

Exclusive NEW Design

The new Precision PSB sprue bushes have been designed for single-bush (direct feed) applications.

They are available in four sizes, each with a choice of lengths, and with a range of tip styles that permit gating on both runners and parts. Special wear-resistant tips are available for moulding abrasive filled resins.

Advanced heat transfer technology provides exceptional performance, while optional insulation rings and a rear heaterband permit the moulding of the most difficult resins.

The Precision PSB meets today's requirements for reliability and versatility at a competitive price.

Features & Benefits

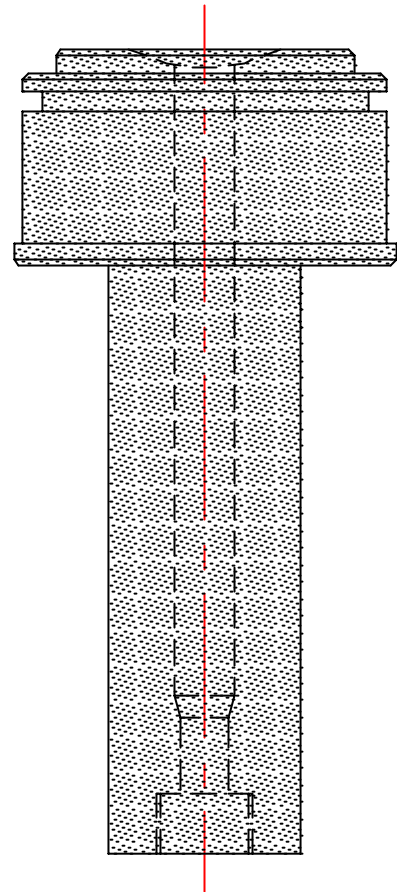
- **choice of 4 sizes**
shot weights from 1 gram to 4000 grams
- **choice of tip styles**
permits custom tip selection for gating on parts or runners
- **choice of lengths**
to suit a wide range of tool heights
- **reliable & easily serviced**
minimum downtime for maximum productivity

Index

Bush Type	Pages
PSB750	2.1 - 2.6
PSB1000	3.1 - 3.6
PSB1500	4.1 - 4.6
PSB2000	5.1 - 5.6

Hot Runners by Fast Heat

Fast Heat Ltd
Unit 7, Alder Close,
Eastbourne,
East Sussex. BN23 6QF.
www.fastheatuk.com
tech-support@fastheatuk.com



choice of tip styles

choice of sizes

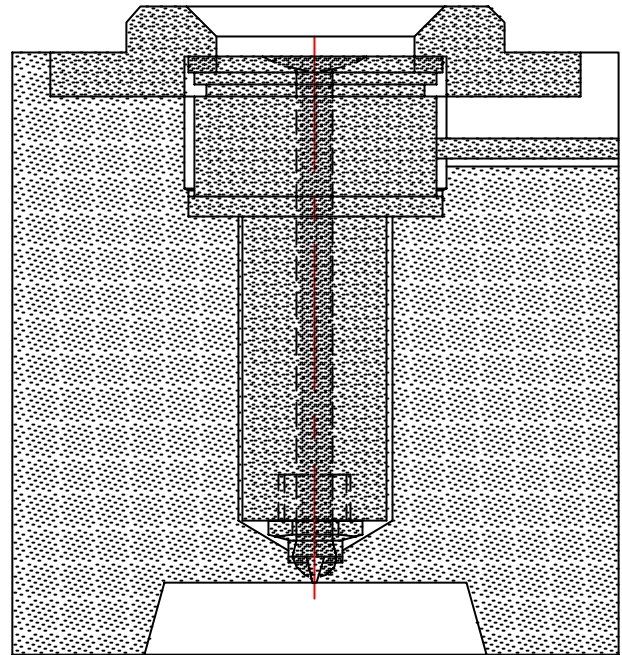
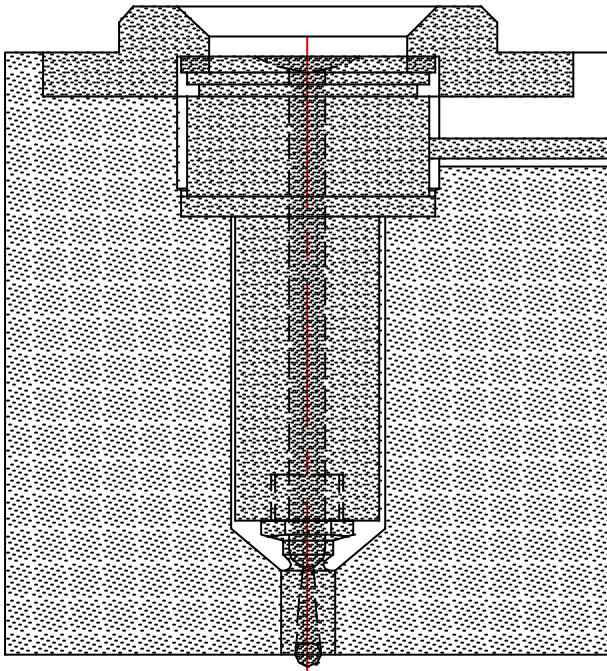
choice of lengths

replaceable heaters

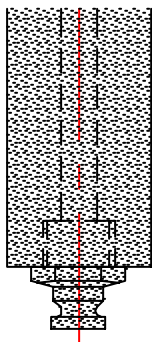
replaceable tips

easily serviced

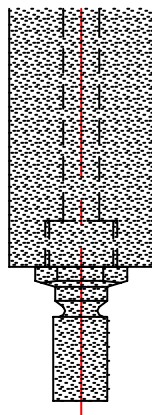
Gate on Runners.....or direct on Parts.....



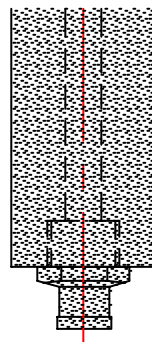
.....simply by changing your tip style



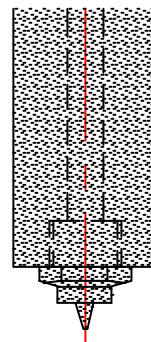
**Standard
Sprue**



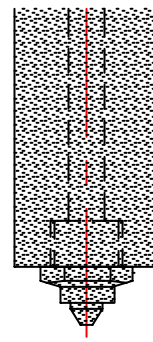
**Extended
Sprue**



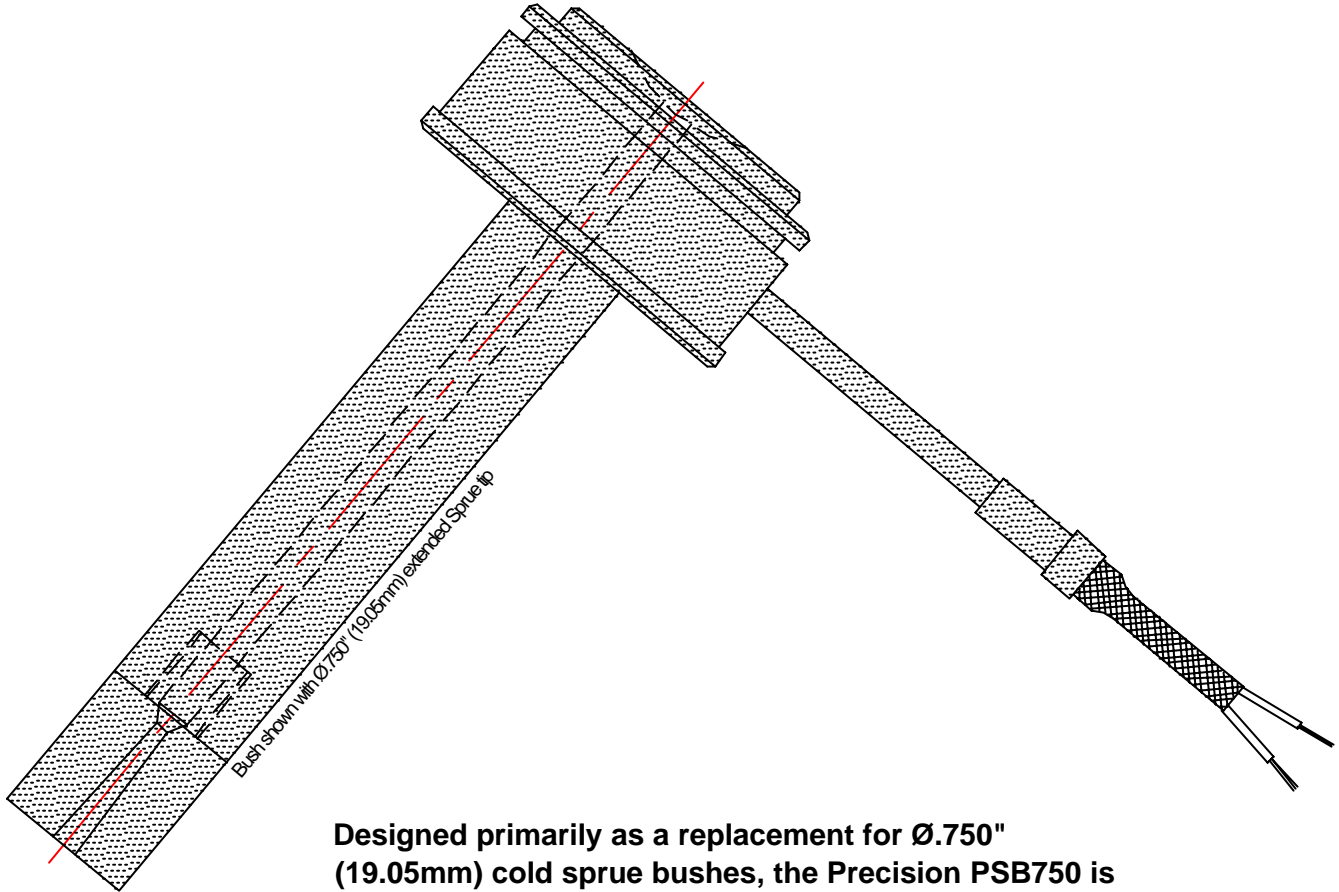
**Ring
Gate**



**Collar
Gate**



**Thru'flow
Gate**



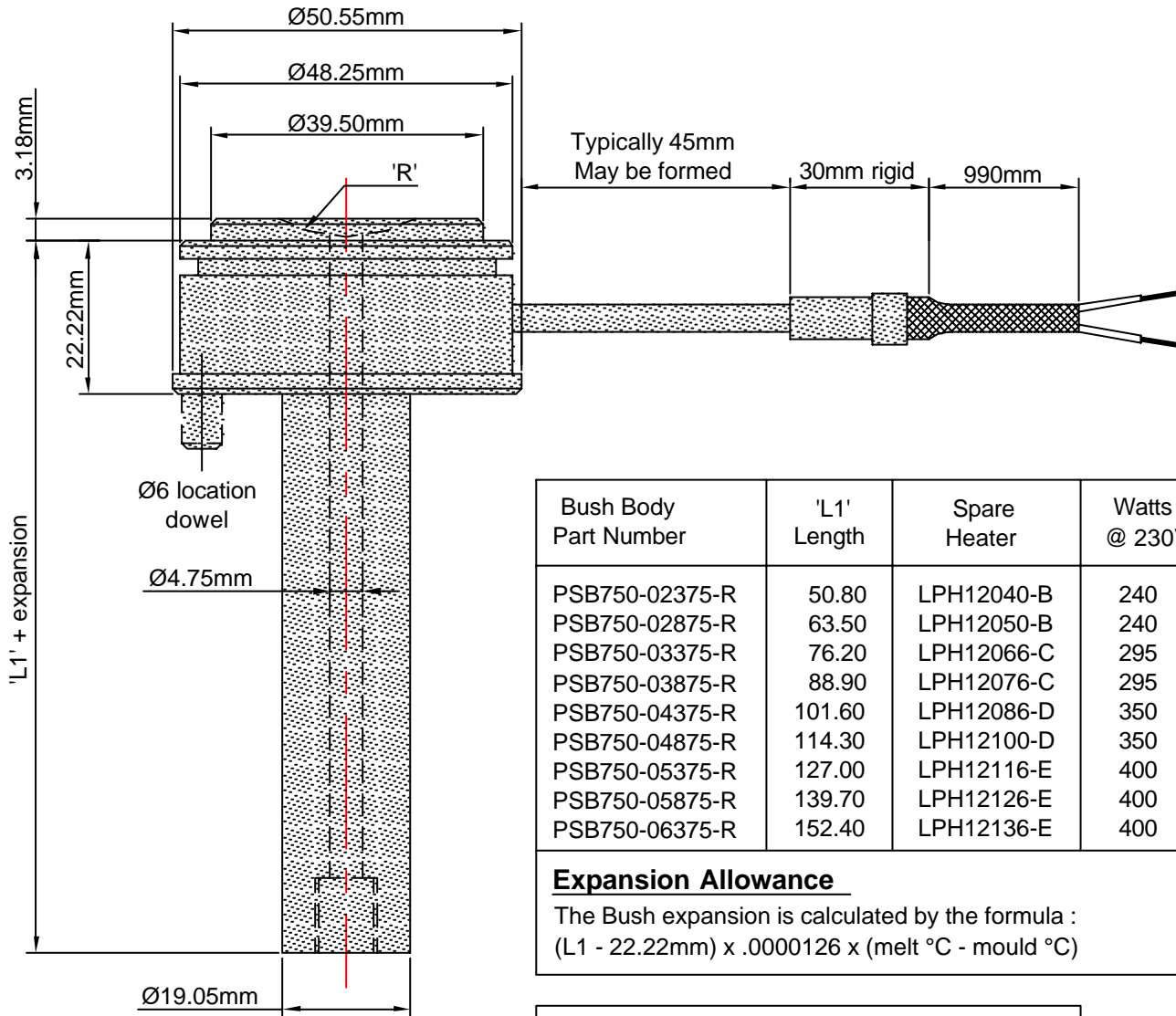
Designed primarily as a replacement for $\text{Ø}.750''$ (19.05mm) cold sprue bushes, the Precision PSB750 is available with 7 tip options and 9 length options, making it suitable for gating on runners or direct on parts. With a maximum shot weight of 200 grams Ps, it is particularly useful where space in the tool is limited.

Page	Contents
2.2	Bush Dimensions & Part Numbers
2.3	Tip Styles & Part Numbers
2.4	Bush Installation Details
2.5	Tip Installation Details
2.6	Resin/Tip Compatibility Chart
2.6	Gate Diameter/Shot Weight Chart

Bush Selection

Refer to page 2.6 for the PSB750 **Resin/Tip Compatibility Chart**.

Ordering instructions are given below.

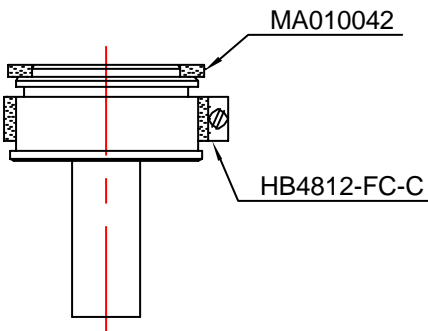


Bush Body Part Number	'L1' Length	Spare Heater	Watts @ 230V
PSB750-02375-R	50.80	LPH12040-B	240
PSB750-02875-R	63.50	LPH12050-B	240
PSB750-03375-R	76.20	LPH12066-C	295
PSB750-03875-R	88.90	LPH12076-C	295
PSB750-04375-R	101.60	LPH12086-D	350
PSB750-04875-R	114.30	LPH12100-D	350
PSB750-05375-R	127.00	LPH12116-E	400
PSB750-05875-R	139.70	LPH12126-E	400
PSB750-06375-R	152.40	LPH12136-E	400

Expansion Allowance

The Bush expansion is calculated by the formula :
 $(L1 - 22.22\text{mm}) \times .0000126 \times (\text{melt } ^\circ\text{C} - \text{mould } ^\circ\text{C})$

Options



Ordering Instructions

- 1 - specify Bush body part number
- 2 - specify nozzle seating radius 'R'
- 3 - specify tip part number
- 4 - specify optional insulation washer
- 5 - specify optional rear heaterband

Example :

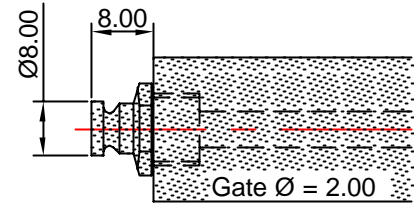
- 1-off PSB750-02875-R15.5
- 1-off TP187250
- 1-off MA010042
- 1-off HB4812-FC-C

Tip Selection Guide

SS - Standard Sprue Tip

Typically used for gating on trapezoidal or half-round runners, this tip style is suitable for use with all resins

TP187100 = for both filled & unfilled resins

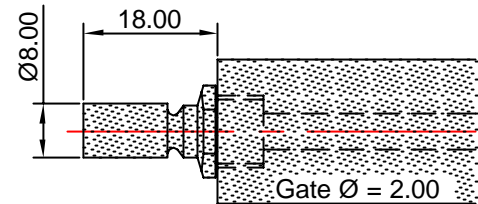


XS - Extended Sprue Tip

Typically used for gating on full-round runners, this tip style is suitable for use with all resins and can be profiled

TP187200 = for both filled & unfilled Amorphous resins

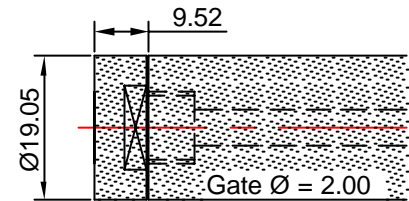
TP187211 = for both filled & unfilled Crystalline resins



SS - Large Diameter Standard Sprue Tips

Typically used for gating on trapezoidal or half-round runners, this tip style is suitable for use with all resins

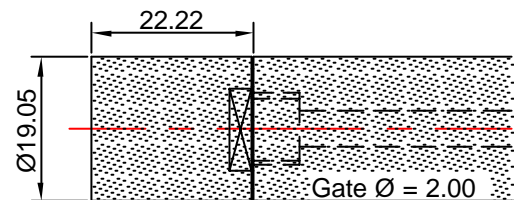
TP187150 = for all resins, especially Crystalline



XS - Large Diameter Extended Sprue Tips

Typically used for gating on full-round runners, this tip style is suitable for use with all resins and can be profiled

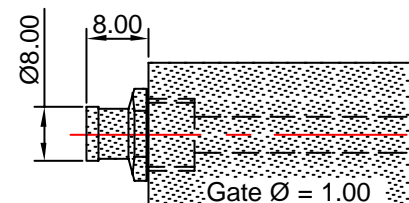
TP187250 = for all resins, especially Crystalline



RG - Ring-Gate (Gate Insert) Tip

Used for gating directly on parts, this tip style leaves a witness ring on the moulding. It is suitable for use with easy-flow unfilled Amorphous resins

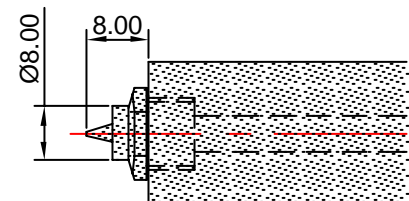
TP187300 = for easy-flow unfilled Amorphous resins only



CG - Collar-Gate Tip

Used for gating directly on to parts, this tip style does not leave a witness ring on the part. It is suitable for use with easy-flow unfilled Amorphous resins

TP187400 = for easy-flow unfilled Amorphous resins only

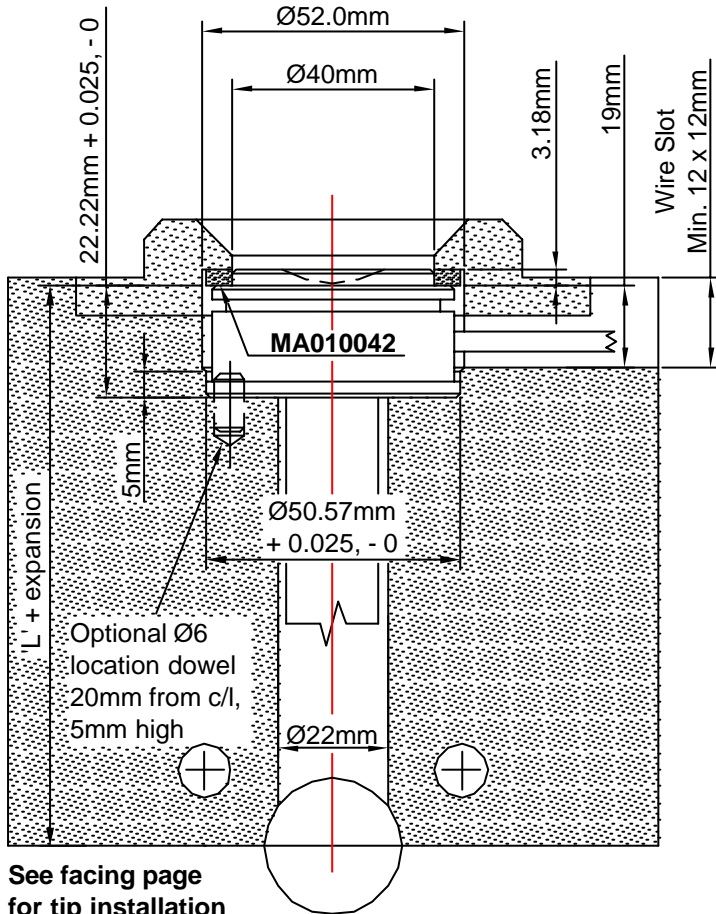


All dimensions are in millimetres

Bush Installation Details

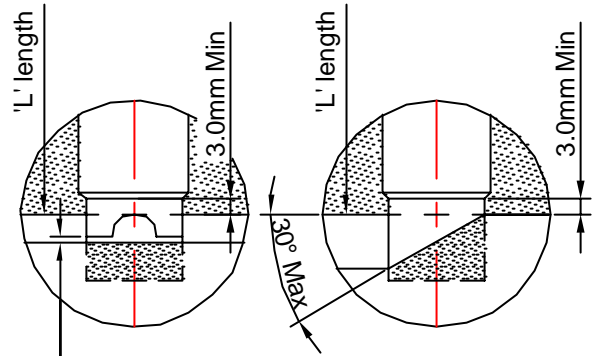
Showing **Top Insulation Washer MA010042** (recommended for all polymers), and optional **Rear Heaterband HB-4812-FC-C** (recommended for temperature-sensitive polymers). **See chart on page 2.6.**

Bush thermal expansion is calculated by the formula $(L' - 22.22\text{mm}) \times .0000126 \times (\text{melt temp. } ^\circ\text{C} - \text{tool temp. } ^\circ\text{C})$
IMPORTANT - the front face of the bush must always make 'plastic contact only'.



See facing page for tip installation details

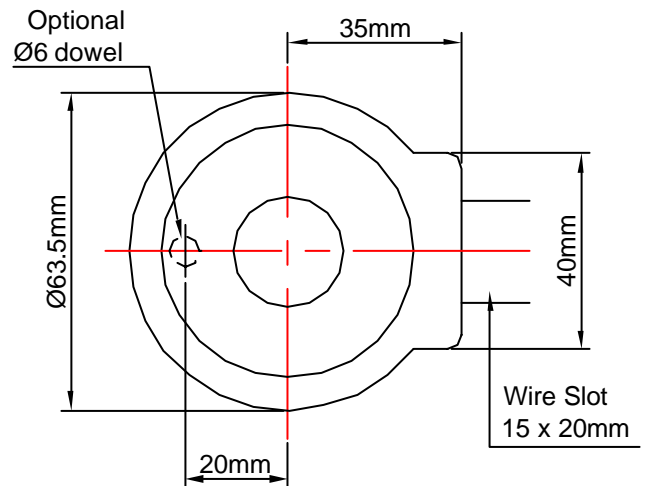
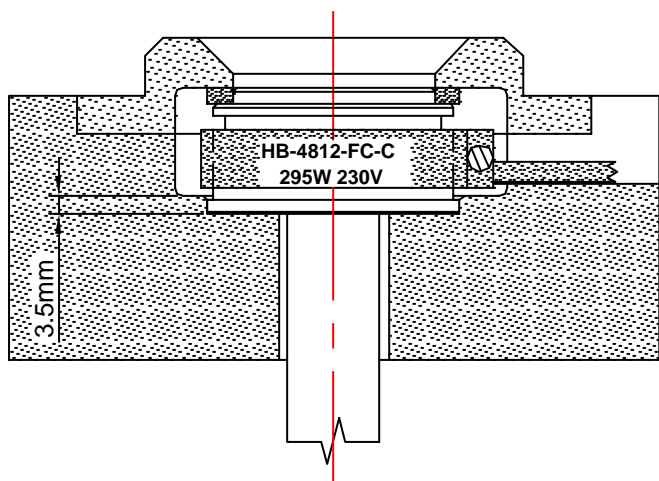
Profiling Tips with Extra Stock Length



IMPORTANT

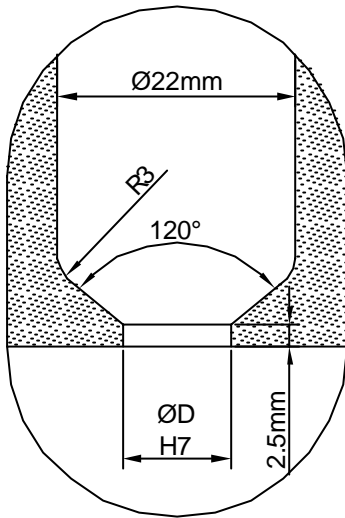
Tip must always make plastic contact only. Set back 0.5mm at moulding temperature when gating on runners.

Optional Rear Heaterband Installation

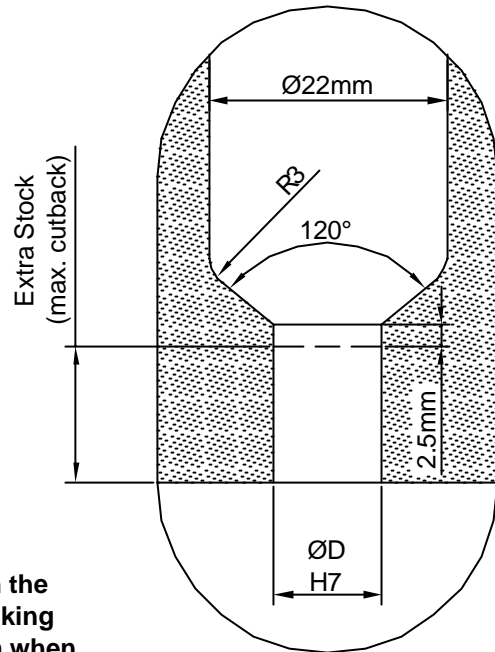


Tip Installation Details

SS = Standard Sprue
 RG = Ring-Gate
 RT = Ring-Gate Thru'flow

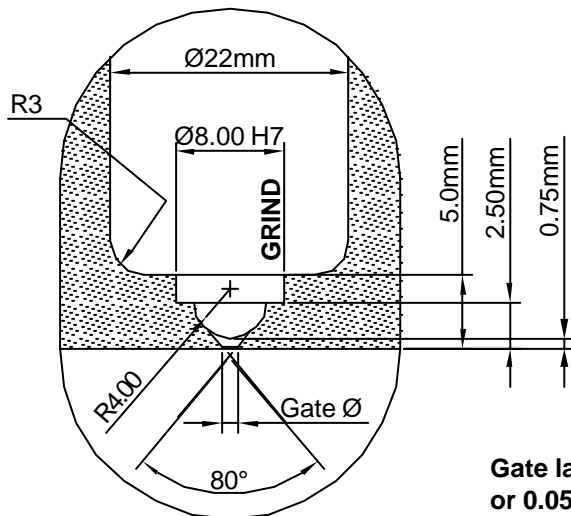


XS = Extended Sprue

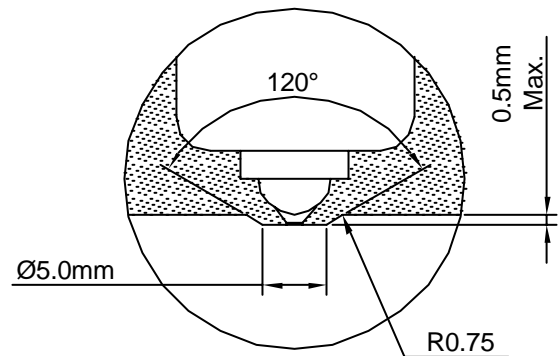


IMPORTANT ... front face of tips must not shut-out on the moving mould half, but must be free to expand by making plastic contact only. Set all Sprue tips back by 0.5mm when hot if gating on runners.

CG = Collar-Gate
 CT = Collar-Gate Thru'flow



Recessed Gate



Gate land = 0.13mm (Standard)
 or 0.05mm (Cosmetic)

Resin/Tip Compatibility Chart

Tip Style >	SS	XS	RG	CG	Max.Shot	Top Washer	Rear Heaterband
ABS	3	3	2	2	100 grams	Yes	No
Pa.6	2	2	0	0	100 grams	Yes	No
Pa.6.6	1	1	0	0	100 grams	Yes	Yes
PBT	2	2	0	0	50 grams	Yes	Yes
Pc	2	2	0	0	30 grams	Yes	Yes
Pc/ABS	2	2	0	0	30 grams	Yes	No
Pe-HD	3	3	2	2	100 grams	Yes	No
Pe-LD	3	3	3	3	150 grams	Yes	No
PEI	1	1	0	0	50 grams	Yes	Yes
PES	1	1	0	0	30 grams	Yes	Yes
PET	2	2	0	0	50 grams	Yes	Yes
PMMA	2	2	0	0	30 grams	Yes	No
POM-C	2	2	0	0	50 grams	Yes	Yes
POM-H	1	1	0	0	50 grams	Yes	Yes
Pp	3	3	3	3	200 grams	Yes	No
PPE	2	2	0	0	30 grams	Yes	No
PPS	1	1	0	0	100 grams	Yes	Yes
Ps	3	3	3	3	200 grams	Yes	No
PSU	1	1	0	0	30 grams	Yes	Yes
SAN	3	3	2	2	100 grams	Yes	No
SB	3	3	2	2	150 grams	Yes	No
TPE	2	2	0	0	30 grams	Yes	Yes
TPR	2	2	0	0	50 grams	Yes	No

3 = Excellent 2 = Good 1 = Application dependent, consult factory 0 = Not recommended

Gate Diameter/Shot Weight Chart

This chart shows typical figures based on theoretical and empirical data, and provides a guide only.

The best bush/tip choice depends on many factors. To check your application, always consult factory.

Maximum Shot Weight (grams)

Gate Ø (mm)	Group 1	Group 2	Group 3	Group 4	Group 5
0.75	5	3	-	-	-
1.00	10	8	5	-	-
1.25	30	25	15	8	-
1.50	75	55	40	15	5
1.75	125	100	75	30	15
2.00	200	150	100	50	30

Polymer Groups

1 - Very Easy-flow Polymers

Pp, Ps

2 - Easy-flow Polymers

LDPe, PVC-p, SB

3 - Medium-flow Polymers

ABS, ASA, HDPe, Pa, SAN

4 - Medium-stiff-flow Polymers

PBT, PET, POM, TPR

5 - Stiff-flow Polymers

PC, PC/ABS, PMMA, PPE

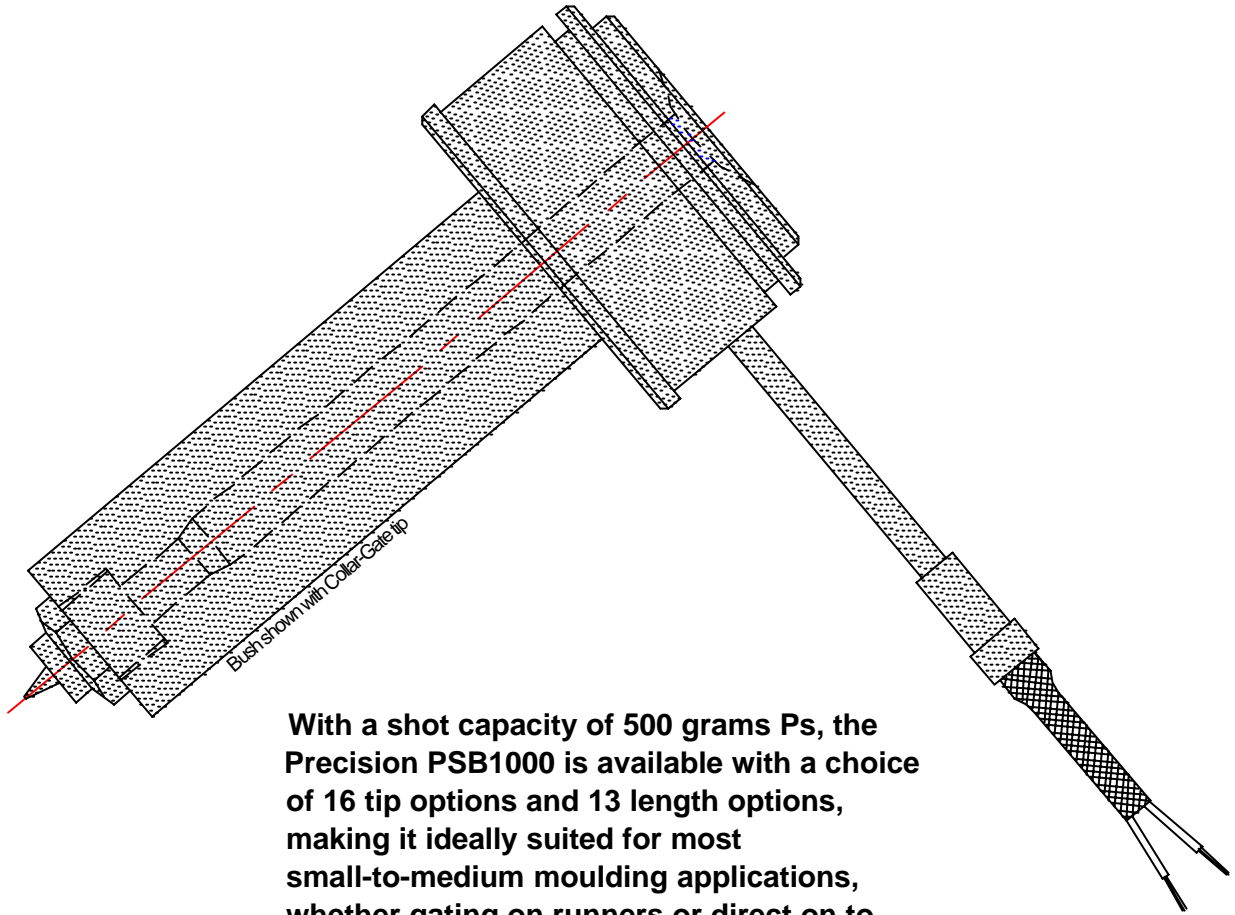
Unfilled Polymers

Read off the gate diameter for your polymer group and shot weight

The recommended gate diameters can be varied ± 10 % if required.

Filled Polymers

For filler > 20 %, add 10 % to the standard gate diameter.



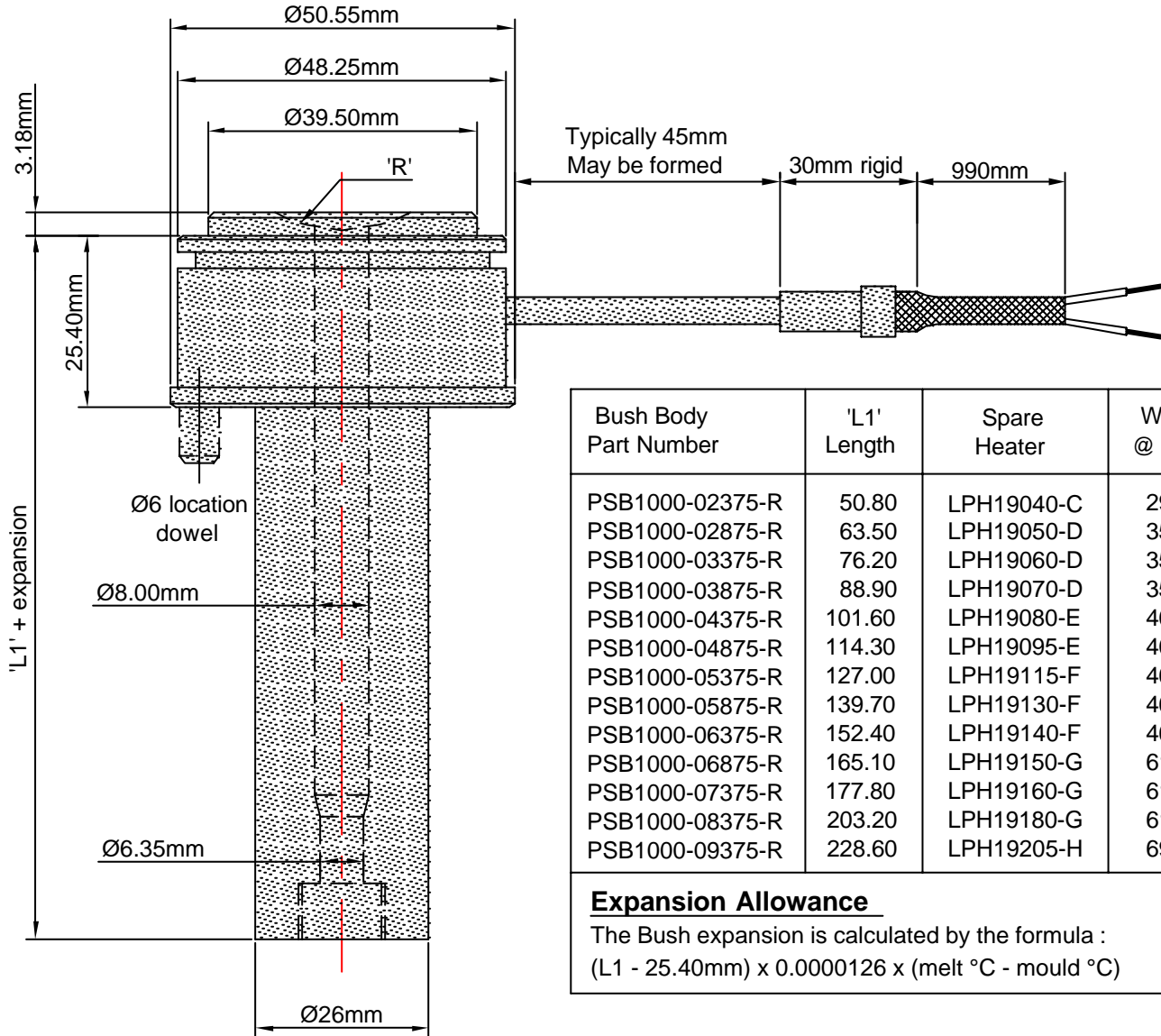
With a shot capacity of 500 grams Ps, the Precision PSB1000 is available with a choice of 16 tip options and 13 length options, making it ideally suited for most small-to-medium moulding applications, whether gating on runners or direct on to parts.

Page	Contents
3.2	Bush Dimensions & Part Numbers
3.3	Tip Styles & Part Numbers
3.4	Bush Installation Details
3.5	Tip Installation Details
3.6	Resin/Tip Compatibility Chart
3.6	Gate Diameter/Shot Weight Chart

Bush Selection

Refer to page PSB-3.6 for the PSB1000 **Resin/Tip Compatibility Chart** .

Ordering instructions are given below.

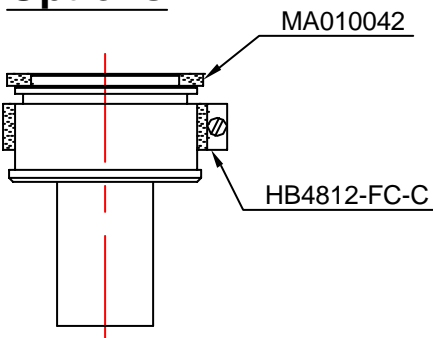


Bush Body Part Number	'L1' Length	Spare Heater	Watts @ 230V
PSB1000-02375-R	50.80	LPH19040-C	295
PSB1000-02875-R	63.50	LPH19050-D	350
PSB1000-03375-R	76.20	LPH19060-D	350
PSB1000-03875-R	88.90	LPH19070-D	350
PSB1000-04375-R	101.60	LPH19080-E	400
PSB1000-04875-R	114.30	LPH19095-E	400
PSB1000-05375-R	127.00	LPH19115-F	460
PSB1000-05875-R	139.70	LPH19130-F	460
PSB1000-06375-R	152.40	LPH19140-F	460
PSB1000-06875-R	165.10	LPH19150-G	610
PSB1000-07375-R	177.80	LPH19160-G	610
PSB1000-08375-R	203.20	LPH19180-G	610
PSB1000-09375-R	228.60	LPH19205-H	690

Expansion Allowance

The Bush expansion is calculated by the formula :
 $(L1 - 25.40mm) \times 0.0000126 \times (\text{melt } ^\circ\text{C} - \text{mould } ^\circ\text{C})$

Options



Ordering Instructions

- 1 - specify Bush body part number
- 2 - specify nozzle seating radius 'R'
- 3 - specify tip part number
- 4 - specify optional insulation washer
- 5 - specify optional rear heaterband

Example :

- 1-off PSB1000-02875-R15.5
- 1-off TP250410
- 1-off MA010042
- 1-off HB4812-FC-C

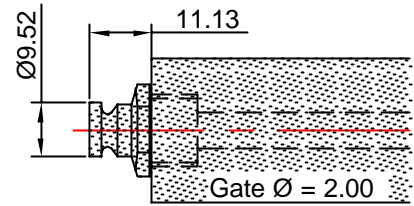
Tip Selection Guide

SS - Standard Sprue Tip

Typically used for gating on trapezoidal or half-round runners, this tip style is suitable for use with all resins

TP250110 = for unfilled resins

TP250111 = wear resistant for filled resins

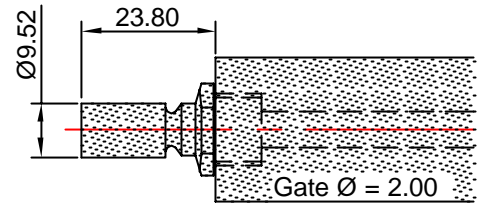


XS - Extended Sprue Tip

Typically used for gating on full-round runners, this tip style is suitable for use with all resins and can be profiled

TP250210 = for unfilled resins

TP250211 = wear resistant for filled resins



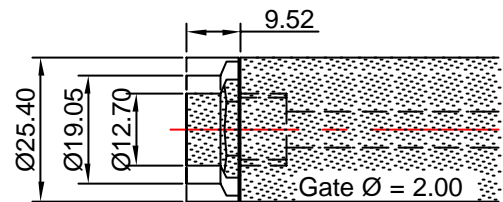
SS - Large Diameter Standard Sprue Tips

Typically used for gating on trapezoidal or half-round runners, this tip style is suitable for use with all resins

TP250100 = Ø12.70 for all resins, especially Amorphous

TP250101 = Ø19.05 for all resins

TP250102 = Ø25.40 for all resins, especially Crystalline



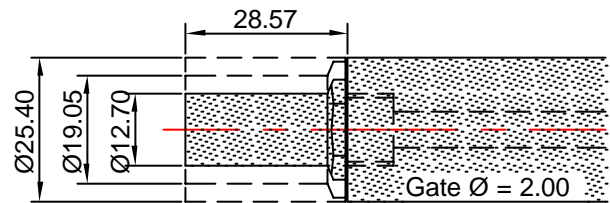
XS - Large Diameter Extended Sprue Tips

Typically used for gating on full-round runners, this tip style is suitable for use with all resins and can be profiled

TP250200 = Ø12.70 for all resins, especially Amorphous

TP250201 = Ø19.05 for all resins

TP250202 = Ø25.40 for all resins, especially Crystalline

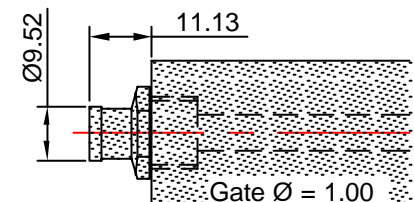


RG - Ring-Gate (Gate Insert) Tip

Used for gating directly on parts, this tip style leaves a witness ring on the moulding. It is particularly suitable for use with Crystalline resins

TP250410 = for unfilled resins

TP250413 = wear resistant Spreader for filled resins

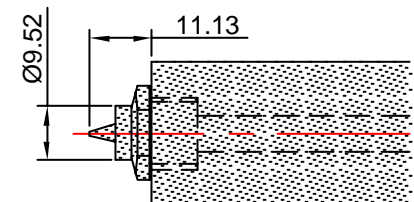


CG - Collar-Gate Tip

Used for gating directly on to parts, this tip style does not leave a witness ring on the part. It is particularly suitable for use with Amorphous resins

TP250416 = for unfilled resins

TP250419 = wear resistant Spreader for filled resins

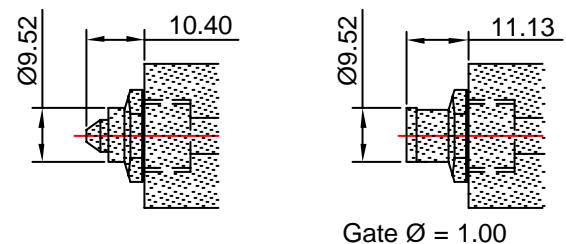


RT & CT - Thru'flow Tips

Used for gating directly on to parts where no flow lines are permissible, e.g. optical lenses & 'metallic' appearance parts. Suitable for use with Amorphous resins only

TP250410TF = Ring-gate style, with a witness ring

TP250416TF = Collar-gate style, with no witness ring

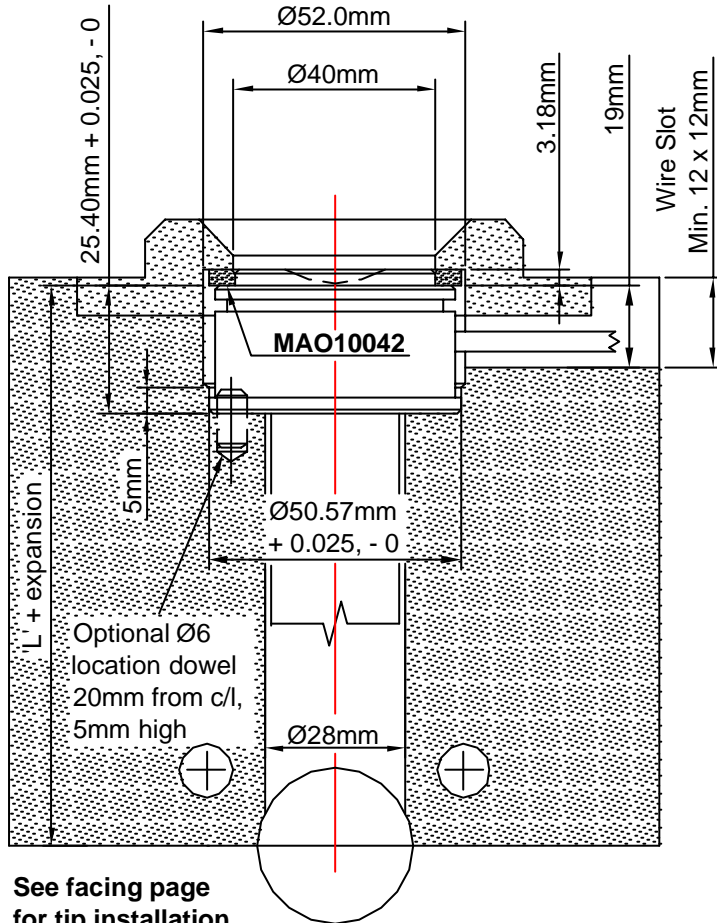


All dimensions are in millimetres

Bush Installation Details

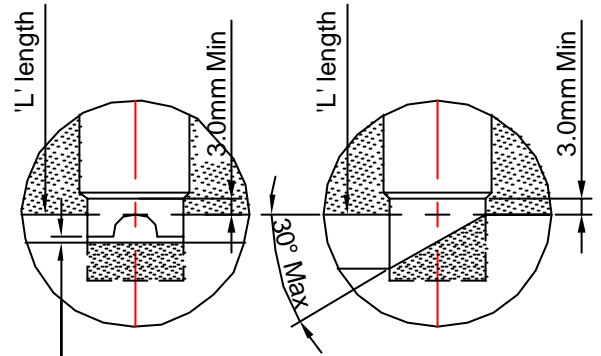
Showing **Top Insulation Washer MAO10042** (recommended for all polymers), and optional **Rear Heaterband HB-4812-FC-C** (recommended for temperature-sensitive polymers). **See chart on page 3.6.**

Bush thermal expansion is calculated by the formula $(L' - 25.40\text{mm}) \times .0000126 \times (\text{melt temp. } ^\circ\text{C} - \text{tool temp. } ^\circ\text{C})$
IMPORTANT - the front face of the bush must always make 'plastic contact only'.



See facing page for tip installation details

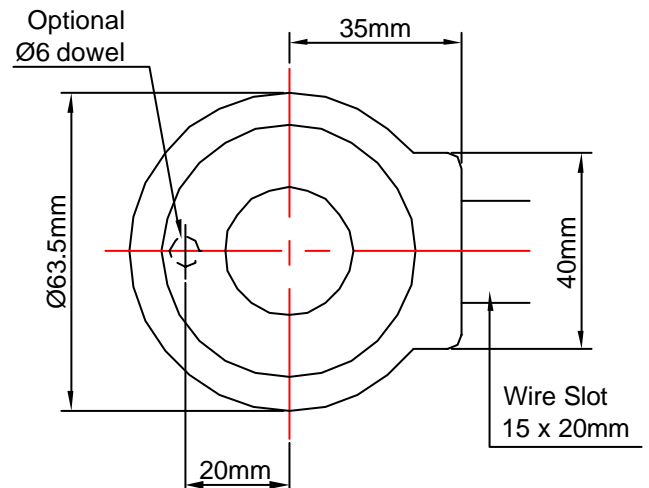
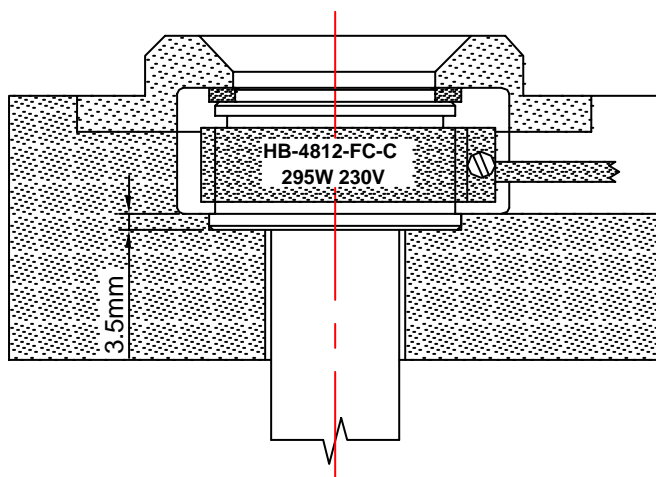
Profiling Tips with Extra Stock Length



IMPORTANT

Tip must always make plastic contact only. Set back 0.5mm at moulding temperature when gating on runners.

Optional Rear Heaterband Installation



Resin/Tip Compatibility Chart

Tip Style >	SS	XS	RG	CG	RT	CT	Max.Shot	Top Washer	Rear Heaterband
ABS	3	3	3	3	3	3	300 grams	Yes	No
Pa.6	3	3	3	2	0	0	300 grams	Yes	No
Pa.6.6	3	3	2	1	0	0	300 grams	Yes	Yes
PBT	3	3	3	2	0	0	150 grams	Yes	Yes
Pc	3	3	2	2	3	3	100 grams	Yes	Yes
Pc/ABS	3	3	3	3	3	3	100 grams	Yes	No
Pe-HD	3	3	3	3	3	3	300 grams	Yes	No
Pe-LD	3	3	3	3	3	3	400 grams	Yes	No
PEI	3	3	3	2	0	0	150 grams	Yes	Yes
PES	3	3	3	1	0	0	100 grams	Yes	Yes
PET	3	3	3	2	0	0	150 grams	Yes	Yes
PMMA	3	3	2	3	3	3	100 grams	Yes	No
POM-C	3	3	3	2	0	0	150 grams	Yes	Yes
POM-H	3	3	2	1	0	0	150 grams	Yes	Yes
Pp	3	3	3	3	3	3	500 grams	Yes	No
PPE	3	3	2	2	2	2	100 grams	Yes	No
PPS	3	3	3	1	0	0	300 grams	Yes	Yes
Ps	3	3	3	3	3	3	500 grams	Yes	No
PSU	3	3	2	1	0	0	100 grams	Yes	Yes
SAN	3	3	3	3	3	3	300 grams	Yes	No
SB	3	3	3	3	3	3	400 grams	Yes	No
TPE	3	3	2	1	0	0	100 grams	Yes	Yes
TPR	3	3	2	2	2	2	150 grams	Yes	No

3 = Excellent 2 = Good 1 = Application dependent, consult factory 0 = Not recommended

Gate Diameter/Shot Weight Chart

This chart shows typical figures based on theoretical and empirical data, and provides a guide only.

The best bush/tip choice depends on many factors. To check your application, always consult factory.

Maximum Shot Weight (grams)

Gate Ø (mm)	Group 1	Group 2	Group 3	Group 4	Group 5
1.00	10	8	5	-	-
1.25	30	25	15	8	-
1.50	70	55	40	20	10
1.75	125	100	75	35	20
2.00	200	150	100	60	30
2.25	350	280	200	100	50
2.50	500	400	300	150	100

Polymer Groups

1 - Very Easy-flow Polymers

Pp, Ps

2 - Easy-flow Polymers

LDPe, PVC-p, SB

3 - Medium-flow Polymers

ABS, ASA, HDPe, Pa, SAN

4 - Medium-stiff-flow Polymers

PBT, PET, POM, TPR

5 - Stiff-flow Polymers

PC, PC/ABS, PMMA, PPE

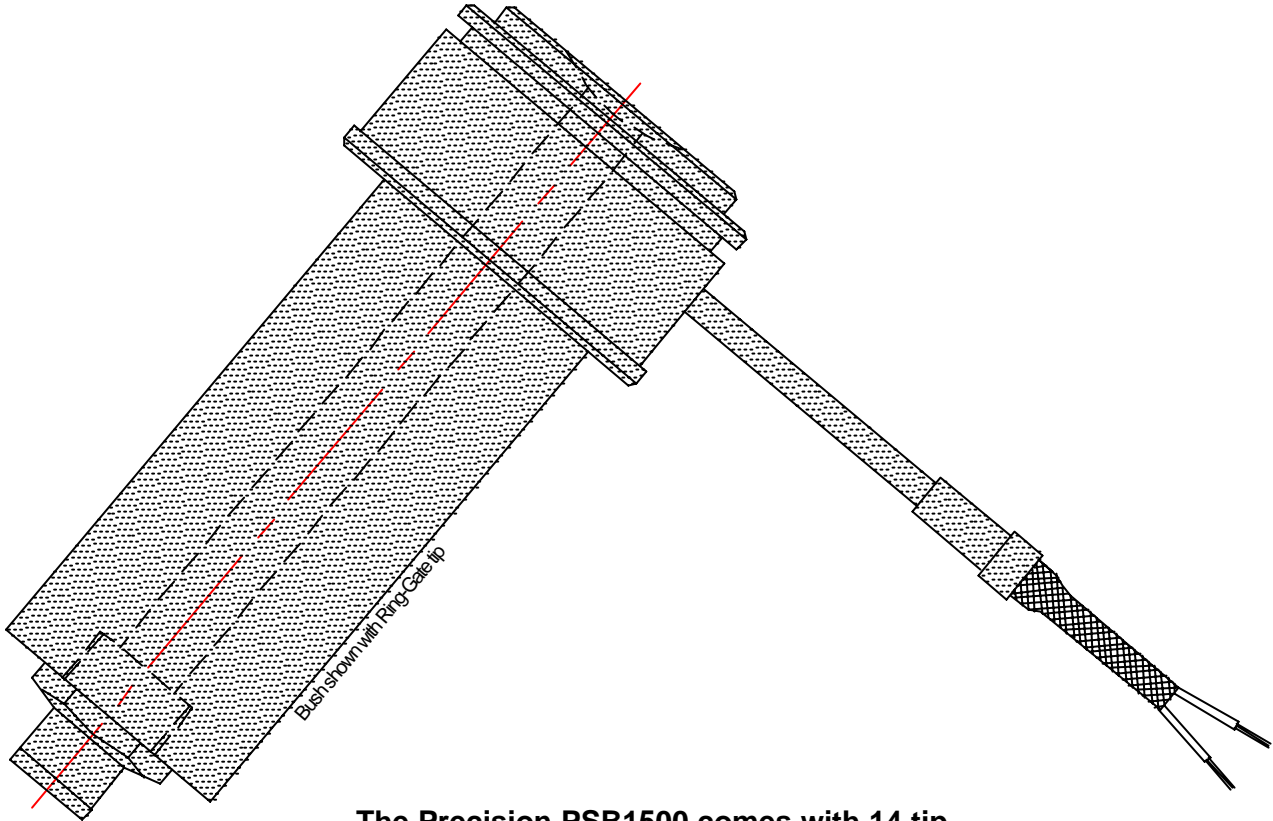
Unfilled Polymers

Read off the gate diameter for your polymer group and shot weight

The recommended gate diameters can be varied ± 10 % if required.

Filled Polymers

For filler > 20 %, add 10 % to the standard gate diameter.



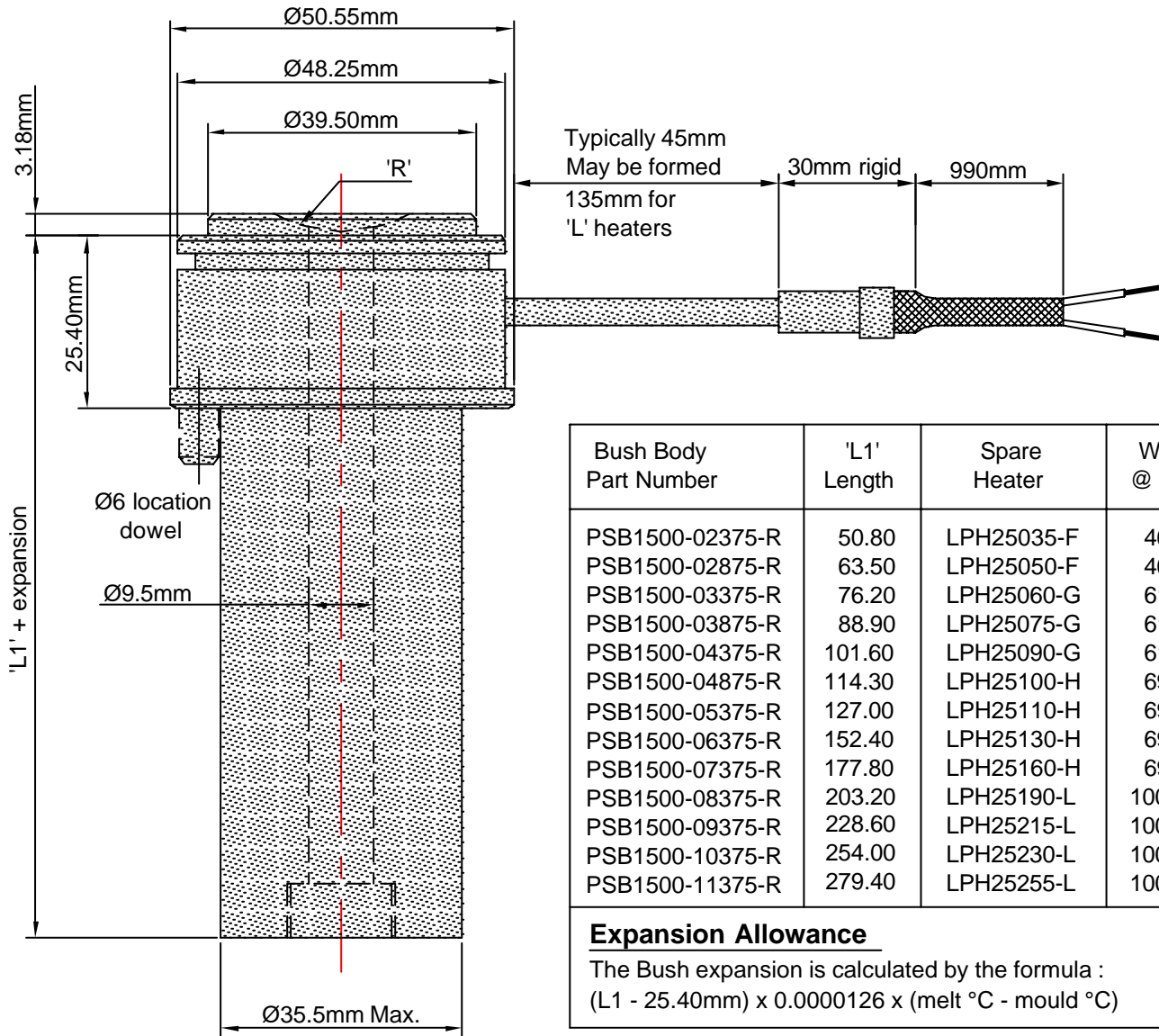
The Precision PSB1500 comes with 14 tip options and 13 length options, making it ideally suited for moulding medium-to-large shot weights of up to 2000 grams Ps, gating on cold runners or direct on to parts.

Page	Contents
4.2	Bush Dimensions & Part Numbers
4.3	Tip Styles & Part Numbers
4.4	Bush Installation Details
4.5	Tip Installation Details
4.6	Resin/Tip Compatibility Chart
4.6	Gate Diameter/Shot Weight Chart

Bush Selection

Refer to page PSB-4.6 for the PSB1500 **Resin/Tip Compatibility Chart** .

Ordering instructions are given below.

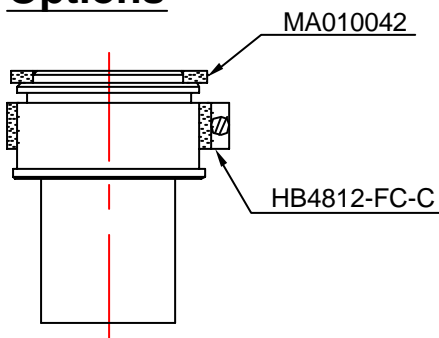


Bush Body Part Number	'L1' Length	Spare Heater	Watts @ 230V
PSB1500-02375-R	50.80	LPH25035-F	460
PSB1500-02875-R	63.50	LPH25050-F	460
PSB1500-03375-R	76.20	LPH25060-G	610
PSB1500-03875-R	88.90	LPH25075-G	610
PSB1500-04375-R	101.60	LPH25090-G	610
PSB1500-04875-R	114.30	LPH25100-H	690
PSB1500-05375-R	127.00	LPH25110-H	690
PSB1500-06375-R	152.40	LPH25130-H	690
PSB1500-07375-R	177.80	LPH25160-H	690
PSB1500-08375-R	203.20	LPH25190-L	1000
PSB1500-09375-R	228.60	LPH25215-L	1000
PSB1500-10375-R	254.00	LPH25230-L	1000
PSB1500-11375-R	279.40	LPH25255-L	1000

Expansion Allowance

The Bush expansion is calculated by the formula :
 $(L1 - 25.40\text{mm}) \times 0.0000126 \times (\text{melt } ^\circ\text{C} - \text{mould } ^\circ\text{C})$

Options



Ordering Instructions

- 1 - specify Bush body part number
- 2 - specify nozzle seating radius 'R'
- 3 - specify tip part number
- 4 - specify optional insulation washer
- 5 - specify optional rear heaterband

Example :

- 1-off PSB1500-03875-R40
- 1-off TP370410
- 1-off MA010042
- 1-off HB4812-FC-C

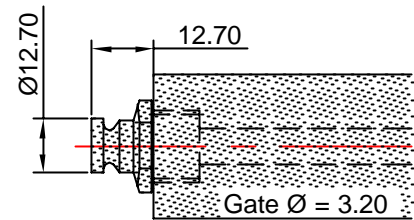
Tip Selection Guide

SS - Standard Sprue Tip

Typically used for gating on trapezoidal or half-round runners, this tip style is suitable for use with all resins

TP370110 = for unfilled resins

TP370111 = wear resistant for filled resins

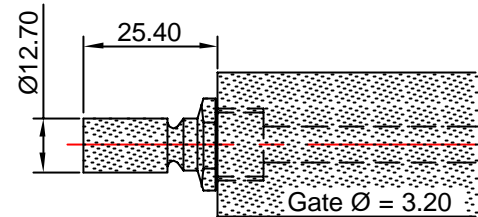


XS - Extended Sprue Tip

Typically used for gating on full-round runners, this tip style is suitable for use with all resins and can be profiled

TP370210 = for unfilled resins

TP370211 = wear resistant for filled resins

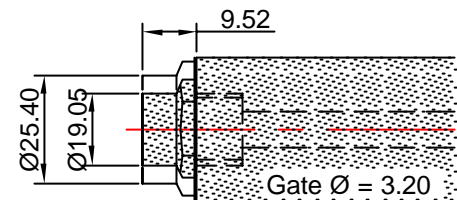


SS - Large Diameter Standard Sprue Tips

Typically used for gating on trapezoidal or half-round runners, this tip style is suitable for use with all resins

TP370101 = Ø19.05mm for all resins

TP370102 = Ø25.40mm for all resins, especially Crystalline

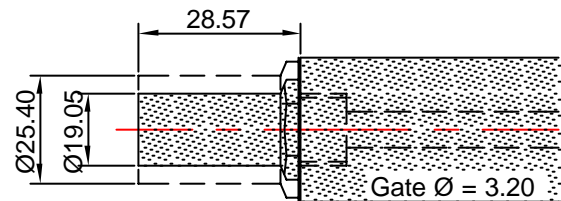


XS - Large Diameter Extended Sprue Tips

Typically used for gating on full-round runners, this tip style is suitable for use with all resins and can be profiled

TP370201 = Ø19.05mm for all resins

TP370202 = Ø25.40mm for all resins, especially Crystalline

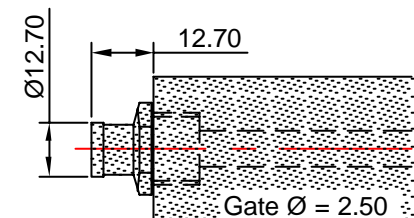


RG - Ring-Gate (Gate Insert) Tip

Used for gating directly on parts, this tip style leaves a witness ring on the moulding. It is particularly suitable for use with Crystalline resins

TP370410 = for unfilled resins

TP370413 = wear resistant Spreader for filled resins

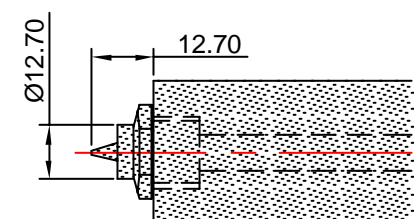


CG - Collar-Gate Tip

Used for gating directly on to parts, this tip style does not leave a witness ring on the part. It is particularly suitable for use with Amorphous resins

TP370416 = for unfilled resins

TP370419 = wear resistant Spreader for filled resins

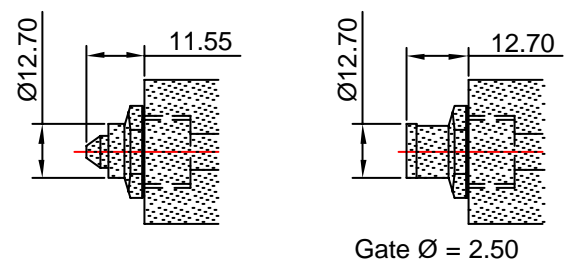


RT & CT - Thru'flow Tips

Used for gating directly on to parts where no flow lines are permissible, e.g. optical lenses & 'metallic' appearance parts. Suitable for use with Amorphous resins only

TP370410TF = Ring-gate style, with a witness ring

TP370416TF = Collar-gate style, with no witness ring

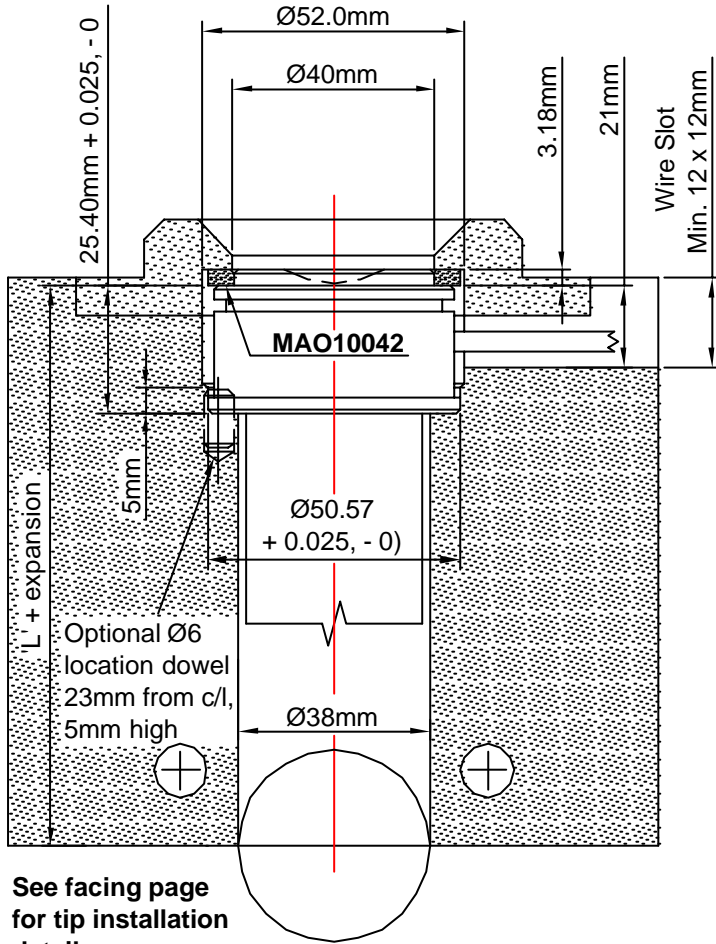


All dimensions are in millimetres

Bush Installation Details

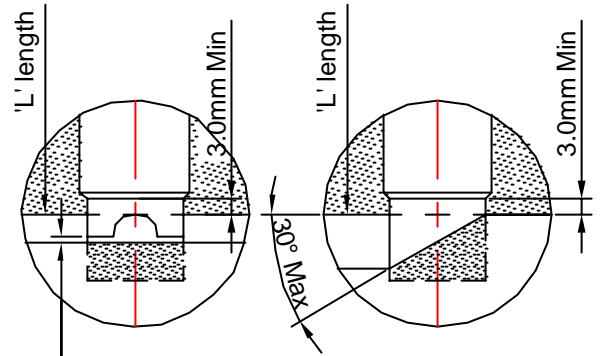
Showing **Top Insulation Washer MAO10042** (recommended for all polymers), and optional **Rear Heaterband HB-4812-FC-C** (recommended for temperature-sensitive polymers). **See chart on page 4.6.**

Bush thermal expansion is calculated by the formula $(L' - 25.40\text{mm}) \times .0000126 \times (\text{melt temp. } ^\circ\text{C} - \text{tool temp. } ^\circ\text{C})$
IMPORTANT - the front face of the bush must always make 'plastic contact only'.



See facing page for tip installation details

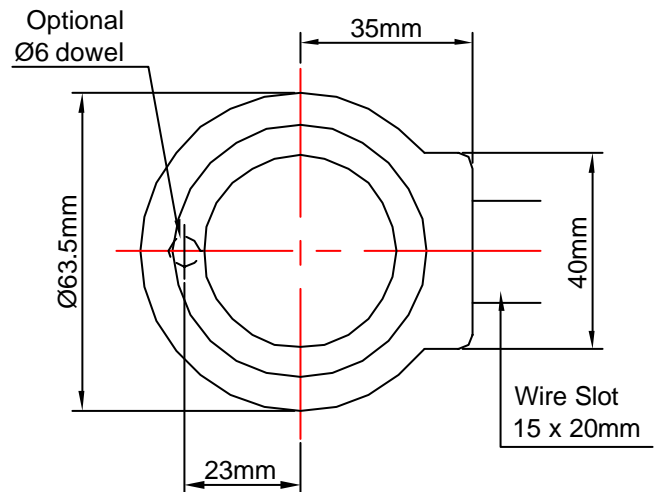
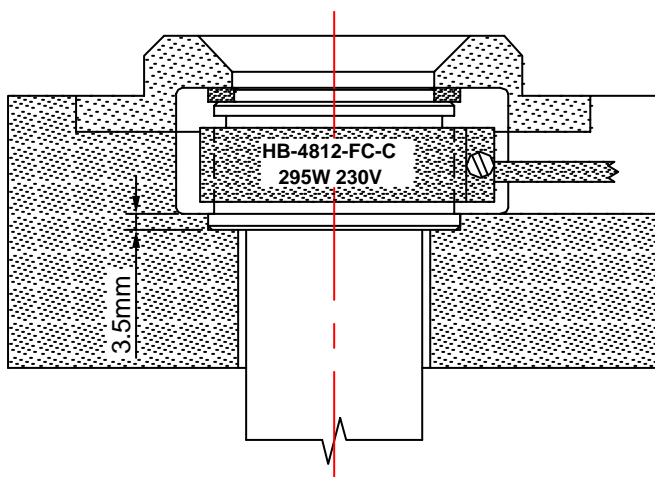
Profiling Tips with Extra Stock Length



IMPORTANT

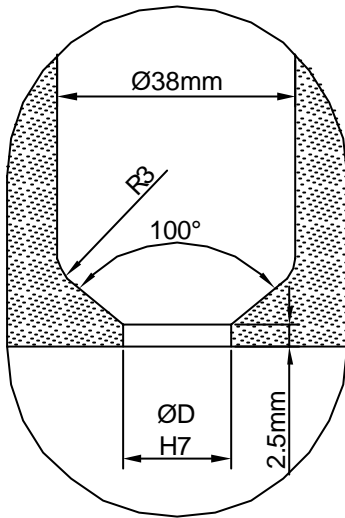
Tip must always make plastic contact only. Set back 0.5mm at moulding temperature when gating on runners.

Optional Rear Heaterband Installation

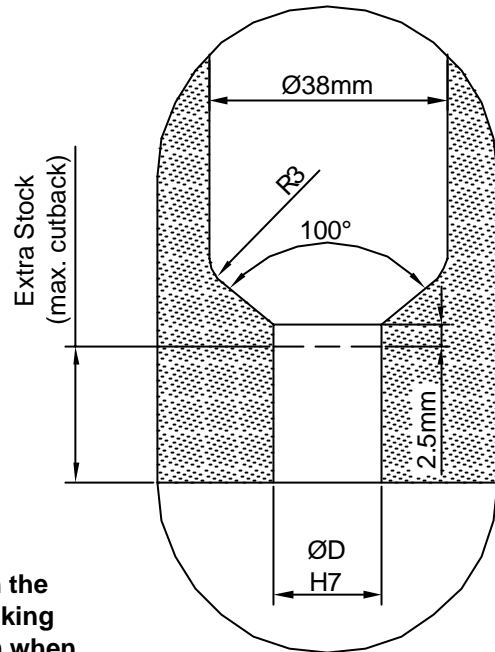


Tip Installation Details

SS = Standard Sprue
 RG = Ring-Gate
 RT = Ring-Gate Thru'flow

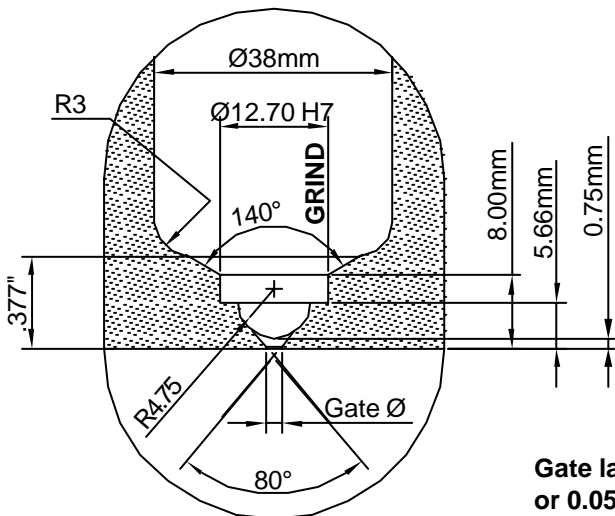


XS = Extended Sprue

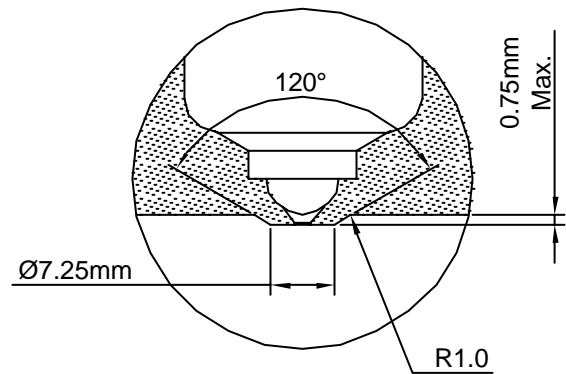


IMPORTANT ... front face of tips must not shut-out on the moving mould half, but must be free to expand by making plastic contact only. Set all Sprue tips back by 0.5mm when hot if gating on runners.

CG = Collar-Gate
 CT = Collar-Gate Thru'flow



Recessed Gate



Gate land = 0.13mm (Standard)
 or 0.05mm (Cosmetic)

Resin/Tip Compatibility Chart

Tip Style >	SS	XS	RG	CG	RT	CT	Max.Shot	Top Washer	Rear Heaterband
ABS	3	3	3	3	3	3	1100 grams	Yes	No
Pa.6	3	3	3	2	0	0	1100 grams	Yes	No
Pa.6.6	3	3	2	1	0	0	1100 grams	Yes	Yes
PBT	3	3	3	2	0	0	600 grams	Yes	Yes
Pc	3	3	2	2	3	3	400 grams	Yes	Yes
Pc/ABS	3	3	3	3	3	3	400 grams	Yes	No
Pe-HD	3	3	3	3	3	3	1100 grams	Yes	No
Pe-LD	3	3	3	3	3	3	1500 grams	Yes	No
PEI	3	3	3	2	0	0	600 grams	Yes	Yes
PES	3	3	3	1	0	0	400 grams	Yes	Yes
PET	3	3	3	2	0	0	600 grams	Yes	Yes
PMMA	3	3	2	3	3	3	400 grams	Yes	No
POM-C	3	3	3	2	0	0	600 grams	Yes	Yes
POM-H	3	3	2	1	0	0	600 grams	Yes	Yes
Pp	3	3	3	3	3	3	2000 grams	Yes	No
PPE	3	3	2	2	2	2	400 grams	Yes	No
PPS	3	3	3	1	0	0	1100 grams	Yes	Yes
Ps	3	3	3	3	3	3	2000 grams	Yes	No
PSU	3	3	2	1	0	0	400 grams	Yes	Yes
SAN	3	3	3	3	3	3	1100 grams	Yes	No
SB	3	3	3	3	3	3	1500 grams	Yes	No
TPE	3	3	2	1	0	0	400 grams	Yes	Yes
TPR	3	3	2	2	2	2	600 grams	Yes	No

3 = Excellent 2 = Good 1 = Application dependent, consult factory 0 = Not recommended

Gate Diameter/Shot Weight Chart

This chart shows typical figures based on theoretical and empirical data, and provides a guide only.

The best bush/tip choice depends on many factors. To check your application, always consult factory.

Maximum Shot Weight (grams)

Gate Ø (mm)	Group 1	Group 2	Group 3	Group 4	Group 5
2.50	500	400	300	150	100
2.75	750	600	450	225	150
3.00	1000	800	600	300	200
3.25	1250	1000	750	375	250
3.50	1500	1200	900	450	300
3.75	2000	1500	1100	600	400

Polymer Groups

1 - Very Easy-flow Polymers

Pp, Ps

2 - Easy-flow Polymers

LDPe, PVC-p, SB

3 - Medium-flow Polymers

ABS, ASA, HDPe, Pa, SAN

4 - Medium-stiff-flow Polymers

PBT, PET, POM, TPR

5 - Stiff-flow Polymers

PC, PC/ABS, PMMA, PPE

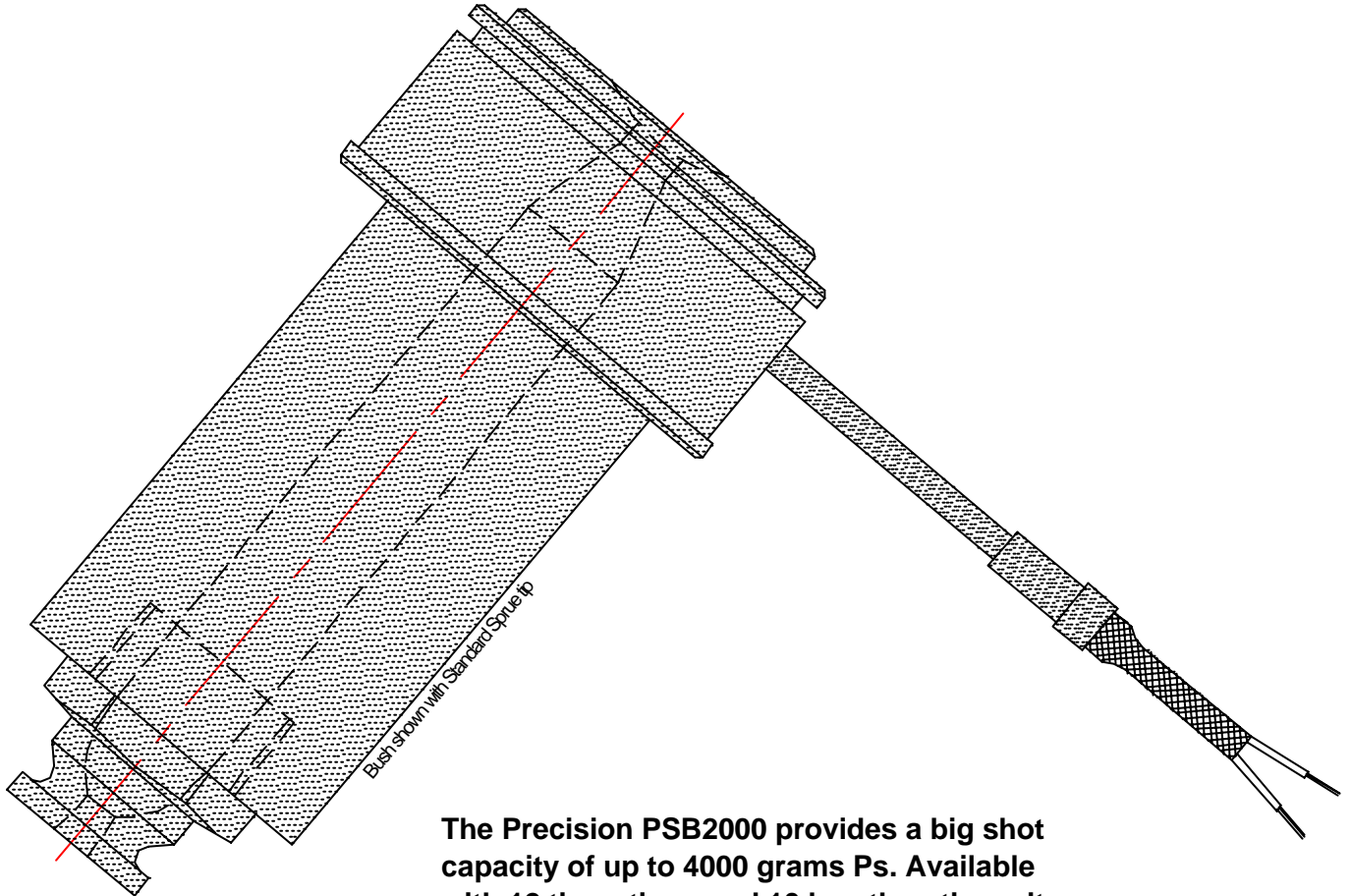
Unfilled Polymers

Read off the gate diameter for your polymer group and shot weight

The recommended gate diameters can be varied ± 10 % if required.

Filled Polymers

For filler > 20 %, add 10 % to the standard gate diameter.



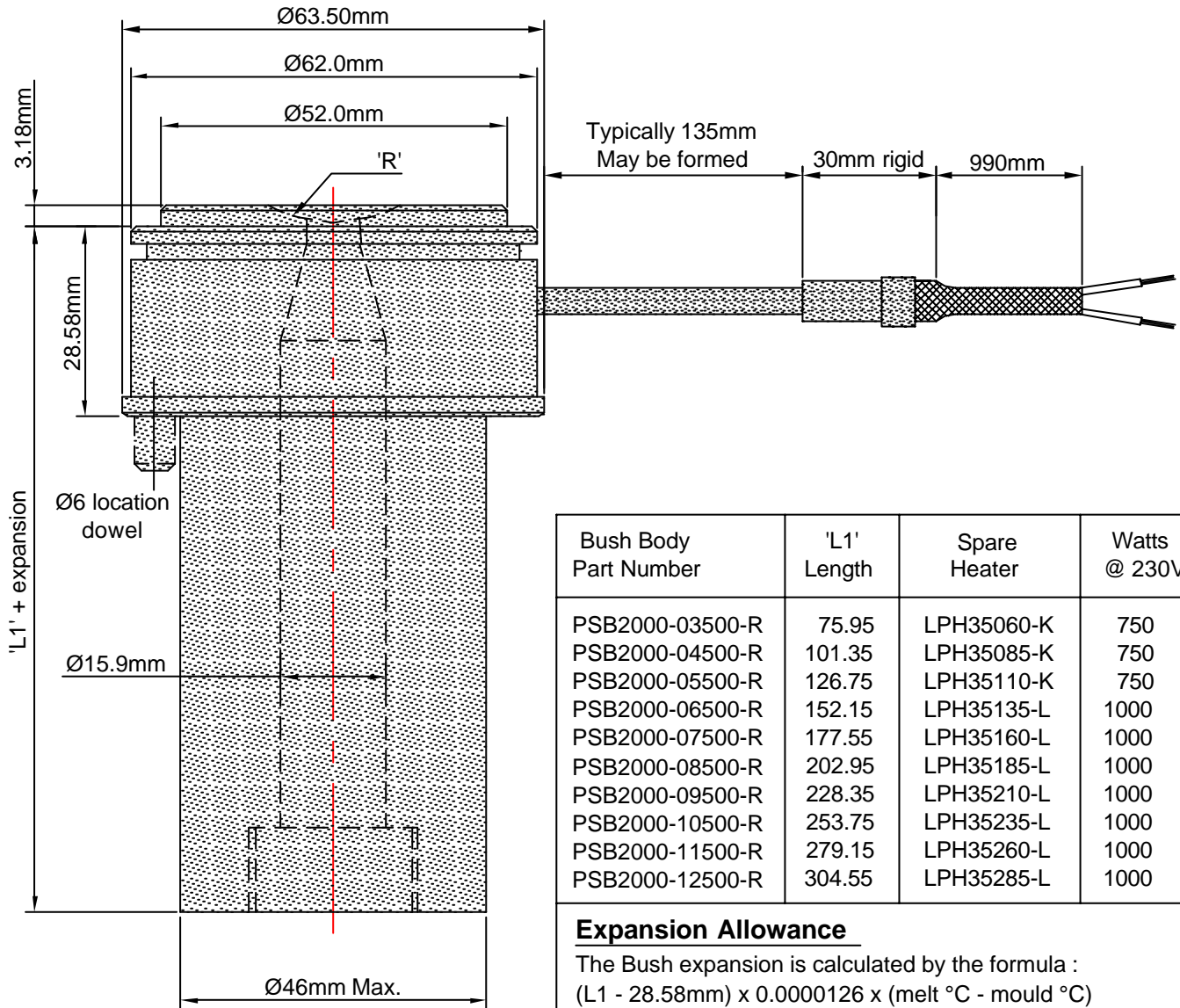
The Precision PSB2000 provides a big shot capacity of up to 4000 grams Ps. Available with 12 tip options and 10 length options, it is ideally suited to gating both on to cold runners and directly on to large parts.

Page	Contents
5.2	Bush Dimensions & Part Numbers
5.3	Tip Styles & Part Numbers
5.4	Bush Installation Details
5.5	Tip Installation Details
5.6	Resin/Tip Compatibility Chart
5.6	Gate Diameter/Shot Weight Chart

Bush Selection

Refer to page PSB-5.6 for the PSB2000 **Resin/Tip Compatibility Chart** .

Ordering instructions are given below.

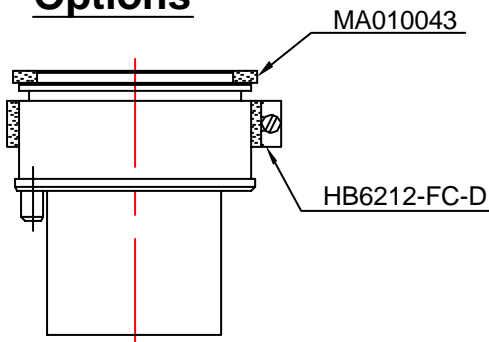


Bush Body Part Number	'L1' Length	Spare Heater	Watts @ 230V
PSB2000-03500-R	75.95	LPH35060-K	750
PSB2000-04500-R	101.35	LPH35085-K	750
PSB2000-05500-R	126.75	LPH35110-K	750
PSB2000-06500-R	152.15	LPH35135-L	1000
PSB2000-07500-R	177.55	LPH35160-L	1000
PSB2000-08500-R	202.95	LPH35185-L	1000
PSB2000-09500-R	228.35	LPH35210-L	1000
PSB2000-10500-R	253.75	LPH35235-L	1000
PSB2000-11500-R	279.15	LPH35260-L	1000
PSB2000-12500-R	304.55	LPH35285-L	1000

Expansion Allowance

The Bush expansion is calculated by the formula :
 $(L1 - 28.58\text{mm}) \times 0.0000126 \times (\text{melt } ^\circ\text{C} - \text{mould } ^\circ\text{C})$

Options



Ordering Instructions

- 1 - specify Bush body part number
- 2 - specify nozzle seating radius 'R'
- 3 - specify tip part number
- 4 - specify optional insulation washer
- 5 - specify optional rear heaterband

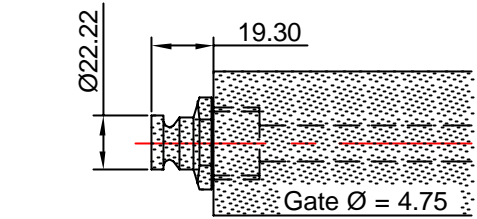
Example :

- 1-off PSB2000-04500-R40
- 1-off TP620416
- 1-off MA010043
- 1-off HB6212-FC-D

Tip Selection Guide

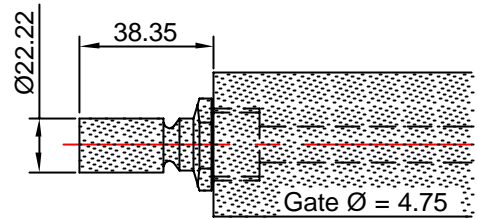
SS - Standard Sprue Tip

Typically used for gating on trapezoidal or half-round runners, this tip style is suitable for use with all resins
TP620110 = for unfilled resins
TP620111 = wear resistant for filled resins



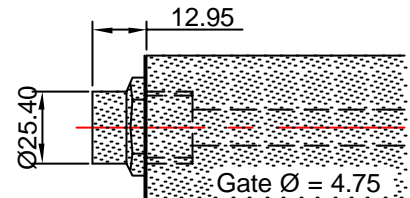
XS - Extended Sprue Tip

Typically used for gating on full-round runners, this tip style is suitable for use with all resins and can be profiled
TP620210 = for unfilled resins
TP620211 = wear resistant for filled resins



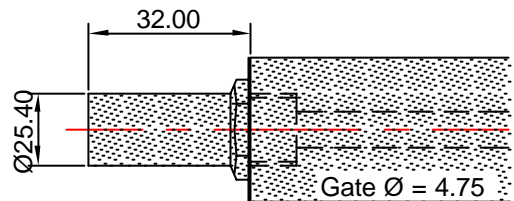
SS - Large Diameter Standard Sprue Tips

Typically used for gating on trapezoidal or half-round runners, this tip style is suitable for use with all resins
TP200100 = Ø25.40mm for all resins



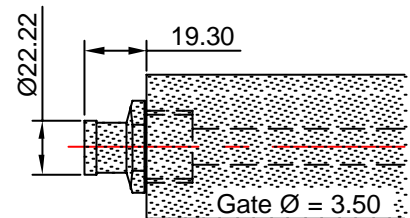
XS - Large Diameter Extended Sprue Tips

Typically used for gating on full-round runners, this tip style is suitable for use with all resins and can be profiled
TP620200 = Ø25.40mm for all resins



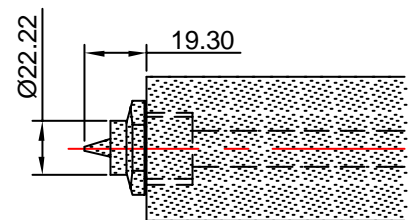
RG - Ring-Gate (Gate Insert) Tip

Used for gating directly on parts, this tip style leaves a witness ring on the moulding. It is particularly suitable for use with Crystalline resins
TP620410 = for unfilled resins
TP620413 = wear resistant Spreader for filled resins



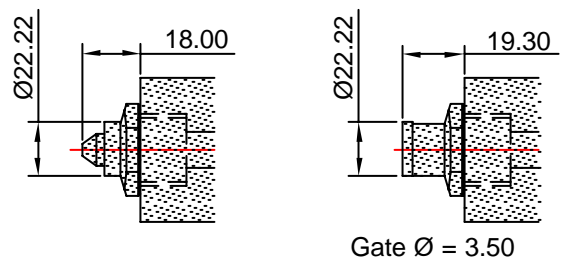
CG - Collar-Gate Tip

Used for gating directly on to parts, this tip style does not leave a witness ring on the part. It is particularly suitable for use with Amorphous resins
TP620416 = for unfilled resins
TP620419 = wear resistant Spreader for filled resins



RT & CT - Thru'flow Tips

Used for gating directly on to parts where no flow lines are permissible, e.g. optical lenses & 'metallic' appearance parts. Suitable for use with Amorphous resins only
TP620410TF = Ring-gate style, with a witness ring
TP620416TF = Collar-gate style, with no witness ring

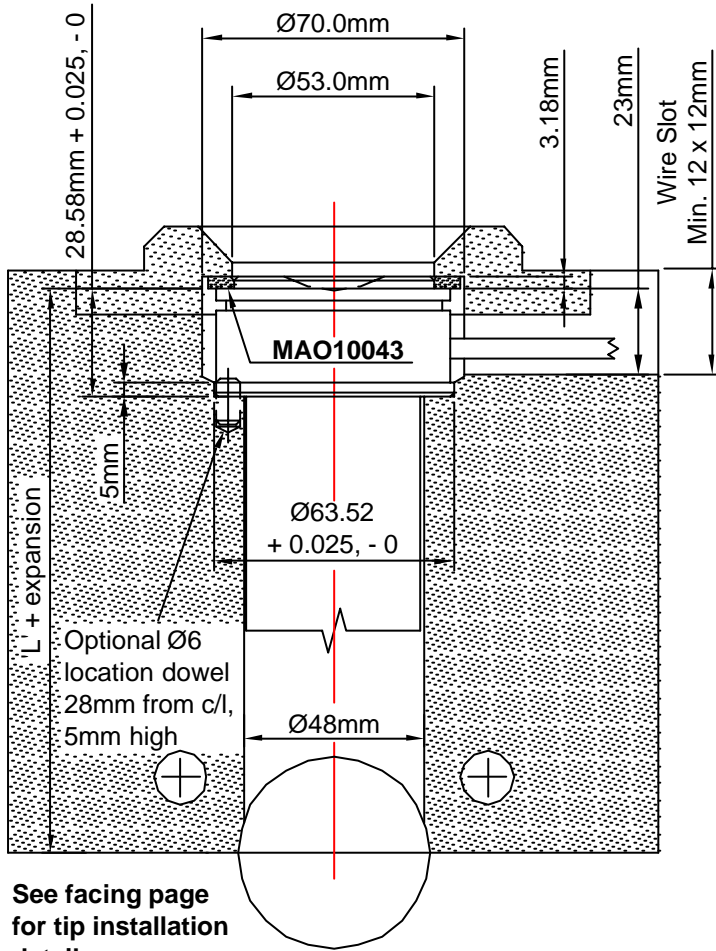


All dimensions are in millimetres

Bush Installation Details

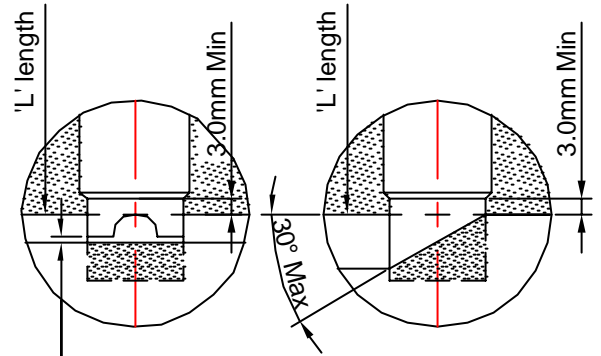
Showing **Top Insulation Washer MAO10043** (recommended for all polymers), and optional **Rear Heaterband HB-6212-FC-D** (recommended for temperature-sensitive polymers). **See chart on page 5.6.**

Bush thermal expansion is calculated by the formula $(L' - 28.58\text{mm}) \times .0000126 \times (\text{melt temp. } ^\circ\text{C} - \text{tool temp. } ^\circ\text{C})$
IMPORTANT - the front face of the bush must always make 'plastic contact only'.



See facing page for tip installation details

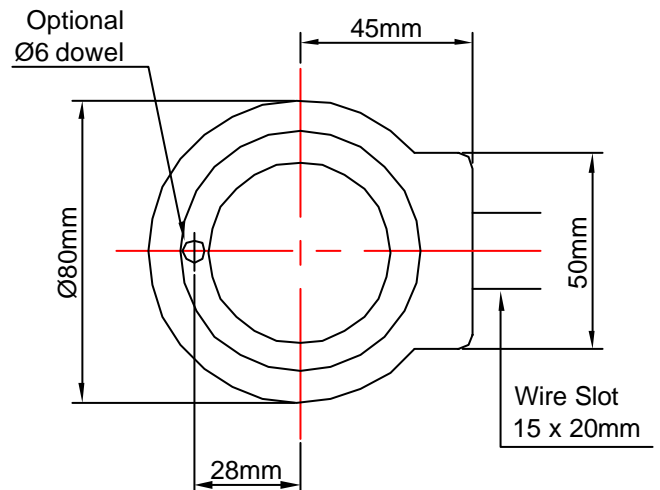
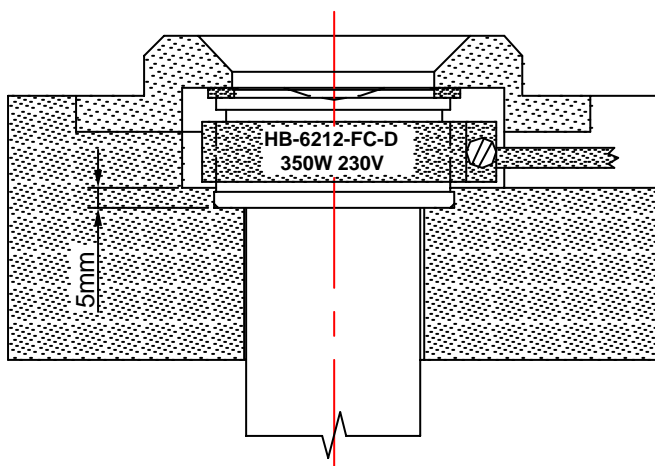
Profiling Tips with Extra Stock Length



IMPORTANT

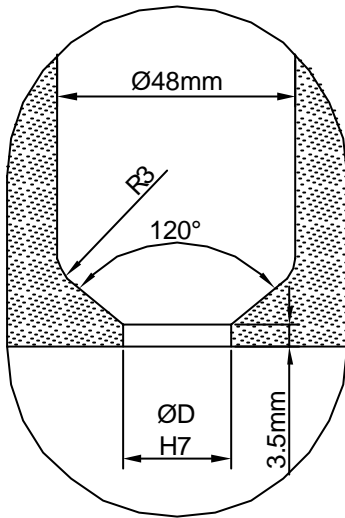
Tip must always make plastic contact only. Set back 0.5mm at moulding temperature when gating on runners.

Optional Rear Heaterband Installation

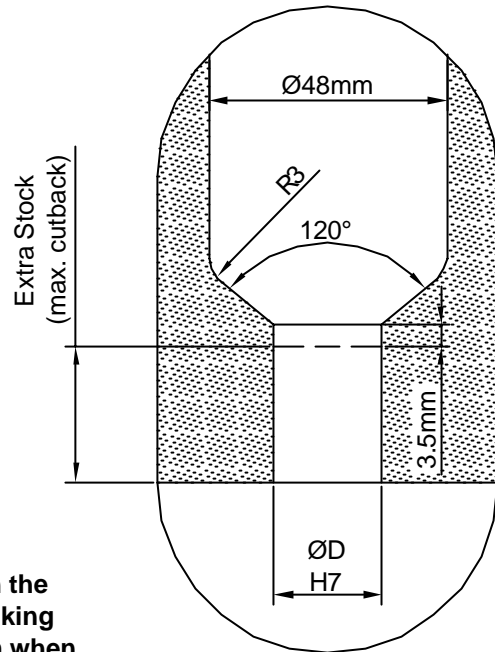


Tip Installation Details

SS = Standard Sprue
 RG = Ring-Gate
 RT = Ring-Gate Thru'flow

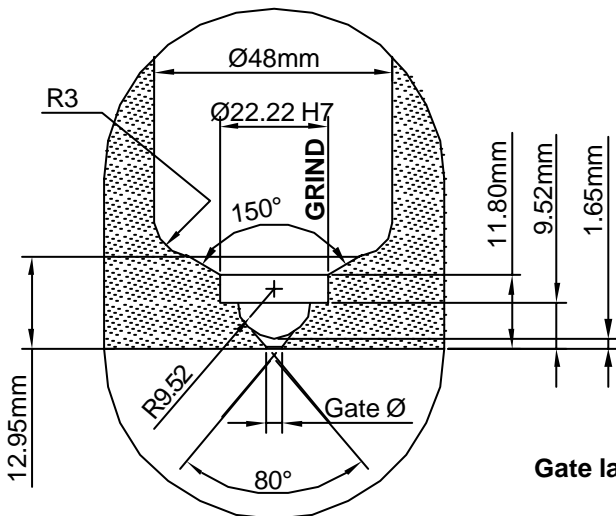


XS = Extended Sprue

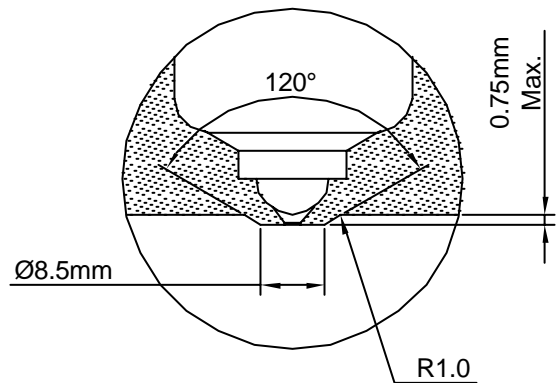


IMPORTANT ... front face of tips must not shut-out on the moving mould half, but must be free to expand by making plastic contact only. Set all Sprue tips back by 0.5mm when hot if gating on runners.

CG = Collar-Gate
 CT = Collar-Gate Thru'flow



Recessed Gate



Gate land = 0.13mm (Standard)

Resin/Tip Compatibility Chart

Tip Style >	SS	XS	RG	CG	RT	CT	Max.Shot	Top Washer	Rear Heaterband
ABS	3	3	3	3	3	3	2400 grams	Yes	No
Pa.6	3	3	3	2	0	0	2400 grams	Yes	No
Pa.6.6	3	3	2	1	0	0	2400 grams	Yes	Yes
PBT	3	3	3	2	0	0	1200 grams	Yes	Yes
Pc	3	3	2	2	3	3	800 grams	Yes	Yes
Pc/ABS	3	3	3	3	3	3	800 grams	Yes	No
Pe-HD	3	3	3	3	3	3	2400 grams	Yes	No
Pe-LD	3	3	3	3	3	3	3200 grams	Yes	No
PEI	3	3	3	2	0	0	1200 grams	Yes	Yes
PES	3	3	3	1	0	0	800 grams	Yes	Yes
PET	3	3	3	2	0	0	1200 grams	Yes	Yes
PMMA	3	3	2	3	3	3	800 grams	Yes	No
POM-C	3	3	3	2	0	0	1200 grams	Yes	Yes
POM-H	3	3	2	1	0	0	1200 grams	Yes	Yes
Pp	3	3	3	3	3	3	4000 grams	Yes	No
PPE	3	3	2	2	2	2	800 grams	Yes	No
PPS	3	3	3	1	0	0	2400 grams	Yes	Yes
Ps	3	3	3	3	3	3	4000 grams	Yes	No
PSU	3	3	2	1	0	0	800 grams	Yes	Yes
SAN	3	3	3	3	3	3	2400 grams	Yes	No
SB	3	3	3	3	3	3	3200 grams	Yes	No
TPE	3	3	2	1	0	0	800 grams	Yes	Yes
TPR	3	3	2	2	2	2	1200 grams	Yes	No

3 = Excellent 2 = Good 1 = Application dependent, consult factory 0 = Not recommended

Gate Diameter/Shot Weight Chart

This chart shows typical figures based on theoretical and empirical data, and provides a guide only.

The best bush/tip choice depends on many factors. To check your application, always consult factory.

Maximum Shot Weight (grams)

Gate Ø (mm)	Group 1	Group 2	Group 3	Group 4	Group 5
3.50	1500	1200	900	450	300
3.75	2000	1500	1100	600	400
4.00	2250	1800	1350	675	450
4.25	2500	2000	1500	750	500
4.50	2750	2200	1650	825	550
4.75	3000	2400	1800	900	600
5.00	3500	2800	2000	1000	700
5.50	4000	3200	2400	1200	800

Polymer Groups

1 - Very Easy-flow Polymers

Pp, Ps

2 - Easy-flow Polymers

LDPe, PVC-p, SB

3 - Medium-flow Polymers

ABS, ASA, HDPe, Pa, SAN

4 - Medium-stiff-flow Polymers

PBT, PET, POM, TPR

5 - Stiff-flow Polymers

PC, PC/ABS, PMMA, PPE

Unfilled Polymers

Read off the gate diameter for your polymer group and shot weight

The recommended gate diameters can be varied ± 10 % if required.

Filled Polymers

For filler > 20 %, add 10 % to the standard gate diameter.