

Nozzle Range and Series Options

Key	Suitability
✓	Available / Suitable
⊙	Application dependant
✗	Not available / Not suitable

Nozzle Range			Nozzle Series					Valve Gate	Front Loading	Single Nozzle
			09	13	16	19	27			
MX		Front loading heater for Manifold Only Close cavity pitching	✓	✓	✓	✓	✗	✓	✓	✗
BX		Cost effective solution Robust heater design Single & manifold application	✗	✓	✓	✓	✓	✓	✗	⊙
SX		Dedicated single nozzle solution Two heaters for optimum control	✗	✓	✓	✓	✓	✗	✗	✓

mastip[™]
hot runner solutions

Enquire with our technical advisor to ensure correct nozzle choice

Tip and Nut Options

Key	Tip Suitability
✓	Available
★★★★	Highest rating
×	Not Available

1 Not Available in X13

3 Not Available in SX Series

2 Not Available in X27

4 Not Available in H5

TIPS		Grades			Nut Style			Features			Plastic (Refer to page 22)		
		G1	G2	G5	ONT	BN / BE V1B / V2B	SN/V1S SX/(Y)CN SL	Gate Quality	Flow Rate	Flow Marks	Easy	Medium	Difficult
Thermal Gate	TT Multi Hole Torpedo Tip	✓	✓	✓				★★★★	★★	★★	★★★★	★★★★	★★★★
	TT+5 Extended Torpedo Tip	✓	✓	×		×	×	★★★★	★★	★★	★★★★	★★	×
	TT+10 Extended Torpedo Tip	✓	✓	×		×	×	★★★★	★	★★	★★★★	★	×
	IT Single Hole Torpedo Tip	✓	✓	✓				★★★★	★★	★★★	★★★★	★★★★	★★★★
	IT+5 Extended Torpedo Tip	✓	✓	×		×	×	★★★★	★★	★★★	★★★★	★★	×
	IT+10 Extended Torpedo Tip	✓	✓	×		×	×	★★★★	★	★★★	★★★★	★	×
	OT Open Tip	✓	×	✓				★★	★★★★	★★★★	★★★★	★★★★	★
	Y No Tip	×	×	×	×	×		★	★★★★	★★★★	★★★★	★★★★	★★★★
	Multi-Gate (A) Axial Tip	✓	×	×		×	×	★★★★	★★	★★	★★★★	×	×
Valve Gate	Multi-Gate (S) Side Tip	✓	×	×		×	×	★★	★★	★★	★★★★	×	×
	TV Torpedo Tip	✓	×	×				★★★★	★★★★	★★	★★★★	★★★★	★
	OV Open Tip	✓	×	✓				★★★★	★★★★	★★★	★★★★	★★★★	★
	GV Guided Tip	×	×	✓			×	★★★★	★★★★	★★★	★★★★	★★★★	★
	YV No Tip	×	×	×	×			★★★★	★★★★	★★★	★★★★	★★★★	★

Enquire with our technical advisor to ensure correct nozzle choice

Typical Flow Length Ratios (L/t)

Material	Wall Section							
	2.0	1.5	1.0	0.8	0.7	0.6	0.5	0.4
ABS	170	96	43	27	21	15	11	7
CA	150	84	38	24	18	14	9	6
EVA	175	98	44	28	21	16	11	7
SAN	120	68	30	19	15	11	8	5
PA	150	84	38	24	18	14	9	6
PC	100	56	25	16	12	9	6	4
HDPE	225	127	56	36	28	20	14	9
LDPE	275	155	69	44	34	25	17	11
PMMA	130	73	33	21	16	12	8	5
POM	150	84	38	24	18	14	9	6
PP	250	141	63	40	31	23	16	10
UPVC	100	56	25	16	12	9	6	4

All flow lengths greater than this must be considered thin wall and the nozzle series selected accordingly.

Nozzle Flow Rates

Use the table below to select the correct nozzle series based on the flow rate required and the material category.
If the material is a blend material (for example Medium-Difficult or Easy-Medium) always select the higher category to ensure the part can be filled.

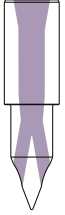
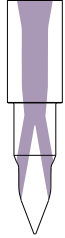
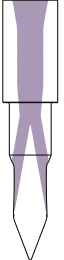
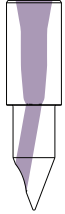
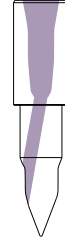
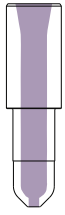
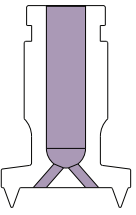
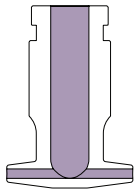
Nozzle Series	Material Specifications			Material Category ²		
				Easy	Medium	Difficult
09	Thermal Gate Flow Rate	g/s	¹	15	7	3
	Shot Weight	g	¹	0.5 - 15	0.5 - 10	0.5 - 5
13	Thermal Gate Flow Rate	g/s	¹	30	15	5
	Valve Gate Flow Rate	g/s	¹	25	12	—
	Shot Weight	g	¹	0.5 - 45	0.5 - 30	0.5 - 15
16	Thermal Gate Flow Rate	g/s	¹	125	65	25
	Valve Gate Flow Rate	g/s	¹	95	50	20
	Shot Weight	g	¹	1 - 200	1 - 125	1 - 60
19	Thermal Gate Flow Rate	g/s	¹	300	150	60
	Valve Gate Flow Rate	g/s	¹	225	110	45
	Shot Weight	g	¹	2 - 625	2 - 300	2 - 150
27	Thermal Gate Flow Rate	g/s	¹	600	300	125
	Valve Gate Flow Rate	g/s	¹	420	210	90
	Shot Weight	g	¹	10 - 2000	10 - 1200	10 - 800

¹ Additives, flow length and thin wall sections all reduce the effective flow rate and shot weight.
To counter the reduced flow rate and shot weight select one nozzle series larger.

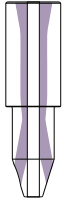
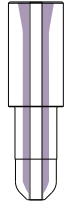
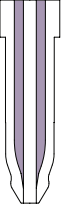
Enquire with our technical advisor to ensure correct nozzle choice

Tip Styles

Thermal Gate Tip Styles

Multi Hole Torpedo Tip (TT)	Extended Torpedo Tip (TT+5)	Extended Torpedo Tip (TT+10)
		
Single Hole Torpedo Tip (IT)	Extended Single Hole Torpedo Tip (IT +5)	Extended Single Hole Torpedo Tip (IT +10)
		
Open Tip (OT)	Spiral Tip (ST)	
		
Multi-Gate Axial Tip (A)	Multi-Gate Side Tip (S)	
		

Valve Gate Tip Styles

Torpedo Tip (TV)	Open Tip (OV)
	
Guided Tip (GV)	
	

Tip Grades

Tips are manufactured in various grades designed for different applications and wear resistance.

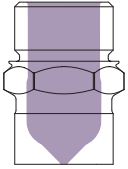
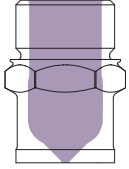
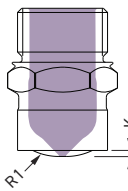
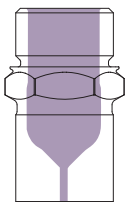
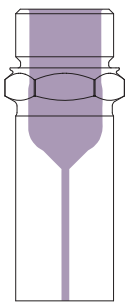
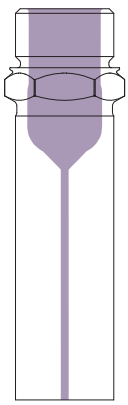
Tip Grade	Recommended use	Manufactured Material	Tip Style Options
G1	Default grade suitable for easy materials	Beryllium Copper with Nickel coating	TT, IT, OT, TV, OV
G2	Long life tip suitable for easy unfilled materials	Beryllium Copper tipped with Steel, Nickel coating	TT, IT
G5	Long life tip suitable for difficult and abrasive materials	Carbide/Hard liner	TT, IT, OT, OV, GV

Enquire with our technical advisor to ensure correct nozzle choice

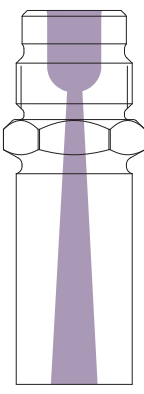
Nut Options

Key	Value
✓	Yes
✗	No
Witness	Nut will leave a circular witness mark on part
Modify	Nut may require modification to suit application

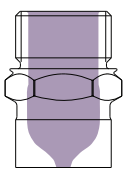
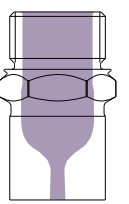
Thermal Gate Nut Types

Bush Nut Full Contact (BE)		Bush Nut (BN)		Dome Nut (BD)	
Witness	✓	Witness	✓	Witness	✓
Modify	✓	Modify	✗	Modify	✓
					
Sprue Nut +5 (SN)		Sprue Nut +20 (SX)		Sprue Nut +35 (SL)	
Witness	✓	Witness	✓	Witness	✓
Modify	✓	Modify	✓	Modify	✓
					

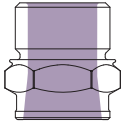
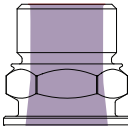
For a Dome Nut supply R1 and K dimensions at time of order.

YCN Nut (YCN)	
Witness	✓
Modify	✓
	

Valve Gate Nut Types

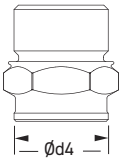
Valve Bush Nut (V1B ¹ /V2B ²)		Valve Sprue Nut (V1S ¹)	
Witness	✓	Witness	✓
Modify	✓	Modify	✓
			

Thermal Gate and Valve Gate Nut Types

Open Nut (ONT)		Retro Nut (ONT-R)	
Witness	✗	Witness	✗
Modify	✗	Modify	✓
			

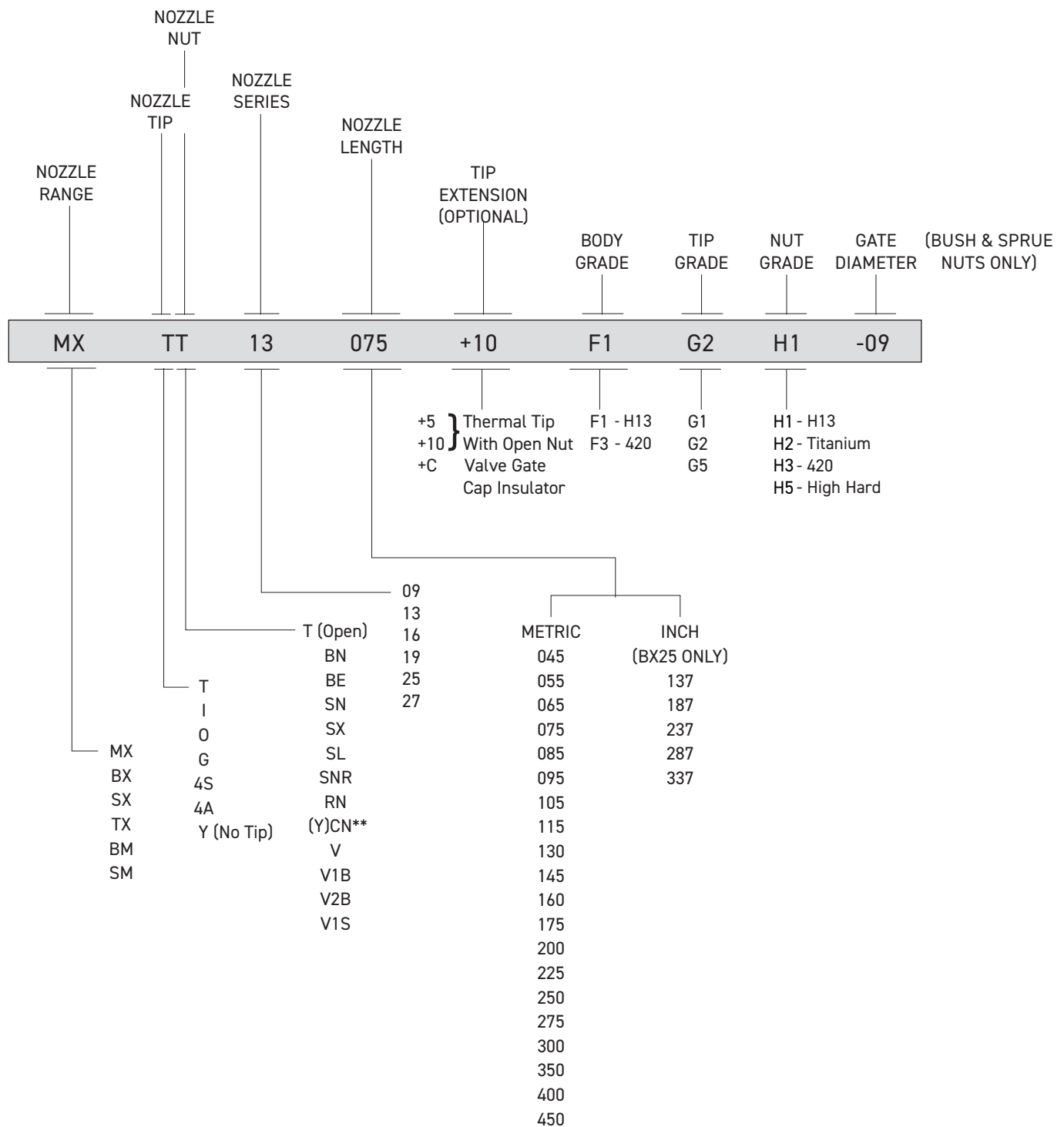
Notes:

- 1 Conical Gate
2 Cylindrical Gate

	Series	Standard Nut Ød4	Retro Nut Ød4*
	09	7	-
	13	10	13.1
	16	12	16.1
	19	15	19.1
	27	23	27.1

* Finish to suit cavity d4 -0.015mm to +/-0.005mm

Nozzle Assembly Order Code for X-Range Series



Enquire with our technical advisor to ensure correct nozzle choice