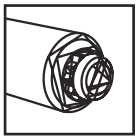
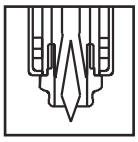
NOZZLES

CATALOGUE 2003

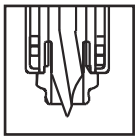
CONTENTS



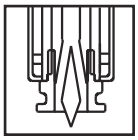
PINPOINT GATES



MTT – TORPEDO TIP
- Pinpoint gating
- Minimum gate vestige
- Fit direct into cavity/insert
- Suits most plastics
- Excellent flow, colour change
- Carbide tips available for abrasive materials



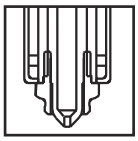
MIT – ONE HOLE TORPEDO TIP
- Features as per MTT, except colour change
- Carbide tips available for abrasive materials
- Eliminates flow lines from nozzle



MTTR – TORPEDO TIP RETROFIT
- Features as per MTT, MTB, MTS, MIT, MOT etc
- Allows MTT retro-fitting to Sb Series nozzles

See custom solutions section for special MTTE nozzle

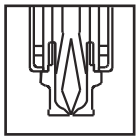
OPEN GATES



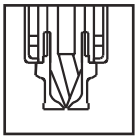
MOT – OPEN TIP
- Open flow channel
- Leaves small gate vestige (mark)
- Fits direct into cavity/insert
- Suits difficult to flow plastics
- Suitable for large parts and filled materials.
- Hard liner available for abrasive materials

See custom solutions section for special MTD nozzle

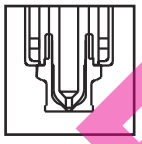
BUSH GATES



MTB – TORPEDO BUSH
- Pinpoint gating with insert
- Good flow, colour change
- Leaves witness ring on part
- Provides easy installation
- Saves cavity gate wear/replaceable
- Carbide tips available for abrasive materials

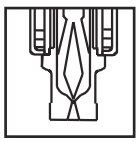


MIB – ONE HOLE TORPEDO BUSH
- Features as per MTB, except for colour change
- Carbide tips available for abrasive materials
- Eliminates flow lines from nozzle
- Leaves witness ring on part

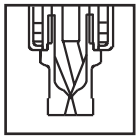


MOB – OPEN BUSH
- Open flow channel with insert
- Leaves witness ring and small vestige on part
- Provides easy installation
- Saves cavity gate wear/replaceable
- Hard liner available for abrasive materials
- Suits difficult to flow plastics
- Suitable for large parts and filled materials

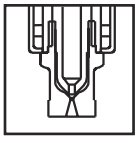
SPRUE GATES



MTS – TORPEDO SPRUE
- Can provide indirect feeding to cavity
- Sprue end machineable to suit cavity/runner
- Leaves witness ring and small sprue on part
- Good colour change
- Carbide tips available for abrasive materials
- Provides easy installation and replacement



MIS – ONE HOLE TORPEDO SPRUE
- Features as per MTS, except colour change
- Leaves witness ring and small sprue on part
- Carbide tips available for abrasive materials
- Eliminates flow lines from nozzle



MOS – OPEN SPRUE
- Can provide indirect feeding to cavity
- Provides easy installation and replacement
- Leaves witness ring and small sprue on part
- Sprue end machineable to suit cavity/runner
- Suitable for large parts and filled materials
- Hard liner available for abrasive materials

CONTENTS

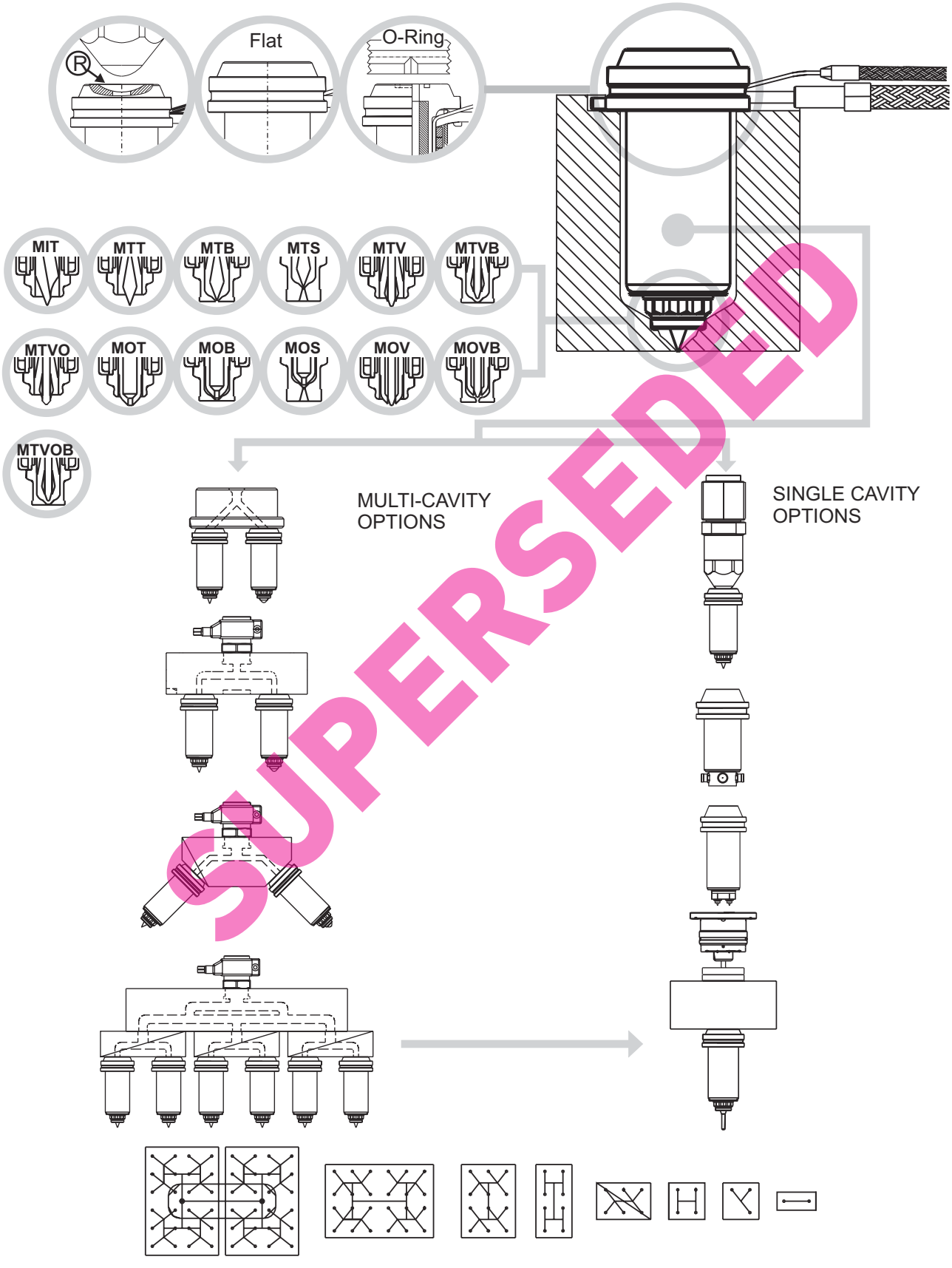
INCH SERIES

MULTI TIPS

VALVE GATES

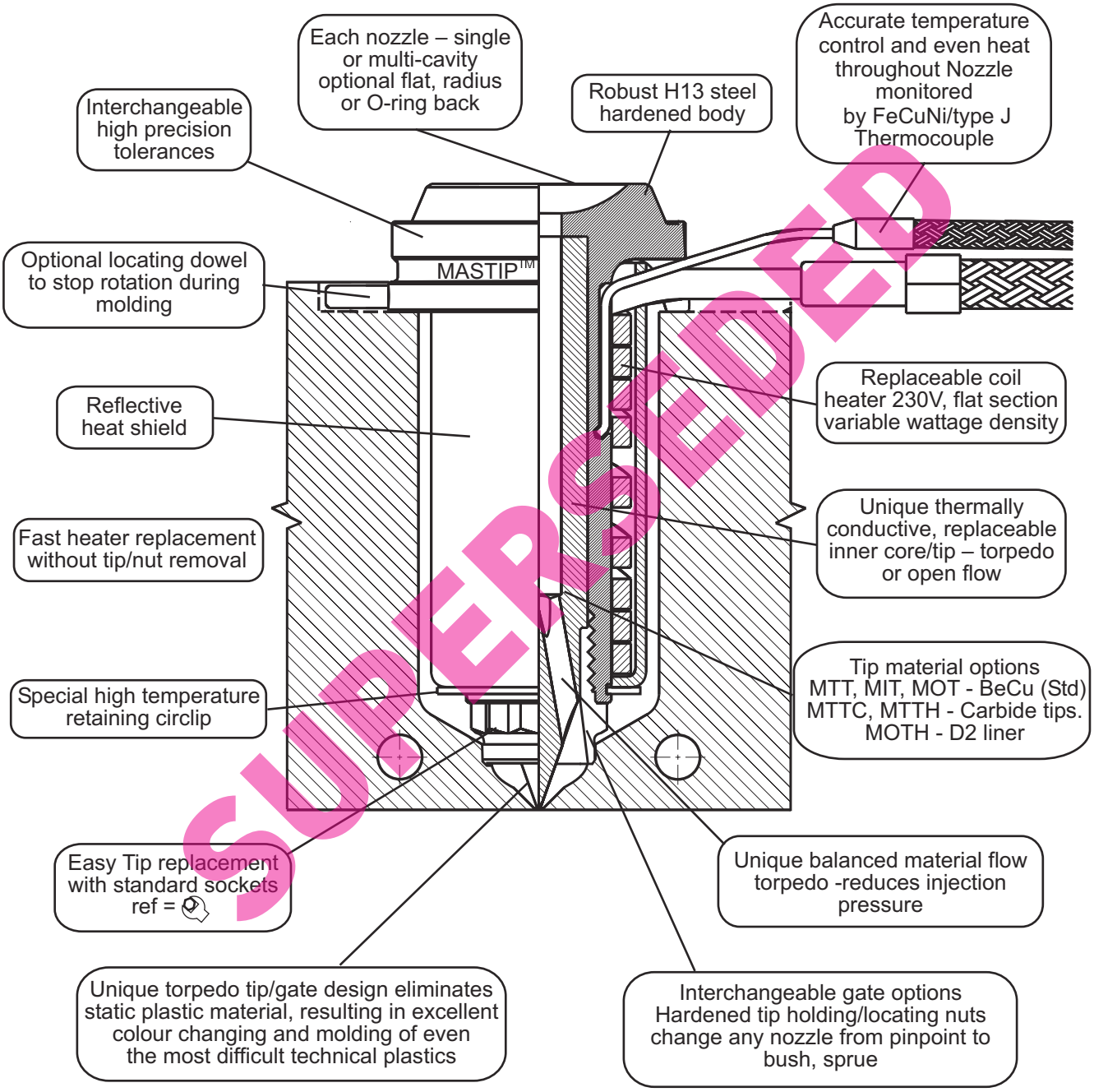
MVC – STANDARD SHUT OFF VALVE ASSEMBLIES
- Pneumatic or Hydraulic operation
- Four sizes of actuators
- Standard components

MT SERIES SYSTEM



MT SERIES FEATURES

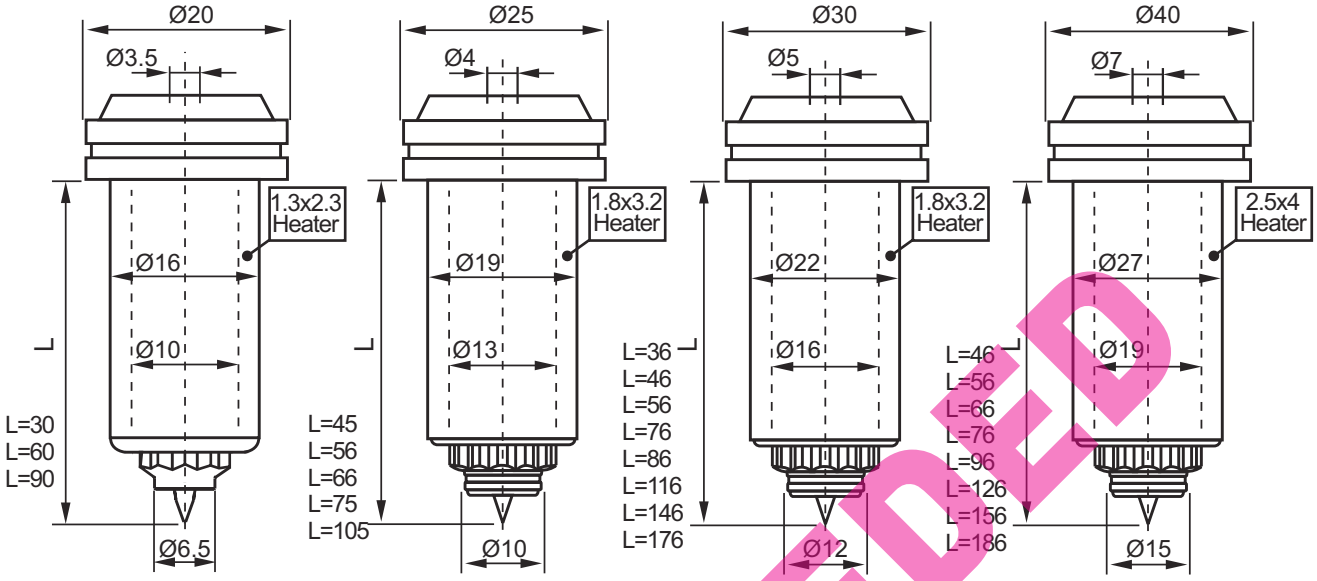
- Suits virtually any plastic material
- Fast colour changes (with MTT)
- Ideal for technical, glass filled and fiber reinforced plastics
- Interchangeable, replaceable components
- 5 grams — 3.5 kgs capacity
- 36 Standard nozzle lengths
- 14 Standard gate options
- 7 Standard nozzle series



- Take care to accurately machine gate area! Refer to relevant pages in catalogue for dimensions
- Do not operate HCM 10 tips at temperatures over 300°C for extended periods.

- Maximum working pressure @ for HCM 10 tips
  230 C -1500 bar.
  260 C -1400 bar.
  275 C -1300 bar.
  290 C -1200 bar.
  300 C -1100 bar.
- Maximum working pressure @ 400 C - 1500 bar. (Carbide)

MT SERIES SIZE RANGE



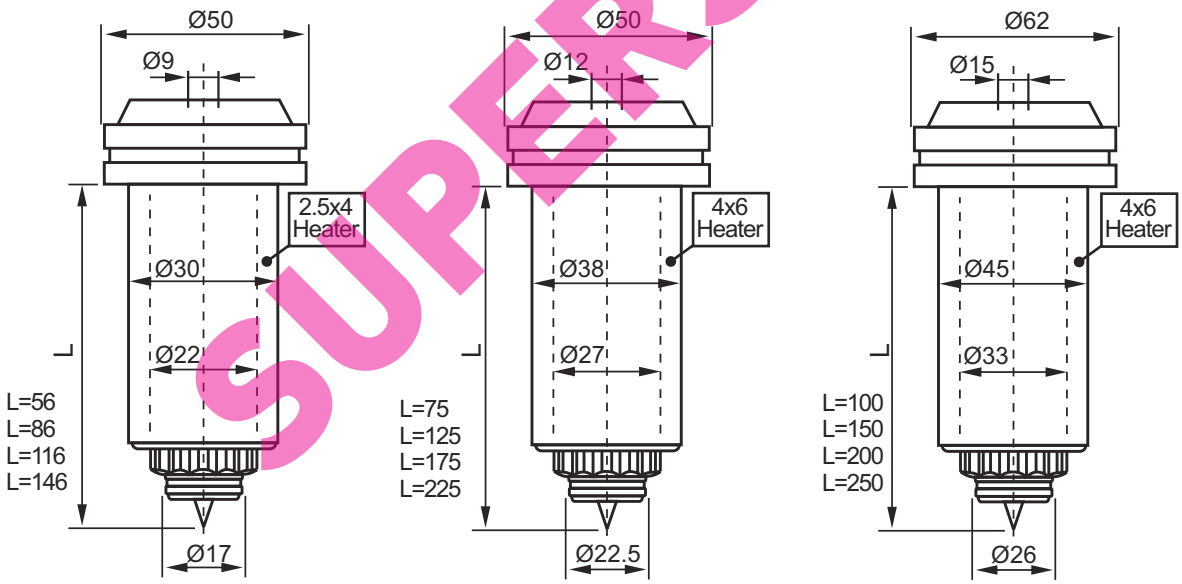
10 series			
MAX SHOT	E (ie PP, PE, PS)	=	15
	M (ie ABS, POM, SAN)	=	☎
GRAM	D (ie PBT, PA66, PC)	=	☎

13 series			
MAX SHOT	E (ie PP, PE, PS)	=	30
	M (ie ABS, POM, SAN)	=	20
GRAM	D (ie PBT, PA66, PC)	=	☎

16 series			
MAX SHOT	E (ie PP, PE, PS)	=	100
	M (ie ABS, POM, SAN)	=	70
GRAM	D (ie PBT, PA66, PC)	=	☎

19 series			
MAX SHOT	E (ie PP, PE, PS)	=	500
	M (ie ABS, POM, SAN)	=	300
GRAM	D (ie PBT, PA66, PC)	=	175

☎ ***MASTIP*** FOR DETAILS ON USING THESE MATERIALS



22 series			
MAX SHOT	E (ie PP, PE, PS)	=	900
	M (ie ABS, POM, SAN)	=	600
GRAM	D (ie PBT, PA66, PC)	=	300

27 series			
MAX SHOT	E (ie PP, PE, PS)	=	2000
	M (ie ABS, POM, SAN)	=	1200
GRAM	D (ie PBT, PA66, PC)	=	800

33 series			
MAX SHOT	E (ie PP, PE, PS)	=	3500
	M (ie ABS, POM, SAN)	=	2500
GRAM	D (ie PBT, PA66, PC)	=	1500

GENERAL INFORMATION

- All Dimensions in mm
- Max shot (g) indication only, based on MTT tip flow
- Standard Tip Material HCM10
- Use Retro Nuts to interchange with other Nozzles/Sprue Bushes

Key – E = Easy Filling Material, **M** = Medium Filling Material, **D** = Difficult Filling Material

PLASTIC MATERIAL GUIDE

MASTIP Nozzle Selection

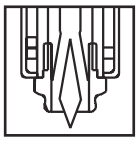
	Plastic	MTT	MTB	MTS	MTD	MTV(O)	MTVB(O)	MIT	MOT	MOB	MOS	MOV	MOVB	MMG	MSM	MMM	MEG	MSW
Easy Filling E	PP	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	PE	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	PS	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	SB	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	❍	✔	✔	❍
	EVA	✔	✔	✔	✔	❍	❍	✔	✔	✔	✔	✔	✔	✔	❍	✔	✔	❍
Medium Filling M	ABS	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	❍	☎	❍	✔
	POM	✔	✔	✔	✔	✔	✔	✔	❍	❍	❍	❍	❍	✔	❍	☎	❍	✖
	SAN	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	☎	❍	✔
	PA6	✔	✔	✔	✔	✔	✔	✔	❍	❍	❍	❍	❍	❍	✖	☎	✖	✖
	PMMA	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✖	☎	❍	✖
	ASA	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	❍	☎	❍	❍
	CAB	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	❍	☎	❍	❍
	TPE	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	❍	❍	☎	❍	❍
Difficult Filling D	PBT	TH	TH	TH	✔	✔	✔	TH	❍	❍	❍	❍	❍	✖	✖	☎	✖	✖
	PA66	TH	TH	TH	✔	✔	✔	TH	❍	❍	❍	❍	❍	❍	✖	☎	✖	✖
	PC	TH	TH	TH	✔	✔	✔	TH	✔	✔	✔	✔	✔	✖	✖	☎	✖	✖
	PC/ABS	TH	TH	TH	✔	❍	❍	TH	❍	❍	❍	❍	❍	❍	✖	☎	✖	✖
	PPS	TH	TH	TH	✔	❍	❍	TH	❍	❍	❍	❍	✔	✖	✔	☎	✖	✖
	PES	TH	TH	TH	✔	✔	✔	TH	❍	❍	❍	❍	❍	✖	✖	☎	✖	✖
	PPO	TH	TH	TH	✔	✔	✔	TH	❍	❍	❍	❍	❍	✖	✖	☎	✖	✖
	PSU	TH	TH	TH	✔	✖	✖	TH	TH	TH	TH	✖	✖	✖	✖	☎	✖	✖
	PVC-soft	✔	✔	✔	✔	✔	✔	✔	❍	❍	❍	❍	❍	❍	❍	☎	✖	✖
	LCP	TH	TH	TH	✔	❍	❍	TH	❍	❍	❍	❍	❍	❍	✖	☎	✖	✖
	PEI	TH	TH	TH	✔	❍	❍	TH	❍	❍	❍	❍	❍	✖	✖	☎	✖	✖
	Colour Change	✔	✔	✔	✔	✔	✔	✔	❍	❍	❍	❍	❍	✔	✖	✔	✔	✖
	Cosmetic Gate	✔	❍	✖	✖	❍	❍	✔	✖	✖	✖	❍	❍	✔	✔	✔	✖	✔
	Glass Fibre (GF)	TH	TH	TH	✔	☎	☎	TH	TH	TH	TH	☎	☎	✖	✖	✖	✖	✖
	Flame Ret'dant (FR)	✔	✔	✔	✔	☎	☎	✔	✖	✖	✖	☎	☎	✔	✖	✔	✖	✖

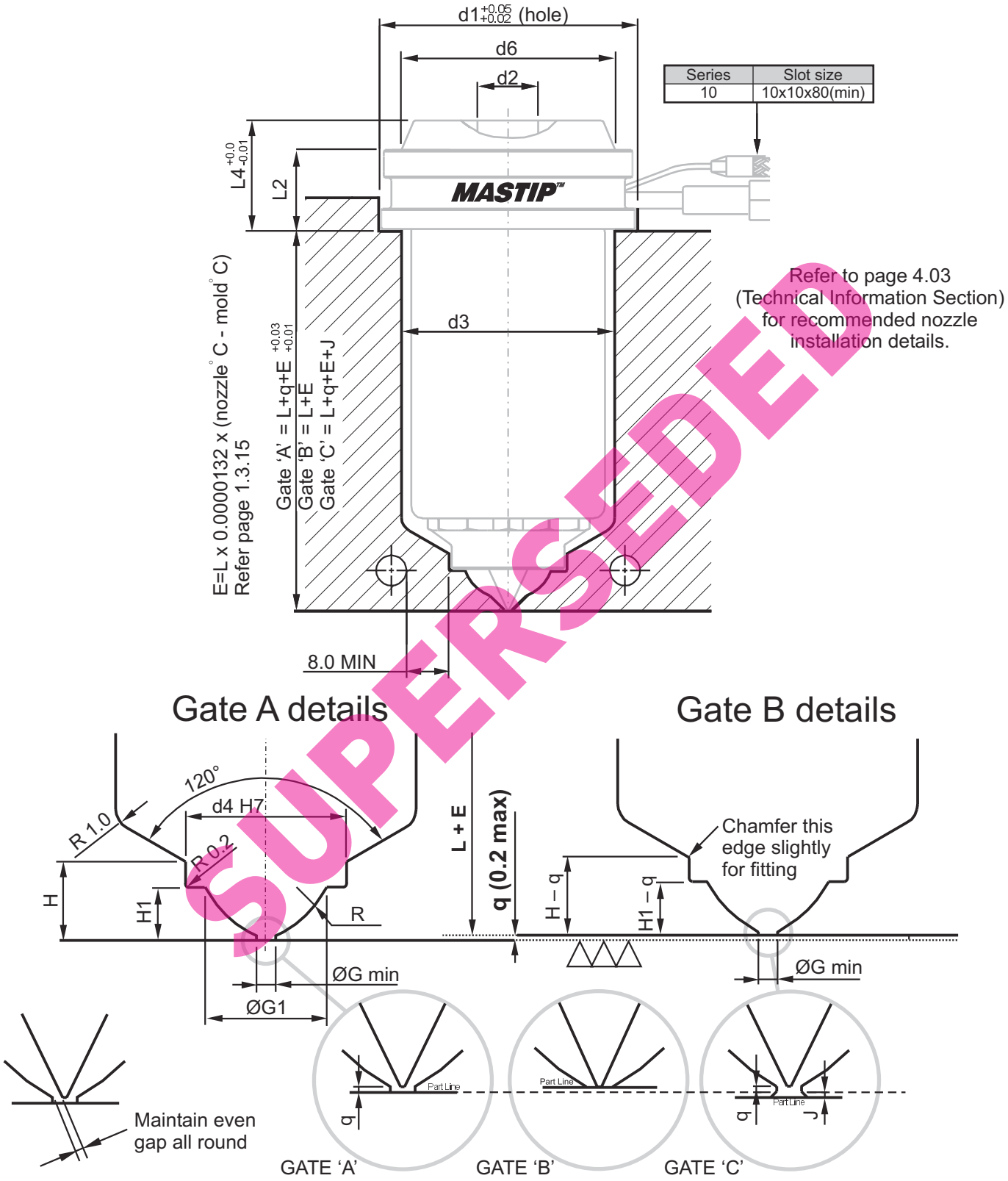
Recommendations Only

- **Contact *MASTIP* before using D and M materials with MT 10 and MT 13 series nozzles**
- **For thin walled / high pressure / high speed applications contact *MASTIP* for recommendations.**
- **This chart is designed to be a basic guide only, specific nozzle selection is dependent on the application and part details.**
- **Do not operate the standard HCM 10 tips at temperatures over 300°C for extended periods of time.**

Key: ✔= Good, ❍ = OK, ✖ = No Good, ☎ = Tel ***MASTIP***, **TH** = Use Full Carbide or D2 tips

PINPOINT GATE *MTT10*





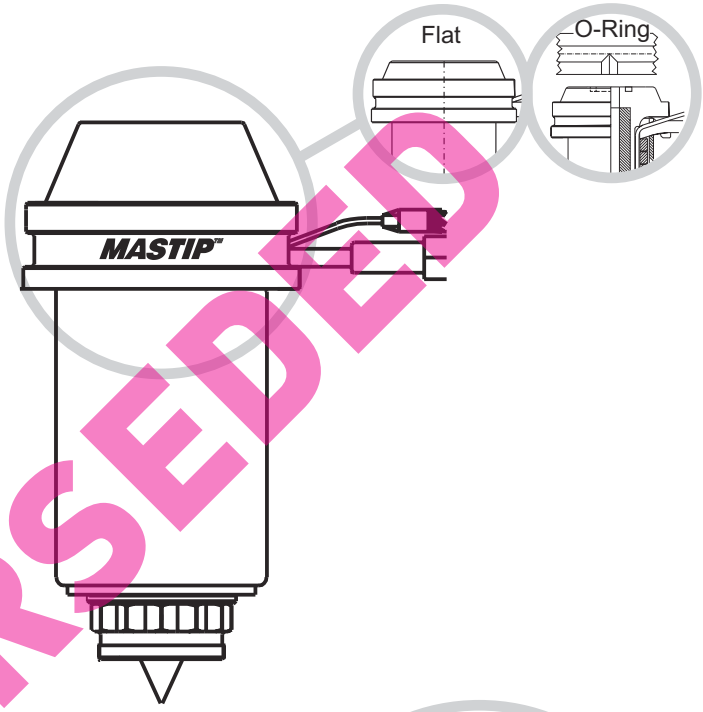
- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *MASTIP*.**
- **G dimension is a recommendation only, the final size should be determined by application.**
- **J dimension depends on shear sensitivity of material and maximum gate vestige. See Technical manual.**
- **Dimension 'q' represents the parallel land at the gate diameter.**

PINPOINT GATE *MTT10*

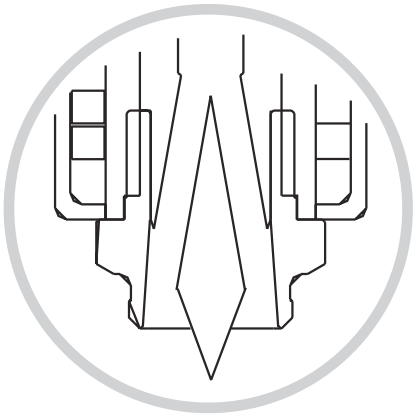
	L	d1	d2	d3	d4	d6	L2	L4		G	G1	H +0.0 - 0.1	H1 +0.0 - 0.1	R	E@ 200 C	E@ 250 C	
MTT10030	**30**	20	3.5	17	6.5	17.5	8	10	10	0.8	5.7	4.7	3.5	5	0.08	0.10	115W
MTT10060	**60**														0.16	0.20	280W
MTT10090	**90**														0.24	0.30	400W

MTT10 SERIES NOZZLES

- Use where minimum gate vestige and good colour change are important.
- Ideal for high cavity tooling and where there is limited room around the gate profile.
- Not recommended for single nozzle applications without Hot Runner manifold.



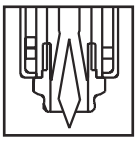
SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MT10	0.5-15	☎	**6**

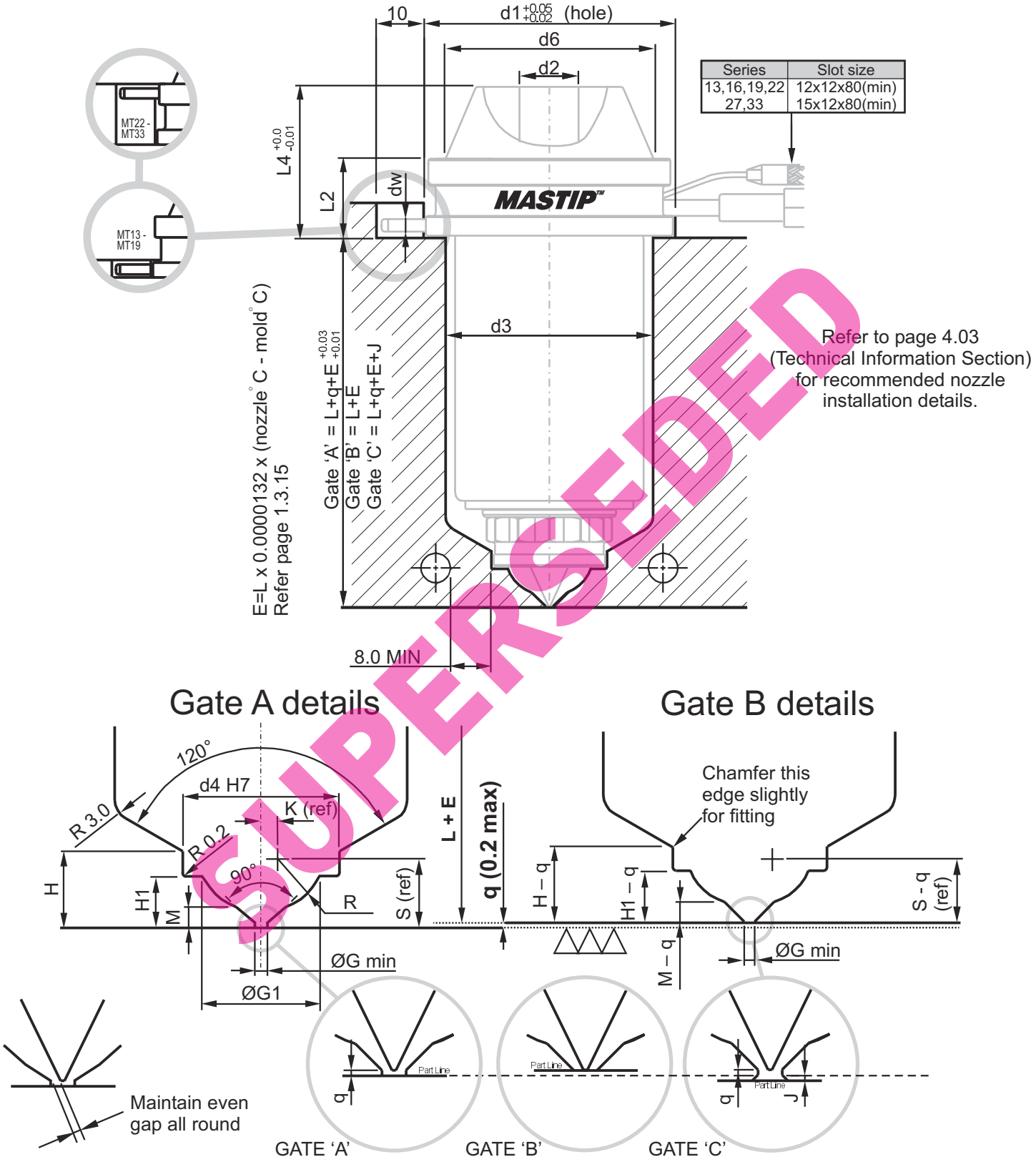


MTT

Example Order — 1 x MTT10090 – O-Ring /Flat
Multi 4 x MTT10090 – O-Ring/Flat

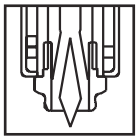
PINPOINT GATE *MTT/MIT 13-33*





- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *MASTIP*.**
- **G dimension is a recommendation only, the final size should be determined by application.**
- **J dimension depends on shear sensitivity of material and maximum gate vestige. See Technical manual.**
- **Dimension 'q' represents the parallel land at the gate diameter.**

PINPOINT GATE *MTT/MIT 13-33*

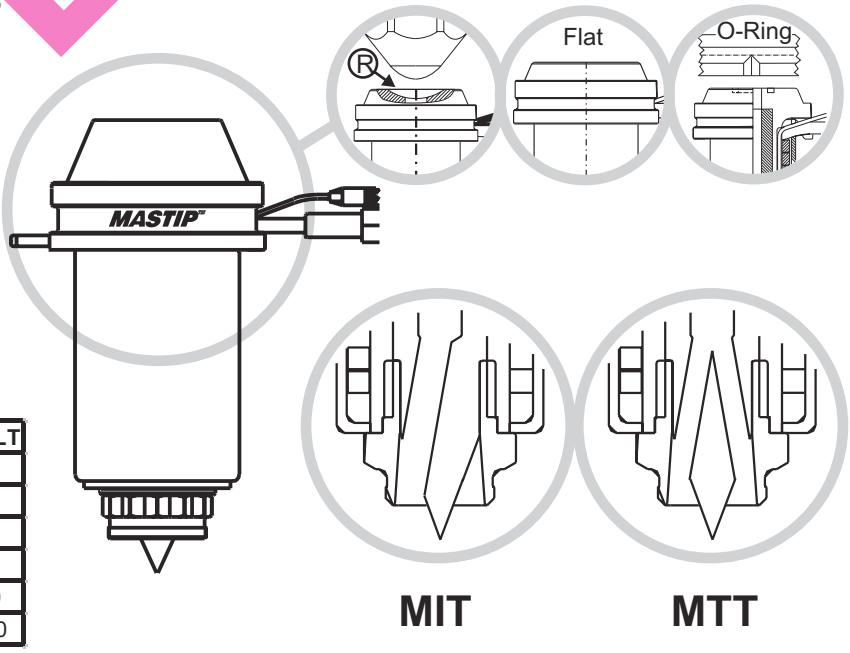


	L	d1	d2	d3	d4	d6	L2	L4	dw		M	G	G1	H +0.0 -0.1	H1 +0.0 -0.1	S	K	R	E@ΔT =200 C	E@ΔT =250 C	
MTT/MIT13045	**45**	25	4	22	10	21	8.5	12	2	11	1.25	0.9	8	6	4	5.01	0.13	4	0.12	0.15	225W
MTT/MIT13056	**56**																		0.15	0.18	250W
MTT/MIT13066	**66**																		0.17	0.22	250W
MTT/MIT13075	**75**																		0.20	0.25	290W
MTT/MIT13105	**105**																		0.28	0.35	400W
MTT/MIT16036	**36**	30	5	25	12	25	10	15	2.5	13	1.5	1	10	7.4	4.5	6.28	0.33	5	0.10	0.12	250W
MTT/MIT16046	**46**																		0.12	0.15	290W
MTT/MIT16056	**56**																		0.15	0.18	330W
MTT/MIT16076	**76**																		0.20	0.25	400W
MTT/MIT16086	**86**																		0.23	0.28	470W
MTT/MIT16116	**116**																		0.31	0.38	550W
MTT/MIT16146	**146**																		0.39	0.48	620W
MTT/MIT16176	**176**																		0.46	0.58	700W
MTT/MIT19046	**46**	40	7	32	15	35	12	17	2.5	16	1.75	1.2	12.5	8.5	5.7	7.53	0.54	6	0.12	0.15	330W
MTT/MIT19056	**56**																		0.15	0.18	400W
MTT/MIT19066	**66**																		0.17	0.22	470W
MTT/MIT19076	**76**																		0.20	0.25	470W
MTT/MIT19096	**96**																		0.25	0.32	550W
MTT/MIT19126	**126**																		0.33	0.42	620W
MTT/MIT19156	**156**																		0.41	0.51	700W
MTT/MIT19186	**186**																		0.49	0.61	850W
MTT/MIT22056	**56**	50	9	36	17	45	15.5	28	3	18	2	1.5	14	8.5	6.4	7.84	1.18	6	0.15	0.18	470W
MTT/MIT22086	**86**																		0.23	0.28	620W
MTT/MIT22116	**116**																		0.31	0.38	700W
MTT/MIT22146	**146**																		0.39	0.48	850W
MTT/MIT27075	**75**	50	12	42	22.5	45	15.5	30	4	22	2.5	2	19	11	8	12.06	0.36	10	0.20	0.25	550W
MTT/MIT27125	**125**																		0.33	0.41	800W
MTT/MIT27175	**175**																		0.46	0.58	1000W
MTT/MIT27225	**225**																		0.59	0.74	1400W
MTT/MIT33100	**100**	62	15	50	26	55	20	35	4	28	3	2.5	22	13	10	12.63	1.35	10	0.26	0.33	800W
MTT/MIT33150	**150**																		0.40	0.50	1000W
MTT/MIT33200	**200**																		0.53	0.66	1400W
MTT/MIT33250	**250**																		0.66	0.83	1800W

MTT / MIT SERIES NOZZLES

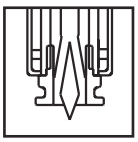
- Use where minimum gate vestige and good colour change are important.
- Ideal for high cavity tooling and where there is limited room around the gate profile.
- MIT nozzle is preferred where flow lines must be minimal and colour change is of less importance.
- Full carbide tips available where abrasive filled materials are used. - MTTH
- Carbide tipped HCM10 tips are available for long life. - MTTC

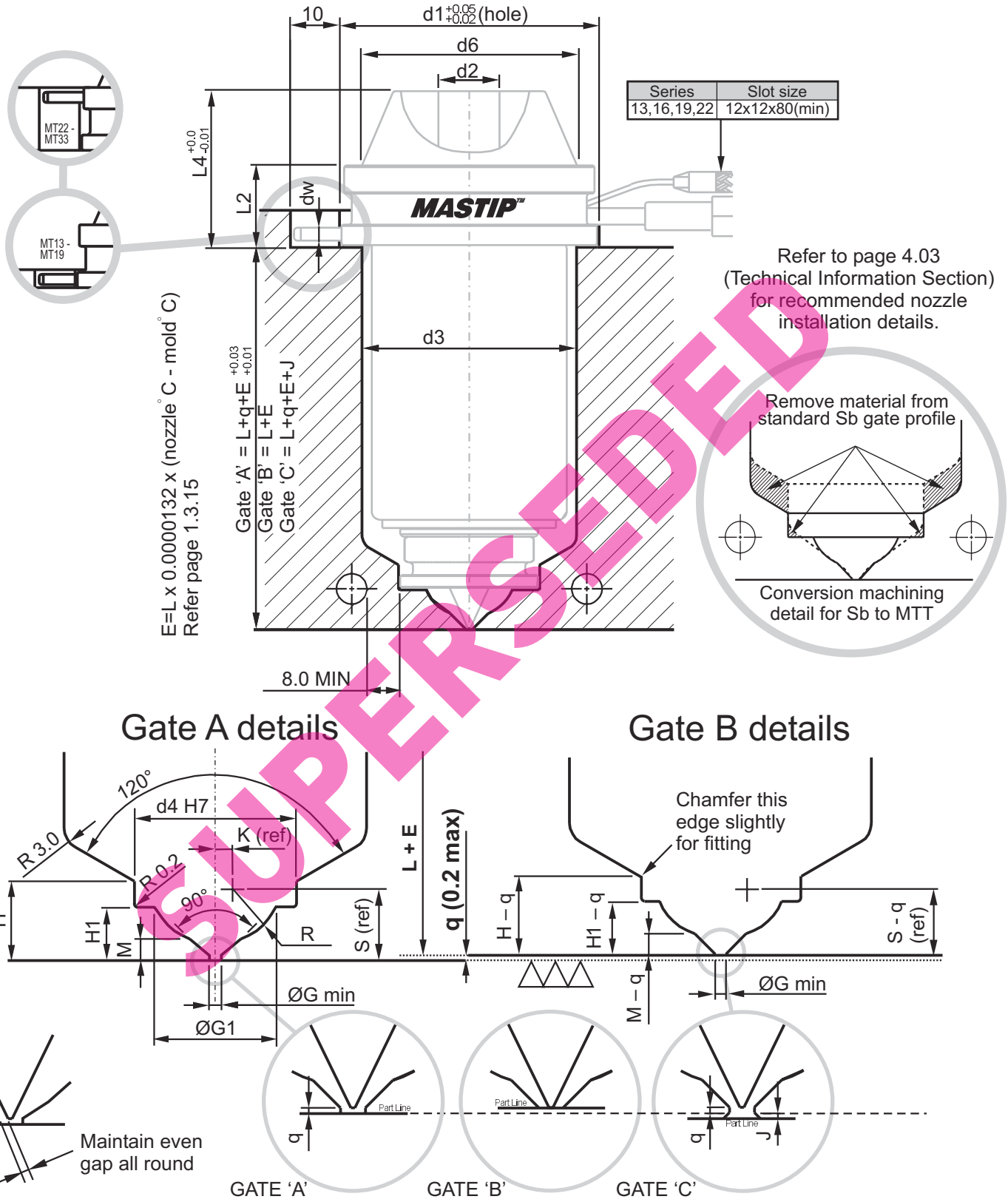
SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MT13	0.5-30	0.5-20	☎
MT16	1-100	1-70	☎
MT19	5-500	5-300	5-175
MT22	9-900	9-600	9-300
MT27	20-2000	20-1200	20-800
MT33	40-3500	40-2500	40-1500



Example Order — 1 x MTT19066 – R x . . . /Flat
Multi 4 x MTT19066 – O-Ring/Flat
MTTH19066 = MTT incl TH (Carbide)

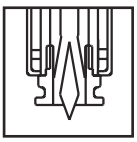
PINPOINT RETRO GATE *MTTR*





- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *Mastip*.**
- **G dimension is a recommendation only, the final size should be determined by application.**
- **J dimension depends on shear sensitivity of material and maximum gate vestige. See Technical manual.**
- **Dimension 'q' represents the parallel land at the gate diameter.**

PINPOINT RETRO GATE *MTTR*

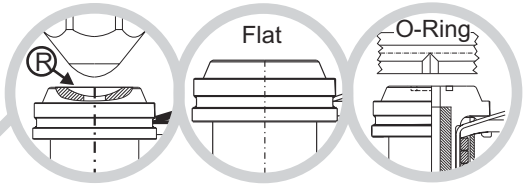


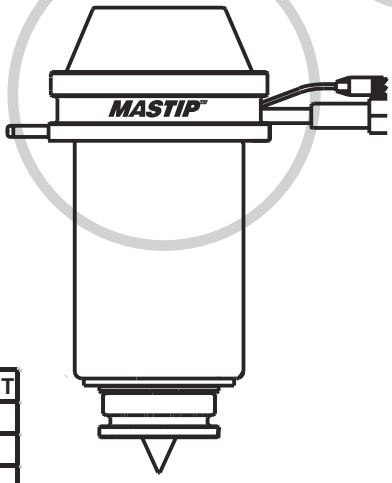
	L	d1	d2	d3	d4	d6	L2	L4	dw	M	G	G1	H +0.0 -0.1	H1 +0.0 -0.1	S	K	R	E@ T = 200 C	E@ T = 250 C	
MTTR13045	**45**	25	4	22	12.5	21	8.5	12	2	11	1.25	0.9	10	6.7	4	5.24	1.2	4	0.12	0.15	225W
MTTR13056	**56**																		0.15	0.18	250W
MTTR13066	**66**																		0.17	0.22	250W
MTTR13075	**75**																		0.20	0.25	290W
MTTR13105	**105**																		0.28	0.35	400W
MTTR16036	**36**	30	5	25	16	25	10	15	2.5	13	1.5	1	11	8.0	4.5	6.41	0.88	5	0.10	0.12	250W
MTTR16046	**46**																		0.12	0.15	290W
MTTR16056	**56**																		0.15	0.18	330W
MTTR16076	**76**																		0.20	0.25	400W
MTTR16086	**86**																		0.23	0.28	470W
MTTR16116	**116**																		0.31	0.38	550W
MTTR19046	**46**	40	7	32	19	35	12	17	2.5	16	1.75	1.2	14.5	9.7	5.7	7.72	1.6	6	0.12	0.15	330W
MTTR19056	**56**																		0.15	0.18	400W
MTTR19066	**66**																		0.17	0.22	470W
MTTR19076	**76**																		0.20	0.25	470W
MTTR19096	**96**																		0.25	0.32	550W
MTTR19126	**126**																		0.33	0.42	620W
MTTR22056	**56**	50	9	36	22	45	15.5	28	3	18	2	1.5	16.5	9.9	6.4	8	2.47	6	0.15	0.18	470W
MTTR22086	**86**																		0.23	0.28	620W
MTTR22116	**116**																		0.31	0.38	700W
MTTR22146	**146**																		0.39	0.48	850W

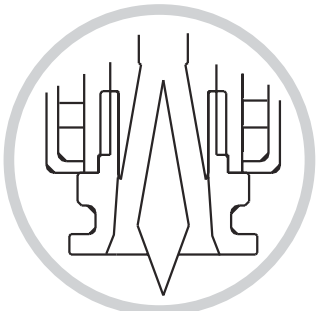
NOTE: Retro nozzles are also available in the following configurations.
MITR/MITRC - One hole Torpedo
MTBR/MIBR(C) - Bush nut Retro
MTSR/MISR(C) - Sprue nut Retro
MOTR/MOTRH - Open tip Retro
MOBR/MOBRH - Open bush Retro
MOSR/MOSRH - Open sprue Retro

MTTR SERIES NOZZLES

- Use to allow retro-fitting of the new MT style nozzles into the SB style nozzle cavities.
- Full carbide tips are available for abrasive filled materials - MTTRH.
- Carbide tipped HCM10 tips are available for long life. - MTTRC
- Hard liners are available for open tip for glass filled materials - MOTRH





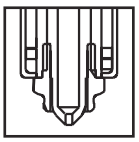


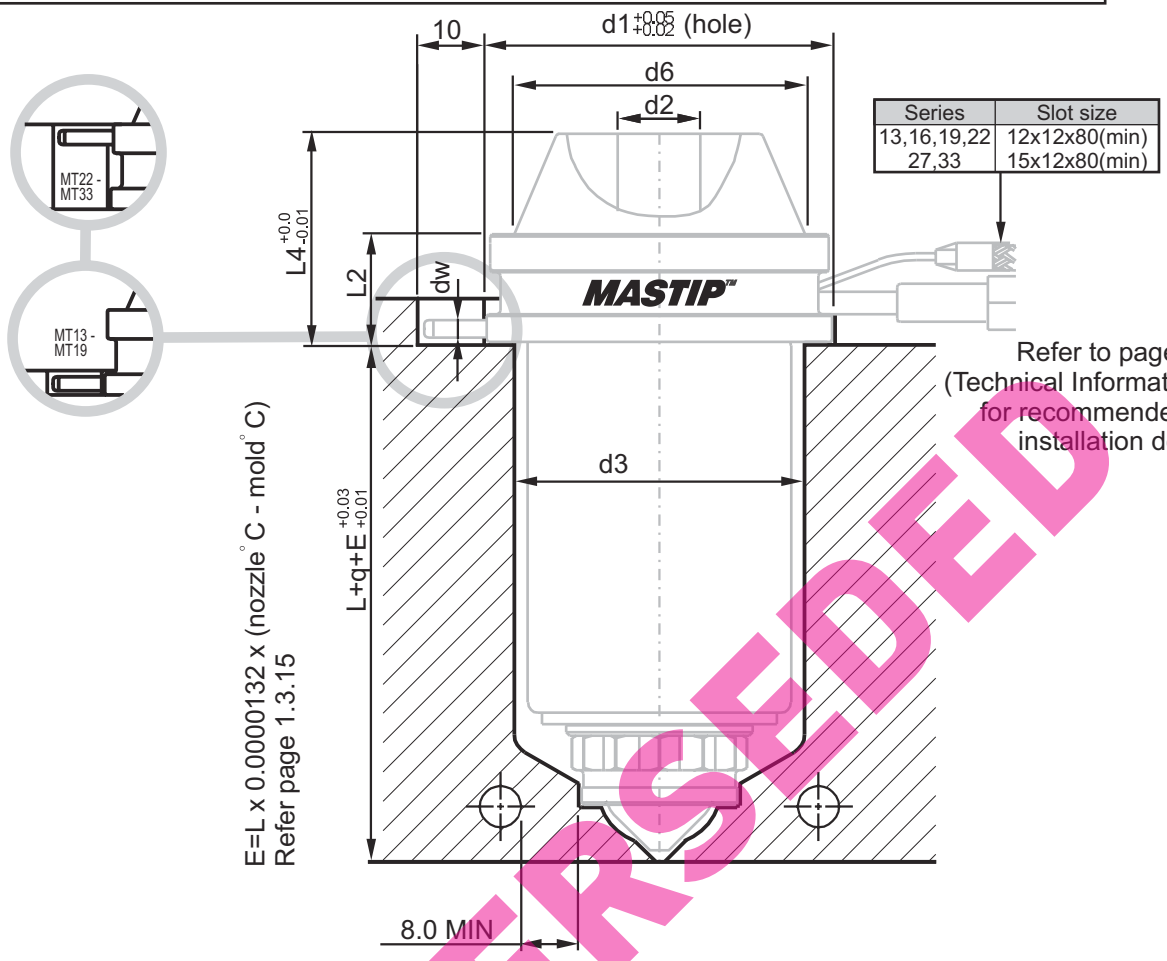
MTTR

SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MT13	0.5-30	0.5-20	☎
MT16	1-100	1-70	☎
MT19	5-500	5-300	5-175
MT22	9-900	9-600	9-300

Example Order — 1 x MTTR19066 – R x . . . /Flat
Multi 4 x MTTR19066 – O-Ring/Flat
MTTRH19066 = MTTR incl TH (Carbide)

OPEN GATE MOT

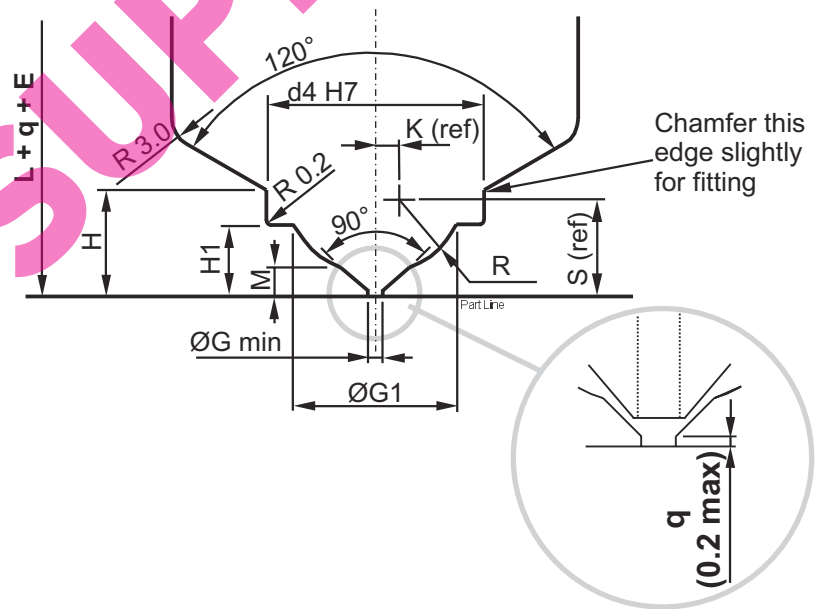




Series	Slot size
13,16,19,22	12x12x80(min)
27,33	15x12x80(min)

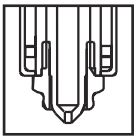
Refer to page 4.03 (Technical Information Section) for recommended nozzle installation details.

Gate A details



- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *MASTIP*.**
- **G dimension is a recommendation only, the final size should be determined by application.**
- **J dimension depends on shear sensitivity of material and maximum gate vestige. See Technical manual.**
- **Dimension 'q' represents the parallel land at the gate diameter.**

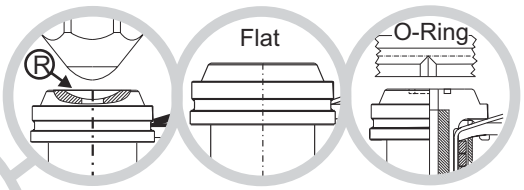
OPEN GATE *MOT*

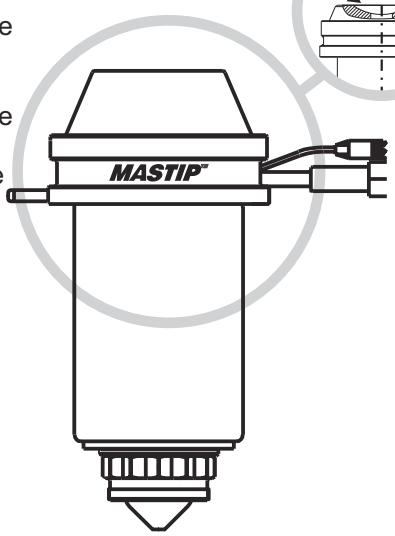


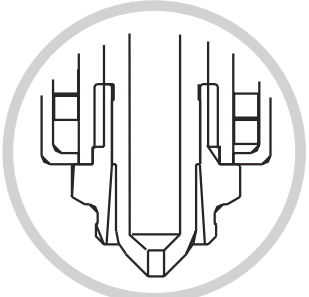
	L	d1	d2	d3	d4	d6	L2	L4	dw		M	G	G1	H +0.0 -0.1	H1 +0.0 - 0.1	S	K	R	E@ T = 200 C	E@ T = 250 C	
MOT13045	**45**	25	4	22	10	21	8.5	12	2	11	1.25	0.9	8	6	4	5.01	0.13	4	0.12	0.15	225W
MOT13056	**56**																		0.15	0.18	250W
MOT13066	**66**																		0.17	0.22	250W
MOT13075	**75**																		0.20	0.25	290W
MOT13105	**105**																		0.28	0.35	400W
MOT16036	**36**	30	5	25	12	25	10	15	2.5	13	1.5	1	10	7.4	4.5	6.28	0.33	5	0.10	0.12	250W
MOT16046	**46**																		0.12	0.15	290W
MOT16056	**56**																		0.15	0.18	330W
MOT16076	**76**																		0.20	0.25	400W
MOT16086	**86**																		0.23	0.28	470W
MOT16116	**116**																		0.31	0.38	550W
MOT16146	**146**																		0.39	0.48	620W
MOT16176	**176**																		0.46	0.58	700W
MOT19046	**46**	40	7	32	15	35	12	17	2.5	16	1.75	1.2	12.5	8.5	5.7	7.53	0.54	6	0.12	0.15	330W
MOT19056	**56**																		0.15	0.18	400W
MOT19066	**66**																		0.17	0.22	470W
MOT19076	**76**																		0.20	0.25	470W
MOT19096	**96**																		0.25	0.32	550W
MOT19126	**126**																		0.33	0.42	620W
MOT19156	**156**																		0.41	0.51	700W
MOT19186	**186**																		0.49	0.61	850W
MOT22056	**56**	50	9	36	17	45	15.5	28	3	18	2	1.5	14	8.5	6.4	7.84	1.18	6	0.15	0.18	470W
MOT22086	**86**																		0.23	0.28	620W
MOT22116	**116**																		0.31	0.38	700W
MOT22146	**146**																		0.39	0.48	850W
MOT27075	**75**	50	12	42	22.5	45	15.5	30	4	22	2.5	2	19	11	8	12.06	0.36	10	0.20	0.25	550W
MOT27125	**125**																		0.33	0.41	800W
MOT27175	**175**																		0.46	0.58	1000W
MOT27225	**225**																		0.59	0.74	1400W
MOT33100	**100**	62	15	50	26	55	20	35	4	28	3	2.5	22	13	10	12.63	1.35	10	0.26	0.33	800W
MOT33150	**150**																		0.40	0.50	1000W
MOT33200	**200**																		0.53	0.66	1400W
MOT33250	**250**																		0.66	0.83	1800W

MOT SERIES NOZZLES

- Use where an open flow channel is important to maximize flow and minimize the effects of flow lines.
- MOT nozzles have a slower colour change than the MTT and leave a small gate vestige (mark).
- Ideal for high cavity tooling and where there is limited room around the gate profile
- A hard liner is available for abrasive materials - MOTH. (MT19-MT33 only)





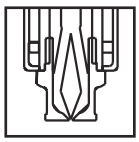


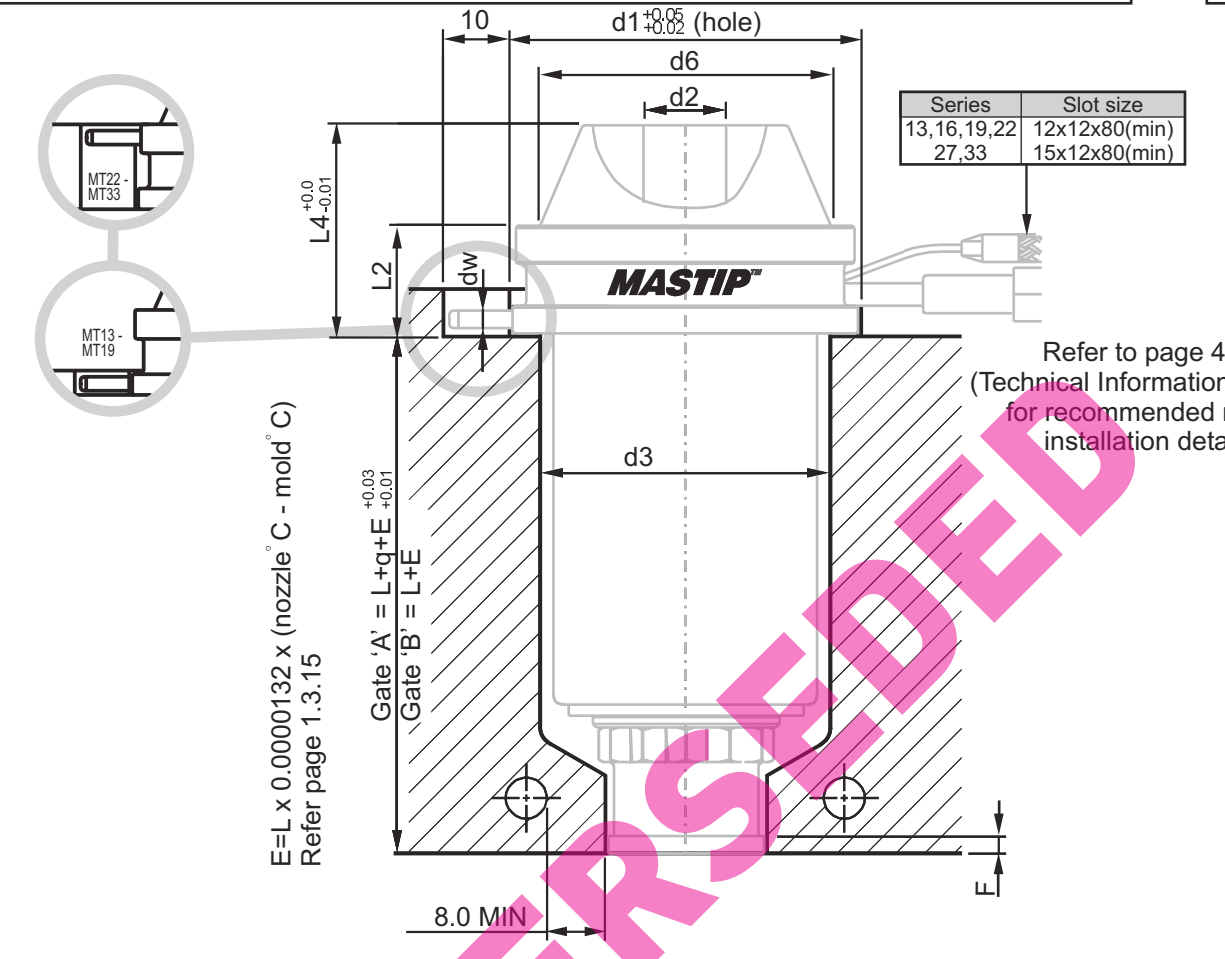
MOT

SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MT13	0.5-30	0.5-20	0.5-10
MT16	1-100	1-70	1-35
MT19	5-500	5-300	5-175
MT22	9-900	9-600	9-300
MT27	20-2000	20-1200	20-800
MT33	40-3500	40-2500	40-1500

Example Order — 1 x MOT19066 – R x . . . /Flat
Multi 4 x MOT19066 – O-Ring/Flat
MOTH19066 = MOT incl OH

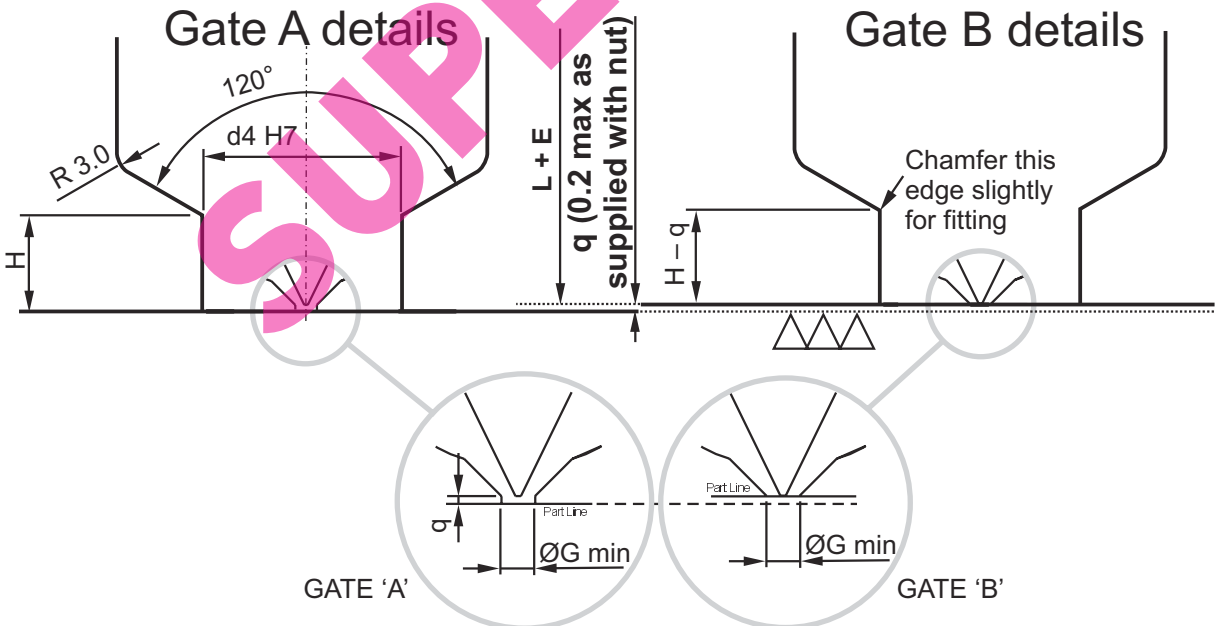
PINPOINT BUSH *MTB/MIB*





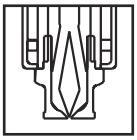
Series	Slot size
13,16,19,22	12x12x80(min)
27,33	15x12x80(min)

Refer to page 4.03 (Technical Information Section) for recommended nozzle installation details.



- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *MASTIP*.**
- **G dimension is a recommendation only, the final size should be determined by application.**
- **Dimension F is 2mm min. for standard bush nut. Where difficult materials are used or rapid cycle times are expected, the BNE nut should be used and F dimension is increased to provide more cooling to the nut.**
- **Dimension 'q' is the parallel land at the gate diameter.(All Bush nuts are supplied with q=0.2)**

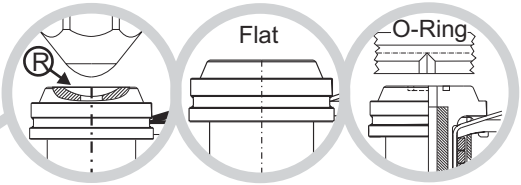
PINPOINT BUSH *MTB/MIB*

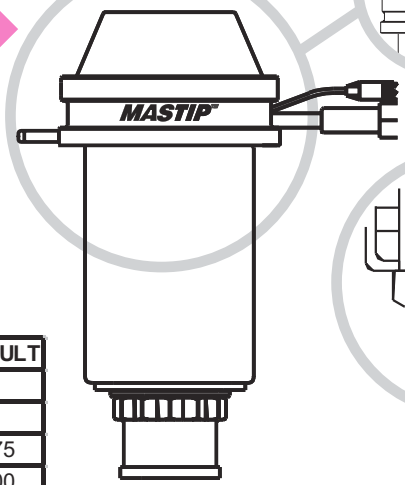


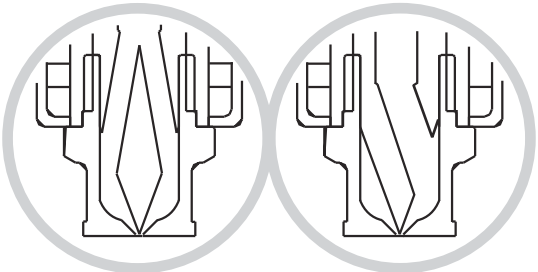
	L+q	d1	d2	d3	d4	d6	L2	L4	dw		G	H +0.0 -0.1	E@ T = 200 C	E@ T = 250 C	
MTB/MIB13045	**45.2**	25	4	22	10	21	8.5	12	2	11	0.9	6	0.12	0.15	225W
MTB/MIB13056	**56.2**												0.15	0.19	250W
MTB/MIB13066	**66.2**												0.17	0.22	250W
MTB/MIB13075	**75.2**												0.20	0.25	290W
MTB/MIB13105	**105.2**												0.28	0.35	400W
MTB/MIB16036	**36.2**	30	5	25	12	25	10	15	2.5	13	1	7.4	0.10	0.12	250W
MTB/MIB16046	**46.2**												0.12	0.15	290W
MTB/MIB16056	**56.2**												0.15	0.19	330W
MTB/MIB16076	**76.2**												0.20	0.25	400W
MTB/MIB16086	**86.2**												0.23	0.28	470W
MTB/MIB16116	**116.2**												0.31	0.38	550W
MTB/MIB16146	**146.2**												0.39	0.48	620W
MTB/MIB16176	**176.2**												0.47	0.58	700W
MTB/MIB19046	**46.2**	40	7	32	15	35	12	17	2.5	16	1.2	8.5	0.12	0.15	330W
MTB/MIB19056	**56.2**												0.15	0.19	400W
MTB/MIB19066	**66.2**												0.17	0.22	470W
MTB/MIB19076	**76.2**												0.20	0.25	470W
MTB/MIB19096	**96.2**												0.25	0.32	550W
MTB/MIB19126	**126.2**												0.33	0.42	620W
MTB/MIB19156	**156.2**												0.41	0.52	700W
MTB/MIB19186	**186.2**												0.49	0.61	850W
MTB/MIB22056	**56.2**	50	9	36	17	45	15.5	28	3	18	1.5	8.5	0.15	0.19	470W
MTB/MIB22086	**86.2**												0.23	0.28	620W
MTB/MIB22116	**116.2**												0.31	0.38	700W
MTB/MIB22146	**146.2**												0.39	0.48	850W
MTB/MIB27075	**75.2**	50	12	42	22.5	45	15.5	30	4	22	2	11	0.20	0.25	550W
MTB/MIB27125	**125.2**												0.33	0.41	800W
MTB/MIB27175	**175.2**												0.46	0.58	1000W
MTB/MIB27225	**225.2**												0.59	0.74	1400W
MTB/MIB33100	**100.2**	62	15	50	26	55	20	35	4	28	2.5	13	0.26	0.33	800W
MTB/MIB33150	**150.2**												0.40	0.50	1000W
MTB/MIB33200	**200.2**												0.53	0.66	1400W
MTB/MIB33250	**250.2**												0.66	0.83	1800W

MTB/MIB SERIES NOZZLES

- Use where minimum gate vestige and good colour change are important.
- For easy gate installation and replacement.
- Use MIB nozzles when flow lines must be minimal and colour change is less important
- Full carbide tips are available for abrasive filled materials. - MTBH
- Carbide tipped HCM10 tips available for long life. - MTBC





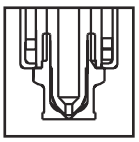


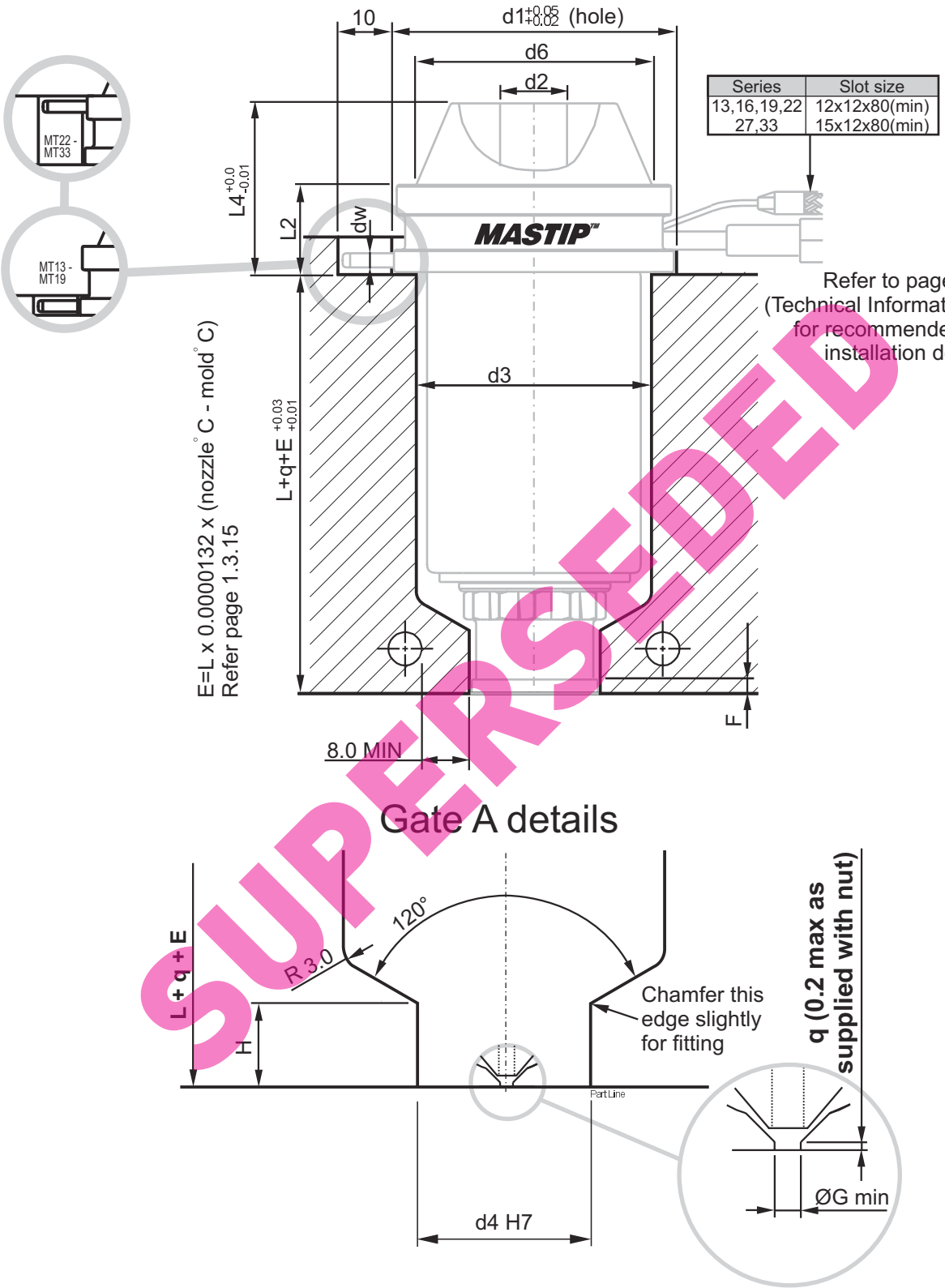
MTB MIB

SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MT13	0.5-30	0.5-20	☎
MT16	1-100	1-70	☎
MT19	5-500	5-300	5-175
MT22	9-900	9-600	9-300
MT27	20-2000	20-1200	20-800
MT33	40-3500	40-2500	40-1500

Example Order — 1 x MTB19066 – R x . . . /Flat
Multi 4 x MTB19066 – O-Ring/Flat
MTBH19066 = MTB incl TH (Carbide)

OPEN BUSH MOB





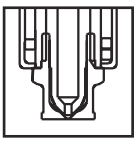
Series	Slot size
13,16,19,22	12x12x80(min)
27,33	15x12x80(min)

Refer to page 4.03 (Technical Information Section) for recommended nozzle installation details.

Gate A details

- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *MASTIP*.**
- **G dimension is a recommendation only, the final size should be determined by application.**
- **Dimension F is 2mm min. for standard bush nut. Where difficult materials are used or rapid cycle times are expected, the BNE nut should be used and this dimension is increased to provide more cooling to the nut.**
- **Dimension 'q' is the parallel land at the gate diameter.(All Bush nuts are supplied with q=0.2)**

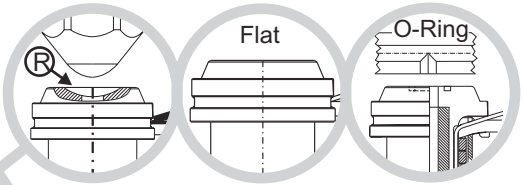
OPEN BUSH *MOB*

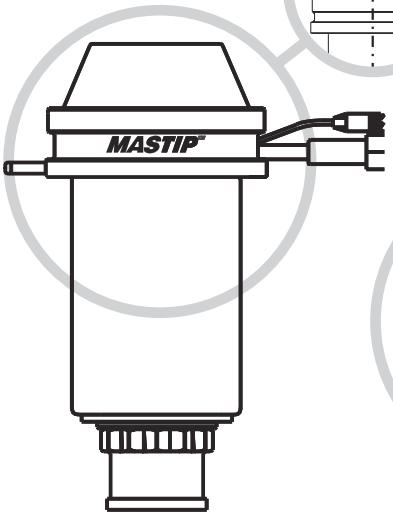


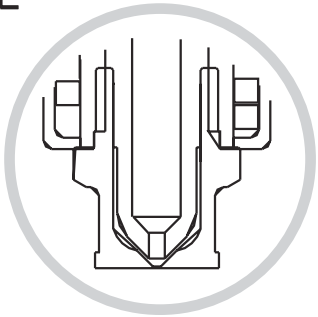
	L+q	d1	d2	d3	d4	d6	L2	L4	dw	G	H +0.0 -0.1	E@ 200 C T=	E@ 250 C T=	
MOB13045	45.2	25	4	22	10	21	8.5	12	2	11	0.9	6	0.12	0.15	225W
MOB13056	56.2												0.15	0.19	250W
MOB13066	66.2												0.17	0.22	250W
MOB13075	75.2												0.20	0.25	290W
MOB13105	105.2												0.28	0.35	400W
MOB16036	36.2	30	5	25	12	25	10	15	2.5	13	1	7.4	0.10	0.12	250W
MOB16046	46.2												0.12	0.15	290W
MOB16056	56.2												0.15	0.19	330W
MOB16076	76.2												0.20	0.25	400W
MOB16086	86.2												0.23	0.28	470W
MOB16116	116.2												0.31	0.38	550W
MOB16146	146.2												0.39	0.48	620W
MOB16176	176.2												0.47	0.58	700W
MOB19046	46.2	40	7	32	15	35	12	17	2.5	16	1.2	8.5	0.12	0.15	330W
MOB19056	56.2												0.15	0.19	400W
MOB19066	66.2												0.17	0.22	470W
MOB19076	76.2												0.20	0.25	470W
MOB19096	96.2												0.25	0.32	550W
MOB19126	126.2												0.33	0.42	620W
MOB19156	156.2												0.41	0.52	700W
MOB19186	186.2												0.49	0.61	850W
MOB22056	56.2	50	9	36	17	45	15.5	28	3	18	1.5	8.5	0.15	0.19	470W
MOB22086	86.2												0.23	0.28	620W
MOB22116	116.2												0.31	0.38	700W
MOB22146	146.2												0.39	0.48	850W
MOB27075	75.2	50	12	42	22.5	45	15.5	30	4	22	2	11	0.20	0.25	550W
MOB27125	125.2												0.33	0.41	800W
MOB27175	175.2												0.46	0.58	1000W
MOB27225	225.2												0.59	0.74	1400W
MOB33100	100.2	62	15	50	26	55	20	35	4	28	2.5	13	0.26	0.33	800W
MOB33150	150.2												0.40	0.50	1000W
MOB33200	200.2												0.53	0.66	1400W
MOB33250	250.2												0.66	0.83	1800W

MOB SERIES NOZZLES

- Use where an open flow channel is important to maximize flow and minimize effects of flow lines.
- MOB nozzles have a slower colour change than the MTB and leaves a small gate vestige (mark).
- Use for easy gate installation and replacement.
- A hard liner is available for abrasive materials - MOBH (MT19-MT33 only)





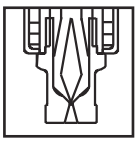


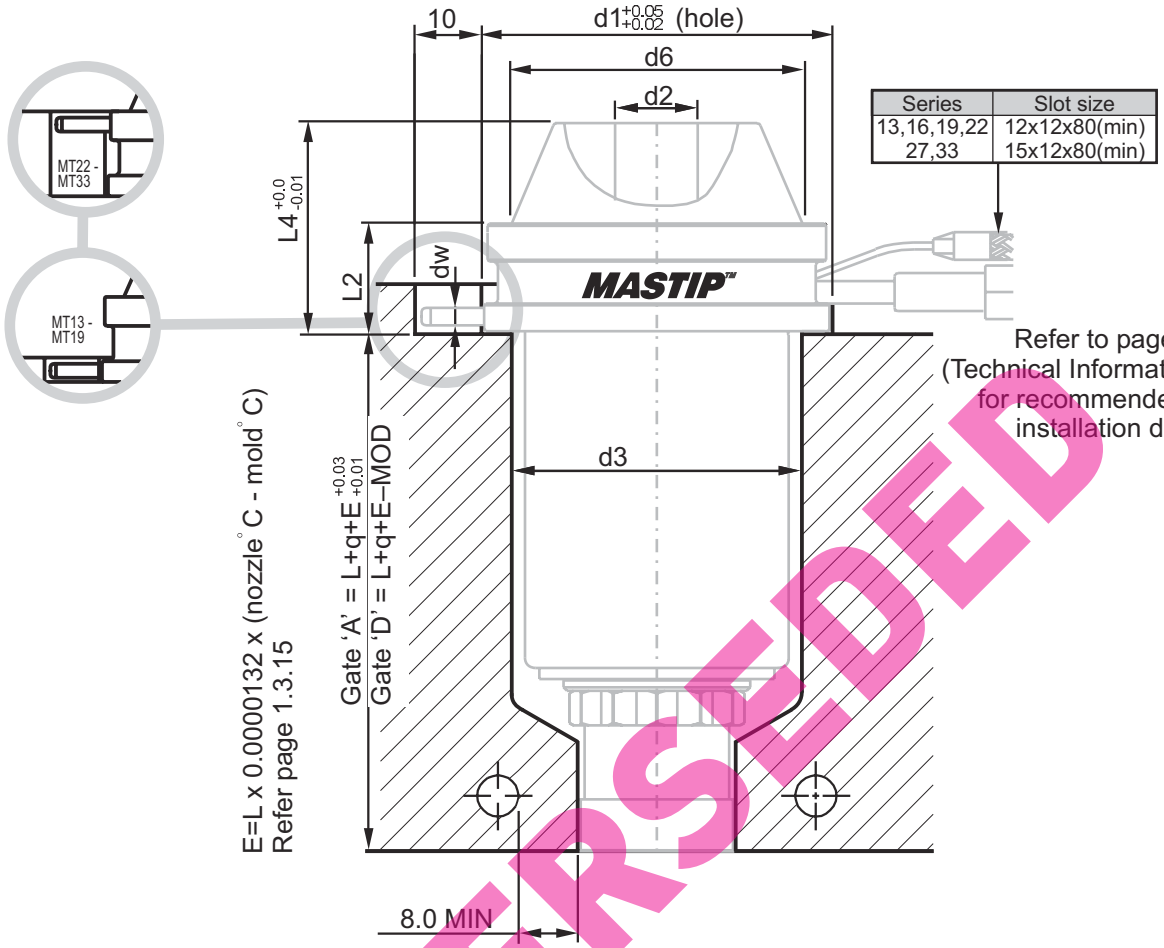
MOB

SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MT13	0.5-30	0.5-20	0.5-10
MT16	1-100	1-70	1-35
MT19	5-500	5-300	5-175
MT22	9-900	9-600	9-300
MT27	20-2000	20-1200	20-800
MT33	40-3500	40-2500	40-1500

Example Order — 1 x MOB19066 – R x . . . /Flat
Multi 4 x MOB19066 – O-Ring/Flat
MOBH19066 = MOB incl TH

PINPOINT SPRUE *MTS/MIS*

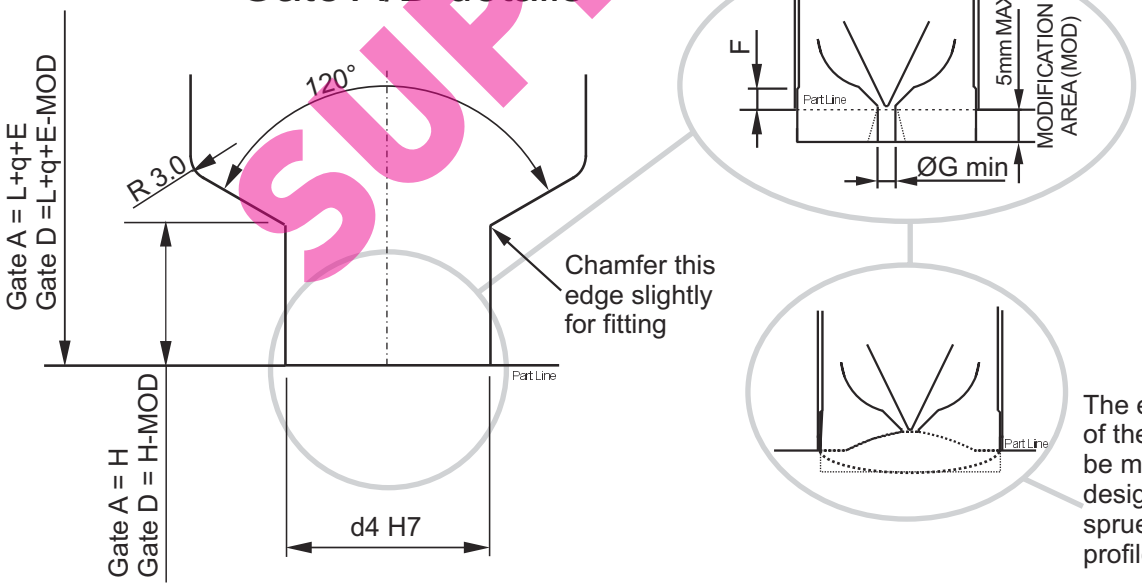




Series	Slot size
13,16,19,22	12x12x80(min)
27,33	15x12x80(min)

Refer to page 4.03 (Technical Information Section) for recommended nozzle installation details.

Gate A/D details

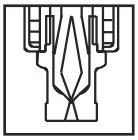


Chamfer this edge slightly for fitting

The extra 5mm on end of the sprue tip should be modified to suit tool design, or used to add a sprue to a standard gate profile

- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *Mastip.***
- **G dimension is a recommendation only, the final size should be determined by application.**
- **Dimension F is 2mm min. for standard sprue nut. Where difficult materials are used or rapid cycle times are expected, the SNE nut should be used and this dimension is increased to provide more cooling to the nut.**
- **Dimension 'q' is the parallel land at the gate diameter.(q=0.2 maximum)**

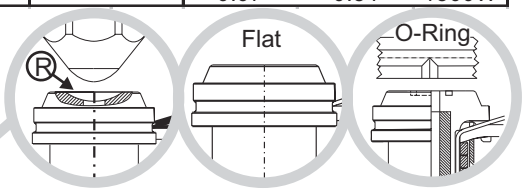
PINPOINT SPRUE *MTS/MIS*

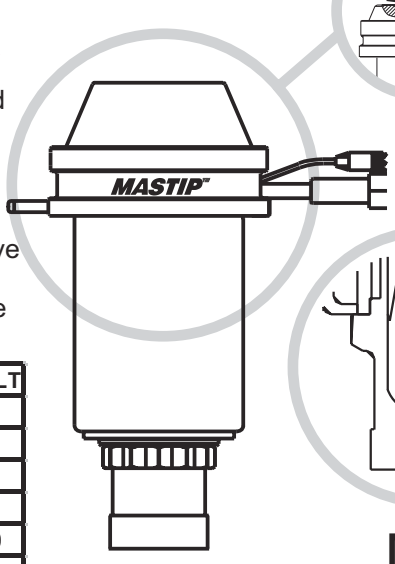


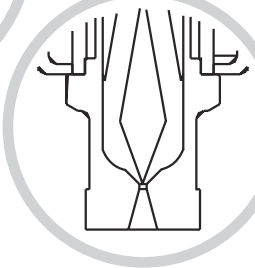
	L+q	d1	d2	d3	d4	d6	L2	L4	dw		G	H +0.0 - 0.1	E@ T= 200 C	E@ T= 250 C	
MTS/MIS13045	50.2	25	4	22	10	21	8.5	12	2	11	0.9	11	0.13	0.17	225W
MTS/MIS13056	61.2												0.16	0.20	250W
MTS/MIS13066	71.2												0.19	0.23	250W
MTS/MIS13075	80.2												0.21	0.26	290W
MTS/MIS13105	110.2												0.29	0.36	400W
MTS/MIS16036	41.2	30	5	25	12	25	10	15	2.5	13	1	12.4	0.11	0.14	250W
MTS/MIS16046	51.2												0.14	0.17	290W
MTS/MIS16056	61.2												0.16	0.20	330W
MTS/MIS16076	81.2												0.21	0.27	400W
MTS/MIS16086	91.2												0.24	0.30	470W
MTS/MIS16116	121.2												0.32	0.40	550W
MTS/MIS16146	151.2												0.40	0.50	620W
MTS/MIS16176	181.2												0.48	0.60	700W
MTS/MIS19046	51.2	40	7	32	15	35	12	17	2.5	16	1.2	13.5	0.14	0.17	330W
MTS/MIS19056	61.2												0.16	0.20	400W
MTS/MIS19066	71.2												0.19	0.23	470W
MTS/MIS19076	81.2												0.21	0.27	470W
MTS/MIS19096	101.2												0.27	0.33	550W
MTS/MIS19126	131.2												0.35	0.43	620W
MTS/MIS19156	161.2												0.43	0.53	700W
MTS/MIS19186	191.2												0.50	0.63	850W
MTS/MIS22056	61.2	50	9	36	17	45	15.5	28	3	18	1.5	13.5	0.16	0.20	470W
MTS/MIS22086	91.2												0.24	0.30	620W
MTS/MIS22116	121.2												0.32	0.40	700W
MTS/MIS22146	151.2												0.40	0.50	850W
MTS/MIS27075	80.2	50	12	42	22.5	45	15.5	30	4	22	2	16	0.21	0.26	550W
MTS/MIS27125	130.2												0.34	0.43	800W
MTS/MIS27175	180.2												0.48	0.59	1000W
MTS/MIS27225	230.2												0.61	0.76	1400W
MTS/MIS33100	105.2	62	15	50	26	55	20	35	4	28	2.5	18	0.28	0.35	800W
MTS/MIS33150	155.2												0.41	0.51	1000W
MTS/MIS33200	205.2												0.54	0.68	1400W
MTS/MIS33250	255.2												0.67	0.84	1800W

MTS/MIS SERIES NOZZLES

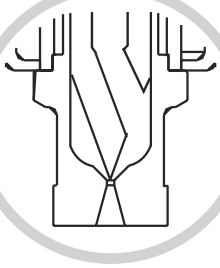
- Use where minimum gate vestige and good colour change are important.
- For easy gate installation and replacement.
- Lower 5mm of sprue nut to be machined by customer to suit application.
- Use MIS nozzles where flow lines must be minimal and colour change is less important.
- Full carbide tips are available for abrasive filled materials. - MTSH
- Carbide tipped HCM10 tips are available for long life. - MTSC







MTS

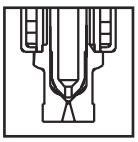


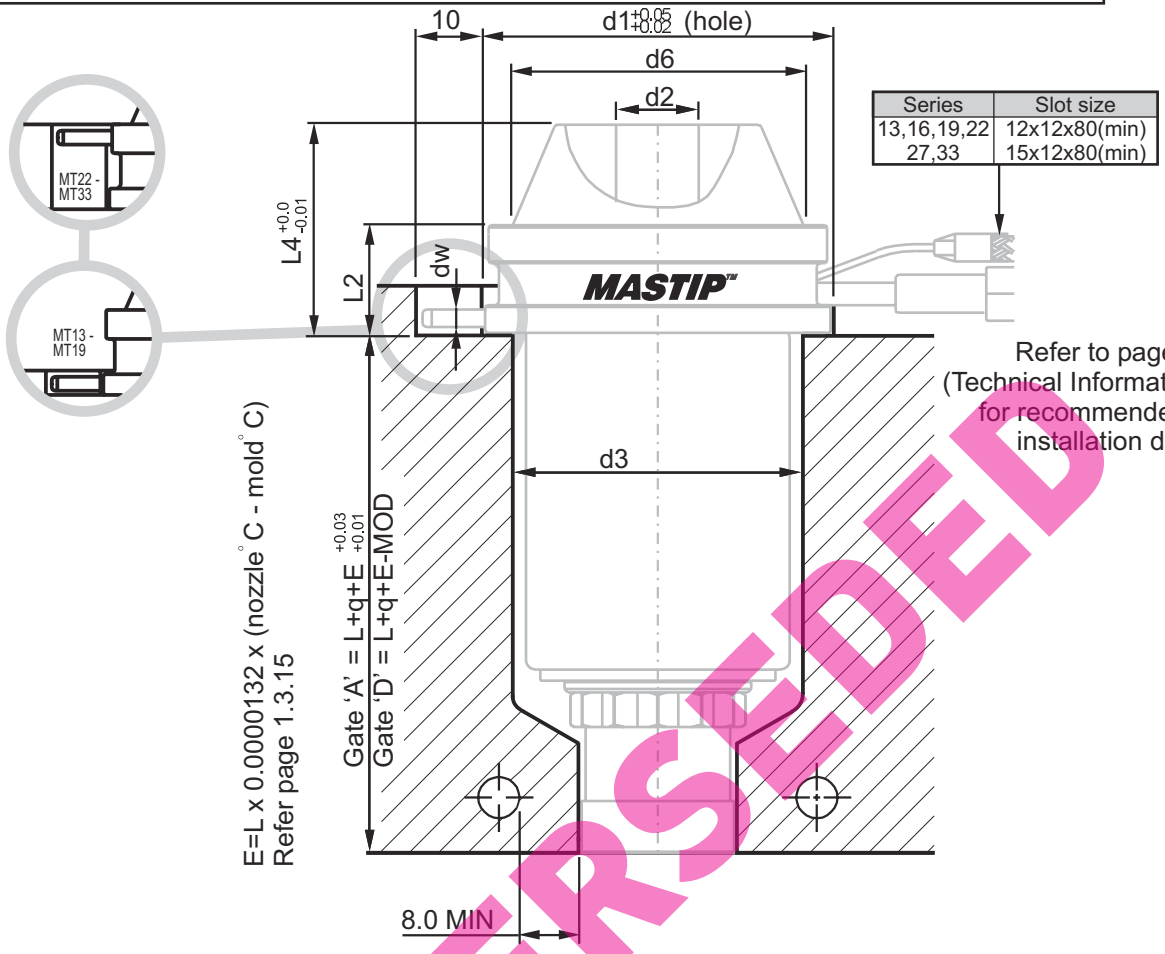
MIS

SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MT13	0.5-30	0.5-20	☎
MT16	1-100	1-70	☎
MT19	5-500	5-300	5-175
MT22	9-900	9-600	9-300
MT27	20-2000	20-1200	20-800
MT33	40-3500	40-2500	40-1500

Example Order — 1 x MTS19066 – R x . . . /Flat
Multi 4 x MTS19066 – O-Ring/Flat
MTSH19066 = MTS incl TH (Carbide)

OPEN SPRUE MOS

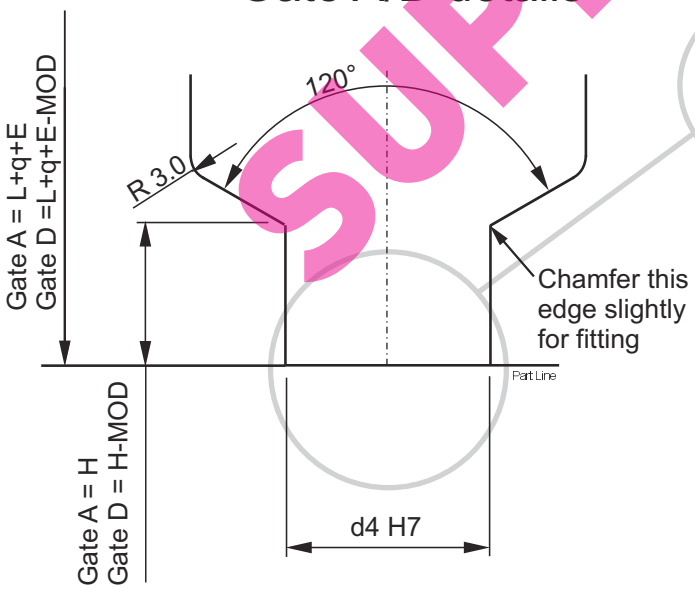




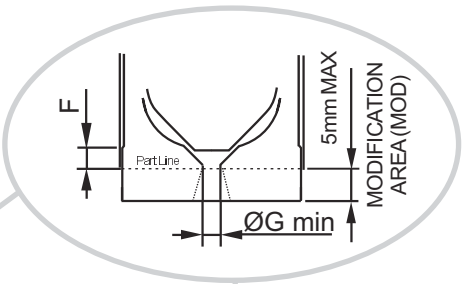
Series	Slot size
13,16,19,22	12x12x80(min)
27,33	15x12x80(min)

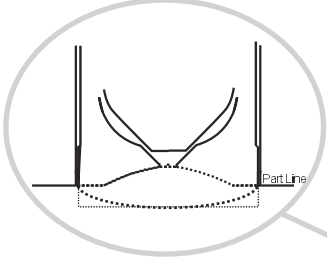
Refer to page 4.03 (Technical Information Section) for recommended nozzle installation details.

Gate A/D details



Chamfer this edge slightly for fitting

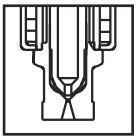




The extra 5mm on end of the sprue tip should be modified to suit tool design, or used to add a sprue to a standard gate profile

- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *MASTIP*.**
- **G dimension is a recommendation only, the final size should be determined by application.**
- **Dimension F is 2mm min. for standard sprue nut. Where difficult materials are used or rapid cycle times are expected, the SNE nut should be used and this dimension is increased to provide more cooling to the nut.**
- **Dimension 'q' is the parallel land at the gate diameter.(q=0.2 maximum)**

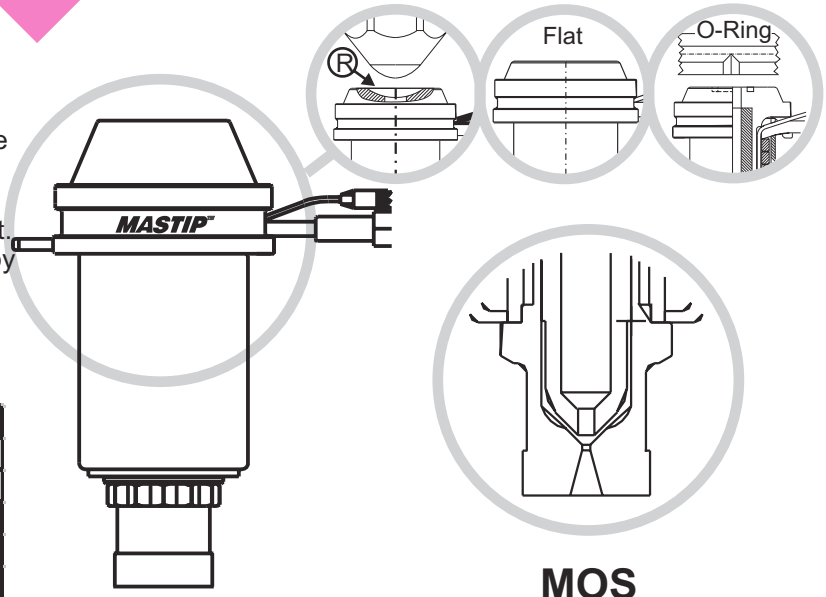
OPEN SPRUE *MOS*



	L+q	d1	d2	d3	d4	d6	L2	L4	dw		G	H +0.0 -0.1	E@ T = 200 C	E@ T = 250 C	
MOS13045	**50.2**	25	4	22	10	21	8.5	12	2	11	0.9	11	0.13	0.17	225W
MOS13056	**61.2**												0.16	0.20	250W
MOS13066	**71.2**												0.19	0.23	250W
MOS13075	**80.2**												0.21	0.26	290W
MOS13105	**110.2**												0.29	0.36	400W
MOS16036	**41.2**	30	5	25	12	25	10	15	2.5	13	1	12.4	0.11	0.14	250W
MOS16046	**51.2**												0.14	0.17	290W
MOS16056	**61.2**												0.16	0.20	330W
MOS16076	**81.2**												0.21	0.27	400W
MOS16086	**91.2**												0.24	0.30	470W
MOS16116	**121.2**												0.32	0.40	550W
MOS16146	**151.2**												0.40	0.50	620W
MOS16176	**181.2**												0.48	0.60	700W
MOS19046	**51.2**	40	7	32	15	35	12	17	2.5	16	1.2	13.5	0.14	0.17	330W
MOS19056	**61.2**												0.16	0.20	400W
MOS19066	**71.2**												0.19	0.23	470W
MOS19076	**81.2**												0.21	0.27	470W
MOS19096	**101.2**												0.27	0.33	550W
MOS19126	**131.2**												0.35	0.43	620W
MOS19156	**161.2**												0.43	0.53	700W
MOS19186	**191.2**												0.50	0.63	850W
MOS22056	**61.2**	50	9	36	17	45	15.5	28	3	18	1.5	13.5	0.16	0.20	470W
MOS22086	**91.2**												0.24	0.30	620W
MOS22116	**121.2**												0.32	0.40	700W
MOS22146	**151.2**												0.40	0.50	850W
MOS27075	**80.2**	50	12	42	22.5	45	15.5	30	4	22	2	16	0.21	0.26	550W
MOS27125	**130.2**												0.34	0.43	800W
MOS27175	**180.2**												0.48	0.59	1000W
MOS27225	**230.2**												0.61	0.76	1400W
MOS33100	**105.2**	62	15	50	26	55	20	35	4	28	2.5	18	0.28	0.35	800W
MOS33150	**155.2**												0.41	0.51	1000W
MOS33200	**205.2**												0.54	0.68	1400W
MOS33250	**255.2**												0.67	0.84	1800W

MOS SERIES NOZZLES

- Use where an open flow channel is important to maximize flow and minimize effects of flow lines.
- MOS nozzles have a slower colour change than MTS and leave a small gate vestige (mark).
- For easy gate installation and replacement.
- Lower 5mm of sprue nut to be machined by customer to suit application.
- A hard liner is available for abrasive materials - MOSH (MT19-MT33 only)



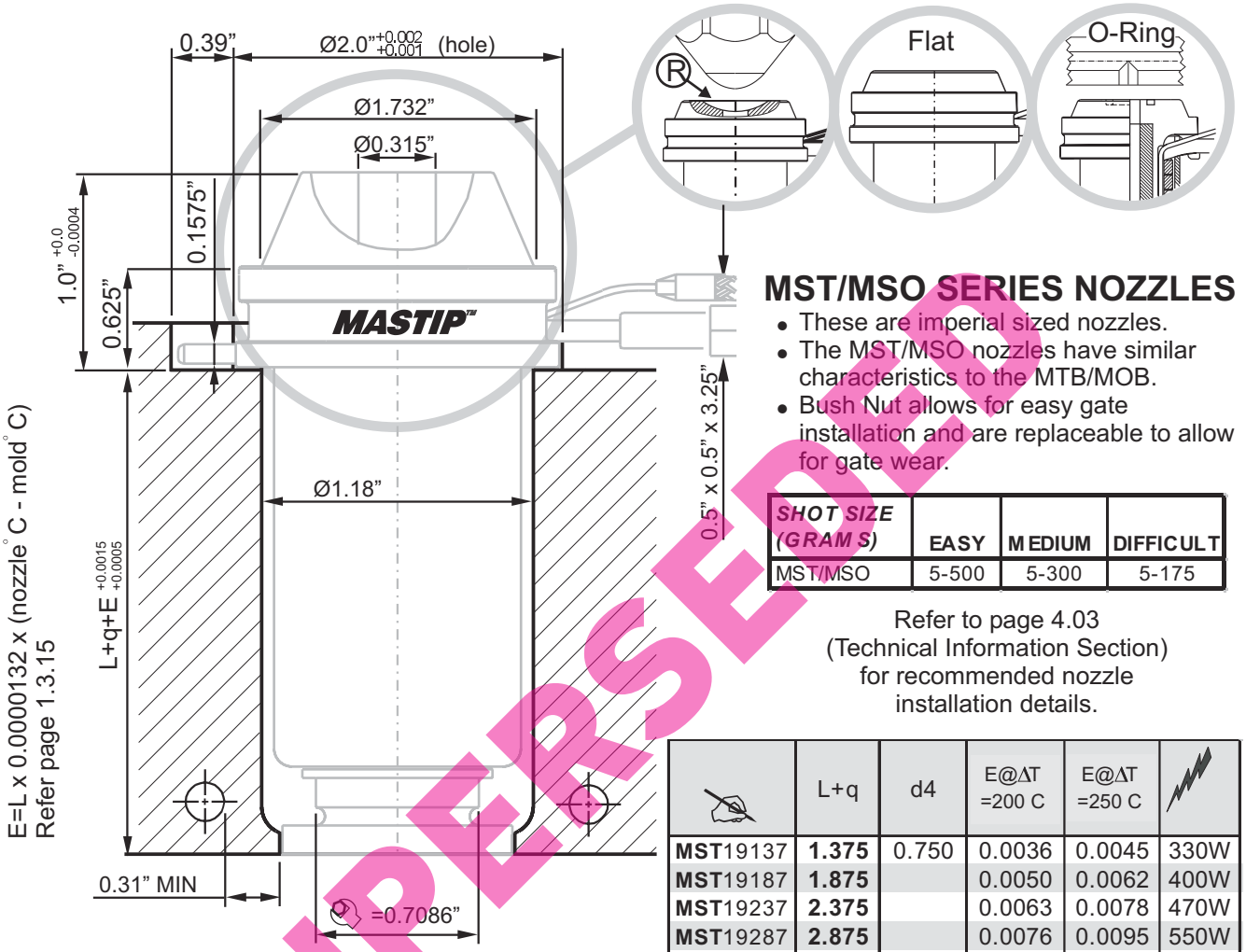
MOS

SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MT13	0.5-30	0.5-20	0.5-10
MT16	1-100	1-70	1-35
MT19	5-500	5-300	5-175
MT22	9-900	9-600	9-300
MT27	20-2000	20-1200	20-800
MT33	40-3500	40-2500	40-1500

Example Order — 1 x MOS19066 – R x . . . /Flat
Multi 4 x MOS19066 – O-Ring/Flat
MOSH19066 = MOS incl OH

INCH SERIES PINPOINT GATE & OPEN BUSH — MST/MSO

All sizes are in inches

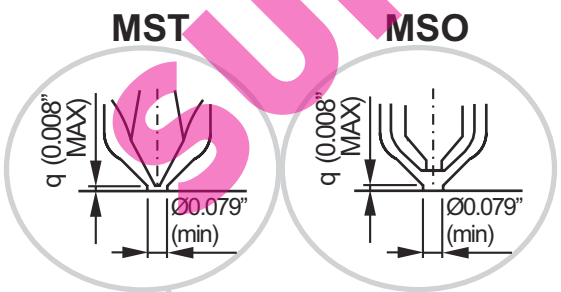


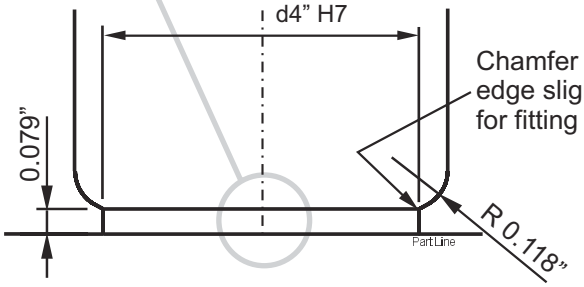
MST/MSO SERIES NOZZLES

- These are imperial sized nozzles.
- The MST/MSO nozzles have similar characteristics to the MTB/MOB.
- Bush Nut allows for easy gate installation and are replaceable to allow for gate wear.

SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MST/MSO	5-500	5-300	5-175

Refer to page 4.03 (Technical Information Section) for recommended nozzle installation details.





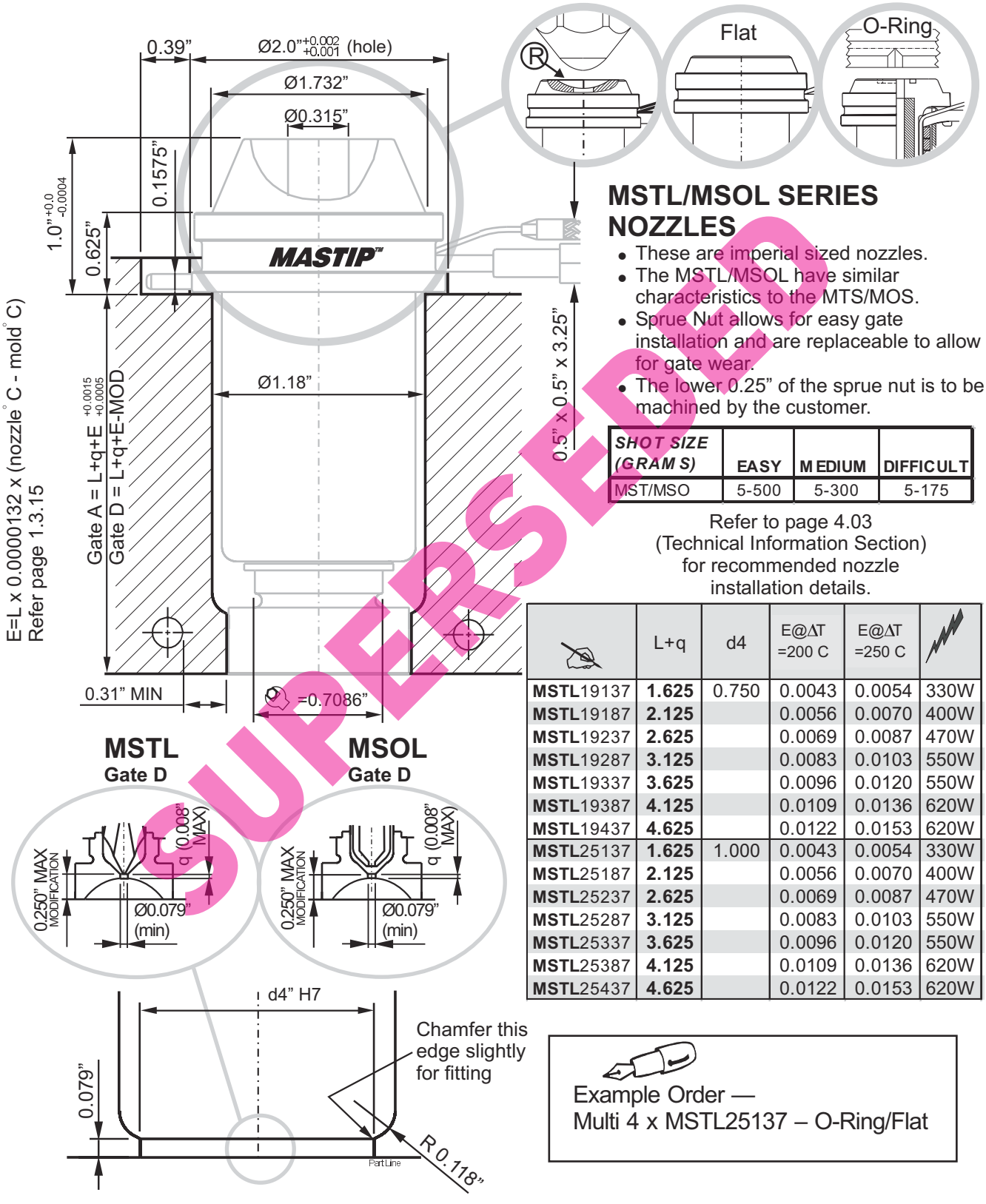
	L+q	d4	E@ΔT =200 C	E@ΔT =250 C	
MST19137	**1.375**	0.750	0.0036	0.0045	330W
MST19187	**1.875**		0.0050	0.0062	400W
MST19237	**2.375**		0.0063	0.0078	470W
MST19287	**2.875**		0.0076	0.0095	550W
MST19337	**3.375**		0.0089	0.0111	550W
MST19387	**3.875**		0.0102	0.0128	620W
MST19437	**4.375**		0.0116	0.0144	620W
MST25137	**1.375**	1.000	0.0036	0.0045	330W
MST25187	**1.875**		0.0050	0.0062	400W
MST25237	**2.375**		0.0063	0.0078	470W
MST25287	**2.875**		0.0076	0.0095	550W
MST25337	**3.375**		0.0089	0.0111	550W
MST25387	**3.875**		0.0102	0.0128	620W
MST25437	**4.375**		0.0116	0.0144	620W

Example Order —
Multi 4 x MST25137 – O-Ring/Flat

- **0.079” gate dimension is a recommendation only, the final size should be determined by application.**
- **Dimension q represents the parallel land at the gate diameter. (MST/MSO are supplied with q=0.008”**

INCH SERIES PINPOINT & OPEN SPRUE — MSTL/MSOL

All sizes are in inches



MSTL/MSOL SERIES NOZZLES

- These are imperial sized nozzles.
- The MSTL/MSOL have similar characteristics to the MTS/MOS.
- Sprue Nut allows for easy gate installation and are replaceable to allow for gate wear.
- The lower 0.25” of the sprue nut is to be machined by the customer.

SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MST/MSO	5-500	5-300	5-175

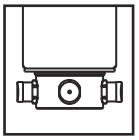
Refer to page 4.03 (Technical Information Section) for recommended nozzle installation details.

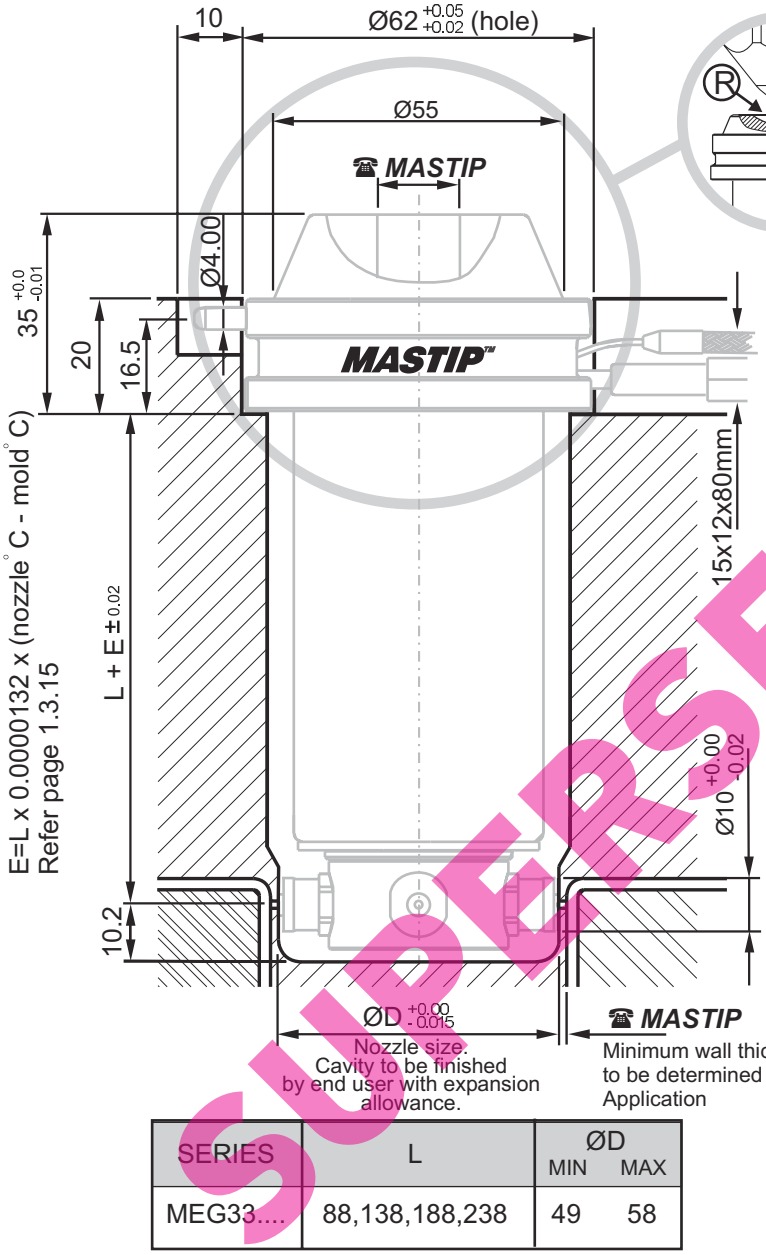
	L+q	d4	E@ΔT =200 C	E@ΔT =250 C	
MSTL19137	**1.625**	0.750	0.0043	0.0054	330W
MSTL19187	**2.125**		0.0056	0.0070	400W
MSTL19237	**2.625**		0.0069	0.0087	470W
MSTL19287	**3.125**		0.0083	0.0103	550W
MSTL19337	**3.625**		0.0096	0.0120	550W
MSTL19387	**4.125**		0.0109	0.0136	620W
MSTL19437	**4.625**		0.0122	0.0153	620W
MSTL25137	**1.625**	1.000	0.0043	0.0054	330W
MSTL25187	**2.125**		0.0056	0.0070	400W
MSTL25237	**2.625**		0.0069	0.0087	470W
MSTL25287	**3.125**		0.0083	0.0103	550W
MSTL25337	**3.625**		0.0096	0.0120	550W
MSTL25387	**4.125**		0.0109	0.0136	620W
MSTL25437	**4.625**		0.0122	0.0153	620W

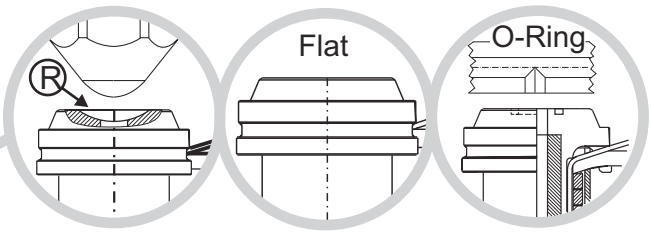
Example Order —
Multi 4 x MSTL25137 – O-Ring/Flat

- **0.079” gate dimension is a recommendation only, the final size should be determined by application.**
- **Dimension q represents the parallel land at the gate diameter. (q=0.008” maximum)**

EDGE GATE *MEG*







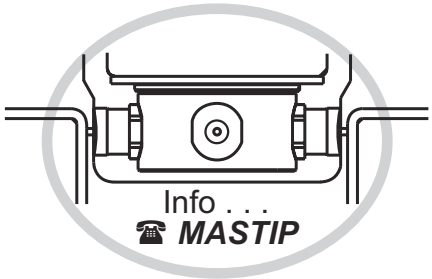
MEG SERIES NOZZLES

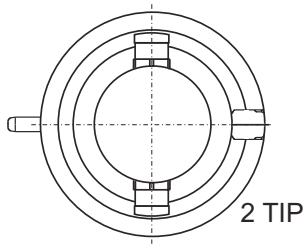
- These nozzles are for edge / side gating of technical materials where colour change is important
- Contact ***MASTIP*** for installation details and shot size range

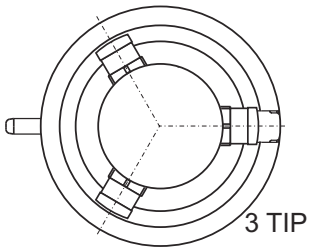
Material suitability	
Easy grades	✔
Medium grades	○
Difficult grades	✖

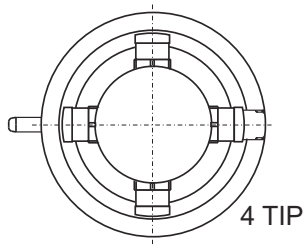
(Refer Page 1.1.6 for details)

SERIES	L	ØD MIN	ØD MAX
MEG33....	88,138,188,238	49	58



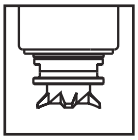


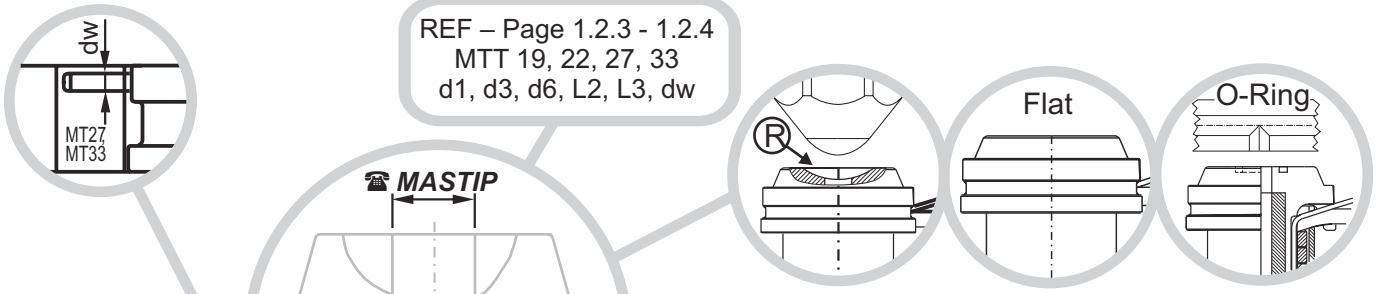


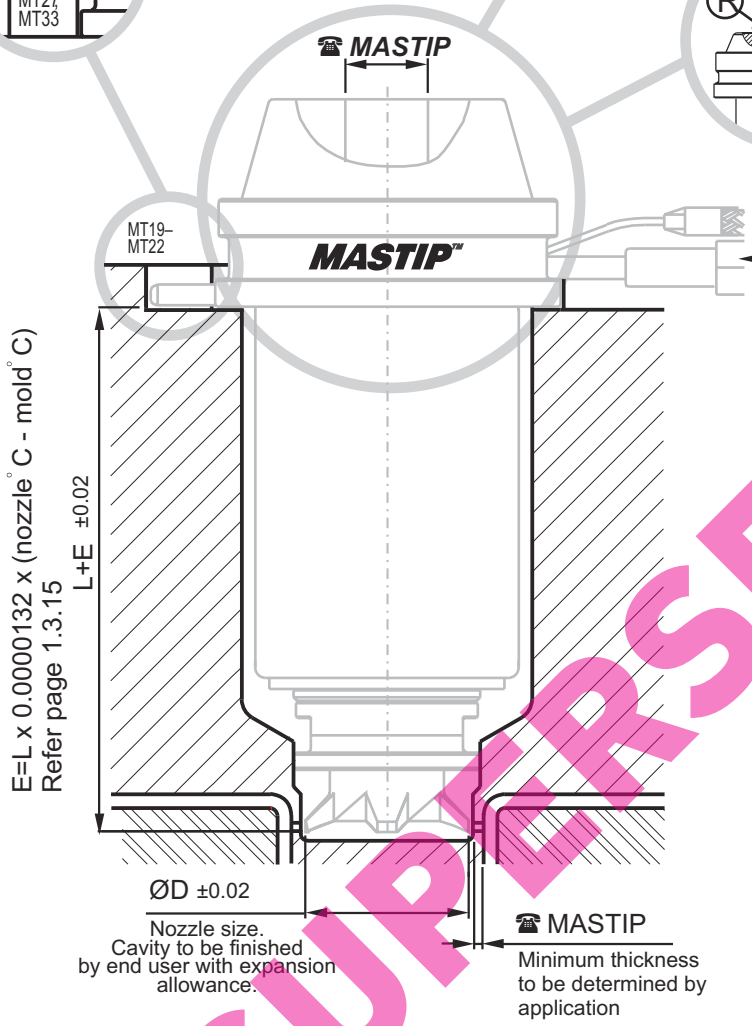


Example Order — MEG33188 – 3 TIP – 50 D – R x . . ./Flat/O-Ring

SIDE GATE *MSW*







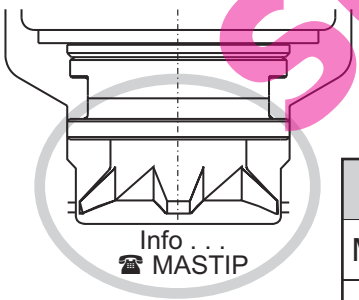
Series	Slot size
19,22	12x12x80(min)
27,33	15x12x80(min)

MSW SERIES NOZZLES

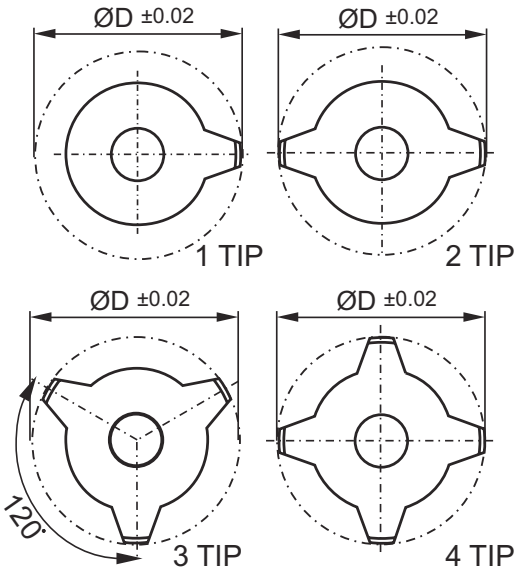
- These nozzles are for edge / side gating of easy filling materials where colour change is ***not*** important.
- Contact ***MASTIP*** for installation details and shot sizes

Material suitability	
Easy grades	✔
Medium grades	❍
Difficult grades	✖

(Refer Page 1.1.6 for details)

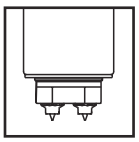


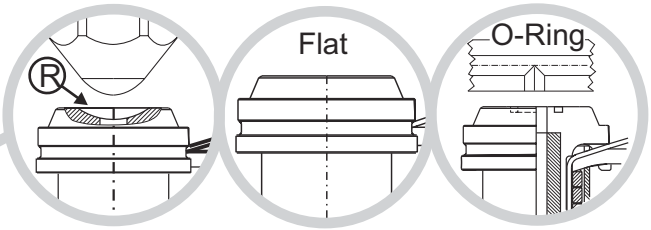
SERIES	L	D MIN	D MAX
MSW19...	46,66 96,126	16	18.5
MSW22...	56,86 116,146	18	21.5
MSW27...	75,125 175,225	21	26.5
MSW33...	100,150 200,250	25	32.5

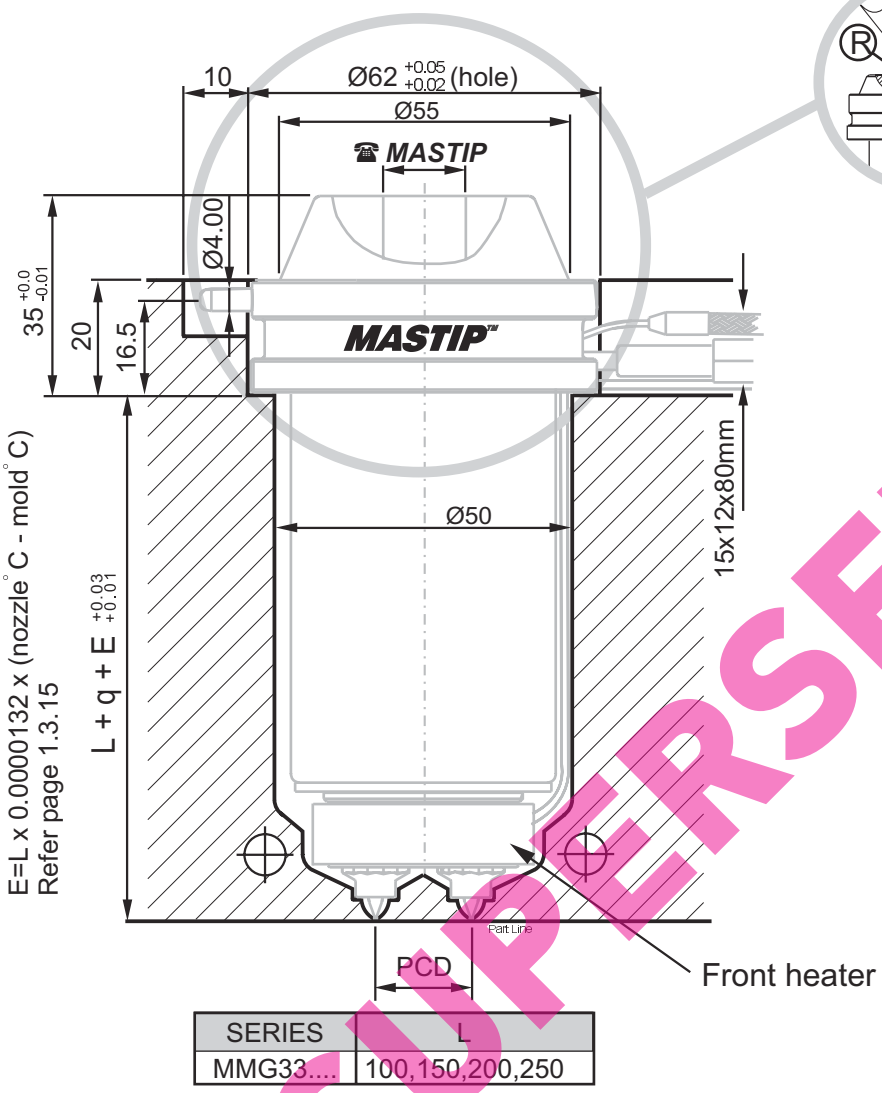


Example Order — MSW19066 – 3 TIP – 17 D – R x . . ./Flat/O-Ring

MINI GATE *MMG 33*







SERIES	L
MMG33....	100,150,200,250

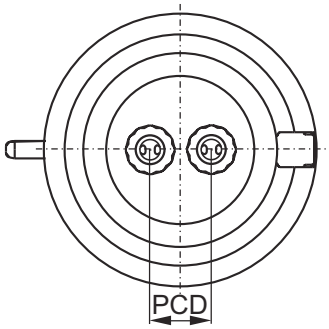
☎ ***MASTIP*** FOR DETAILS ON SPECIAL LENGTHS

MMG SERIES NOZZLES

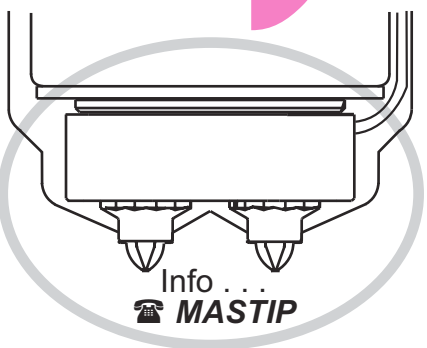
- For the gating of multiple small parts on a close PCD using technical materials where colour change is important
- Uses front mounted heater and thermocouple to improve performance
- Contact ***MASTIP*** for installation details and shot sizes

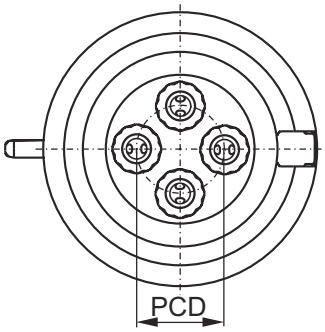
Material suitability	
Easy grades	✔
Medium grades	❍
Difficult grades	✖

(Refer Page 1.1.6 for details)

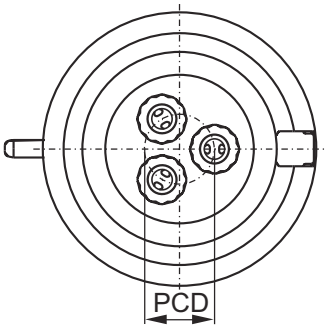


MIN=15, MAX=20





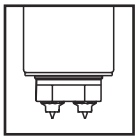
MIN=18, MAX=20

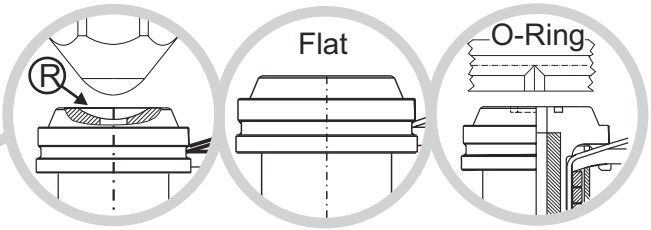


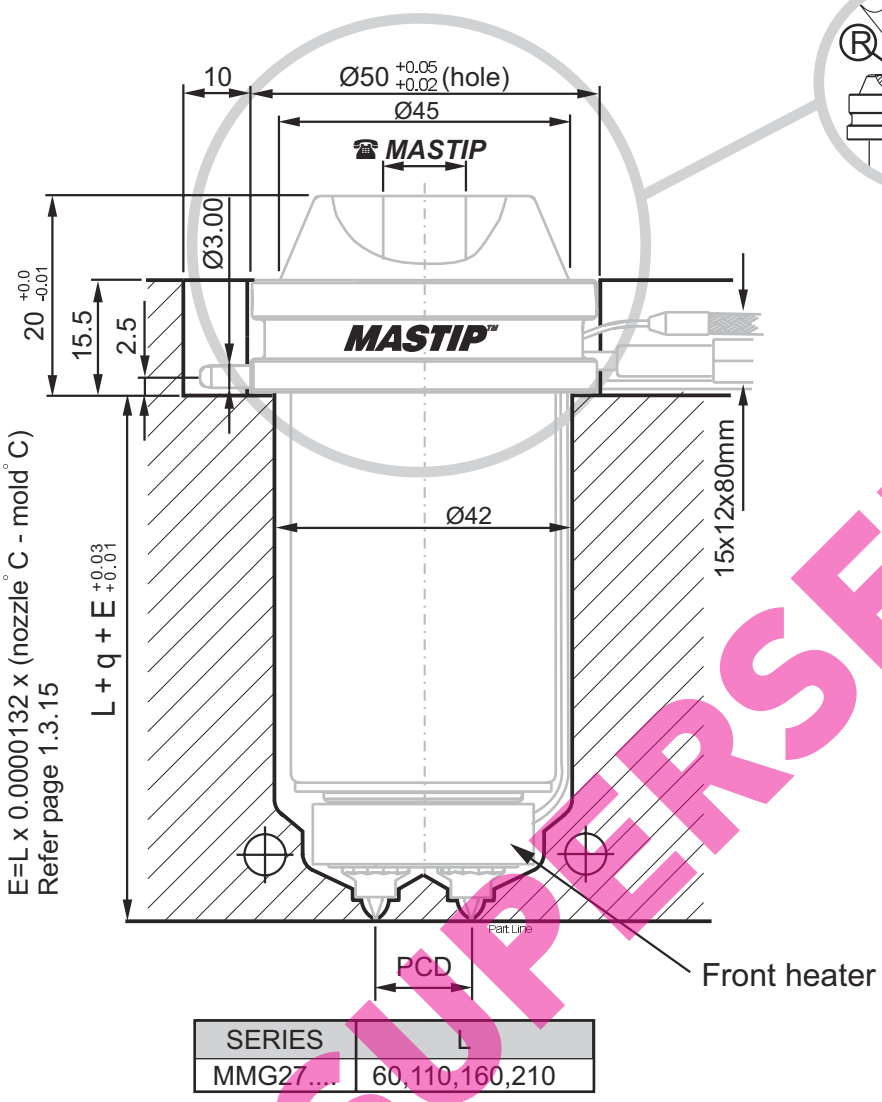
MIN=16, MAX=20

Example Order — MMG33150 – 3 TIP – 17 PCD – R x . . ./Flat/O-Ring

MINI GATE *MMG 27*

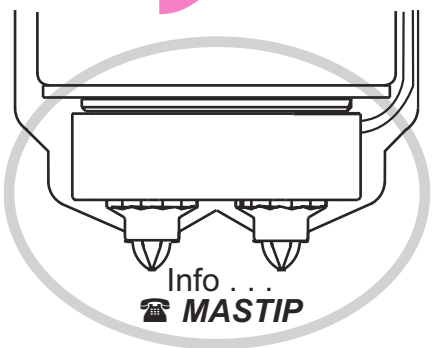






SERIES	L
MMG27....	60,110,160,210

☎ ***MASTIP*** FOR DETAILS ON SPECIAL LENGTHS

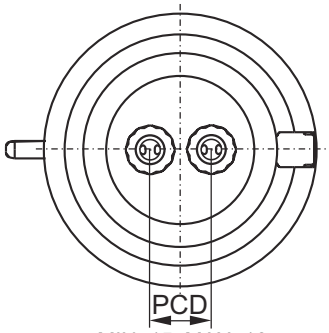


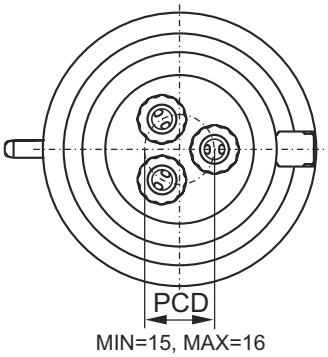
MMG SERIES NOZZLES

- For the gating of multiple small parts on a close PCD using technical materials where colour change is important
- Uses front mounted heater and thermocouple to improve performance
- Contact ***MASTIP*** for installation details and shot sizes

Material suitability	
Easy grades	✔
Medium grades	❍
Difficult grades	✖

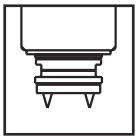
(Refer Page 1.1.6 for details)

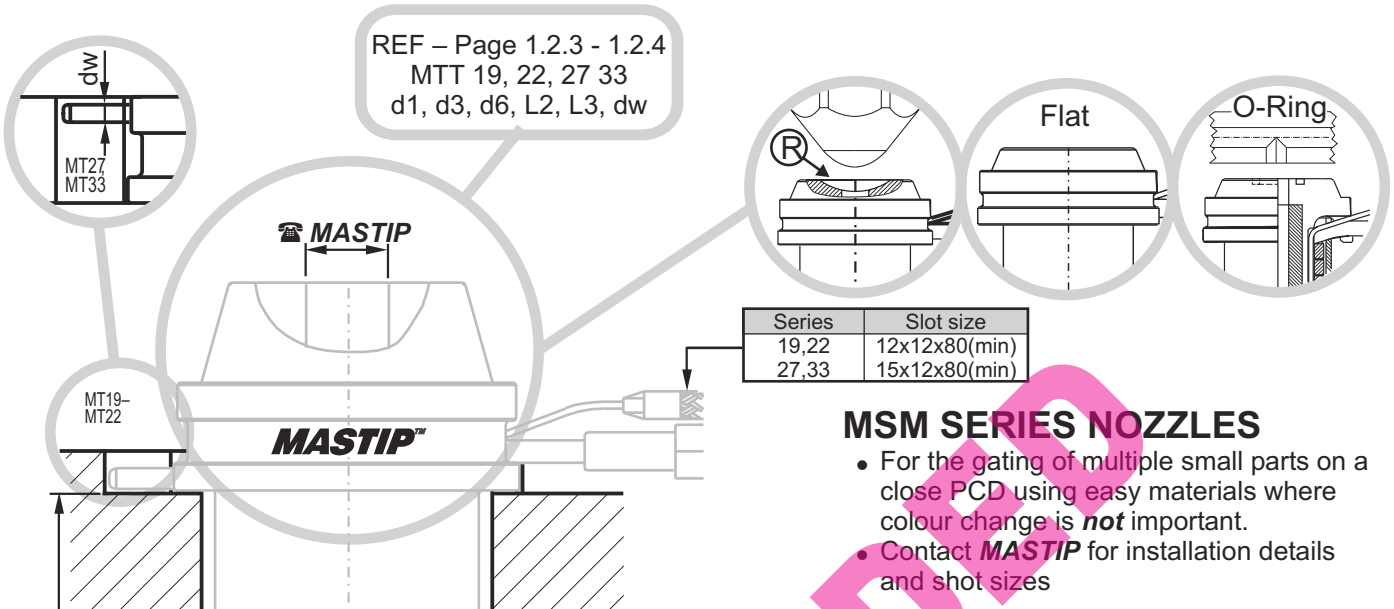




Example Order — MMG27060 – 3 TIP – 15 PCD – R x . . ./Flat/O-Ring

MULTI GATE *MSM*





Series	Slot size
19,22	12x12x80(min)
27,33	15x12x80(min)

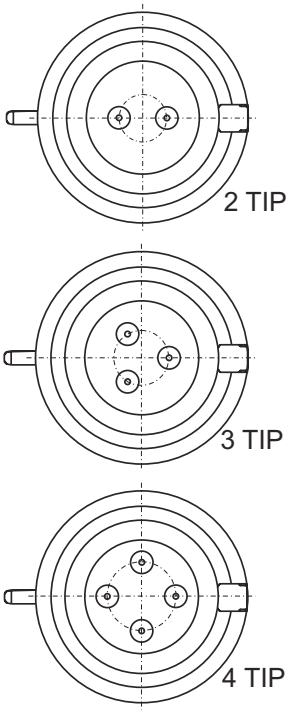
MSM SERIES NOZZLES

- For the gating of multiple small parts on a close PCD using easy materials where colour change is ***not*** important.
- Contact ***MASTIP*** for installation details and shot sizes

Material suitability	
Easy grades	✔
Medium grades	❍
Difficult grades	✖

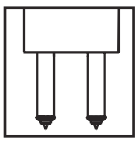
(Refer Page 1.1.6 for details)

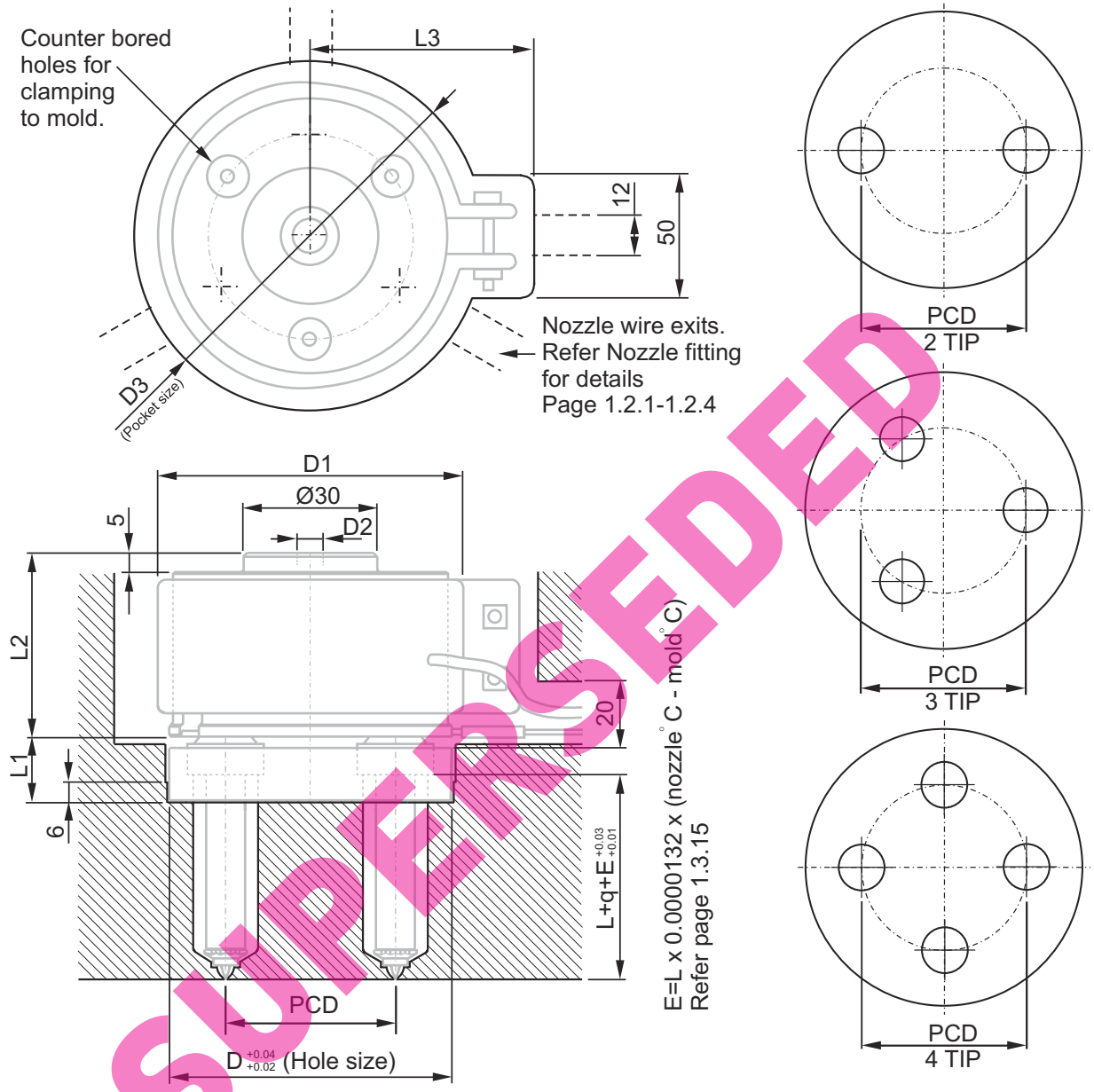
SERIES	L	PCD MIN	PCD MAX
MSM19...	50,70 100,130	8	13
MSM22...	59,89 119,149	9	16
MSM27...	77,127 177,227	10	21
MSM33...	101,151 201,251	11	27



Example Order — MSM19070 – 3 TIP – 10 PCD – R x . . ./Flat/O-Ring

MINI MANIFOLD *MMM*





Nozzle PCD	Nozzle	L1	L2	L3	D	D1	D2	D3	POWER
Less than (<) 40mm	MT10	16	50	70	80	90	6-8	108	500W
	MT13	18					6-10		
	MT16	21					6-10		
Greater than (> =) 40mm	MT10	16	50	80	90	100	6-8	118	600W
	MT13	18					6-10		
	MT16	21					6-10		

SERIES	MAX PCD	MIN PCD 2 TIP	MIN PCD 3 TIP	MIN PCD 4 TIP
MT 10	58	30	30	32
MT 13	55	35	35	40
MT 16	50	39	39	46

- For dimension q refer to Nozzle details on page 1.2.1 - 1.2.4

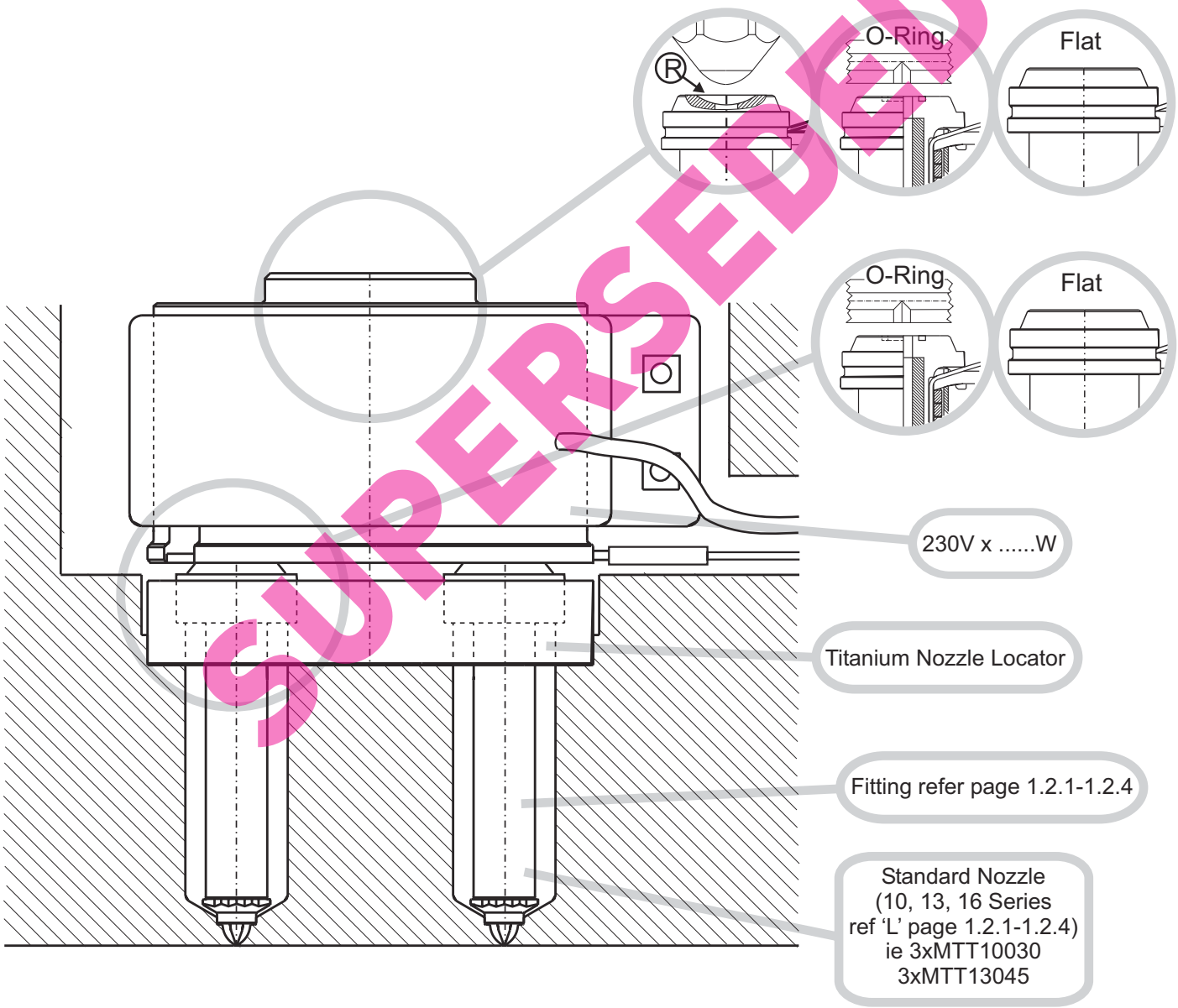
Info . . .
☎ *MASTIP*
....5 tip – 6 tip ....

Example Order — MMM13045 – 3 TIP – 40 PCD – R x . . ./Flat/O-Ring

MINI MANIFOLD *MMM*

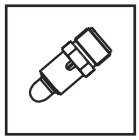
MMM SERIES NOZZLES

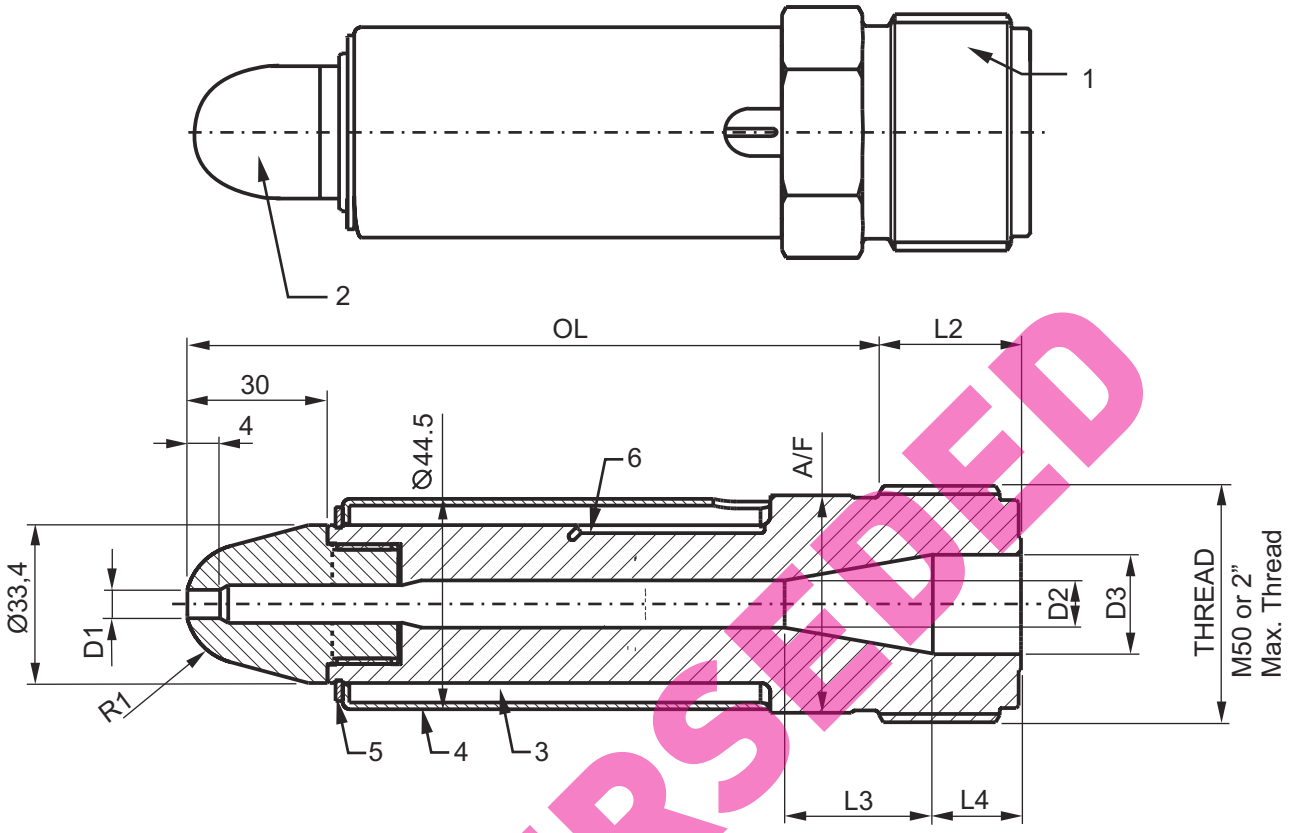
- This configuration is intended where space is at a premium, but the PCD required is too large for the MEG, and too small for conventional manifolds.
- Suitable for some technical materials where colour change is important.
- Contact ***MASTIP*** for installation details
- See individual nozzle sizes for shot weights and material suitability



Example Order — MMM13045 – 3 TIP – 40 PCD – R x . . ./Flat/O-Ring

MACHINE NOZZLE *MMC*





Internal profile can be altered to suit molding machine

KEY	DESCRIPTION		PCS
1	NOZZLE BODY	SPECIAL	1
2	NOZZLE TIP	SPECIAL	1
3	HEATER (NOT SHOWN)	MT33xxxH	1
4	HEATER COVER	MT33xxxHC	1
5	CIRCLIP	MT3300C	1
6	THERMOCOUPLE (NOT SHOWN)	MT6015TC	1

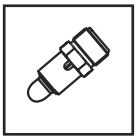
MMC & MMCF

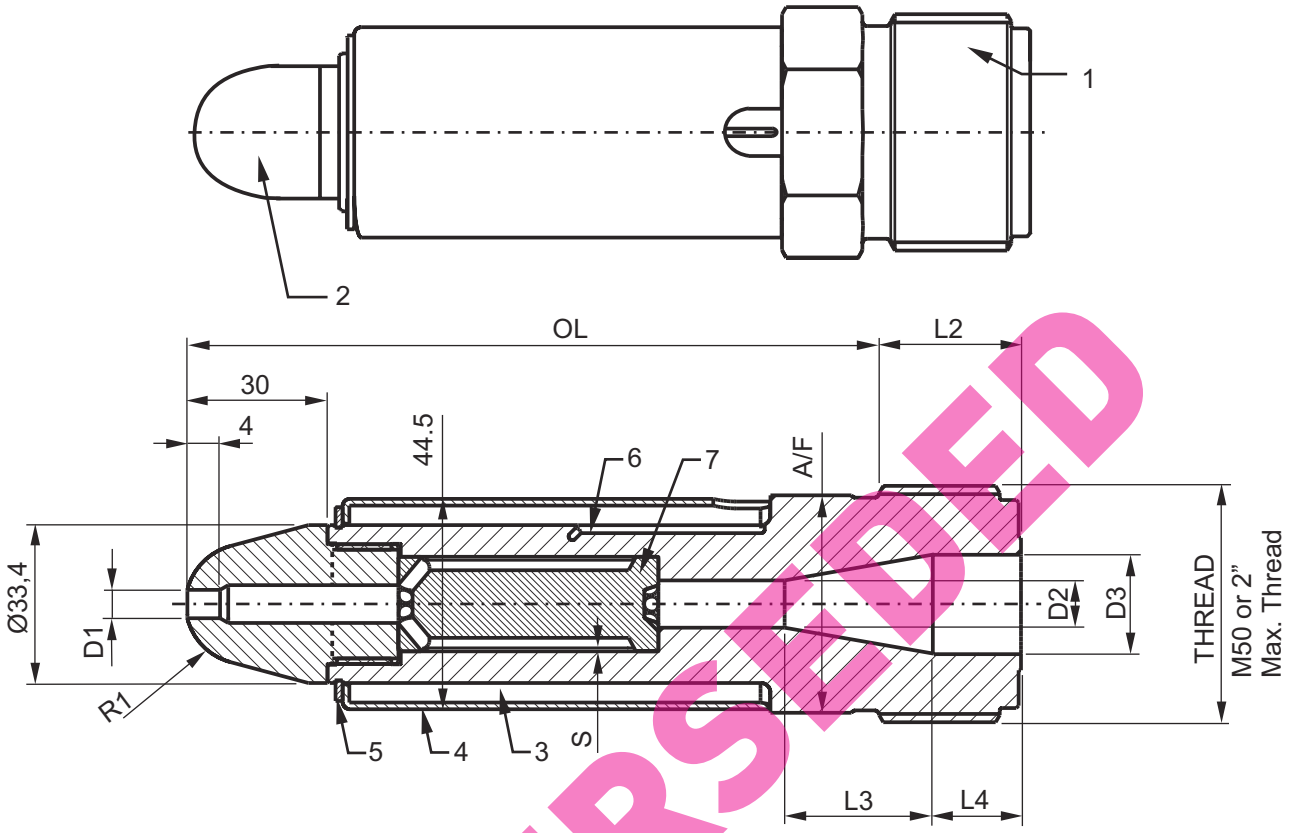
- Machine Nozzles are based on the MT33 series nozzles and share some interchangeable parts such as heaters, thermocouple, heater cover and circlip.
- To order the following details and dimensions must be provided.

	POWER	OL	L2	L3	L4	D1	D2	D3	THREAD	R1	A/F
MMC33100	800W	159									
MMC33150	1000W	209									
MMC33200	1400W	259									
MMC33250	1800W	309									

Example Order — MMC33100
D1= 8mm R1 = 19mm,D2=12,D3=25mm
Thread = M45 x3, L2= 40mm
L3=35mm,L4=5mm,A/F=40mm

MACHINE NOZZLE FILTER *MMCF*





Internal profile can be altered to suit molding machine

KEY	DESCRIPTION		PCS
1	NOZZLE BODY	SPECIAL	1
2	NOZZLE TIP	SPECIAL	1
3	HEATER (NOT SHOWN)	MT33xxxH	1
4	HEATER COVER	MT33xxxHC	1
5	CIRCLIP	MT3300C	1
6	THERMOCOUPLE (NOT SHOWN)	MT6015TC	1
7	FILTER BUSH (0.25,0.4,0.6)	MANFF	1

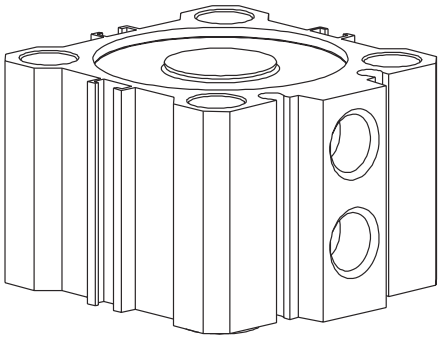
MMC & MMCF

- Machine Nozzles are based on the MT33 series nozzles and share some interchangeable parts such as heaters, thermocouple, heater cover and circlip.
- To order the following details and dimensions must be provided.

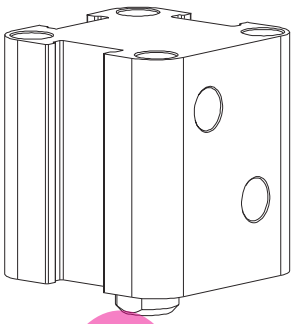
	POWER	OL	L2	L3	L4	D1	D2	D3	THREAD	R1	A/F	S (FILTER)
MMCF33100	800W	159										
MMCF33150	1000W	209										
MMCF33200	1400W	259										
MMCF33250	1800W	309										

Example Order — MMCF33100
D1= 8mm R1 = 19mm,D2=12,D3=25mm
Thread = M45 x3, L2= 40mm
L3=35mm,L4=5mm,A/F=40mm, S=0.4mm

MASTIP VALVE SYSTEMS

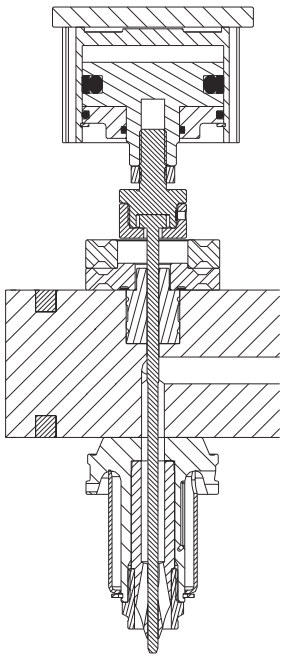


PNEUMATIC CYLINDER

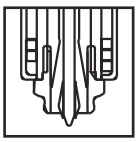


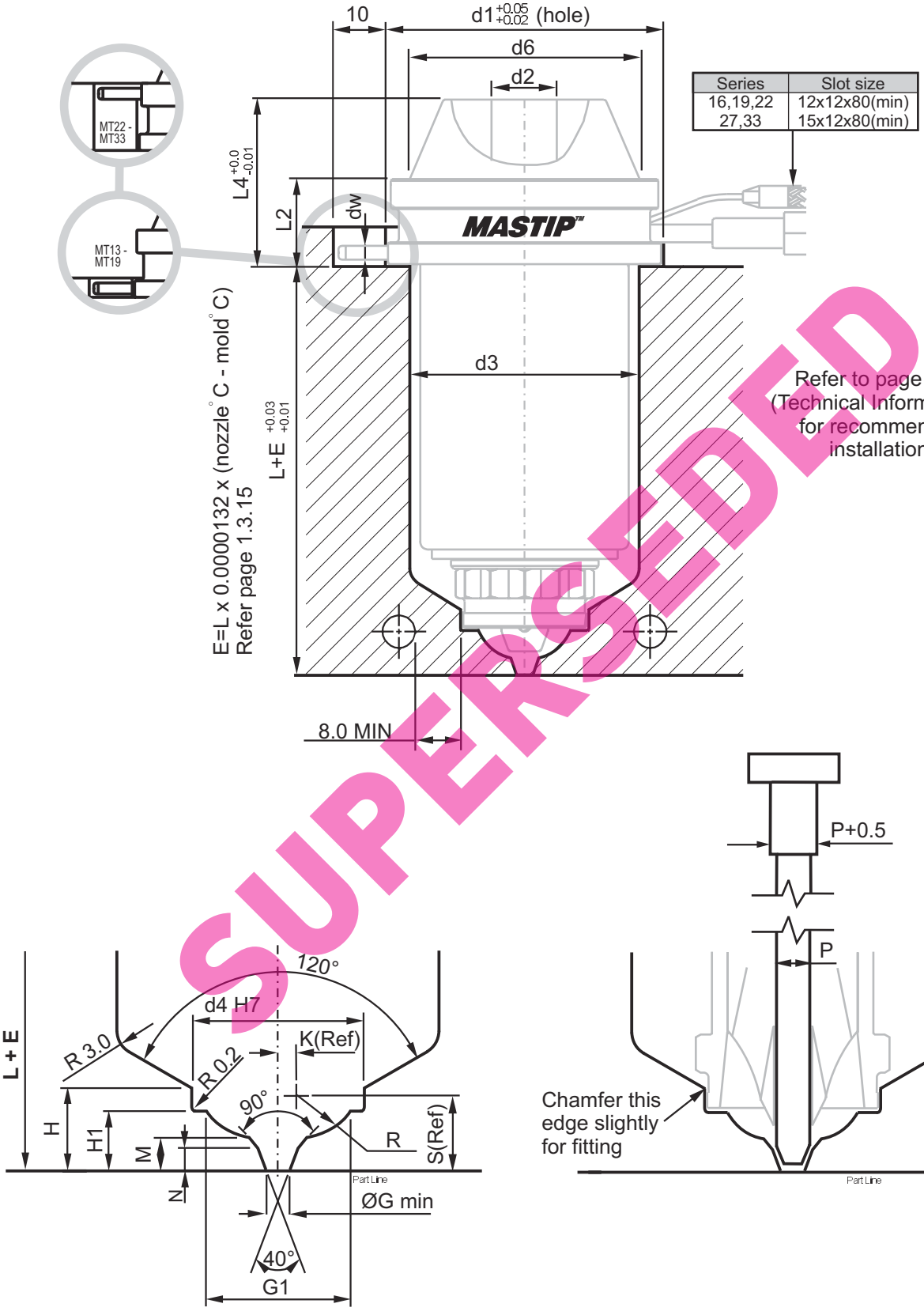
HYDRAULIC CYLINDER

STANDARD. VALVE ASSEMBLY



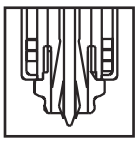
TORPEDO VALVE GATE *MTV*





- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *Mastip*.**
- **G dimension is a recommendation only, the final size should be determined by application.**

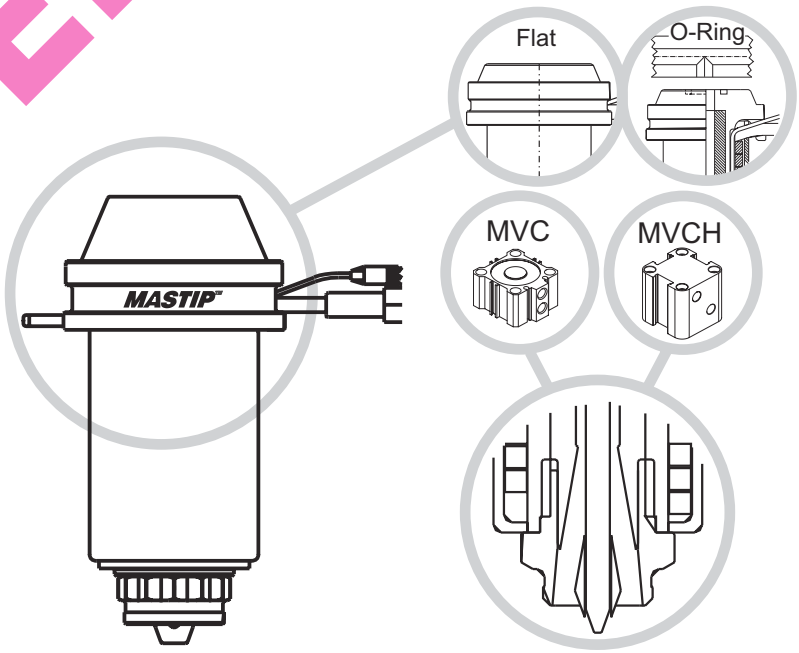
TORPEDO VALVE GATE *MTV*



	L	d1	d2	d3	d4	d6	L2	L4	dw	M	N	G MAX	G1	P MAX	H +0.0 -0.1	H1 +0.0 -0.1	S	K	R	E@ T = 200 C	E@ T = 250 C	
MTV16036	**36**	30	5	25	12	25	10	15	2.5	13	2.5	1.5	1.8	10	2.5	7.2	4.3	7.28	0.99	5	0.10	0.12	250W
MTV16046	**46**																				0.12	0.15	290W
MTV16056	**56**																				0.15	0.18	330W
MTV16076	**76**																				0.20	0.25	400W
MTV16086	**86**																				0.23	0.28	470W
MTV16116	**116**																				0.31	0.38	550W
MTV19046	**46**	40	7	32	15	35	12	17	2.5	16	3	1.5	2.2	12.5	3	8.3	5.5	8.66	1.15	6	0.12	0.15	330W
MTV19056	**56**																				0.15	0.18	400W
MTV19066	**66**																				0.17	0.22	470W
MTV19076	**76**																				0.20	0.25	470W
MTV19096	**96**																				0.25	0.32	550W
MTV19126	**126**																				0.33	0.42	620W
MTV22056	**56**	50	9	36	17	45	15.5	28	3	18	3	1.75	3	14	4	8.3	6.2	8.71	1.55	6	0.15	0.18	470W
MTV22086	**86**																				0.23	0.28	620W
MTV22116	**116**																				0.31	0.38	700W
MTV22146	**146**																				0.39	0.48	850W
MTV27075	**75**	50	12	42	22.5	45	15.5	30	4	22	3	2	3.5	19	5	10.8	7.8	12.62	0.74	10	0.20	0.25	550W
MTV27125	**125**																				0.33	0.41	800W
MTV27175	**175**																				0.46	0.58	1000W
MTV27225	**225**																				0.59	0.74	1400W
MTV33100	**100**	62	15	50	26	55	20	35	4	28	3	2	4.5	22	6	12.8	9.8	12.67	1.42	10	0.26	0.33	800W
MTV33150	**150**																				0.40	0.50	1000W
MTV33200	**200**																				0.53	0.66	1400W
MTV33250	**250**																				0.66	0.83	1800W

MTV SERIES NOZZLES

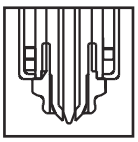
- These nozzles are designed for a good heat profile with accurate guiding for the shut-off pin to ensure long life and trouble free operation.
- Ideal for high cavity tooling where there is limited room around the gate profile
- Use where good colour change is important

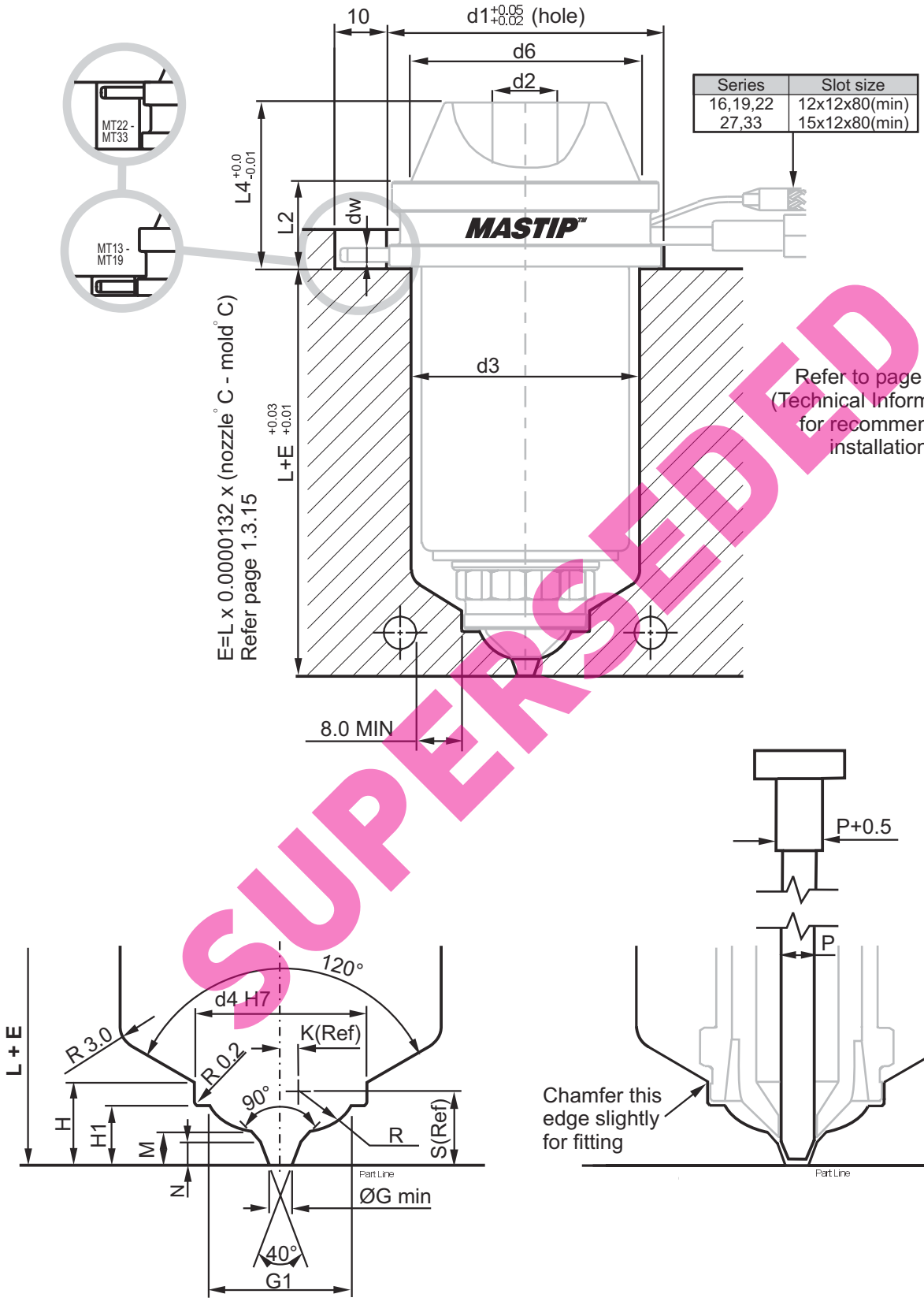


SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MTV16	1-100	1-70	1-35
MTV19	5-500	5-300	5-175
MTV22	9-900	9-600	9-300
MTV27	20-2000	20-1200	20-800
MTV33	40-3500	40-2500	40-1500

Example Order — Multi 4 x MTV19066 – O-Ring/Flat

OPEN VALVE GATE *MOV*



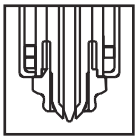


Series	Slot size
16,19,22	12x12x80(min)
27,33	15x12x80(min)

Refer to page 4.03 & 4.29 (Technical Information Section) for recommended nozzle installation details.

- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *Mastip*.**
- **G dimension is a recommendation only, the final size should be determined by application.**

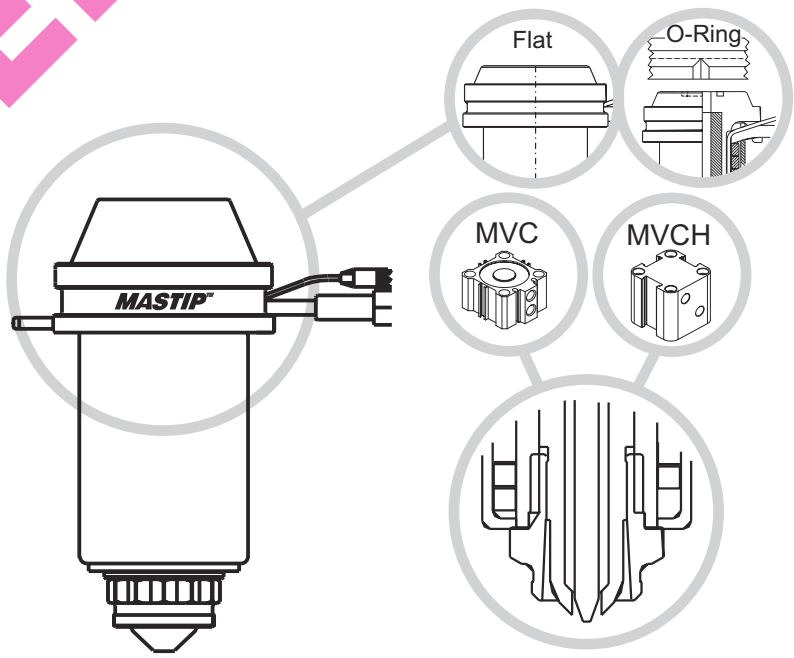
OPEN VALVE GATE *MOV*



	L	d1	d2	d3	d4	d6	L2	L4	dw	M	N	G MAX	G1	P MAX	H +0.0 -0.1	H1 +0.0 -0.1	S	K	R	E@ T = 200C	E@ T = 250C	
MOV16036	**36**	30	5	25	12	25	10	15	2.5	13	2.5	1.5	1.8	10	2.5	7.2	4.3	7.28	0.99	5	0.10	0.12	250W
MOV16046	**46**																				0.12	0.15	290W
MOV16056	**56**																				0.15	0.18	330W
MOV16076	**76**																				0.20	0.25	400W
MOV16086	**86**																				0.23	0.28	470W
MOV16116	**116**																				0.31	0.38	550W
MOV19046	**46**	40	7	32	15	35	12	17	2.5	16	3	1.5	2.2	12.5	3	8.3	5.5	8.66	1.15	6	0.12	0.15	330W
MOV19056	**56**																				0.15	0.18	400W
MOV19066	**66**																				0.17	0.22	470W
MOV19076	**76**																				0.20	0.25	470W
MOV19096	**96**																				0.25	0.32	550W
MOV19126	**126**																				0.33	0.42	620W
MOV22056	**56**	50	9	36	17	45	15.5	28	3	18	3	1.75	3	14	4	8.3	6.2	8.71	1.55	6	0.15	0.18	470W
MOV22086	**86**																				0.23	0.28	620W
MOV22116	**116**																				0.31	0.38	700W
MOV22146	**146**																				0.39	0.48	850W
MOV27075	**75**	50	12	42	22.5	45	15.5	30	4	22	3	2	3.5	19	5	10.8	7.8	12.62	0.74	10	0.20	0.25	550W
MOV27125	**125**																				0.33	0.41	800W
MOV27175	**175**																				0.46	0.58	1000W
MOV27225	**225**																				0.59	0.74	1400W
MOV33100	**100**	62	15	50	26	55	20	35	4	28	3	2	4.5	22	6	12.8	9.8	12.67	1.42	10	0.26	0.33	800W
MOV33150	**150**																				0.40	0.50	1000W
MOV33200	**200**																				0.53	0.66	1400W
MOV33250	**250**																				0.66	0.83	1800W

MOV SERIES NOZZLES

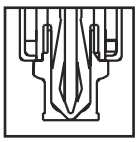
- Use these nozzles where maximum flow is required and/or where flow lines must be minimalized
- Ideal for high cavity tooling where there is limited room around the gate profile
- MOV nozzles have a slower colour change than the MTV.

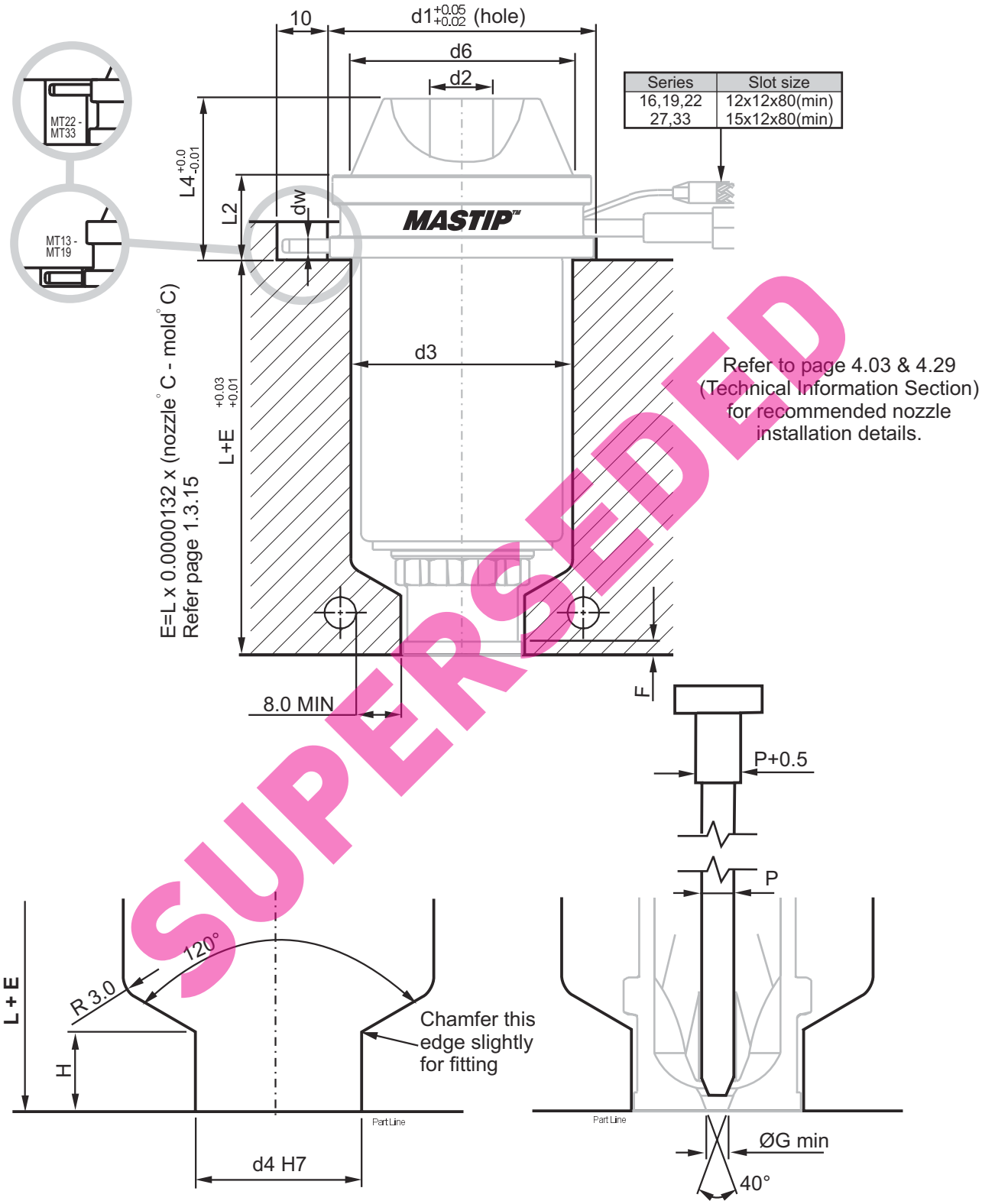


SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MOV16	1-100	1-70	1-35
MOV19	5-500	5-300	5-175
MOV22	9-900	9-600	9-300
MOV27	20-2000	20-1200	20-800
MOV33	40-3500	40-2500	40-1500

Example Order — Multi 4 x MOV19066 – O-Ring/Flat

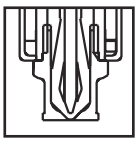
TORPEDO VALVE BUSH *MTVB*





- **Gate profiles shown are typical only. Where space is critical, or for special materials contact *Mastip*.**
- **G dimension is a recommendation only, the final size should be determined by application.**
- **Dimension F is 2mm min. for standard bush nut. Where difficult materials are used or rapid cycle times are expected, the VBNE nut should be used and this dimension is increased to provide more cooling to the nut.**

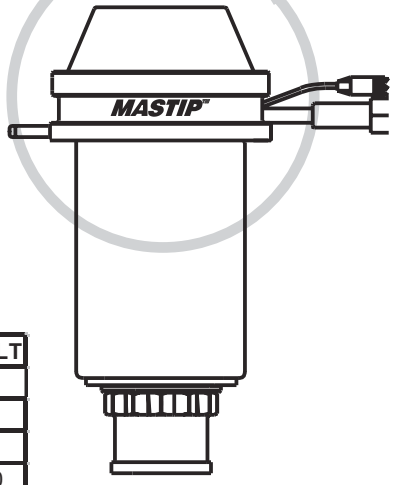
TORPEDO VALVE BUSH *MTVB*

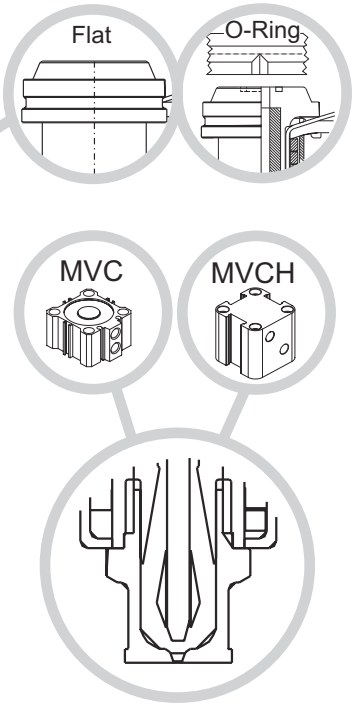


	L	d1	d2	d3	d4	d6	L2	L4	dw	G MAX	P MAX	H +0.0 -0.1	E@ T = 200C	E@ T = 250C	
MTVB16036	**36**	30	5	25	12	25	10	15	2.5	13	1.8	2.5	7.2	0.10	0.12	250W
MTVB16046	**46**													0.12	0.15	290W
MTVB16056	**56**													0.15	0.18	330W
MTVB16076	**76**													0.20	0.25	400W
MTVB16086	**86**													0.23	0.28	470W
MTVB16116	**116**													0.31	0.38	550W
MTVB19046	**46**	40	7	32	15	35	12	17	2.5	16	2.2	3	8.3	0.12	0.15	330W
MTVB19056	**56**													0.15	0.18	400W
MTVB19066	**66**													0.17	0.22	470W
MTVB19076	**76**													0.20	0.25	470W
MTVB19096	**96**													0.25	0.32	550W
MTVB19126	**126**													0.33	0.42	620W
MTVB22056	**56**	50	9	36	17	45	15.5	28	3	18	3	4	8.3	0.15	0.18	470W
MTVB22086	**86**													0.23	0.28	620W
MTVB22116	**116**													0.31	0.38	700W
MTVB22146	**146**													0.39	0.48	850W
MTVB27075	**75**	50	12	42	22.5	45	15.5	30	4	22	3.5	5	10.8	0.20	0.25	550W
MTVB27125	**125**													0.33	0.41	800W
MTVB27175	**175**													0.46	0.58	1000W
MTVB27225	**225**													0.59	0.74	1400W
MTVB33100	**100**	62	15	50	26	55	20	35	4	28	4.5	6	12.8	0.26	0.33	800W
MTVB33150	**150**													0.40	0.50	1000W
MTVB33200	**200**													0.53	0.66	1400W
MTVB33250	**250**													0.66	0.83	1800W

MTVB SERIES NOZZLES

- These nozzles are designed for a good heat profile, with accurate guiding for the shut-off pin to ensure long life and trouble free operation.
- For easy gate installation and replacement.
- Use where good colour change is important

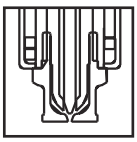


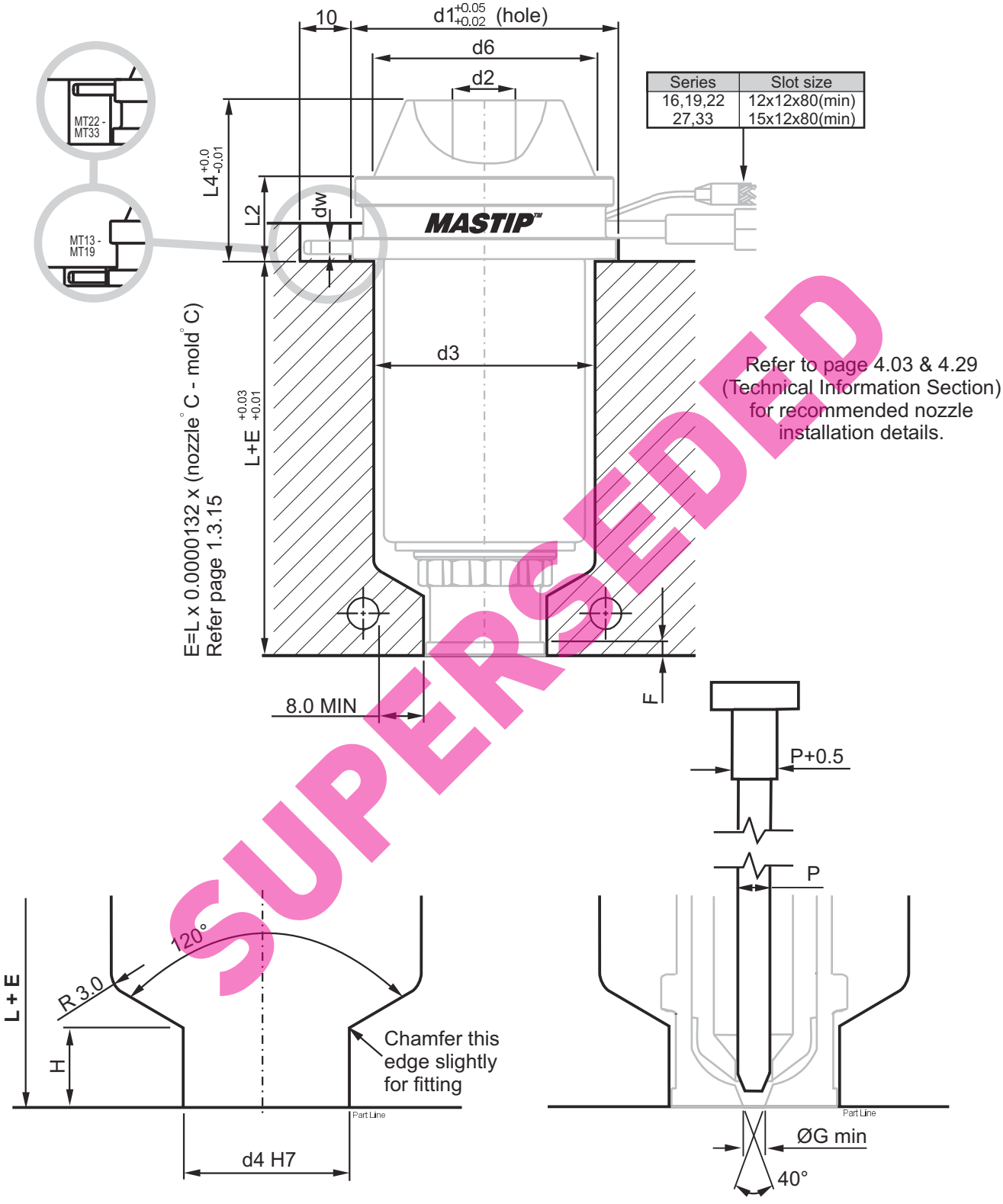


SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MTVB16	1-100	1-70	1-35
MTVB19	5-500	5-300	5-175
MTVB22	9-900	9-600	9-300
MTVB27	20-2000	20-1200	20-800
MTVB33	40-3500	40-2500	40-1500

Example Order — Multi 4 x MTVB19066 – O-Ring/Flat

OPEN VALVE BUSH MOVB





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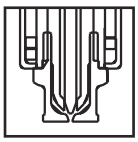
- **G dimension is a recommendation only, the final size should be determined by application.**
- **Dimension F is 2mm min. for standard bush nut. Where difficult materials are used or rapid cycle times are expected, the VBNE nut should be used and this dimension is increased to provide more cooling to the nut.**

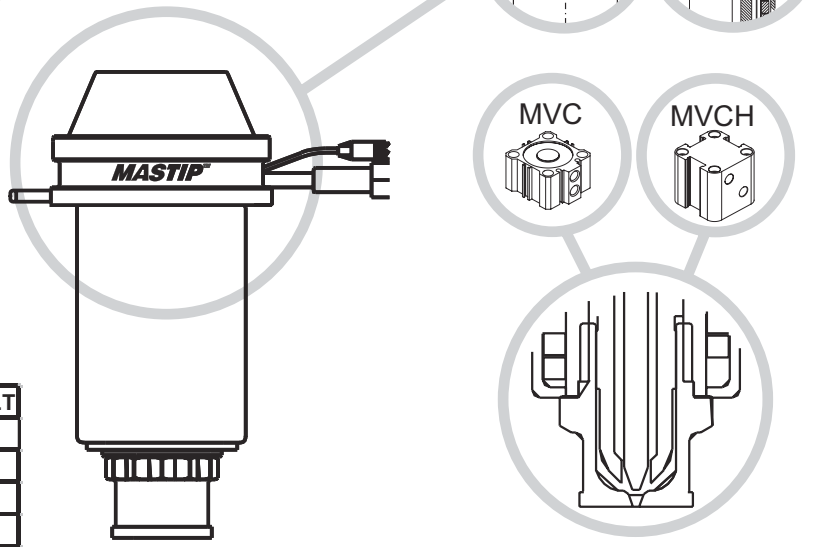
OPEN VALVE BUSH MOVB



	L	d1	d2	d3	d4	d6	L2	L4	dw	G MAX	P MAX	H +0.0 - 0.1	E@ T = 200 C	E@ T = 250 C	
MOVB16036	**36**	30	5	25	12	25	10	15	2.5	13	1.8	2.5	7.2	0.10	0.12	250W
MOVB16046	**46**													0.12	0.15	290W
MOVB16056	**56**													0.15	0.18	330W
MOVB16076	**76**													0.20	0.25	400W
MOVB16086	**86**													0.23	0.28	470W
MOVB16116	**116**													0.31	0.38	550W
MOVB19046	**46**	40	7	32	15	35	12	17	2.5	16	2.2	3	8.3	0.12	0.15	330W
MOVB19056	**56**													0.15	0.18	400W
MOVB19066	**66**													0.17	0.22	470W
MOVB19076	**76**													0.20	0.25	470W
MOVB19096	**96**													0.25	0.32	550W
MOVB19126	**126**													0.33	0.42	620W
MOVB22056	**56**	50	9	36	17	45	15.5	28	3	18	3	4	8.3	0.15	0.18	470W
MOVB22086	**86**													0.23	0.28	620W
MOVB22116	**116**													0.31	0.38	700W
MOVB22146	**146**													0.39	0.48	850W
MOVB27075	**75**	50	12	42	22.5	45	15.5	30	4	22	3.5	5	10.8	0.20	0.25	550W
MOVB27125	**125**													0.33	0.41	800W
MOVB27175	**175**													0.46	0.58	1000W
MOVB27225	**225**													0.59	0.74	1400W
MOVB33100	**100**	62	15	50	26	55	20	35	4	28	4.5	6	12.8	0.26	0.33	800W
MOVB33150	**150**													0.40	0.50	1000W
MOVB33200	**200**													0.53	0.66	1400W
MOVB33250	**250**													0.66	0.83	1800W

MOVB SERIES NOZZLES

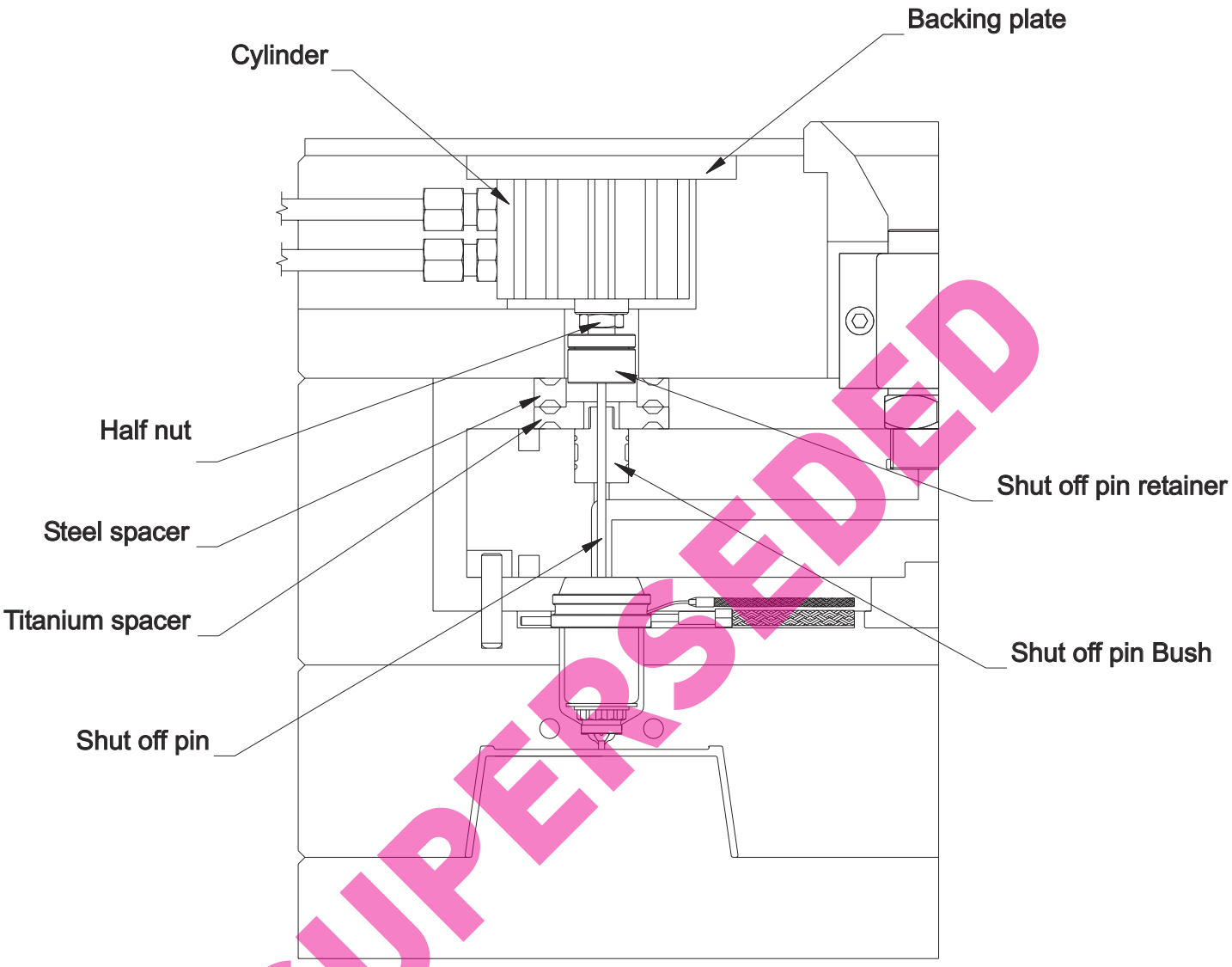
- Use these nozzles where maximum flow is required and/or where flow lines must be minimalized.
- For easy gate installation and replacement.
- MOVB nozzles have a slower colour change than the MTVB.



SHOT SIZE (GRAMS)	EASY	MEDIUM	DIFFICULT
MTV16	1-100	1-70	1-35
MTV19	5-500	5-300	5-175
MTV22	9-900	9-600	9-300
MTV27	20-2000	20-1200	20-800
MTV33	40-3500	40-2500	40-1500

Example Order — Multi 4 x MOVB19066 – O-Ring/Flat

VALVE GATE ACTUATOR SELECTION



Pneumatic Actuation

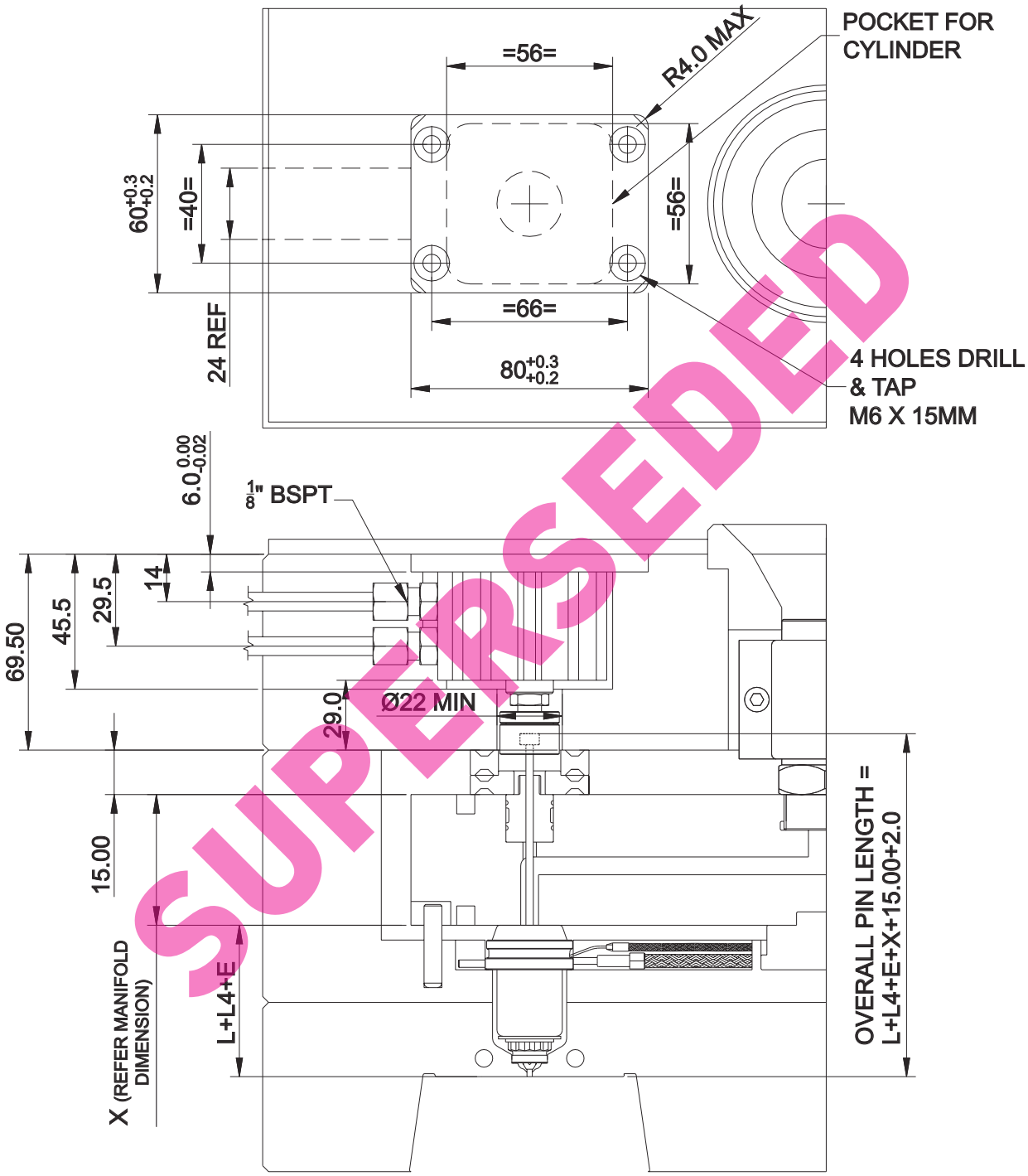
Nozzle	Assembly Code	Pin Size	Stroke
MTV16	MVC5235-2.5	2.5	5
MOV16			
MTV19	MVC5235-3	3	5
MOV19			
MTV22	MVC7746-4	4	10
MOV22			
MTV27	MVC7746-5	5	10
MOV27			
MTV33	MVC7746-6	6	10
MOV33			

Hydraulic Actuation

Nozzle	Assembly Code	Pin Size	Stroke
MTV16	MVCH2505-2.5	2.5	5
MOV16	MVCH2505-2.5		5
MTV19	MVCH2505-3	3	5
MOV19	MVCH2505-3		5
MTV22	MVCH2505-4	4	5
MOV22	MVCH2510-4		10
MTV27	MVCH2505-5	5	5
MOV27	MVCH2510-5		10
MTV33	MVCH2505-6	6	5
MOV33	MVCH2510-6		10

PNEUMATIC MVC5235

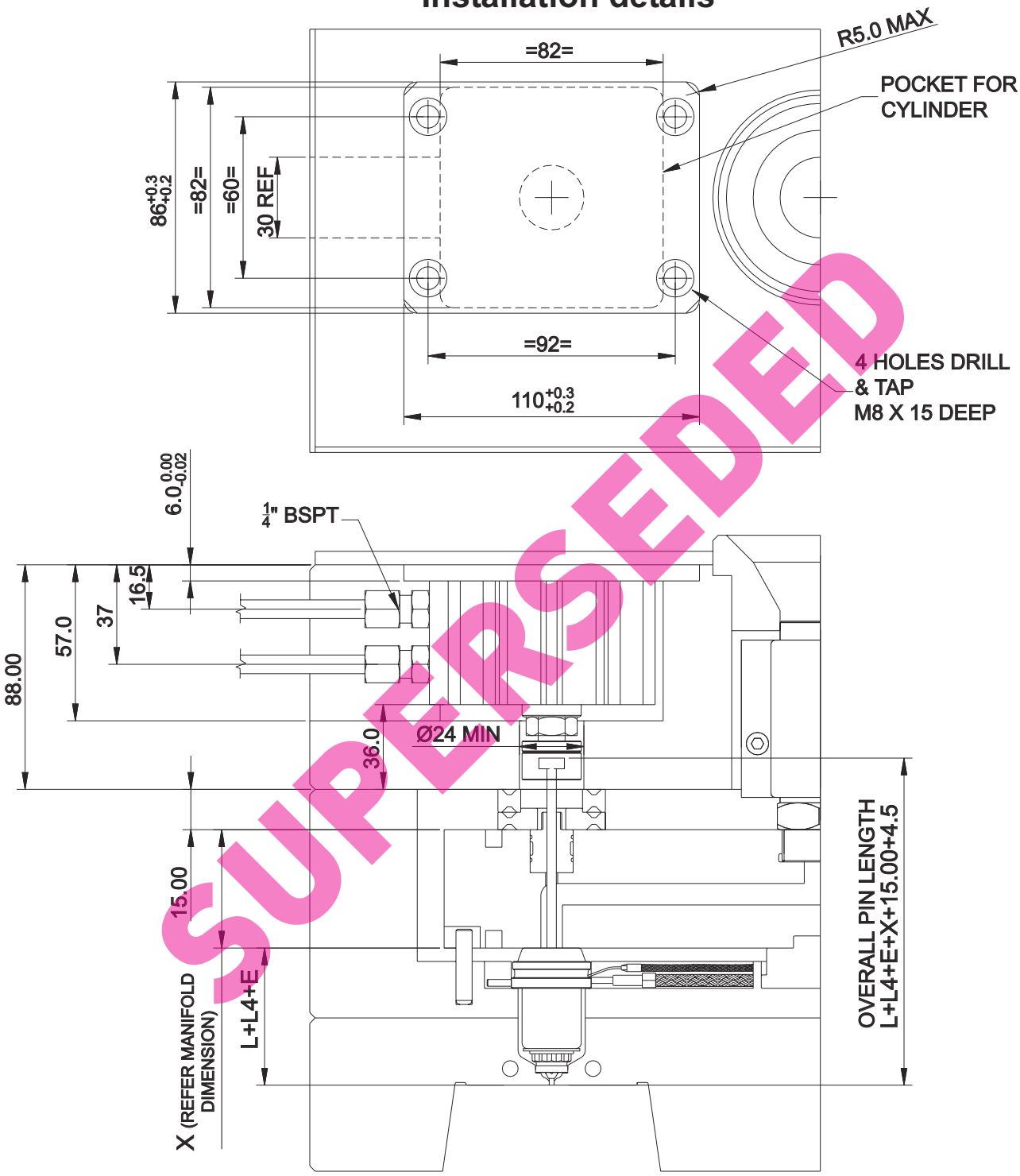
Installation details



Example Order — MVC 5235 ASSEMBLY
To suit MTV16/MOV16/MTVB16 etc. nozzles

PNEUMATIC MVC7746

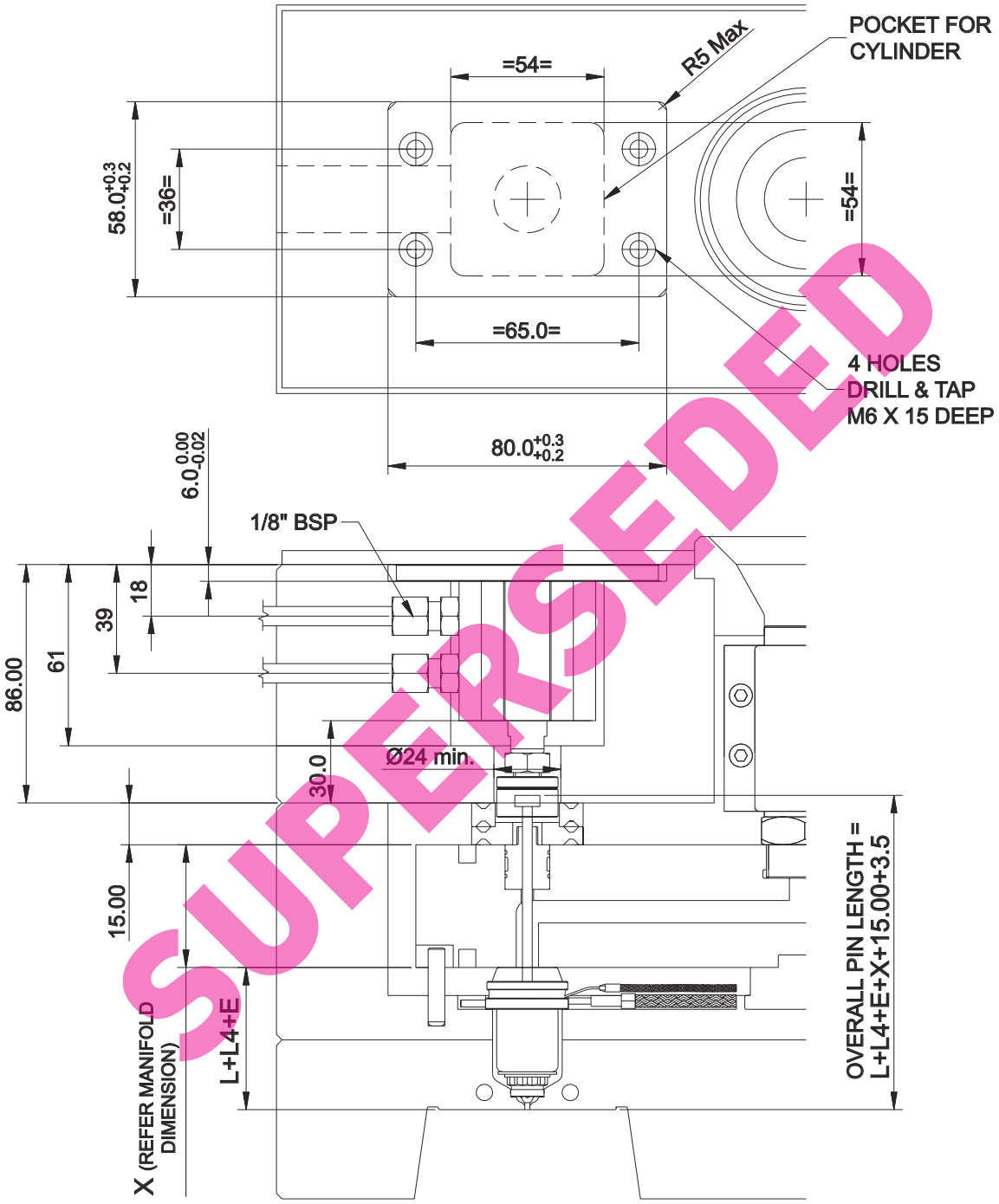
Installation details



Example Order — MVC 7746 ASSEMBLY
To suit MTV33/MOV33/MTVB33 etc. nozzles

HYDRAULIC MVC2505H

Installation details

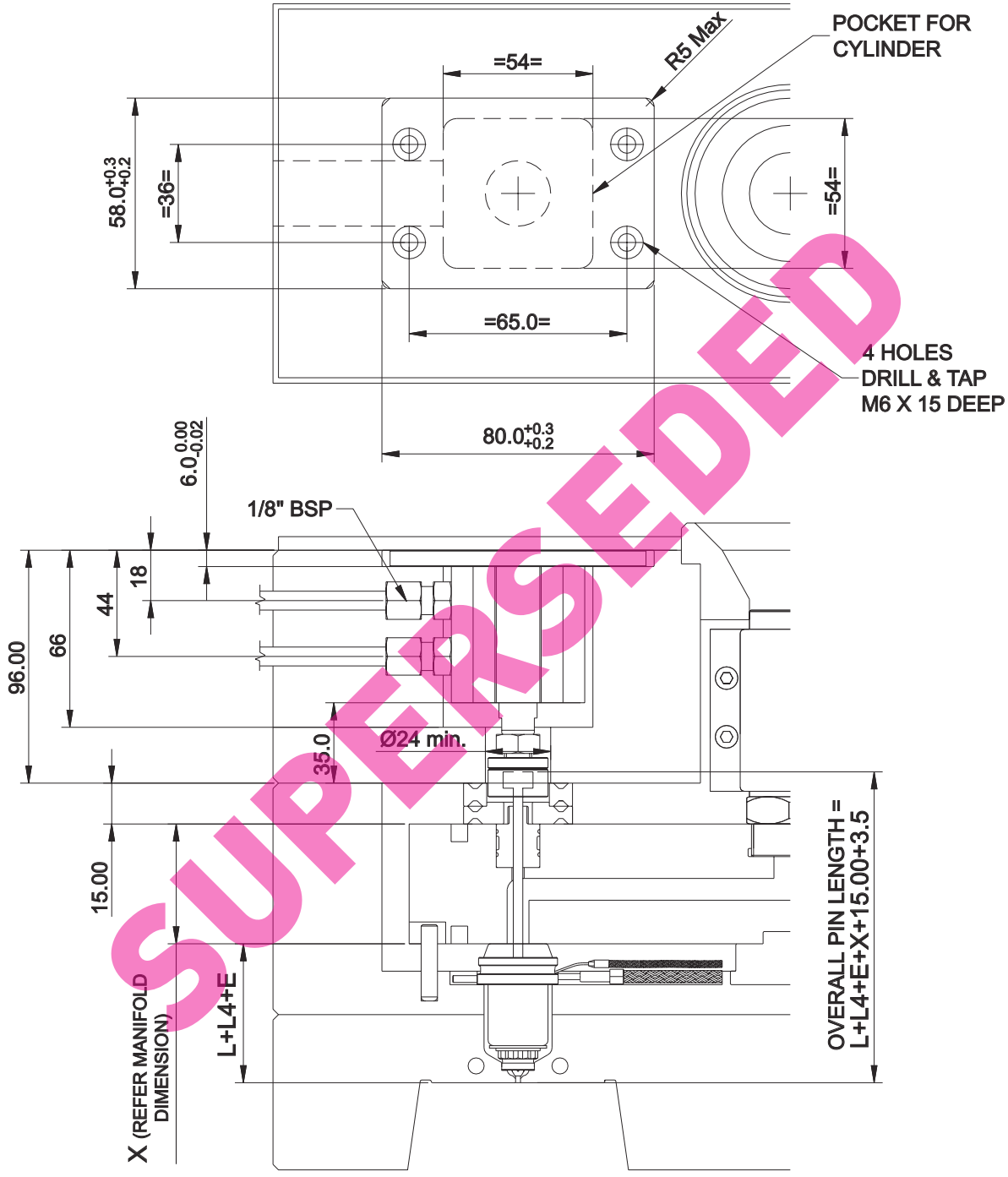


Example Order — MVC-2505 ASSEMBLY
To suit MTV16-MTV19 nozzles

For MOV22-33 series valve gate nozzles refer to pages 1.3.16 - 1.3.17

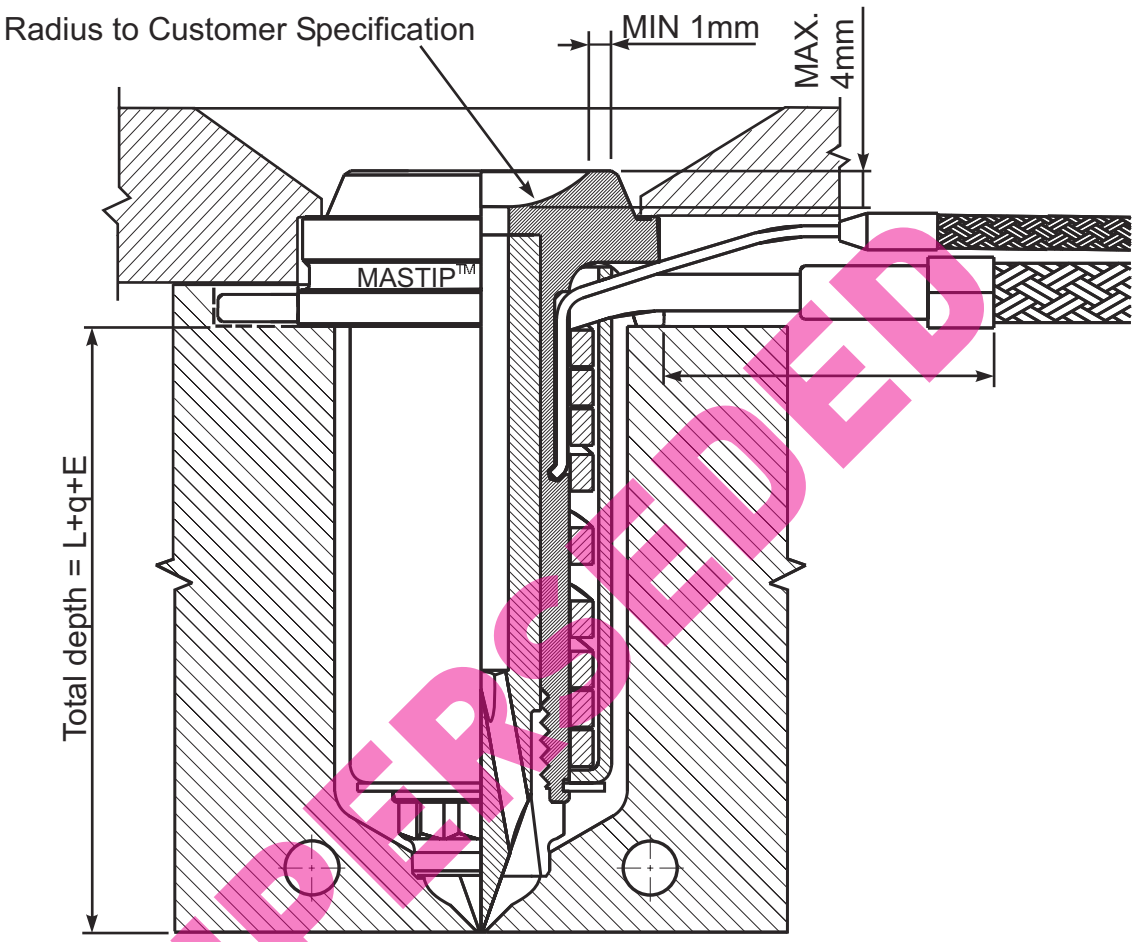
HYDRAULIC MVC2510H

Installation details



Example Order — MVC-2510 ASSEMBLY
To suit MTV22-MTV33 nozzles

MT SERIES – SINGLE NOZZLE EXPANSION CALCULATION



E = L x 0.0000132 x (nozzle°C-mold°C)

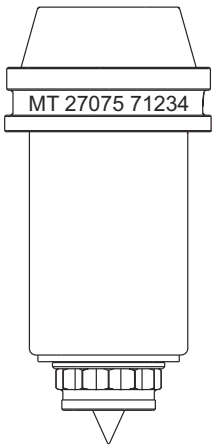
To calculate E (Temperature expansion)
1. Take the L dimension from catalogue for the nozzle.
2. Multiply by 0.0000132 (expansion factor).
3. Multiply by the working temperature of the *nozzle* <u>*minus*</u> the *mold t*emperature.(the temperature <u>*difference*</u>)
4. This gives the E value to calculate the depth of the nozzle cavity.
Using this value at the working temperature of the nozzle, the front of the tip will move into correct position relative to the gate opening.

Example

L=36mm
q= 0.2mm
Hot Nozzle temp = 230 deg. C
Mold Temperature = 40 deg. C

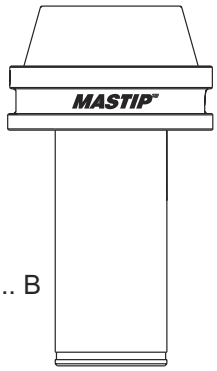
E= 36mm x 0.0000132 x (230°C - 40°C)
E = 0.09mm
Total Depth = **<u>L+q+E in mold = 36.29mm</u>**

ACCESSORIES



MT 27075 71234

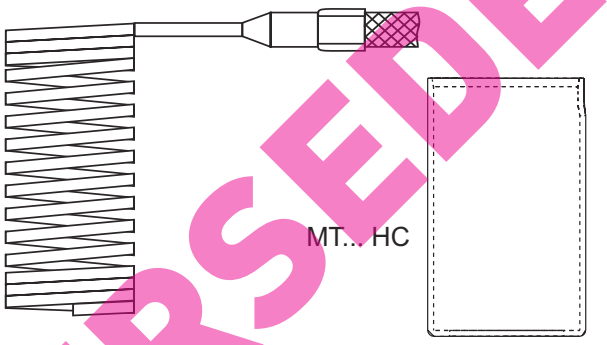
- Mastip Component Code
- Diameter of the Nozzle
- 'L' Length
- Production Job Code



MT... B

MT... C

MT... TC
page 1.4.5



MT... H
page 1.4.2

MT... HC

MT... TT
page 1.4.3

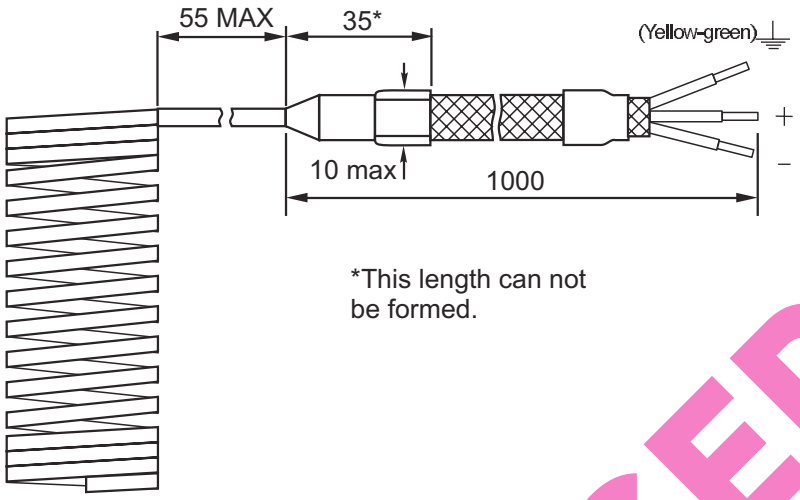
TIP & NUT OPTIONS

TIP	NUT TYPES										
	OPEN (ONT)	BUSH (BN)	BUSH FULL CONTACT (BNE)	SPRUE (SN)	SPRUE FULL CONTACT (SNE)	RETRO OPEN (RN)	RETRO BUSH (RB)	RETRO SPRUE (RS)	VALVE BUSH VBN	VALVE BUSH VBNE	VALVE RETRO BUSH VRN
TT (TORPEDO TIP)	✔	✔	✔	✔	✔	✔	✔	✔	×	×	×
IT (ONE HOLE TIP)	✔	✔	✔	✔	✔	✔	✔	✔	×	×	×
OT (OPEN TIP)	✔	✔	✔	✔	✔	✔	✔	✔	×	×	×
TV (TORPEDO VALVE)	✔	×	×	×	×	✔	×	×	✔	✔	✔
OV (OPEN VALVE)	✔	×	×	×	×	✔	×	×	✔	✔	✔
HARD TIPS											
TC (CARBIDE TIPPED HMC10)	✔	✔	✔	✔	✔	✔	✔	✔	×	×	×
TH (CARBIDE TORPEDO TIP)	✔	✔	✔	✔	✔	✔	✔	✔	×	×	×
ITH (CARBIDE 1 HOLE TIP)	✔	✔	✔	✔	✔	✔	✔	✔	×	×	×
MOTH (OPEN TIP D2 LINER)	✔	✔	✔	✔	✔	✔	✔	✔	×	×	×

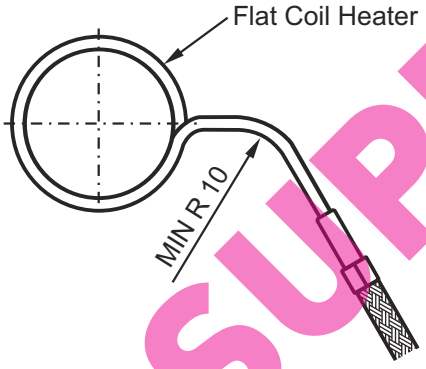
MT... ONT
page 1.4.4

Example Order — Replacement heater for MTT27075
Order: MT27075H

HEATERS ACCESSORIES

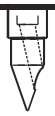


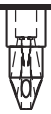
*This length can not be formed.



	(V230)
MT10030H	115w
MT10060H	280w
MT10090H	400w
MT13045H	225w
MT13056H	250w
MT13066H	250w
MT13075H	290w
MT13105H	400w
MT16036H	250w
MT16046H	290w
MT16056H	330w
MT16076H	400w
MT16086H	470w
MT16116H	550w
MT16146H	620w
MT16176H	700w
MT19046H	330w
MT19056H	400w
MT19066H	470w
MT19076H	470w
MT19096H	550w
MT19126H	620w
MT19156H	700w
MT19186H	850w
MT22056H	470w
MT22086H	620w
MT22116H	700w
MT22146H	850w
MT27075H	550w
MT27125H	800w
MT27175H	1000w
MT27225H	1400w
MT33100H	800w
MT33150H	1000w
MT33200H	1400w
MT33250H	1800w

TIPS ACCESSORIES



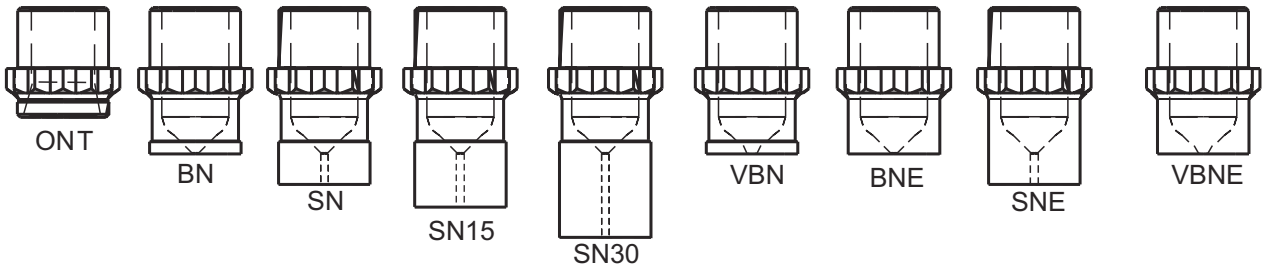

SERIES	L	MTT	MTB	MTS	MIT	MIB	MIS	MOT	MOS	MOB	MTV	MTVB	MOV	MOVB
		TT HCM 10			**IT** HCM 10			**OT** HCM 10			**TV** HCM 10		**OV** HCM 10	
MT10	30,60,90	✔	×	×	×	×	×	×	×	×	×	×	×	×
MT13	45, 56, 66, 75, 105	✔	✔	✔	✔	✔	✔	✔	✔	✔	×	×	×	×
MT16	36, 46, 56, 76, 86, 116, 146, 176	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
MT19	46, 56, 66, 76, 96, 126, 156, 186	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
MT22	56, 86, 116, 146	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
MT27	75, 125, 175, 225	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
MT33	100,150, 200, 250	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔



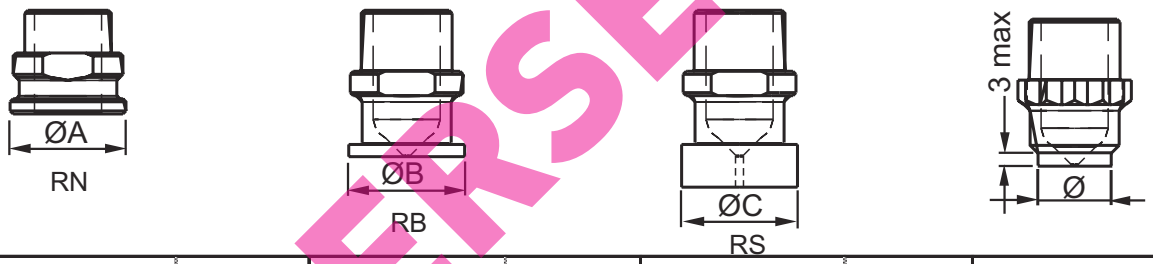

SERIES	L	TH CARBIDE MTTH, MTBH, MTSH, MITH, MIBH, MISH	TC CARBIDE TIPED HCM10 MTTC, MTBC, MTSC, MITC, MIBC, MISC	OH D2 LINER MOTH, MOBH, MOSH	MG HCM 10 MMG	SM HCM 10 MSM	EG HCM 10 MEG	SW HCM 10 MSW
MT13	45, 56, 66, 75, 105	✔	✔	×	×	×	×	×
MT16	36, 46, 56, 76, 86 116, 146, 176	✔	✔	×	×	×	×	×
MT19	46, 56, 66, 76, 96 126, 156, 186	✔	✔	✔	×	✔	×	✔
MT22	56, 86, 116, 146	✔	✔	✔	×	✔	×	✔
MT27	75, 125, 175, 225	✔	✔	✔	✔	✔	×	✔
MT33	100,150, 200, 250	✔	✔	✔	✔	✔	✔	✔

Example Order — MT19066 TT

NUTS ACCESSORIES



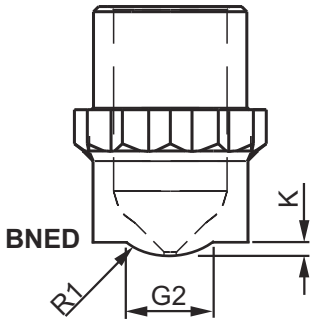
SERIES	OPEN	BUSH	SPRUE	SPRUE 15mm EXTRA	SPRUE 30mm EXTRA	VALVE BUSH MTVB	BUSH FULL CONTACT	SPRUE FULL CONTACT	VALVE BUSH FULL CONTACT
MT10	MT10...ONT	-	-	-	-	-	-	-	-
MT13	MT13...ONT	MT13... BN	MT13... SN	-	-	-	MT13... BNE	MT13... SNE	-
MT16	MT16...ONT	MT16... BN	MT16... SN	MT16...SN15	-	MT16... VBN	MT16... BNE	MT16... SNE	MT16... VBNE
MT19	MT19...ONT	MT19... BN	MT19... SN	MT19...SN15	MT19...SN30	MT19... VBN	MT19... BNE	MT19... SNE	MT19... VBNE
MT22	MT22...ONT	MT22... BN	MT22... SN	MT22...SN15	MT22...SN30	MT22... VBN	MT22... BNE	MT22... SNE	MT22... VBNE
MT27	MT27...ONT	MT27... BN	MT27... SN	MT27...SN15	MT27...SN30	MT27... VBN	MT27... BNE	MT27... SNE	MT27... VBNE
MT33	MT33...ONT	MT33... BN	MT33... SN	MT33...SN15	MT33...SN30	MT33... VBN	MT33... BNE	MT33... SNE	MT33... VBNE



SERIES	OPEN RETROFIT	ØA	BUSH RETROFIT	ØB	SPRUE RETROFIT	ØC	C-BUSH RETROFIT MINIMUM
MT10	-	-	-	-	-	-	-
MT13	MT13... RN	10-13	MT13... RB	10-13	MT13... RS	10-13	Ø7
MT16	MT16... RN	12-16	MT16... RB	12-16	MT16... RS	12-16	Ø9
MT19	MT19... RN	15-19	MT19... RB	15-19	MT19... RS	15-19	Ø12.5
MT22	MT22... RN	17-22	MT22... RB	17-22	MT22... RS	17-22	Ø14.5
MT27	MT27... RN	22.5-27	MT27... RB	22.5-27	MT27... RS	22.5-27	Ø19
MT33	MT33... RN	26-33	MT33... RB	26-33	MT33... RS	26-33	Ø22

BNED (Dome) nuts are now available as a special order.

☎ = Tel ***MASTIP*** *for details of R1, G2 and K.*

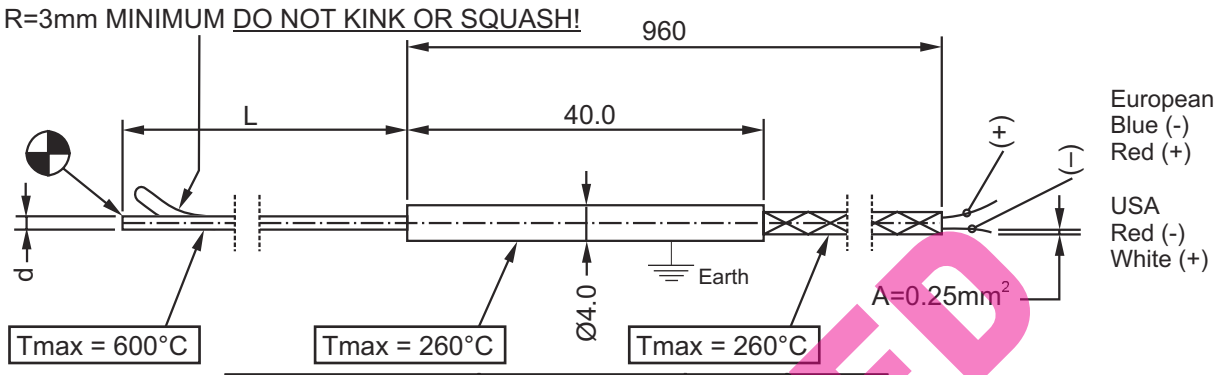


Example Order — MT1000 ONT, or MT19019 RN

ACCESSORIES

THERMOCOUPLE–FeCuNi Type J

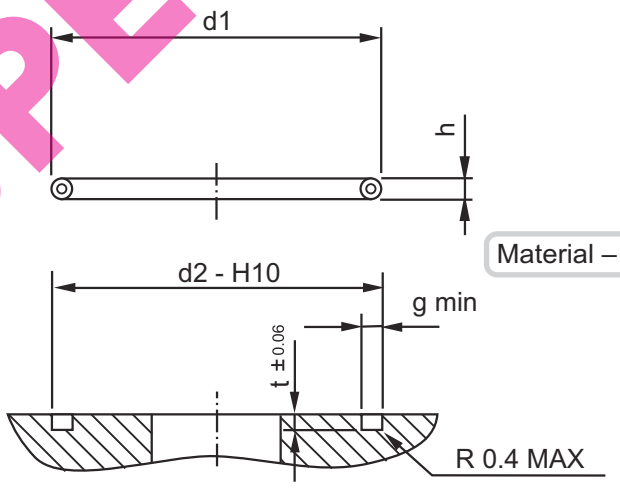
Type K available on request.



	SERIES	L	d
MT 6010 TC(STD)	10, 13, 16, 19	60	1.0
MT 12010 TC	10, 13, 16, 19	120	1.0
MT 6015 TC(STD)	22, 27, 33	60	1.5
MT 15015 TC	22, 27, 33	150	1.5

To test thermocouple with a multimeter ensure that + and - are isolated from the earth.

METAL O-RING



Material – Stainless Steel

NOTE: NEVER REUSE OLD O-RINGS

	SERIES	d1	h	d2	g	t
MT 500 MR	10,13,16	Ø12.6	Ø1.59	Ø12.9	2.3	1.20
MT 610 MR	19, 22	Ø17.4	Ø1.59	Ø17.7	2.3	1.20
MT 620 MR	27	Ø20.7	Ø1.59	Ø20.9	2.3	1.20
MT 640 MR	33	Ø27.2	Ø1.59	Ø27.5	2.3	1.20

SHUT OFF VALVE PARTS

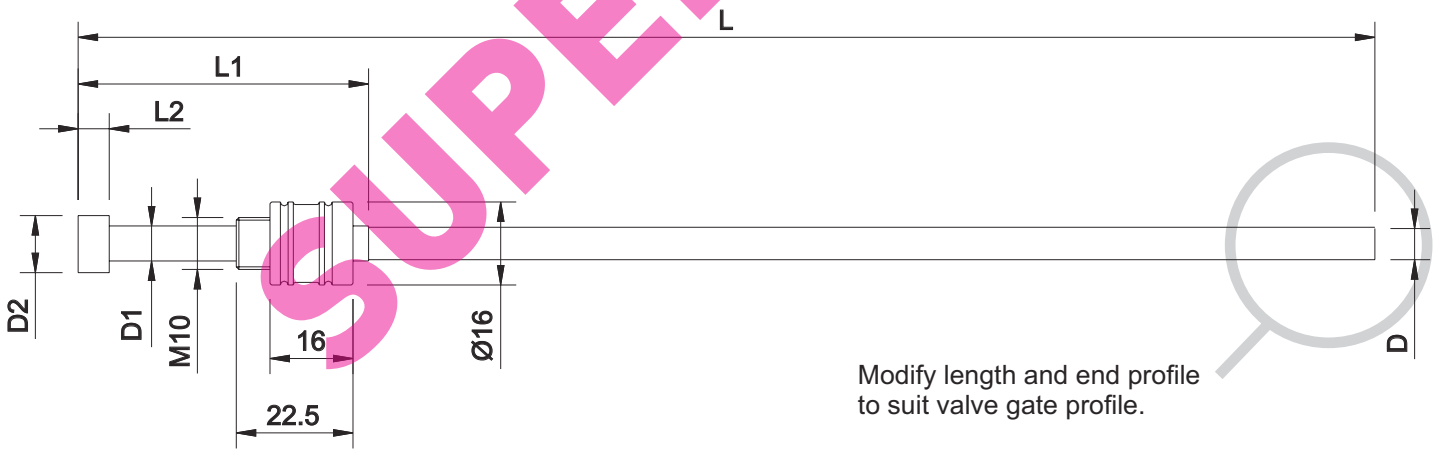
MVCP + MVCPG ASSEMBLY

Shut off pins + Pin guide

Pin Material - M2 Thru Hardened Steel, TiNi Coated
Pin guide – M2 Thru Hardened Steel

MT SERIES	PART CODE	D	D1	D2	L	L1	L2
MT 16	MVCP & G 2.5	2.5	3	7	250	75	4
MT 19	MVCP & G 3	3	3.5	8	250	75	4
MT 22	MVCP & G 4	4	4.5	9	300	75	6
MT 27	MVCP & G 5	5	5.5	10	350	75	6
MT 33	MVCP & G 6	6	6.5	11	400	75	6

NOTE: SHUT OFF PIN AND PIN GUIDE ARE ONLY SUPPLIED AS A SET.



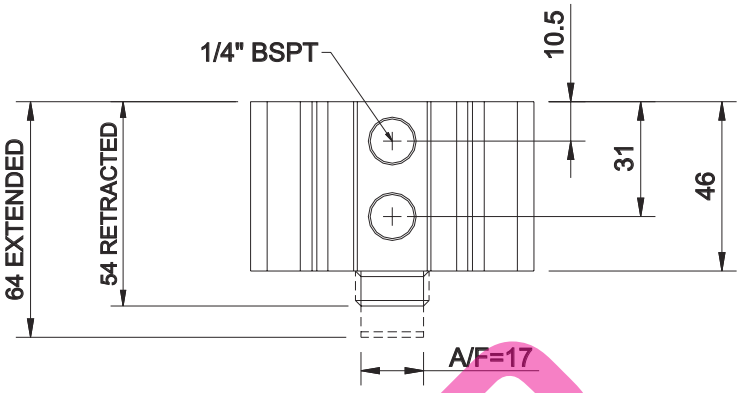
Modify length and end profile to suit valve gate profile.

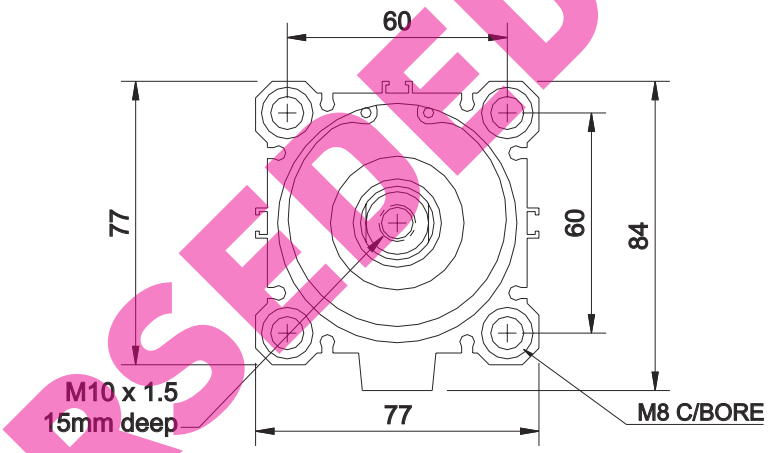
SHUT OFF VALVE PARTS

MVC7746

Large Pneumatic Valve Cylinder

63mm Piston, 10mm Stroke
Material: Aluminium
Max. Pressure = 10.2 Bar
Min pressure = 6 bar
High Temperature seals

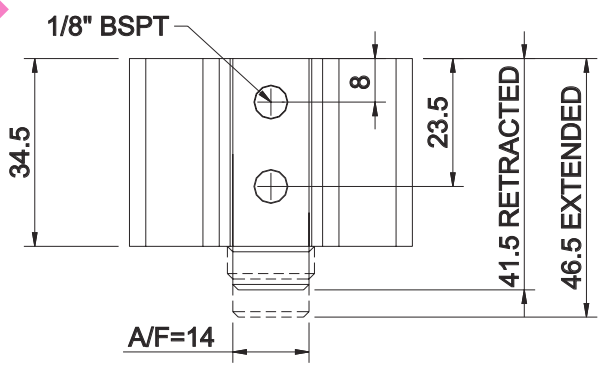


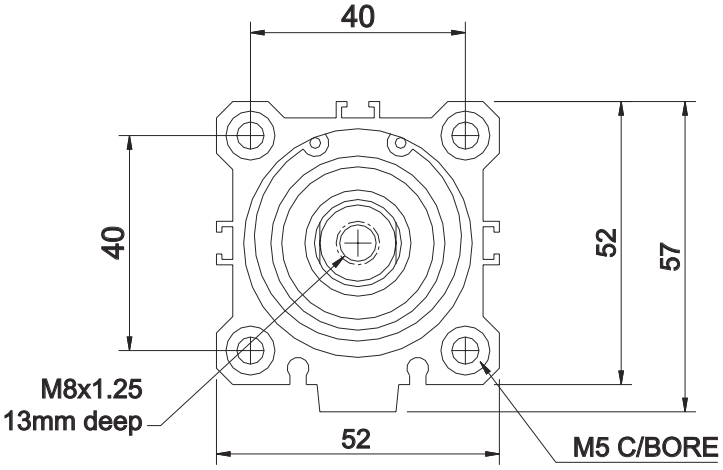


MVC5235

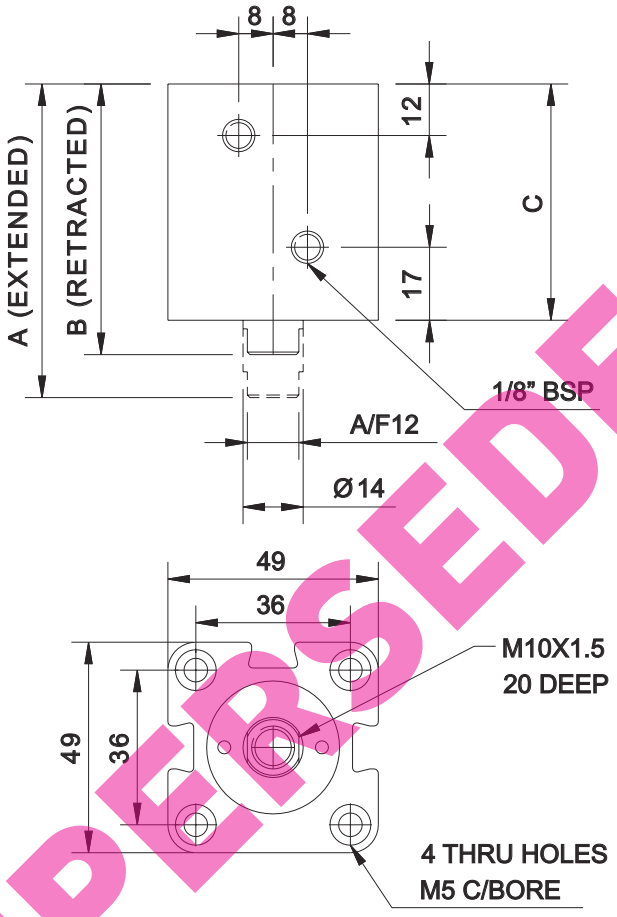
Small Pneumatic Valve Cylinder

40mm Piston, 5mm Stroke
Material: Aluminium
Max. Pressure = 10.2 bar
Min. Pressure = 6 bar
High Temperature seals





SHUT OFF VALVE PARTS



MVC2510 & MVC2505

Hydraulic Valve Cylinder

25mm Piston, 10mm & 5mm Stroke
Material: Aluminium
Max. Pressure = 200 bar

	A	B	C	STROKE
MVC2505	63	58	50	5
MVC2510	73	63	55	10

