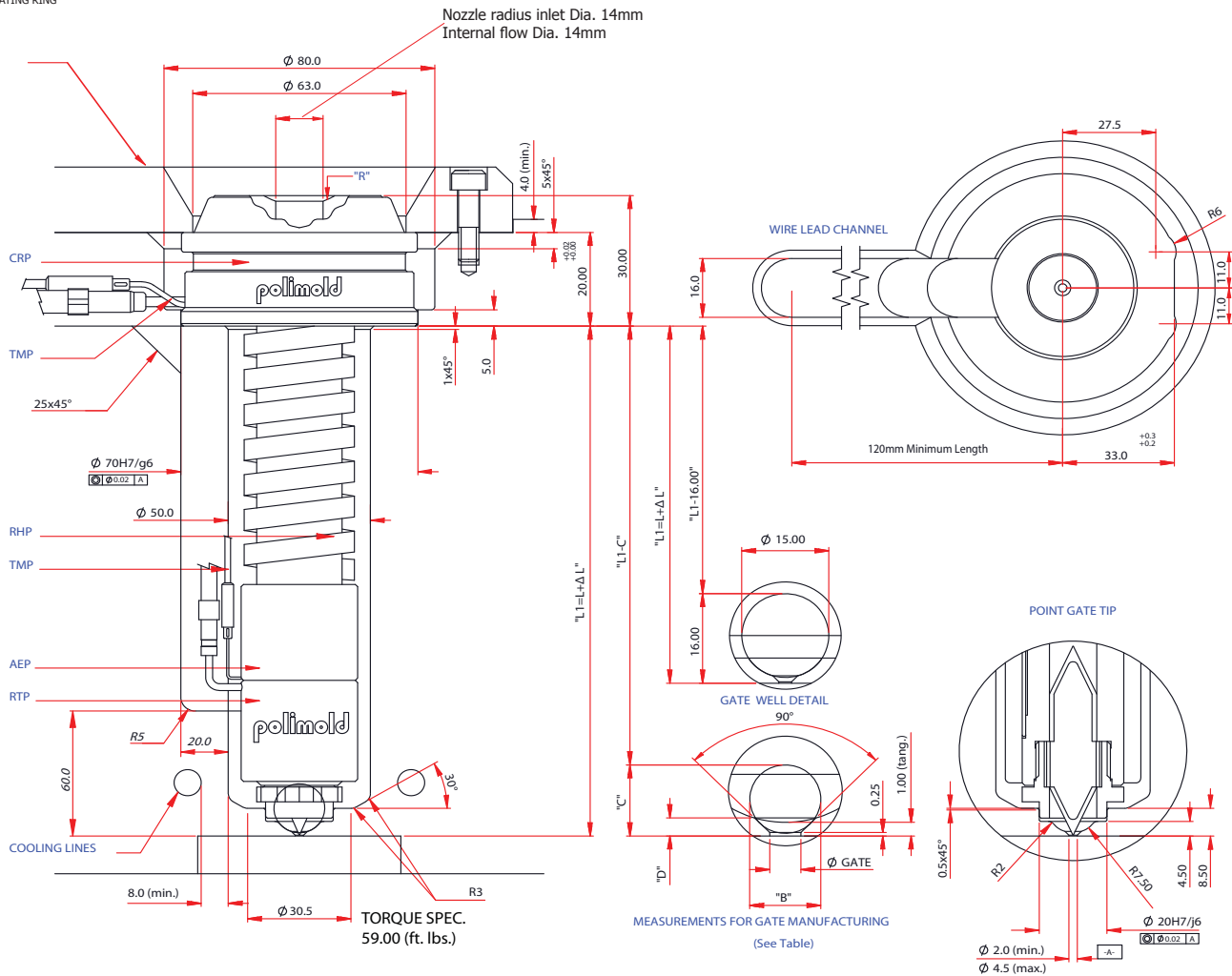


NOTE: THIS HOT SPRUE BUSHING REQUIRES 2 ZONES OF CONTROL

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								
		NOZZLE BODY	NOZZLE BODY HEATER	HEATER REFLECTOR	WATTS	THERMOCOUPLE	LOWER NOZZLE BODY HEATER	WATTS	NOZZLE BODY SPACER RING	THERMOCOUPLE (Optional)
HDP14325-A-R...	325.00	CDP14325	RHP14220	TUBO14220	900W	TMP01220				
HDP14375-A-R...	375.00	CDP14375	RHP14270	TUBO14270	1100W	TMP01360	RTP14045	610W	AEP14603	TMP01080
HDP14425-A-R...	425.00	CDP14425	RHP14320	TUBO14320	1100W	TMP01400				
HDP14475-A-R...	475.00	CDP14475	RHP14370	TUBO14370	1100W	TMP01460				

TABLE FOR GATE MANUFACTURING

GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 2.0		5.29	1.28
Ø 2.2	Ø 5.00	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	Ø 8.00	5.80	1.68
Ø 3.6		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

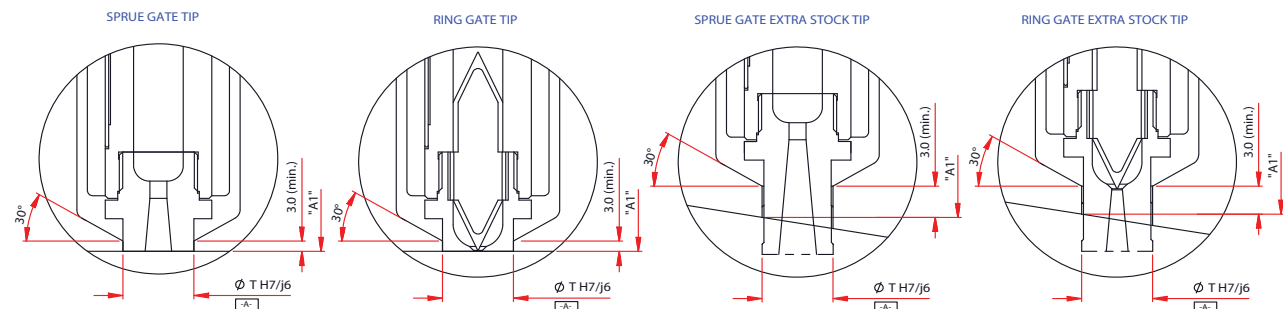
Ex: HDP14075-R075

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

(SPHERICAL RADIUS 3/4")

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

## TIP OPTIONS



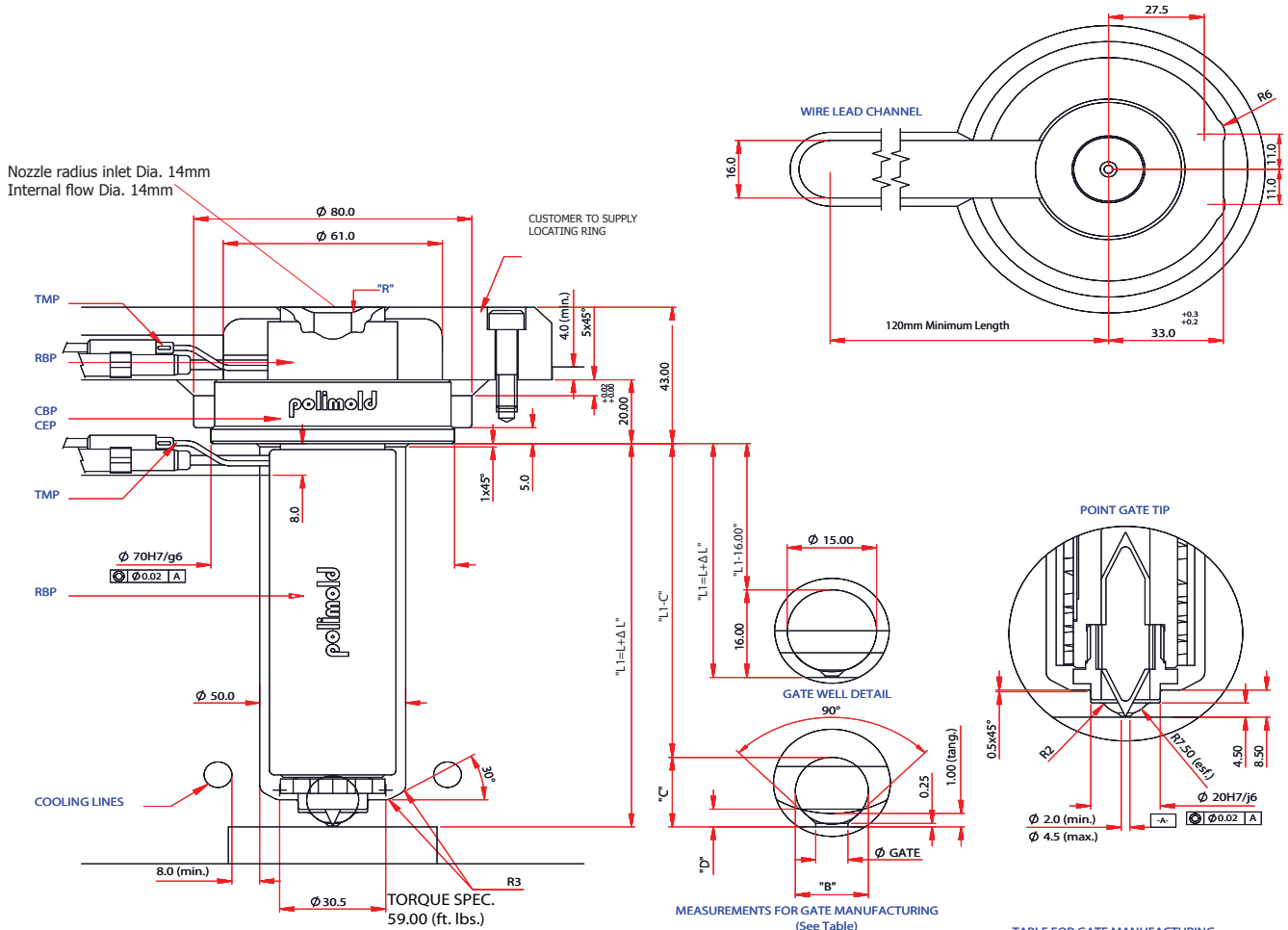


# Polimold® Polimax® 800 Series High Performance Hot Sprue Bushing



Recommended for processing resins over 500°F  
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		

GATE DIAMETER	DIMENSION		
	"B"	"C"	"D"
Ø 2.0		5.29	1.28
Ø 2.2	Ø 5.00	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	Ø 8.00	5.80	1.68
Ø 3.6		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

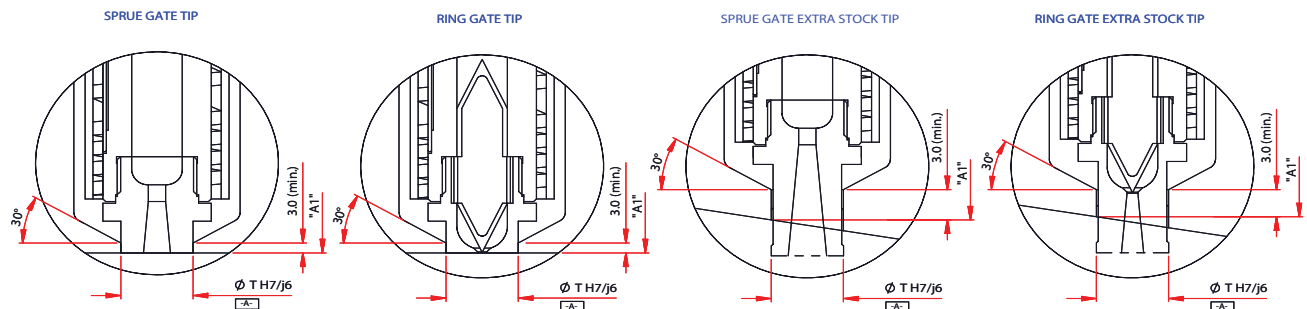
Ex: EDP14090-R075

(SPHERICAL RADIUS 3/4")

BUSHING THERMAL EXPANSION "Δ L" = L x 0.000064 x (Setpoint °F - 68°F)

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

## TIP OPTIONS



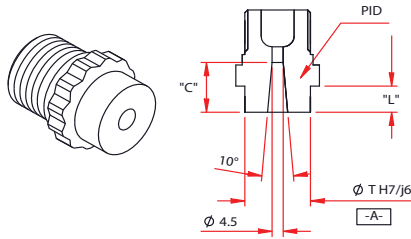


# Polimold® Polimax® 800 Series Tips



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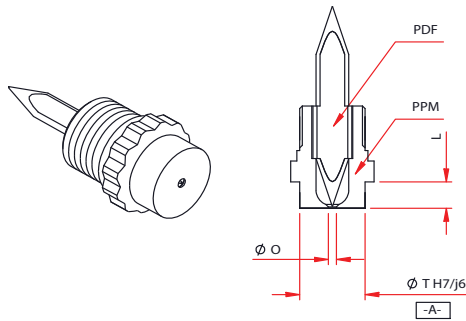
## SPRUE GATE TIP (\*Extended Tip Length)



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

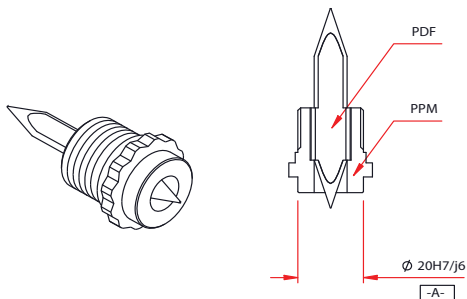
## RING GATE TIP (\*Extend Tip Length)



ASSEMBLY	ASSEMBLY COMPONENTS			DIMENSION		
	NEEDLE	RETAINER TIP	MATERIAL	"T"	"O"	"L"
	PMA14009-A	PDF14502	PPM14601	HIGH PERFORMANCE	20.00	2.50
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

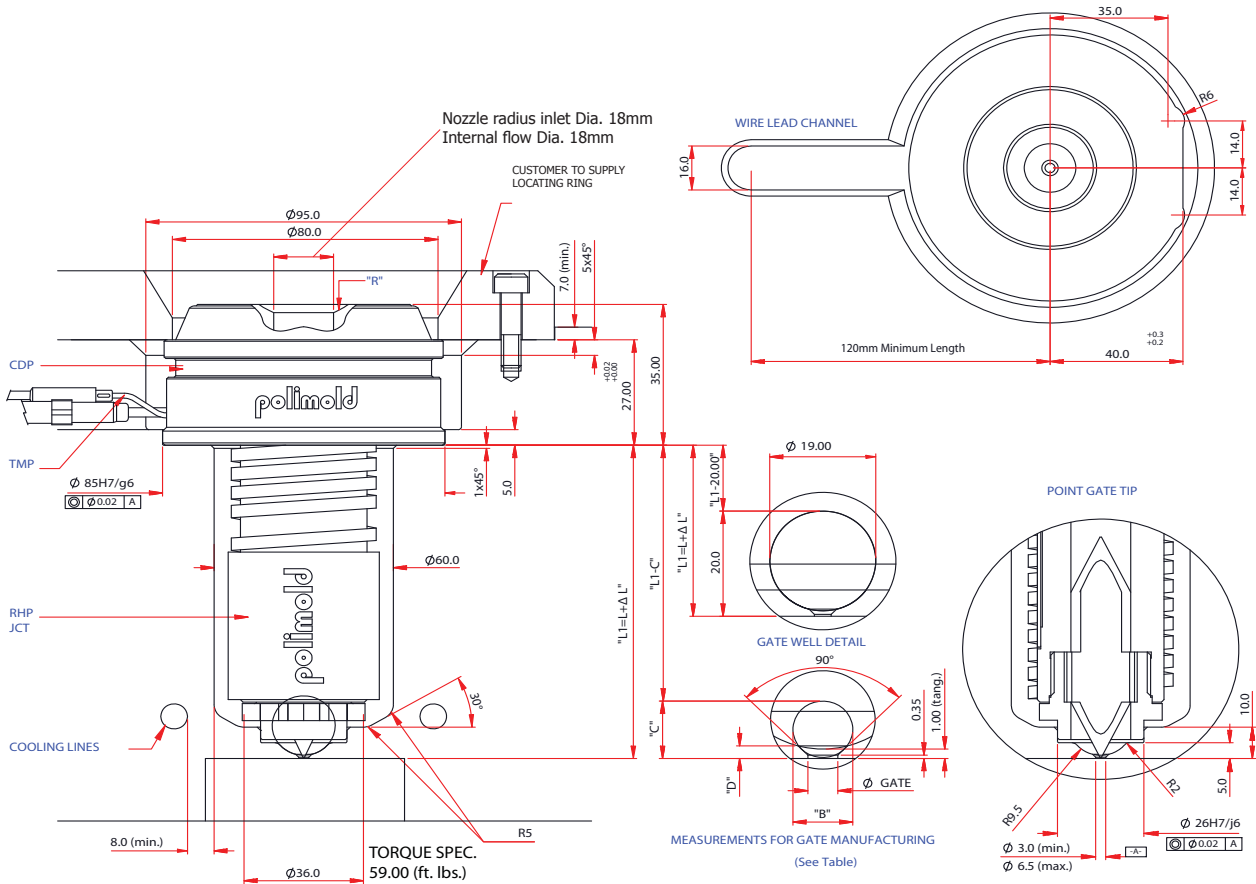
ASSEMBLY	POINT GATE COMPONENTS		
	NEEDLE	RETAINER	MATERIAL
PVM14002-A	PDF14502	PPM14609	HIGH PERFORMANCE NEEDLE
PVM14009-A	PDF14802	PPM14609	STANDARD NEEDLE (COATED IN "Ni")

# Polimold® Polimax® 1000 Series Standard Hot Sprue Bushing



Recommended for processing resin under 500°F

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ASSEMBLY PART NUMBER	DIMENSION "L"	NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS						
		NOZZLE BODY	NOZZLE BODY HEATER	JACKETS	HEATER REFLECTOR	RING SPACER	WATTS	THERMOCOUPLE
HDP18100-R...	100.00	CDP18100	RHP18093	JCT18050	---	---	1100W	TMP01140
HDP18125-R...	125.00	CDP18125	RHP18118	JCT18100	---	---	1100W	TMP01160
HDP18150-R...	150.00	CDP18150	RHP18143	JCT18100	---	---	1100W	TMP01180
HDP18175-R...	175.00	CDP18175	RHP18168	JCT18100	---	---	1100W	TMP01200
HDP18200-R...	200.00	CDP18200	RHP18193	JCT18051	TUBO18143	AEP20604	1100W	TMP01240
HDP18225-R...	225.00	CDP18225	RHP18218	JCT18051	TUBO18168	AEP20604	1100W	TMP01260
HDP18250-R...	250.00	CDP18250	RHP18243	JCT18051	TUBO18193	AEP20604	1100W	TMP01280
HDP18300-R...	300.00	CDP18300	RHP18293	JCT18051	TUBO18243	AEP20604	1100W	TMP01340

TABLE FOR GATE MANUFACTURING

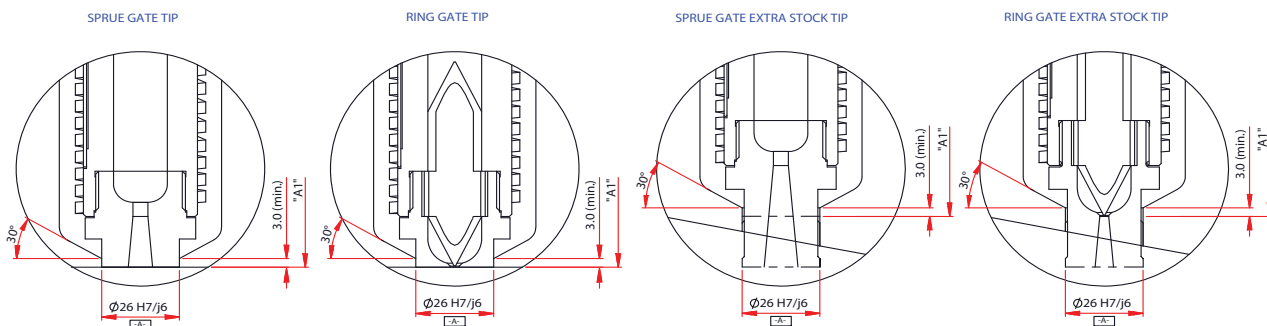
RADIUS CODE	DIMENSION "R"	GATE DIAMETER	DIMENSION		
			"B"	"C"	"D"
...R050	1/2"	Ø 3.0	6.09	1.33	
		Ø 3.5	5.84	1.43	
		Ø 4.0	5.59	1.56	
		Ø 4.5	10.17	1.71	
...R075	3/4"	Ø 5.0	9.92	1.91	
		Ø 5.5	9.67	2.17	
		Ø 6.0	9.42	2.55	
		Ø 6.5	9.17	3.32	

Ex: HDP18100-R075

$$\text{BUSHING THERMAL EXPANSION } \Delta L = L \times 0.000064 \times (\text{Setpoint } ^\circ\text{F} - 68^\circ\text{F})$$

(SPHERICAL RADIUS 3/4")

## TIP OPTIONS



# Polimold® Polimax® 1000 Series Standard Hot Sprue Bushing



Recommended for processing resins under 500°F

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NOTE: THIS HOT SPRUE BUSHING REQUIRES 2 ZONES OF CONTROL

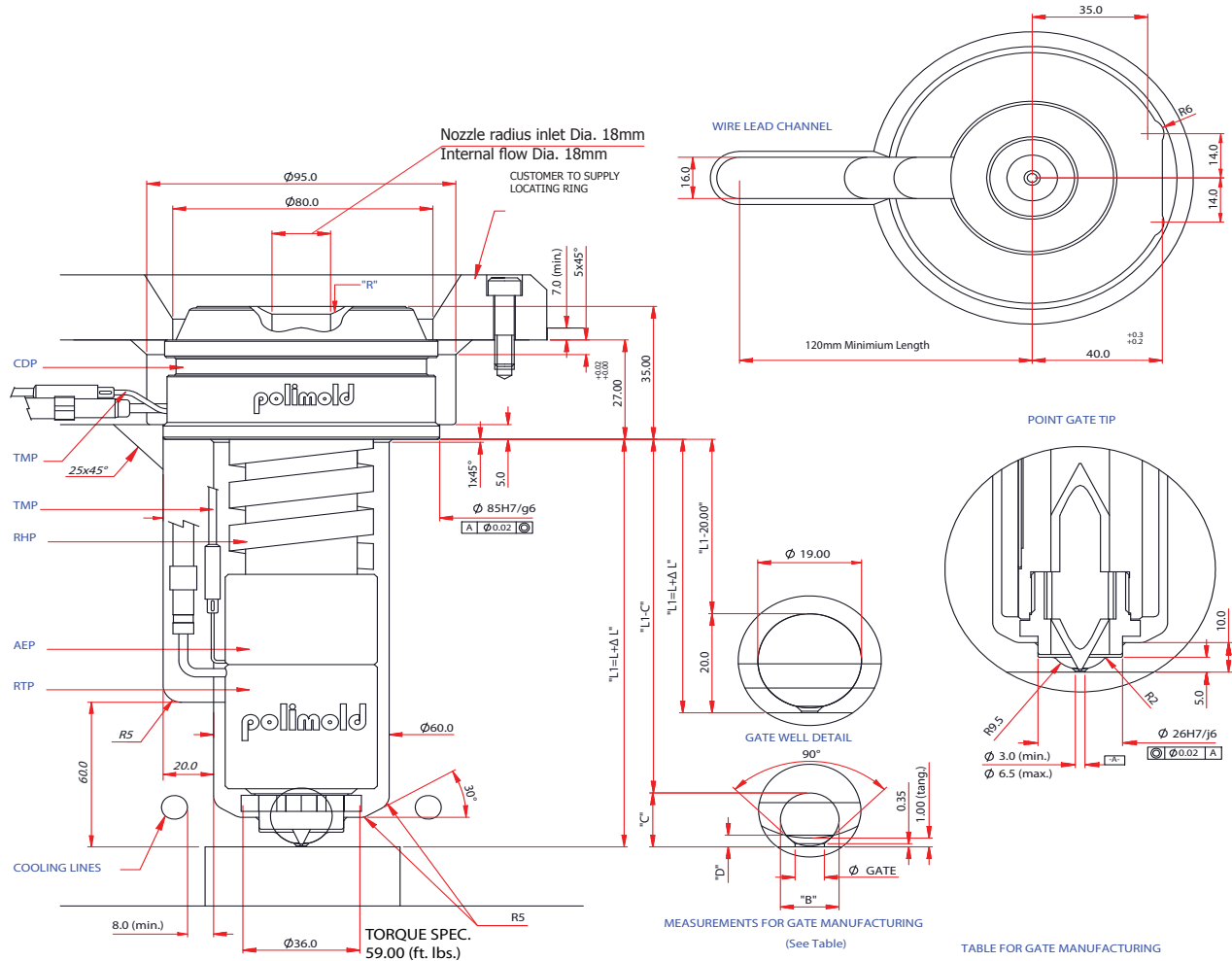


TABLE FOR GATE MANUFACTURING

NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS										
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS					COMPONENTS			
		NOZZLE BODY	UPPER NOZZLE BODY HEATER	HEATER REFLECTOR	WATTS	THERMOCOUPLE	LOWER NOZZLE BODY HEATER	WATTS	RING SPACER	THERMOCOUPLE (Optional)
HDP18350-R...	350.00	CDP18350	RHP18243	TUBO18243	1100W	TMP01340				
HDP18400-R...	400.00	CDP18400	RHP18293	TUBO18293	1100W	TMP01380	RTP18045	630W	AEP20603	TMP01080
HDP18450-R...	450.00	CDP18450	RHP18343	TUBO18343	1100W	TMP01440				
HDP18500-R...	500.00	CDP18500	RHP18393	TUBO18393	1100W	TMP01480				

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

Ex: HDP18350-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"

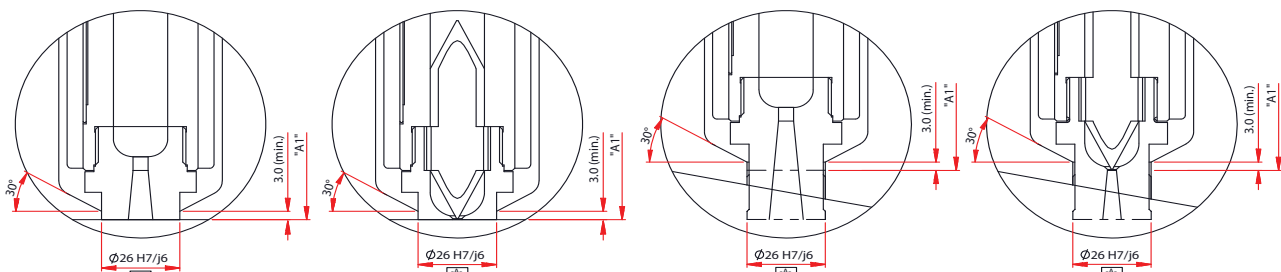
## TIP OPTIONS

SPRUE GATE TIP

RING GATE TIP

SPRUE GATE EXTRA STOCK TIP

RING GATE EXTRA STOCK TIP



# Polimold® Polimax® 1000 Series High Performance Hot Sprue Bushing



Recommended for processing resins over 500°F

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INDUSTRIAL S.A.

NOTE: THIS HOT SPRUE BUSHING REQUIRES 2 ZONES OF CONTROL

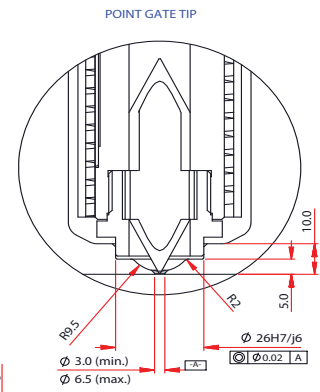
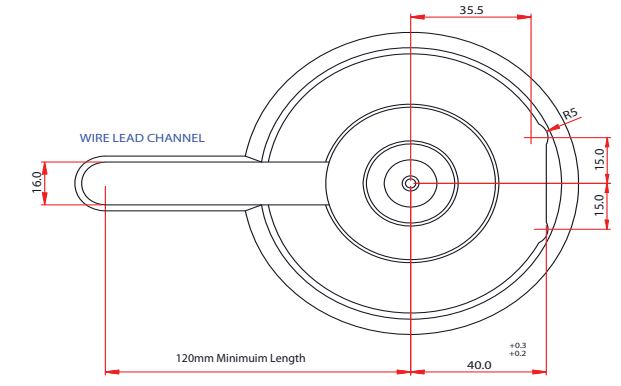
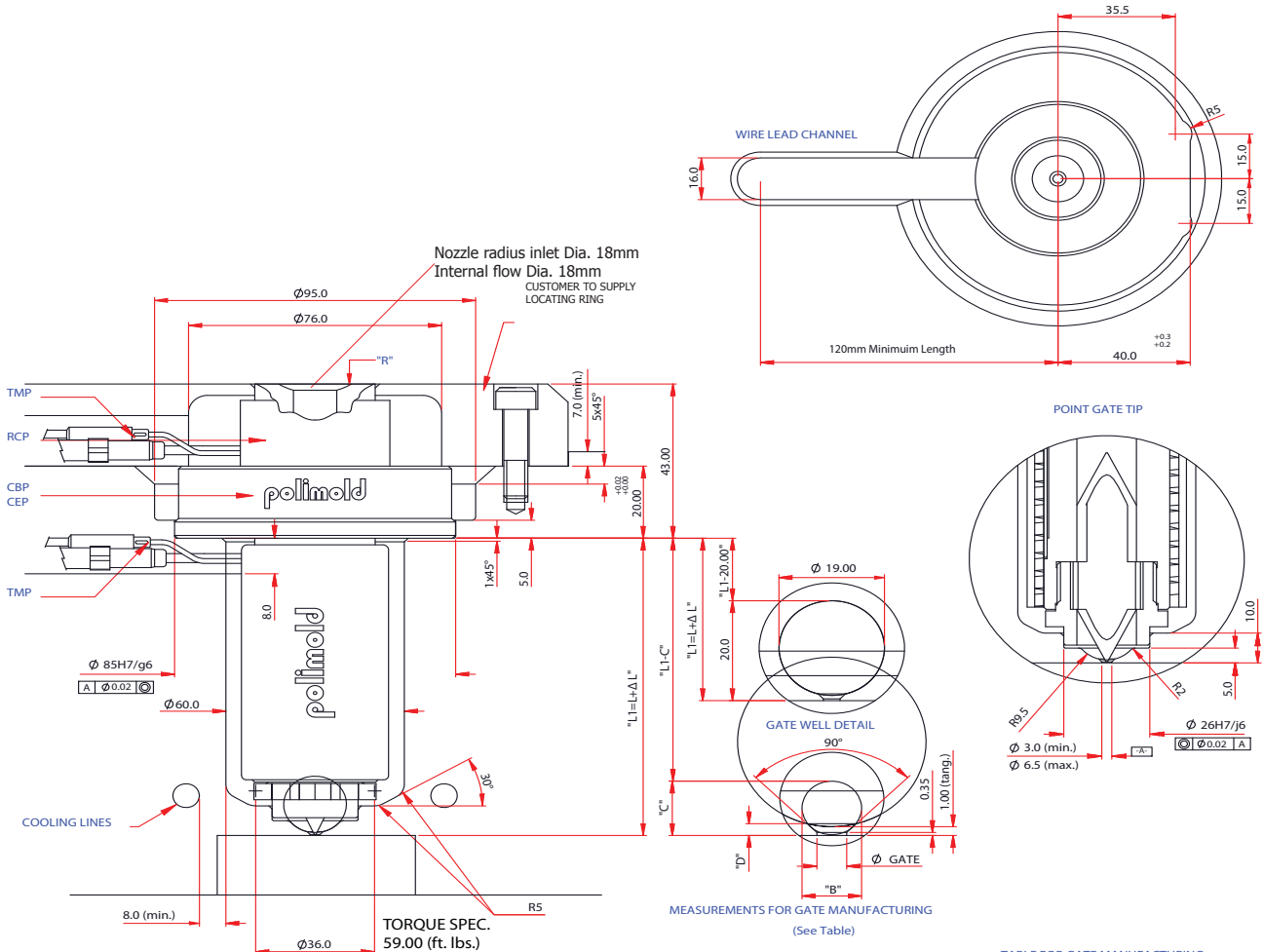


TABLE FOR GATE MANUFACTURING

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	

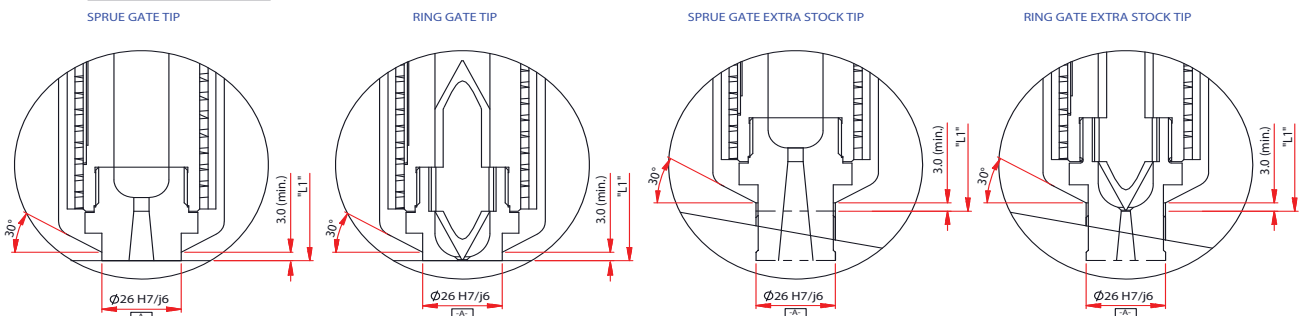
NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS								
ASSEMBLY PART NUMBER	DIMENSION "L"	COMPONENTS						
		NOZZLE BODY	HEAD BUSHING	NOZZLE BODY HEATER	WATTS	THERMOCOUPLE	HEAD HEATER	WATTS
EDP18115-R...	115.00	CEP18115	CBP18001	RBP18093	1100W	TMP01120	RCP38020	295W
EDP18140-R...	140.00	CEP18140		RBP18118	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 "Δ L" = L x 0.0000064 x (Setpoint °F - 68°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

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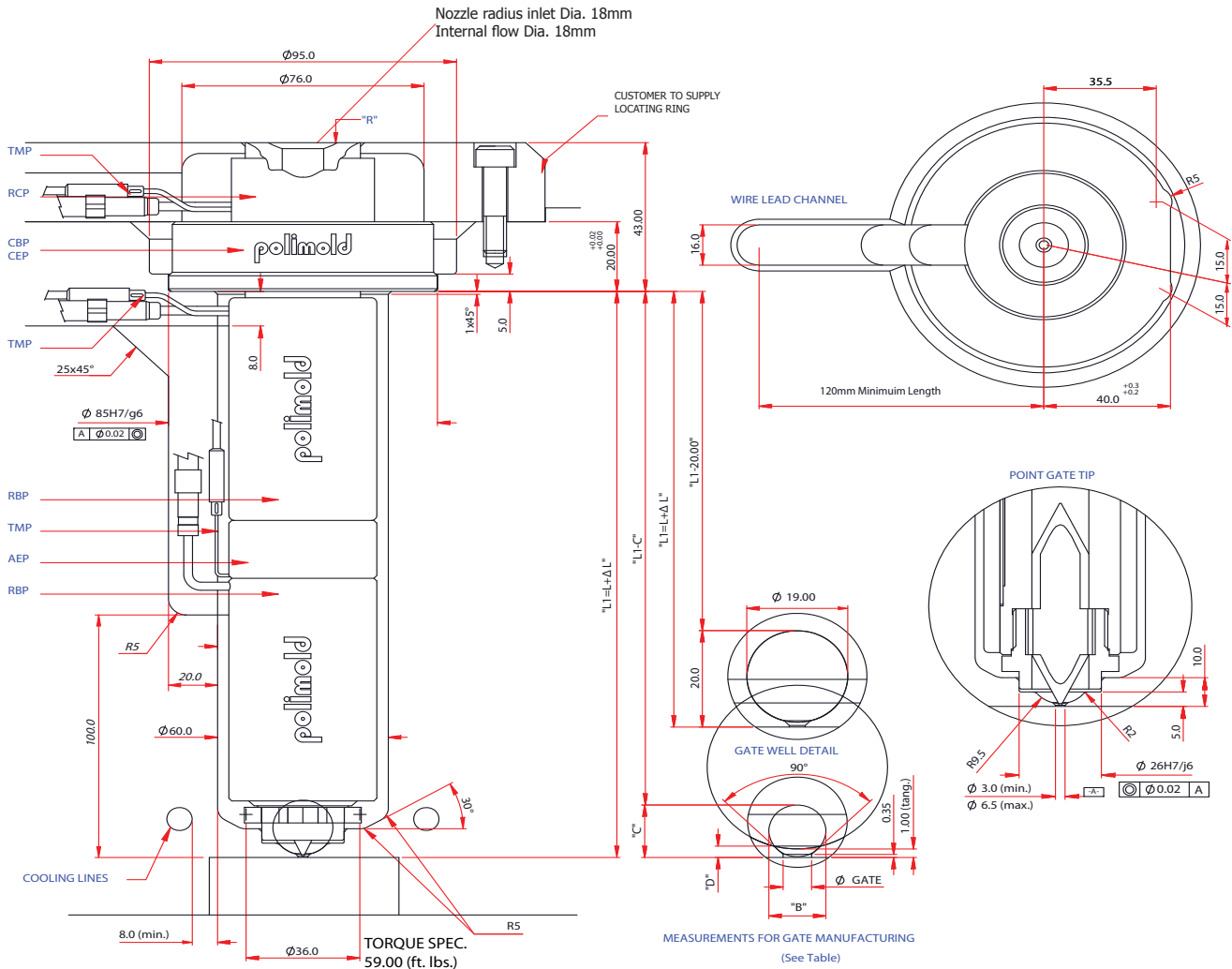


TABLE FOR GATE MANUFACTURING

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

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

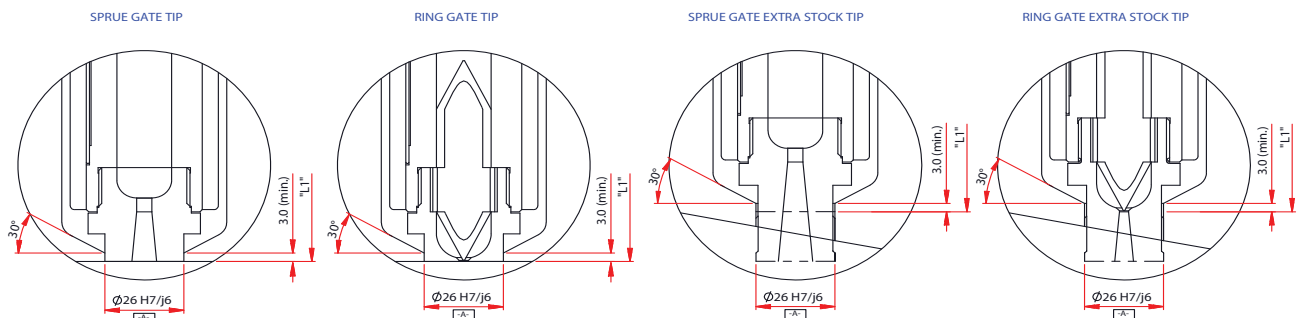
Ex: EDP18300-R075

(SPHERICAL RADIUS 3/4")

BUSHING THERMAL EXPANSION "Δ L" = L x 0.000064 x (Setpoint °F - 68°F)

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

## TIP OPTIONS

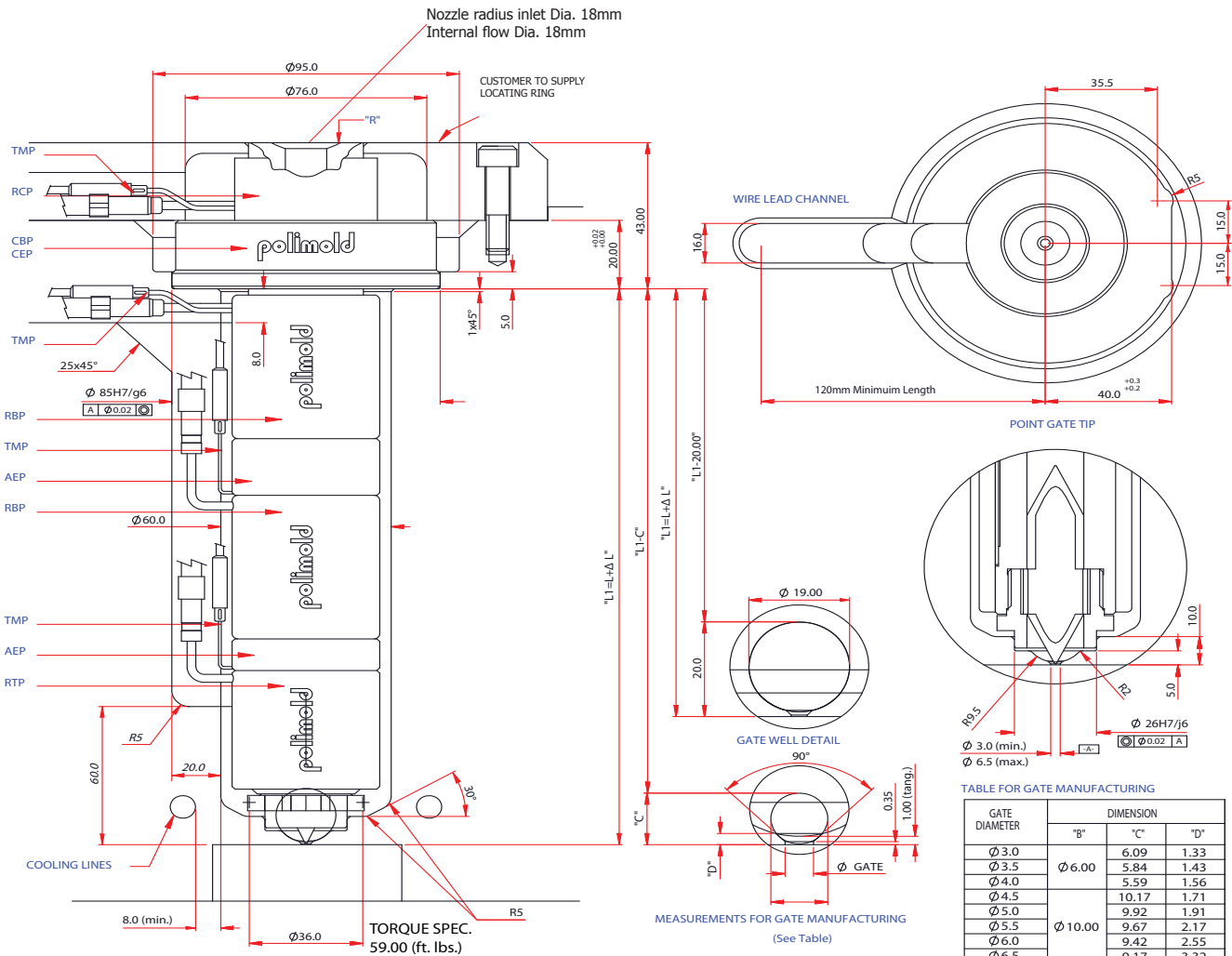


# Polimold® Polimax® 1000 Series High Performance Hot Sprue Bushing



Recommended for processing resins over 500°F

NOTE: THIS HOT SPRUE BUSHING REQUIRES 4 ZONES OF CONTROL



**TABLE FOR GATE MANUFACTURING**

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

**NOZZLE ASSEMBLY AND COMPONENT SPECIFICATIONS**

ASSEMBLY PART NUMBER	DIMENSION "L"	NOZZLE BODY	HEAD BUSHING	NOZZLE BODY HEATERS				COMPONENTS						
				HEATERS	WATTS	THERMOCOUPLE	QUANTITY	UPPER BODY RING SPACER	HEAD HEATER	WATTS	BOTTOM NOZZLE BODY HEATER	WATTS	BOTTOM RING SPACER	THERMOCOUPLE
EDP18350-R...	350.00	CEP18350	CBP18001	RBP18118	1100W	TMP01160	02	AEP20602	RCP38020	295W	RTP18045	630W	AEP20601	TMP01080
EDP18400-R...	400.00	CEP18400		RBP18143	1300W	TMP01180		AEP20602	RCP38020	295W	RTP18045	630W	AEP20601	TMP01080
EDP18450-R...	450.00	CEP18450		RBP18168	1300W	TMP01200		AEP20602	RCP38020	295W	RTP18045	630W	AEP20601	TMP01080

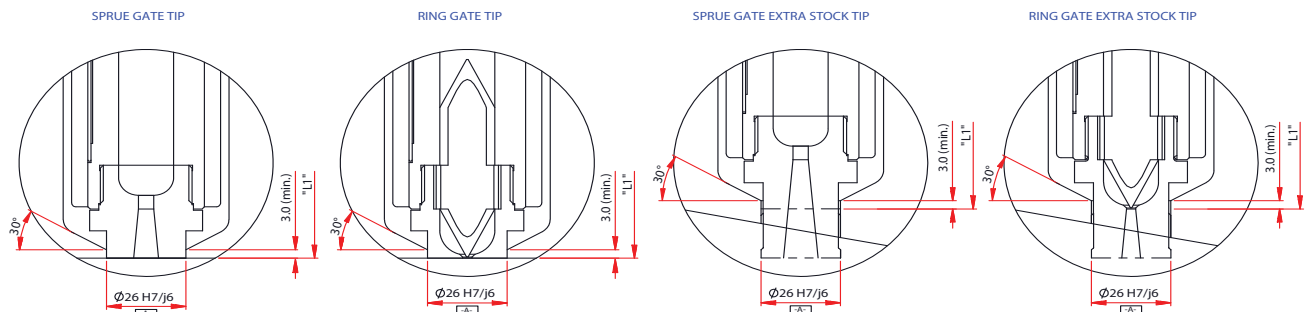
Ex: EDP18350-R075

(SPHERICAL RADIUS 3/4")

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

BUSHING THERMAL EXPANSION "Δ L" = L x 0.000064 x (Setpoint °F - 68°F)

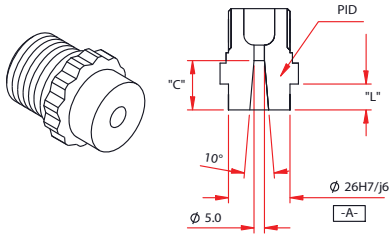
## TIP OPTIONS



# Polimold® Polimax® 1000 Series Tips



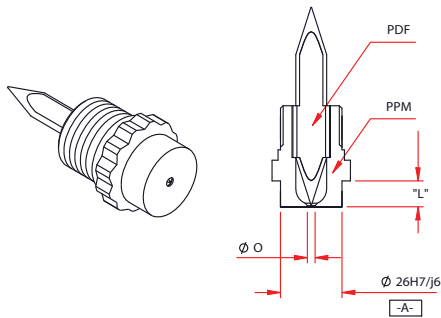
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## SPRUE GATE TIP (\* Extended Tip Length)

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

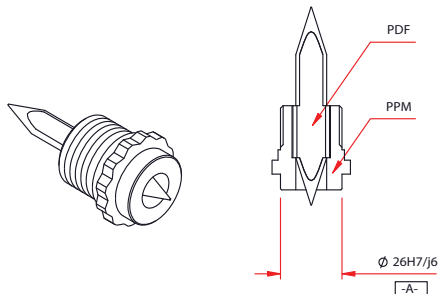


## RING GATE TIP (\* Extended Tip Length)

ASSEMBLY	TIP DIMENSIONS			DIMENSION	
	ASSEMBLY COMPONENTS		MATERIAL	"O"	"L"
	NEEDLE	RETAINER			
PMA18005-A	PDF18502	PPM18601	HIGH PERFORMANCE NEEDLE	3.00	10.50
PMA18006-A		PPM18602		3.50	
PMA18007-A		PPM18603		3.00	28.50*
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	28.50*
PMA18108-A		PPM18604		3.50	

## TORQUE SPECIFICATION

80 Nm  
(59 Ft/Lbs)



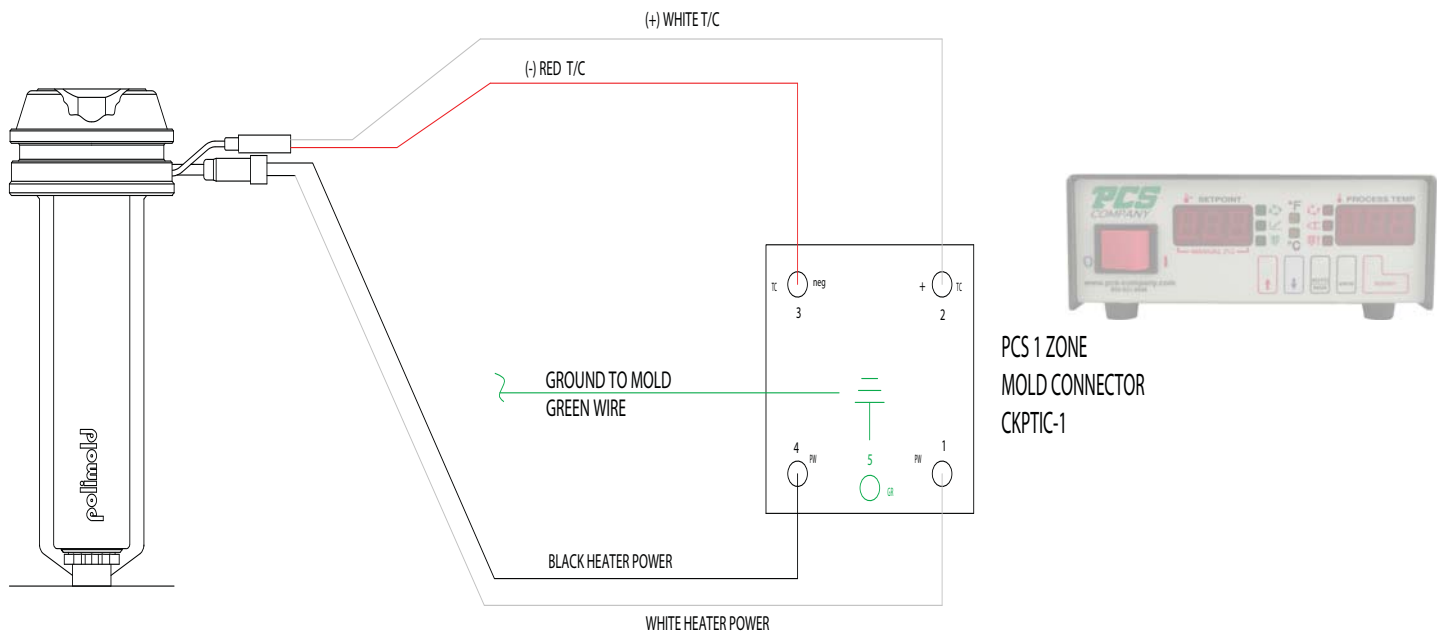
## POINT GATE TIP

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

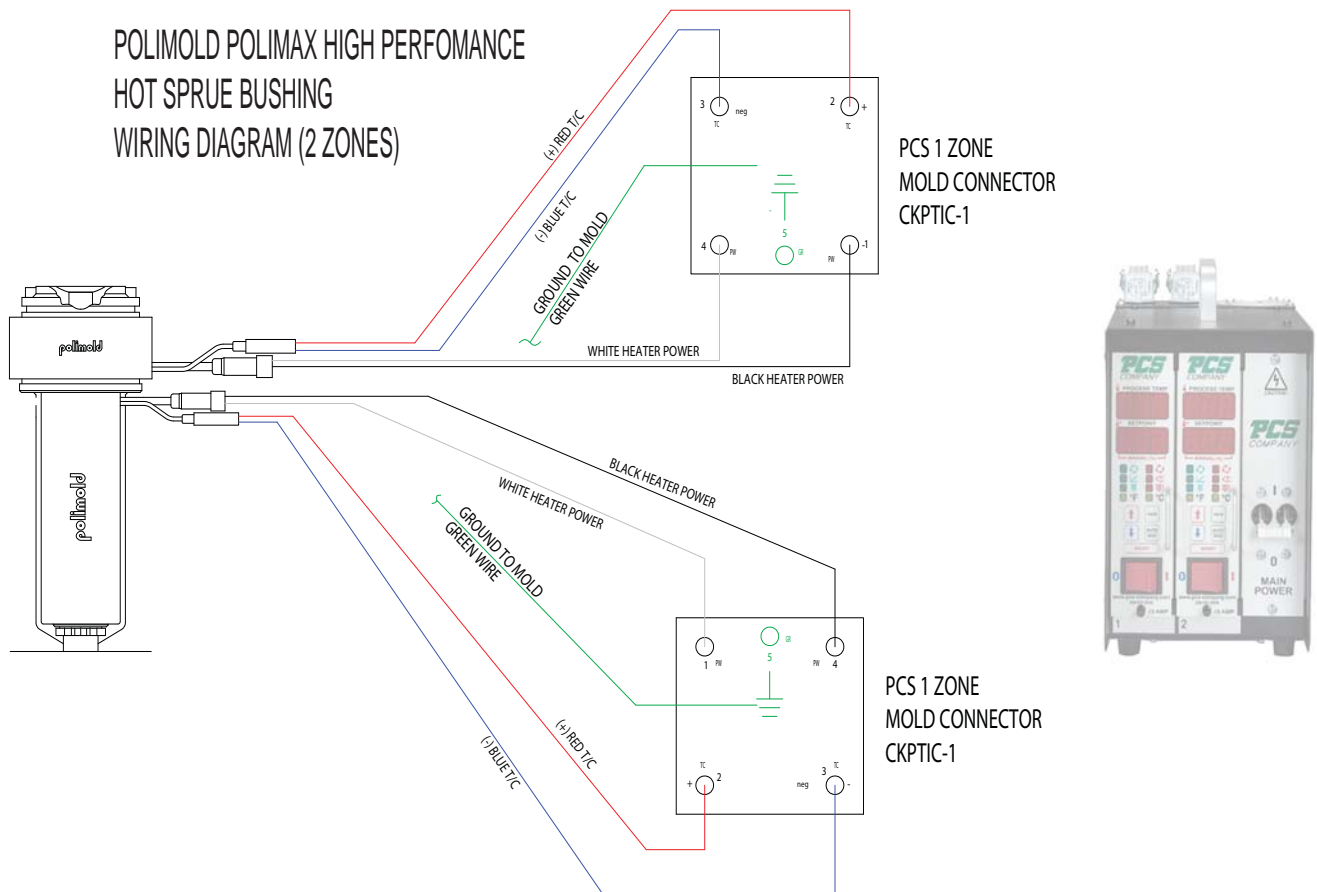
# Polimold® Polimax® Hot Sprue Bushing Wiring Diagrams



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



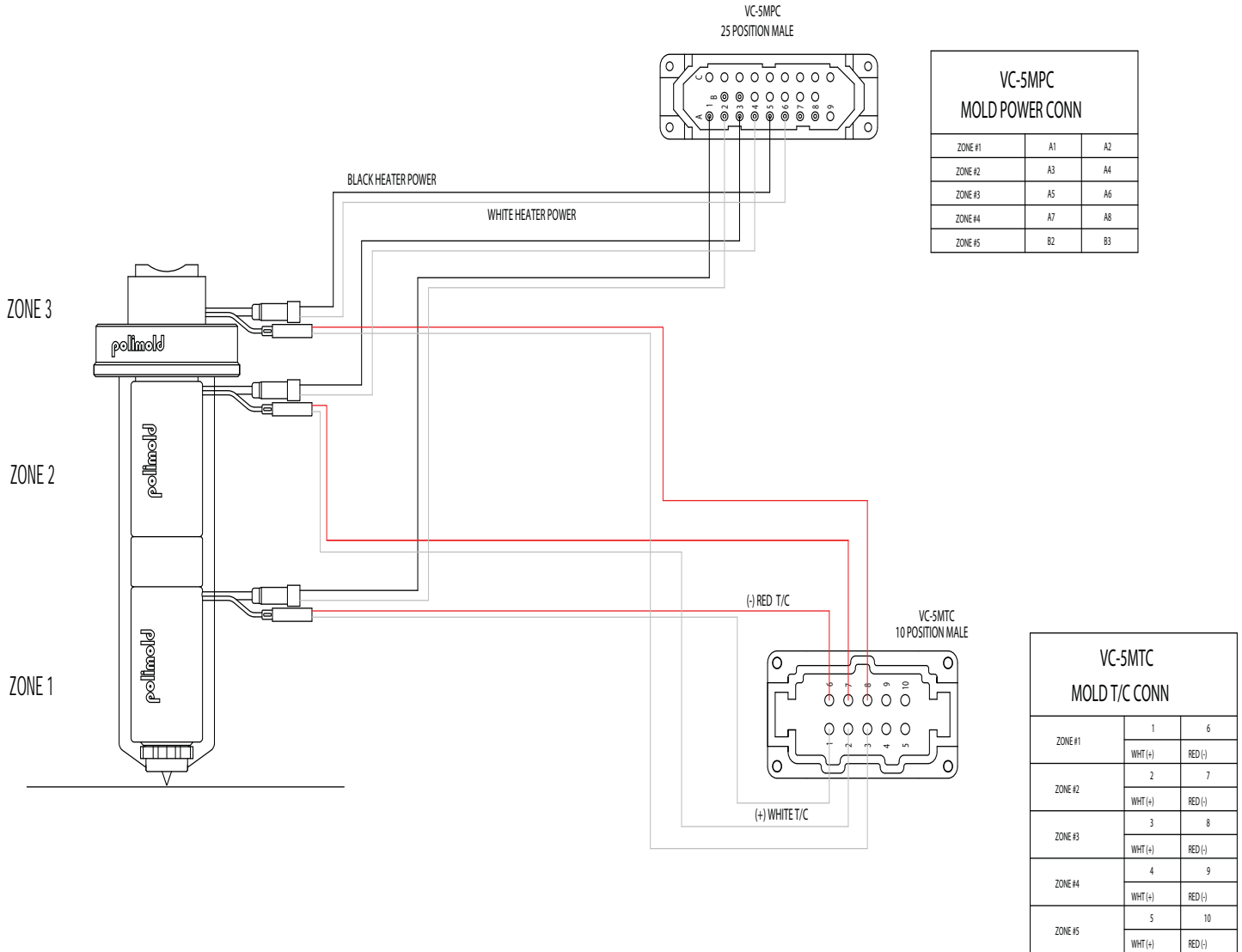
POLIMOLD POLIMAX HIGH PERFORMANCE  
HOT SPRUE BUSHING  
WIRING DIAGRAM (2 ZONES)



# Polimold® Polimax® Hot Sprue Bushing Wiring Diagram



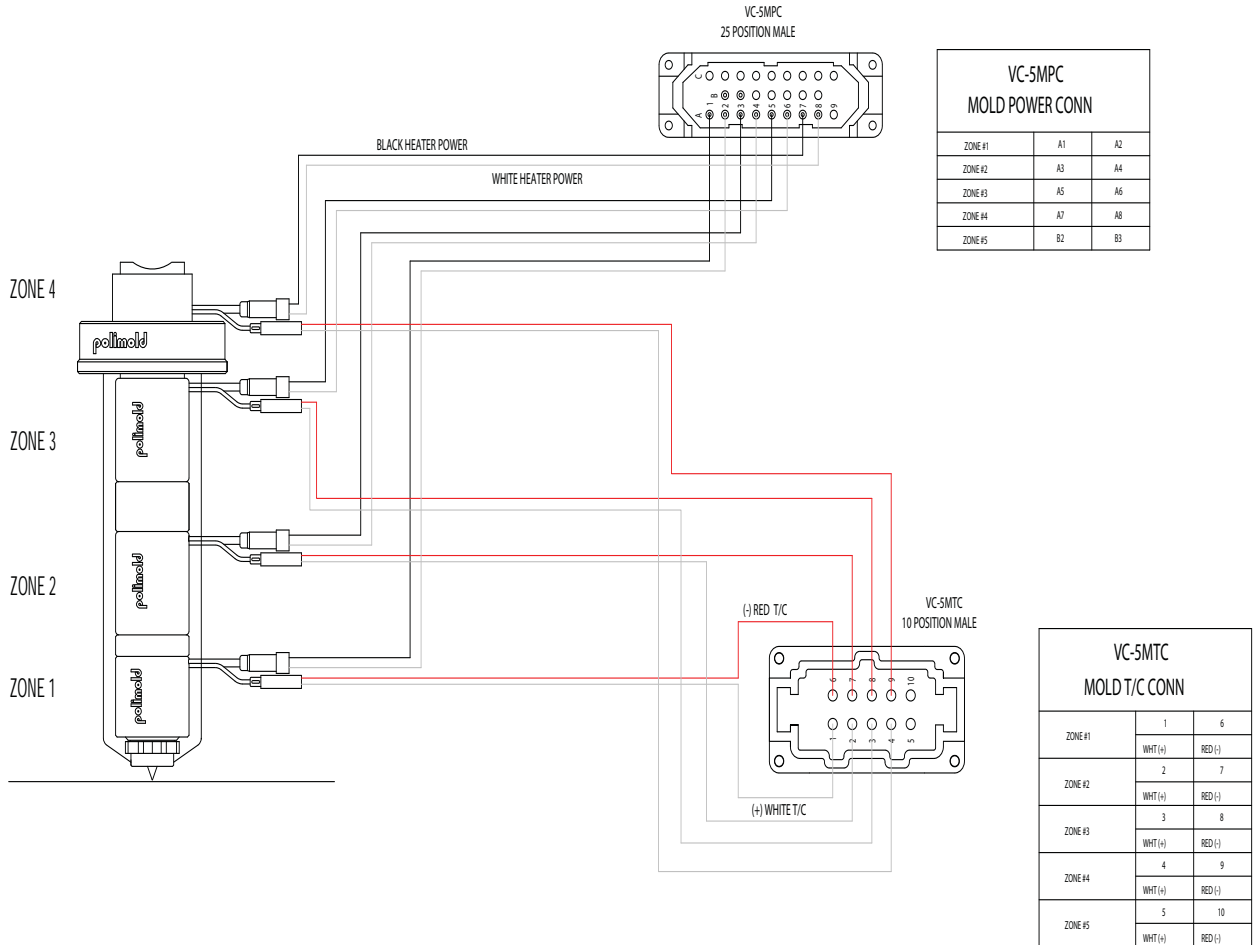
## POLIMOLD 3 ZONE HOT SPRUE WIRING DIAGRAM



# Polimold® Polimax® Hot Sprue Bushing Wiring Diagrams



## POLIMOLD 4 ZONE HOT SPRUE WIRING DIAGRAM





# 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**



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