



BARNES™
MOLDING SOLUTIONS

HOT RUNNER TECHNOLOGY

M10

Performance Line

Product Catalog

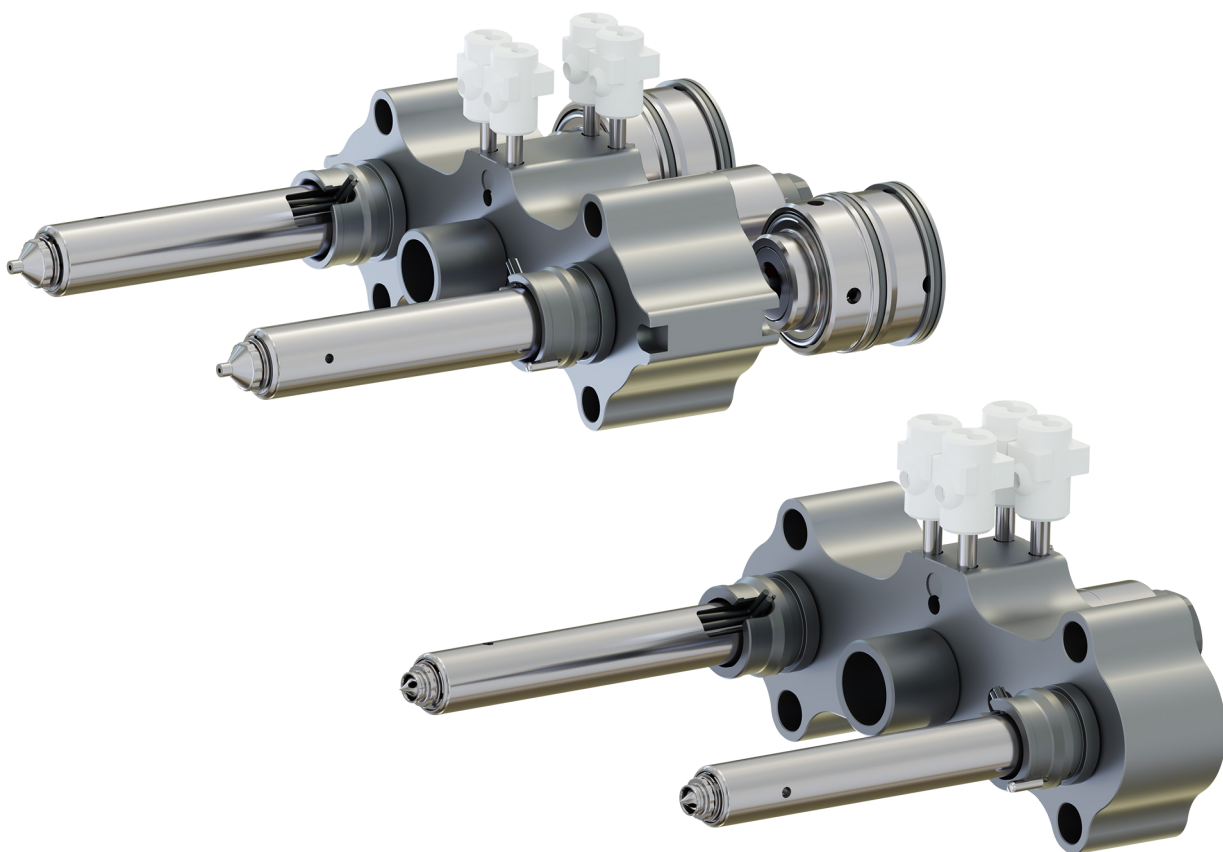




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Hot Runner Technology

This catalog gives an overview of the latest product, including descriptions, dimensions and technical data. The text next to the graphics gives additional instructions on the use of the product. If available, options are explained with pictures and text. All available accessories for this product are specified. Where necessary, a separate chapter gives the information and important technical data.

General Description of the Nozzle

Hot runner nozzles are the connection to the cavity. They either gate directly into the part or into a sub runner which will feed into the cavity.

General Description of MPN-10

MPN-10 series nozzles have an enlarged flow bore to optimize injection and reduce pressure loss. The nozzles have a patented heating system and are made of special steel. Different lengths are available. The nozzles are suitable for the most commonly used polymers. MPN-10 nozzles series are the ideal combination with Bolt Down Manifolds.

Target Group

The target groups of this product catalog are mold designers, toolmakers, molders and service technicians. They will find the needed information in the relevant chapters.

Applied Standards and Norms

- DIN EN IEC/IEEE 82079-1 Edition 2 Creation of usage information for products
- Standard and norms for Technical drawings

Tolerances and Customer Graphics

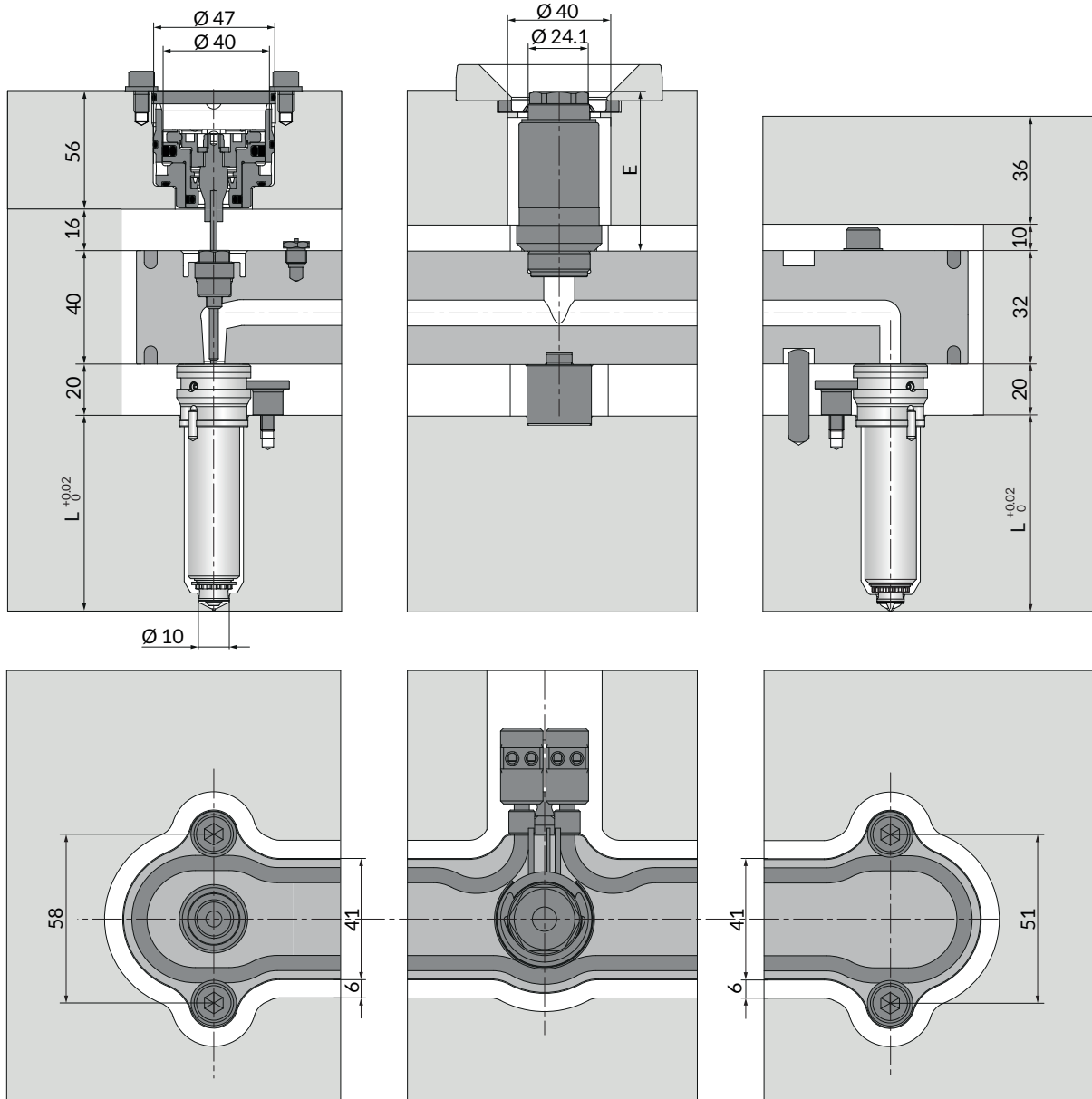
The product catalog gives a general information about the product. For tolerances and other details, use the customer drawings. There you find the detailed information.



Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.

Bolt Down Manifold

The following picture shows the standard design, components and dimensions.
Pin adjustment ± 0.75 with step ± 0.05 .



E (length)

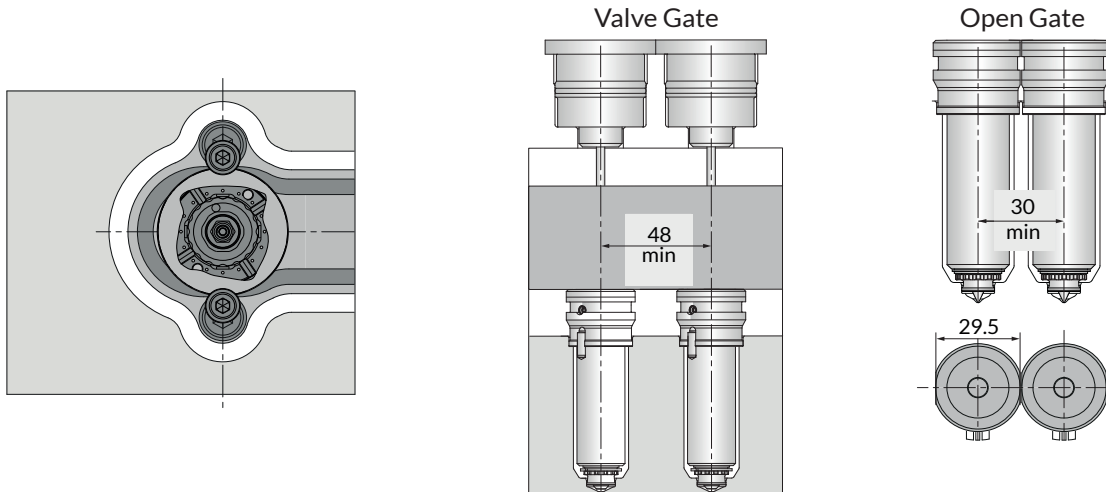
E = 45, 65, 85



Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.

Minimum Distance between Nozzle Centers

In this graphic the minimum distance between the nozzle centers is drawn, as example.
Other minimum distance between nozzles centers are available on request.



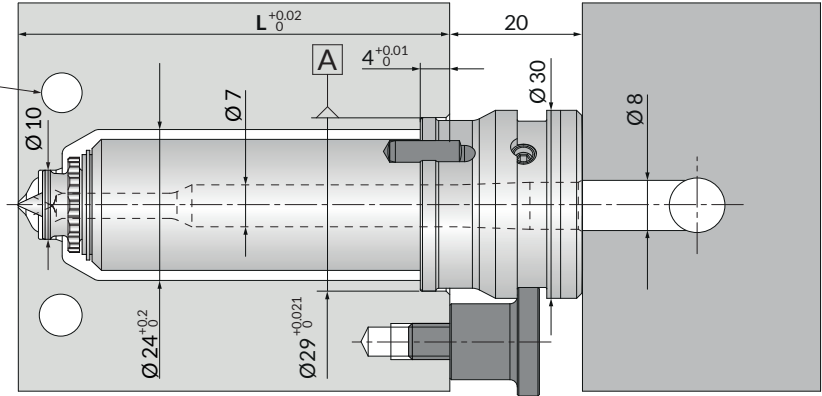


Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.

Technical Data TS10, TX10 and TXX10

There are slight differences in the length range of different tip types.
E18758 (E18763 1B50) Bi-hex Ø 13 Tightening torque 28 Nm.

Gate cooling
required



L [mm]	Code	Watt [W]
46	MPN-10-29-...-046	220
56	MPN-10-29-...-056	220
66	MPN-10-29-...-066	220
76	MPN-10-29-...-076	220
86	MPN-10-29-...-086	220
96	MPN-10-29-...-096	260
106	MPN-10-29-...-106	260
116	MPN-10-29-...-116	260
126	MPN-10-29-...-126	260
136	MPN-10-29-...-136	300
146	MPN-10-29-...-146	300
156	MPN-10-29-...-156	300
166	MPN-10-29-...-166	300
176	MPN-10-29-...-176	350
186	MPN-10-29-...-186	350
196	MPN-10-29-...-196	350
206	MPN-10-29-...-206	350

Example nozzle code: MPN-10-29 - TX10 - 206

Tip style ———— ↑
Nozzle length ———— ↑

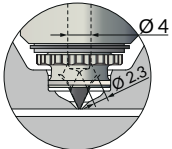


Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.

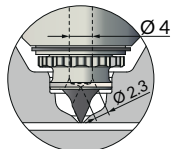
Nozzle Tip Styles TS10, TX10 and TXX10

The following nozzle tip styles are available.

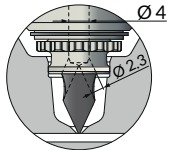
Thermal gate - Torpedo - Blind

Tip Style with Description	Tip Group Code	Picture	Gate diameter
TS10 Standard	MS01146		Ø 0.6 min - Ø 1.2 max

Thermal gate - Torpedo - Blind - Extended tip

Tip Style with Description	Tip Group Code	Picture	Gate diameter
TX10 Extended 1.5 mm	MS01160		Ø 0.6 min - Ø 1.2 max

Thermal gate - Torpedo - Blind - Extended tip

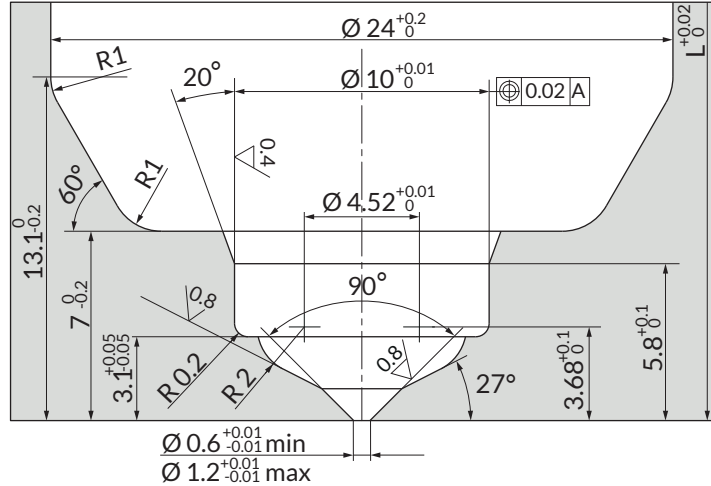
Tip Style with Description	Tip Group Code	Picture	Gate diameter
TXX10 Extended 5 mm	MS01148		Ø 0.6 min - Ø 1.2 max



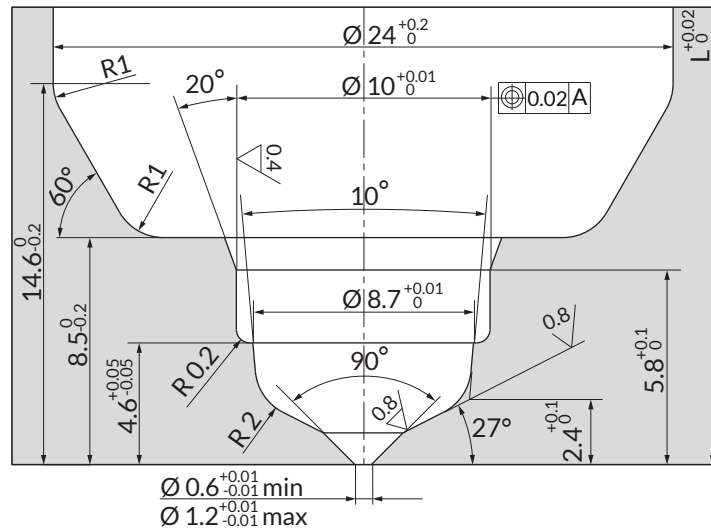
Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.
Dimensions for reference only. Reference system drawing for complete dimensions prior to machining gate detail in mold.

Nozzle Tip Cutout Dimensions TS10

The following picture shows the nozzle tip cutout dimensions for this nozzle.



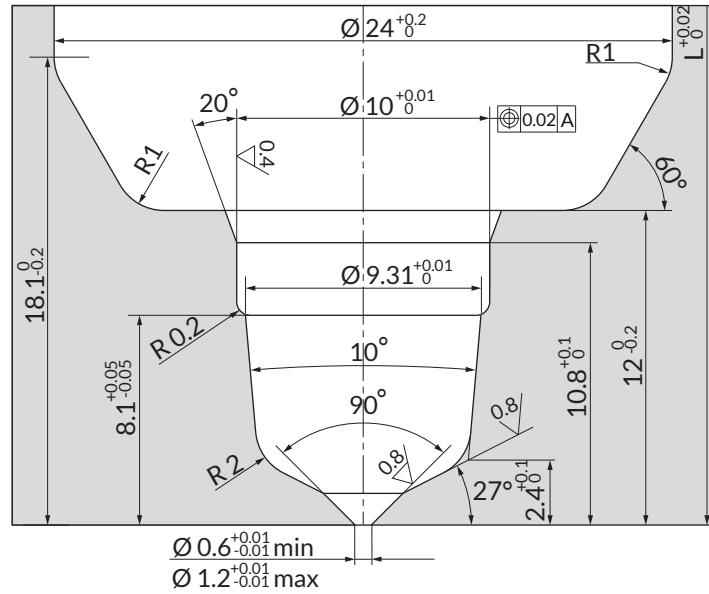
Nozzle Tip Cutout Dimensions TX10





Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.
Dimensions for reference only. Reference system drawing for complete dimensions prior to machining gate detail in mold.

Nozzle Tip Cutout Dimensions TXX10





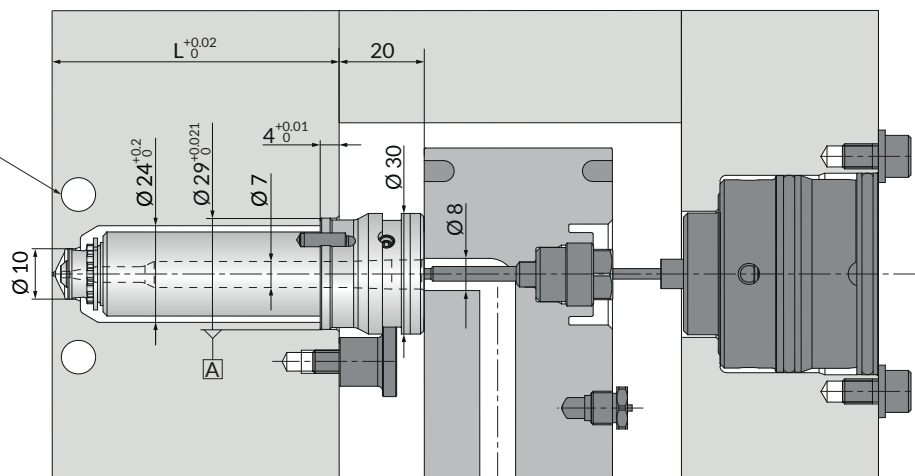
Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.

Technical Data VS10, VSA10, VX10 and VP4

There are slight differences in the length range of different tip types.

E18758 Bi-hex Ø 13 Tightening torque 28 Nm.

Gate cooling
required



L [mm]	Code	Watt [W]
46	MPN-10-29-...-046	220
56	MPN-10-29-...-056	220
66	MPN-10-29-...-066	220
76	MPN-10-29-...-076	220
86	MPN-10-29-...-086	220
96	MPN-10-29-...-096	260
106	MPN-10-29-...-106	260
116	MPN-10-29-...-116	260
126	MPN-10-29-...-126	260
136	MPN-10-29-...-136	300
146	MPN-10-29-...-146	300
156	MPN-10-29-...-156	300
166	MPN-10-29-...-166	300
176	MPN-10-29-...-176	350
186	MPN-10-29-...-186	350
196	MPN-10-29-...-196	350
206	MPN-10-29-...-206	350

Example nozzle code: MPN-10-29 - VS10 - 206

Tip style
Nozzle length

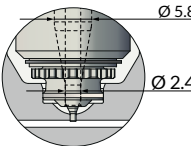


Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.

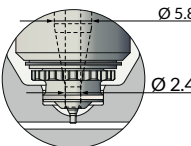
Nozzle Tip Styles VS10, VSA10, VX10 and VP4

The following nozzle tip styles are available.

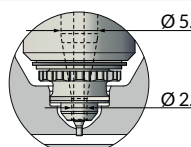
Valve gate - Straight pin - Blind

Tip Style with Description	Tip Group Code	Picture	Gate diameter
VS10 Standard	MS01154		Ø 0.8 min - Ø 2 max

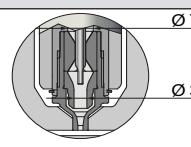
Valve gate - Straight pin - Blind

Tip Style with Description	Tip Group Code	Picture	Gate diameter
VSA10 Standard - Advanced	MS01154		Ø 0.8 min - Ø 2 max

Valve gate - Straight pin - Blind - Extended tip

Tip Style with Description	Tip Group Code	Picture	Gate diameter
VX10 Standard - Extended 1.5 mm	MS01162		Ø 0.8 min - Ø 2 max

Valve gate - Straight pin - Plunged Through

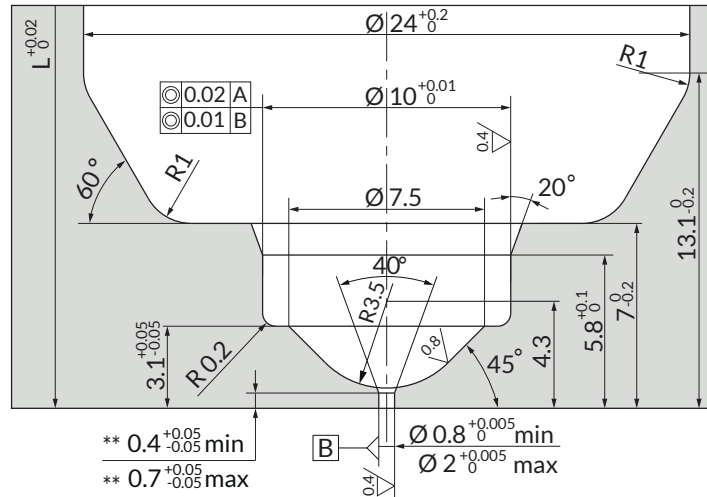
Tip Style with Description	Tip Group Code	Picture	Gate diameter
VP4 Plunged Through	MS01158		Ø 1.5 max



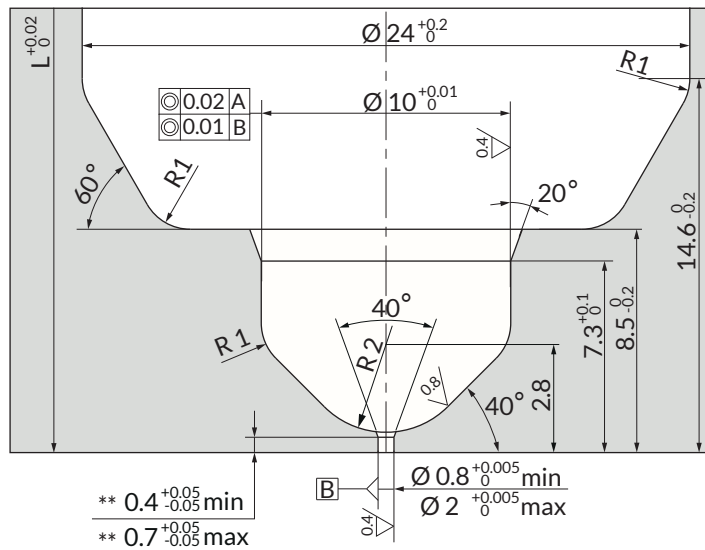
Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.
Dimensions for reference only. Reference system drawing for complete dimensions prior to machining gate detail in mold.

Nozzle Tip Cutout Dimensions VS10 and VSA10

The following picture shows the nozzle tip cutout dimensions for this nozzle.



Nozzle Tip Cutout Dimensions VX10

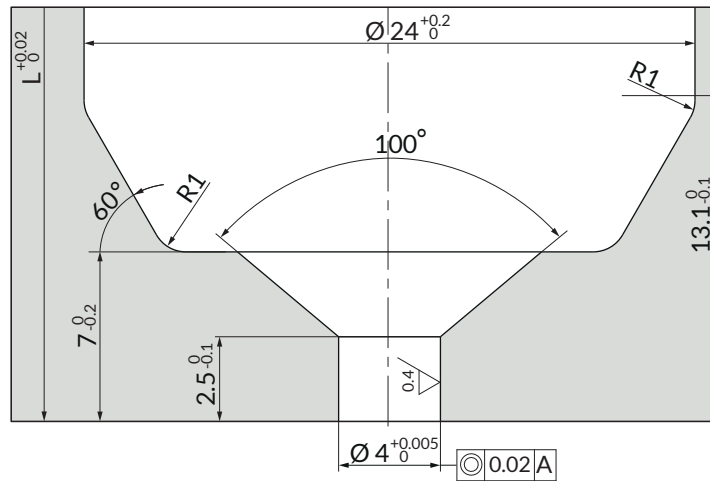


** To be defined according to polymers characteristics, injection cycle and cooling cycles.



Illustrations simplified, schematically drawn and not to scale. All dimensions in mm.
Dimensions for reference only. Reference system drawing for complete dimensions prior to machining gate detail in mold.

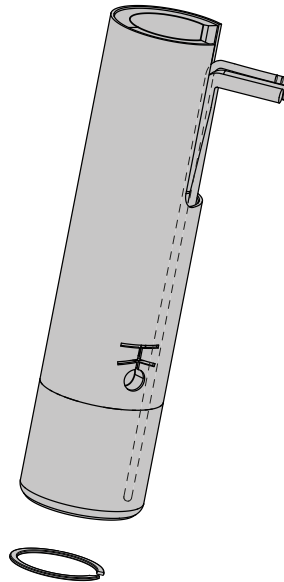
Nozzle Tip Cutout Dimensions VP4





Heater with integrated Thermocouple

This chapter gives a schematic overview of the Heater including Technical Data.



Example heater code: **MSH24 - 206**

↑
Nozzle diameter

↑
Length

Description	Code
Heater fixing ring	B02905

Heater group cables		
Heater	Orange / Grey	230 V
Thermocouple	Black	TC+
	White	TC-



L nozzle length [mm]			Heater group code	Watt [W]
TS10, VS10, VSA10, VP4	TX10, VX10	TXX10		
46	47.5	51	MSH24-046-...	220
56	57.5	61	MSH24-056-...	220
66	67.5	71	MSH24-066-...	220
76	77.5	81	MSH24-076-...	220
86	87.5	91	MSH24-086-...	220
96	97.5	101	MSH24-096-...	260
106	107.5	111	MSH24-106-...	260
116	117.5	121	MSH24-116-...	260
126	127.5	131	MSH24-126-...	260
136	137.5	141	MSH24-136-...	300
146	147.5	151	MSH24-146-...	300
156	157.5	161	MSH24-156-...	300
166	167.5	171	MSH24-166-...	300
176	177.5	181	MSH24-176-...	350
186	187.5	191	MSH24-186-...	350
196	197.5	201	MSH24-196-...	350
206	207.5	211	MSH24-206-...	350

Maintenance Kit

Code	Description
E21890	Maintenance kit for MPN-10 nozzles
E22211	Maintenance kit for MPN-10-TXX10 nozzles

Composed by:

1. Seeger extractor
2. Bi-hexagon socket
3. High temperature grease
4. Brush for cleaning tip hole in the nozzle core
5. Heater extractor
6. Wrench for closing and opening the ring nut
7. Insertion tool for heater



Resin - Tip suitability

Nozzle Series	Thermal Gate			Valve Gate			
	TS	TX	TXX	VS	VX	VSA	VP
MPN-08 / MPN-10 Sliding							
Polyolefine							
PE, HDPE, LDPE, LLDPE	✓	✓	✓	✓	✓	✓	✓
PP, PP/PE, PP+Talc	✓	✓	✓	✓	✓	✓	✓
Polyolefin ≤GF35	✓	✓		✗	✗		
TPE							
TPE-O/S/V, PP/EPDM	✗	✗		✓	✓	✓	✓
TPE-U	✗			✓	✓	✓	✓
Semi-Crystalline							
PBT	✓	✓		✓	✓	✓	✓
PBT≤35GF	✓	✓		✗	✗	✓	✓
PA6	✓	✓	✗	✓	✓	✓	✓
PA6 ≤35GF	✓	✓	✗	✗	✗	✓	✓
PA6.6	✓	✓		✓	✓	✓	✓
PA6.6≤35GF	✓	✓		✗	✗	✓	✓
PA4.6	✗	✗				✗	✗
PPA	✓	✓		✓	✓	✓	✓
PPA≤35GF	✓	✓		✗	✗	✓	✓
POM	✓	✓		✓	✓	✓	✓
PET				✓	✓	✓	✓
PET≤35GF	✓	✓		✗	✗	✓	✓
Amorphous							
PMMA	✓	✓		✓	✓	✓	✓
ABS	✓	✓	✓	✓	✓	✓	✓
ASA	✓	✓	✓	✓	✓	✓	✓
SAN	✓	✓	✗	✓	✓	✓	✓
SMA	✓	✓		✓	✓	✓	✓
PS (HIPS, PS clear)	✓	✓	✓	✓	✓	✓	✓
PC	✓	✓		✓	✓	✓	✓
PC ≤35GF	✓	✓		✓	✓	✓	✓
PPE/PS	✓	✓		✓	✓	✓	✓
PPE/PA (Noryl GTX)	✓	✓		✓	✓	✓	✓
Blends							
PC/ABS	✓	✓	✗	✓	✓	✓	✓
PC/ABS ≤GF35	✓	✓		✓	✓	✓	✓
PC/ASA	✓	✓	✗	✓	✓	✓	✓
PC/ASA ≤GF35	✓	✓		✓	✓	✓	✓
PC/PBT	✓	✓	✗	✓	✓	✓	✓
PC/PBT ≤GF35	✓	✓		✓	✓	✓	✓
PC/PET	✓	✓		✓	✓	✓	✓
PC/PET ≤GF35	✓	✓		✓	✓	✓	✓
PA/ABS	✓	✓		✓	✓	✓	✓
PA/ABS ≤GF35	✓	✓		✓	✓	✓	✓
High Temperature							
PEEK	✗			✗	✗	✗	✗
PPS	✗			✗	✗	✗	✗
PES	✗			✗	✗	✗	✗
PSU	✗			✗	✗	✗	✗
PEI	✗			✗	✗	✗	✗
Special							
PET Clear	✗			✗	✗	✗	✗
PETG	✗			✓	✓	✓	✓
PCTG	✗			✓	✓	✓	✓
COC, COP	✗			✓	✓	✓	✓
LCP	✗			✓	✓	✓	✓
PVC soft							
PVC rigid							

✗ Requires review



Tip performance & Suitability overview

THERMAL GATE			VALVE GATE		
TS	Resin group Suitability		VS	Resin group Suitability	
	Polyolefine	■		Polyolefine	■
	Amorphous	■		Amorphous	■
TX	Semi-Crystalline	■	VX	Semi-Crystalline	■
	Blends	■		Blends	■
	Specials	■		Specials	■
TXX	Feature Performance		VSA	Feature Performance	
	Processing window	■		Processing window	■
	Wear resistance	■		Wear resistance	■
VP	Color change	■	VP	Color change	■
	Cosmetic gating	■		Cosmetic gating	■

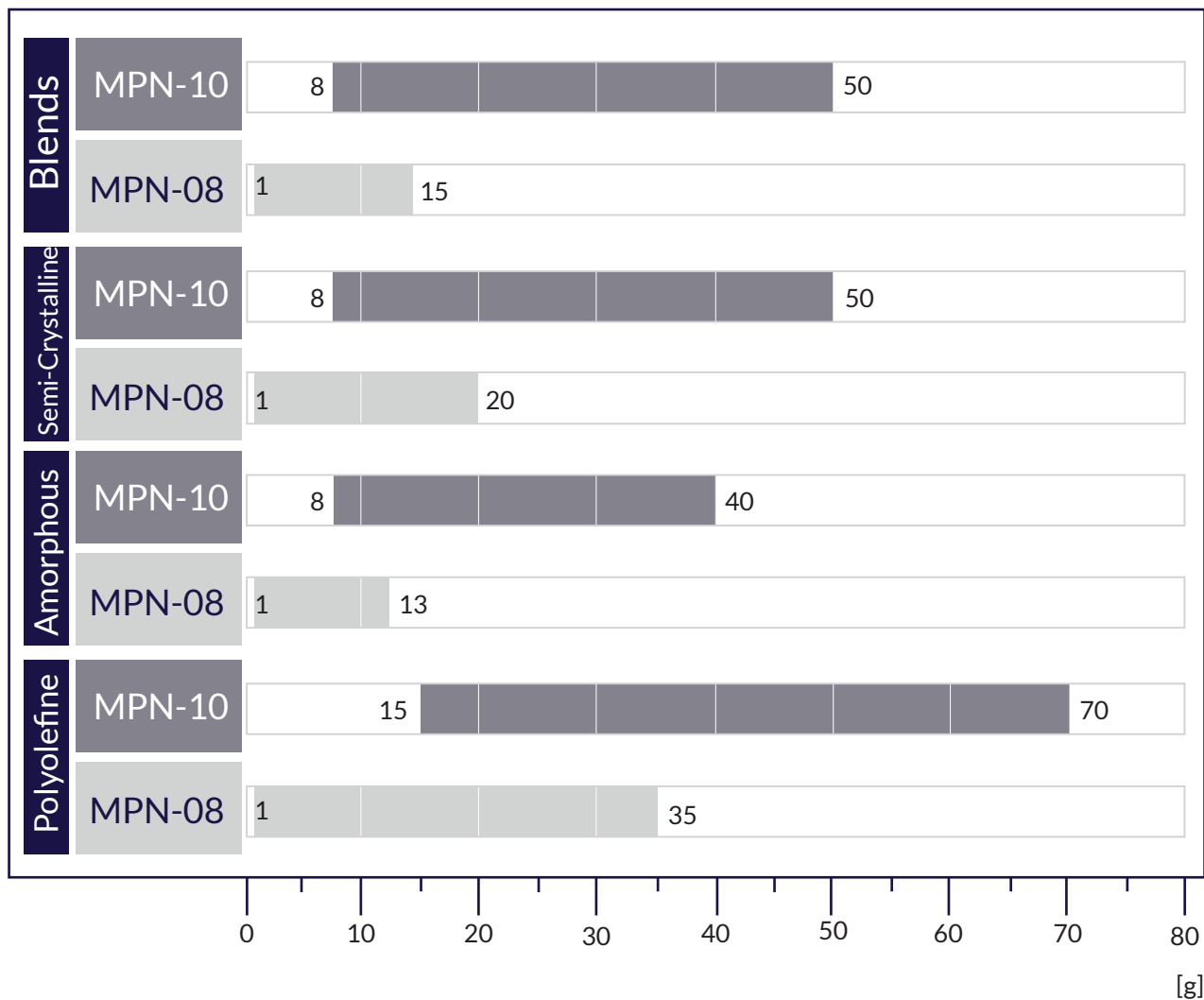
Typical resins

Polyolefine	PE, HDPE, LDPE, LLDPE, PP/EPDM, (TPE *)
Amorphous	PMMA, ABS, SAN, SMA, PS, PC, PPE, PPE/PA
Semi-Crystalline	PBT, PA&, PA6.6, PA4.6, PPA, POM, (TPU *)
Blends	PC/ABS, PC/ASA, PC/PBT, PA/ABS
Specials	PEEK, PPS, PES, PSU, PEI, PET, PETG, PCTG, COC, COP, LCP

* Check for application



Maximum shot weight



The chart shows indicative values of the max shot weight by nozzle series.

For more accurate shot weights, the exact material grade and a complete application data set are needed.

Typical resins

Polyolefine	PE, HDPE, LDPE, LLDPE
Amorphous	PMMA, ABS, SAN, SMA, PS, OC, PPE, PPE/PA
Semi-Crystalline	PBT, PA6, PA6.6, PA4.6, PPA, POM, PET
Blends	PC/ABS, PC/ASA, PC/PBT, PA/ABS



Contact

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