



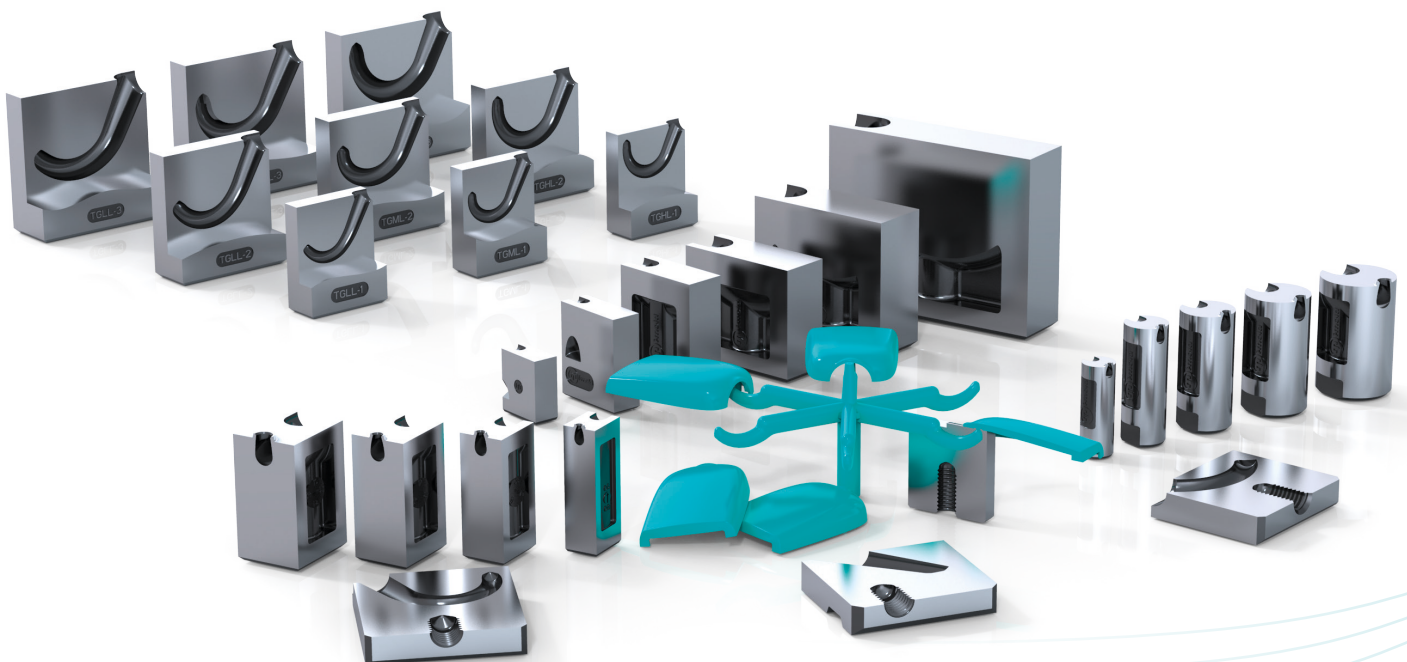
Turn To The Industry Experts



i-mold
MOLDING INNOVATIONS

TUNNEL GATE INSERTS

Vers. 5

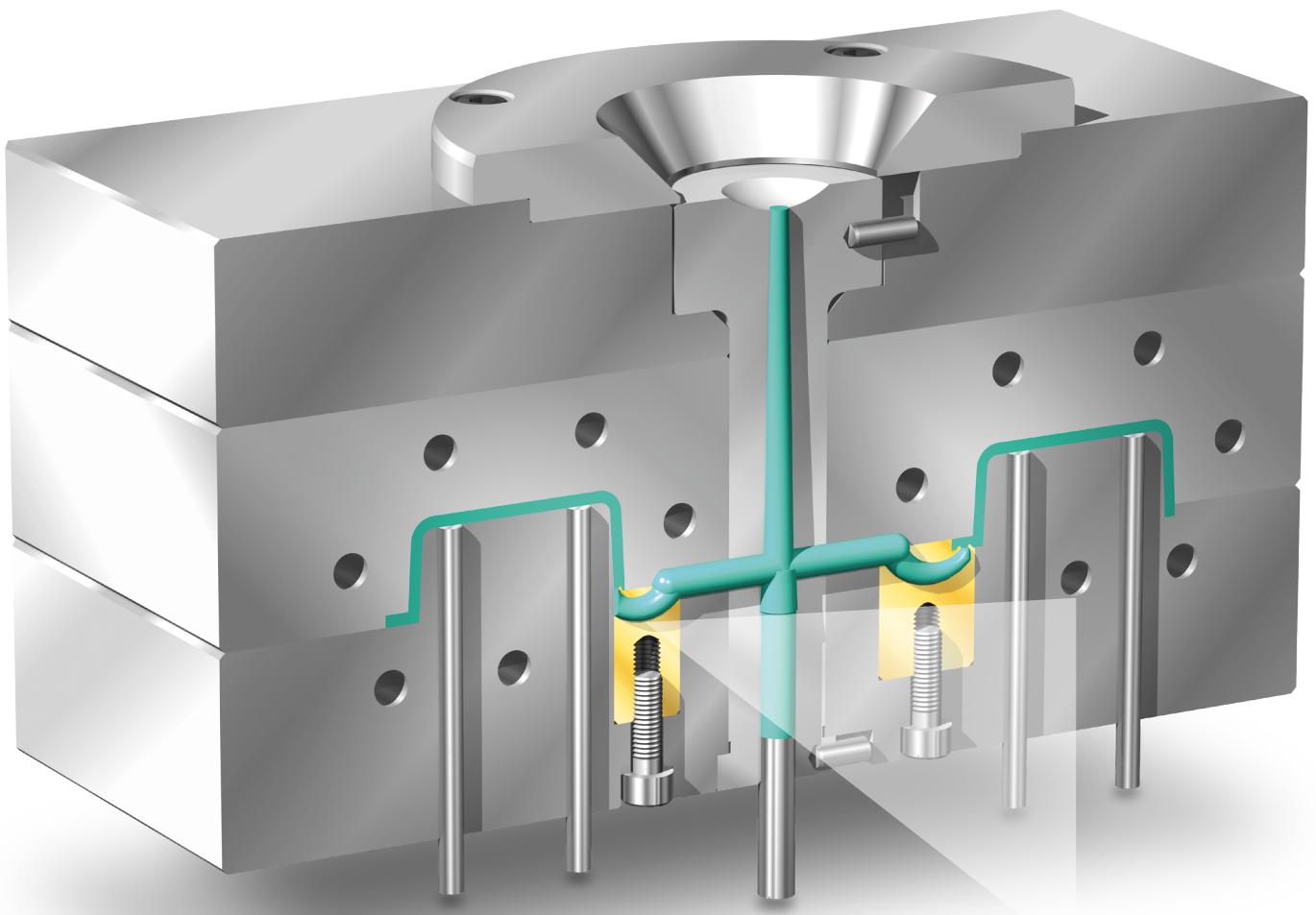


**MADE
IN
GERMANY**

Molding Innovations made by i-mold.

i-mold "molding innovations" stands for intelligent solutions and unique, innovative injection molded products.

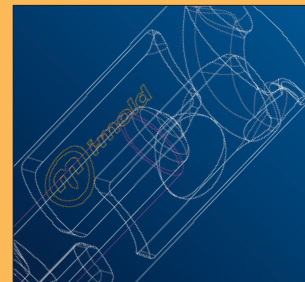
The tunnel gate inserts from i-mold are recognized worldwide as innovative products with high cost-reducing potential for moldmakers and molders.



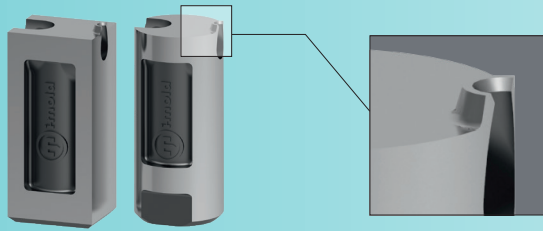
Why gate inserts?

- > Time and cost reduction thanks to fast and easy application
- > Made of highly wear-resistant hot work tool steel M2 (1.3343)
- > High degree of reliability in production process
- > Invisible gate marks through underside gating
- > Single-part design for compact dimensions
- > Available in many different versions and sizes
- > Integrated cutting edge for exact sprue separation
- > Suitable for all plastics thanks to optimized feed channel geometry – up to 60% filler content (e.g. glass fiber) is possible
- > Use of MIM process ensures smooth feed channels and exact gate sizes

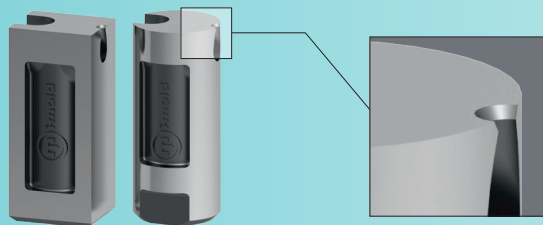
Visit our website www.pcs-company.com for complete 3D-CAD data.



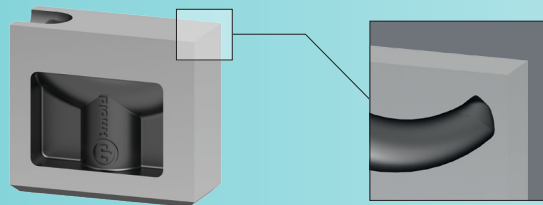
Standard
Version S2



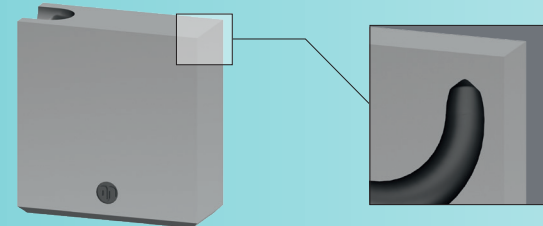
Standard
Version S1



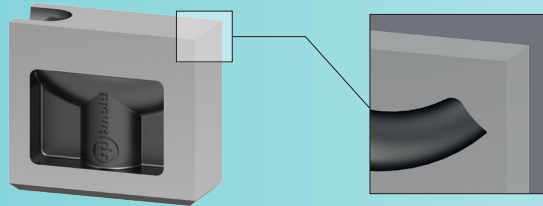
Contourable



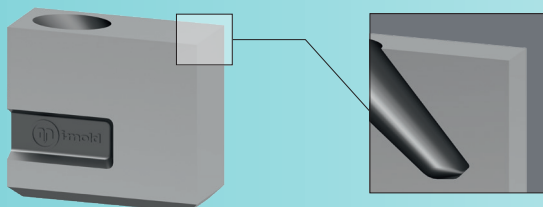
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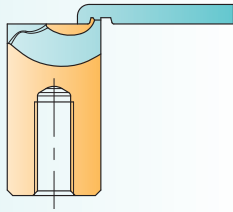


Side gating

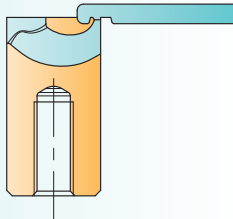


Side gating

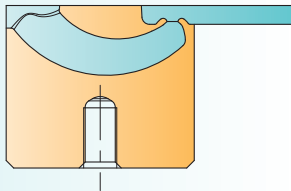




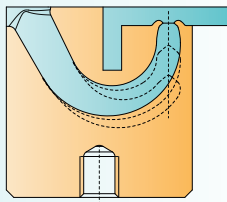
TGR
TGS
S2



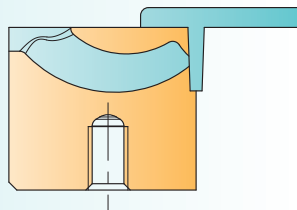
TGR
TGS
S1



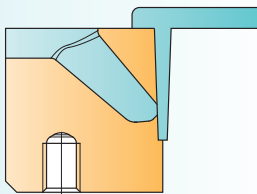
TGC



TGLL
TGML
TGHL



SGC



TPS



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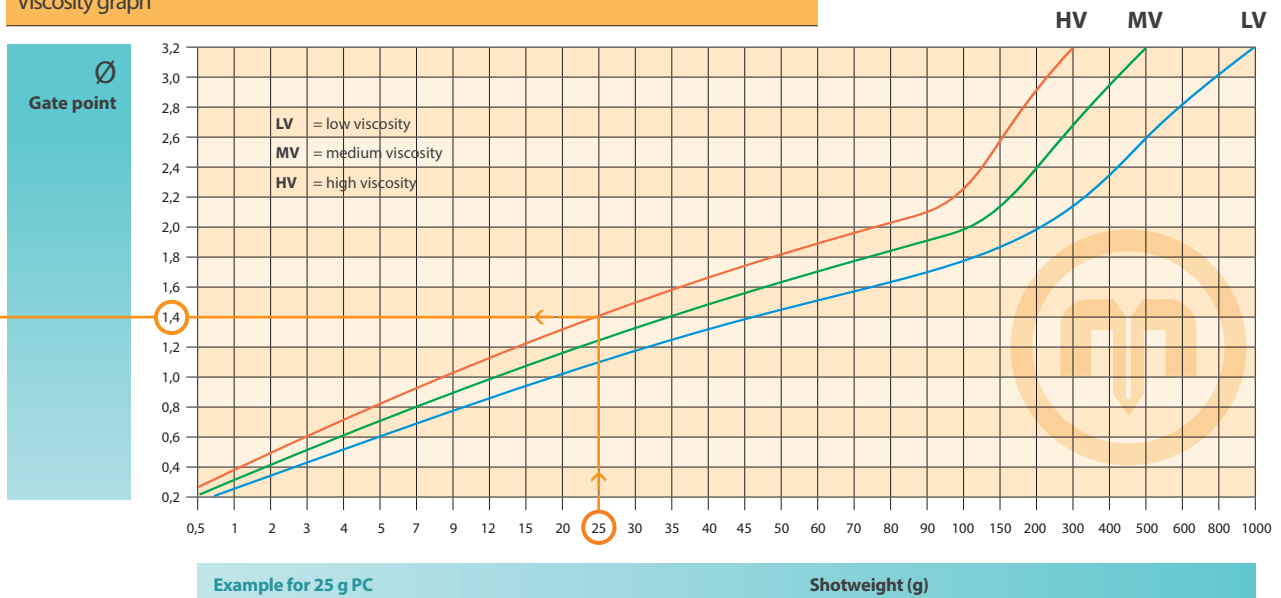
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Technical information

Viscosity graph



Caution: When using filled plastics (glass fibers, carbon fibers etc.) you should increase the computed gate diameter by 20%.

The recommended shotweights and gate diameters are guide values only! Please also take into account such individual parameters as part geometry, mold design, type of plastic and fillers.

Gate Diameter

Ø	Cross-sectional area mm ²	TGS/TGR	TGC-XS SGC-XS	TGC-S SGC-S TPS-S	TGC-1 SGC-1 TPS-1 TGLL-1 TGML-1 TGHL-1	TGC-2 SGC-2 TPS-2 TGLL-2 TGML-2 TGHL-2	TGC-3 / -4 SGC-3 / -4 TPS-3 TGLL-3 TGML-3 TGHL-3
0,4	0,13	0,6	0,4	0,4	0,6	0,8	
0,6	0,28	0,8	0,6	0,6	0,8	1,0	
0,8	0,50	1,2	0,8	0,8	1,0	1,2	
1,0	0,78	1,6		1,0	1,2	1,4	
1,2	1,13	2,0		1,2	1,4	1,6	
1,4	1,54					1,8	
1,6	2,01	2,4				2,1	
1,8	2,54	2,8				2,8	
2,0	3,14						0,5 x (4,5)
2,2	3,8						0,6 x (4,6)
2,4	4,52						0,7 x (4,7)
2,6	5,31						0,8 x (4,8)
2,8	6,15						0,9 x (4,9)
3,0	7,07						1,0 x (5,0)
3,2	8,04						1,1 x (5,1)
:	:						1,2 x (5,2)
4,5	18,8						1,3 x (5,3)
							1,4 x (5,4)
							1,5 x (5,5)
							4,5

TGR / TGS / TGC / TGLL / TGML / TGHL

SGC

TPS

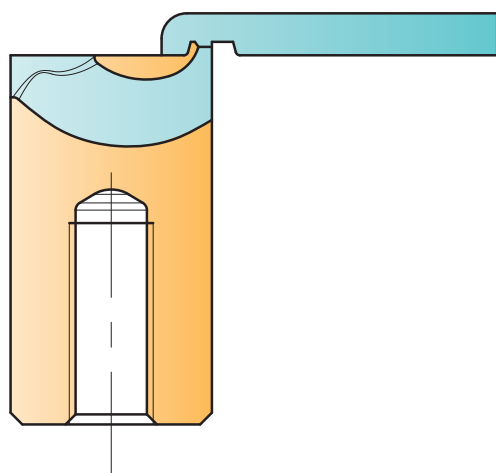
TGR TGS

Suitable for all plastics

S2

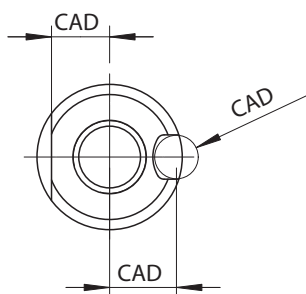
with vestige

- > For flat parting surfaces, including vestige with integrated cutting edge
- > Ready to use! No adjustments necessary
- > Highly wear-resistant hot work steel M2 (1.3343) – 60 HRC
- > Available in round (TGR) and square (TGS) versions

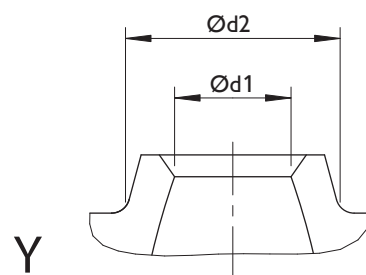
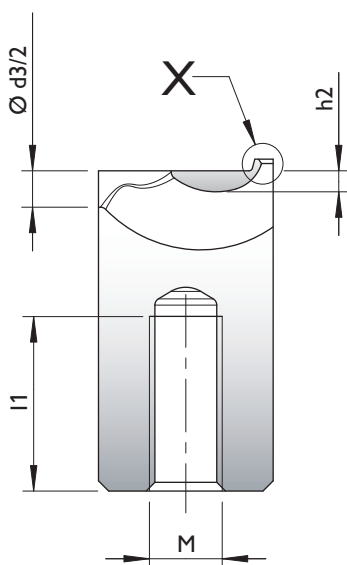
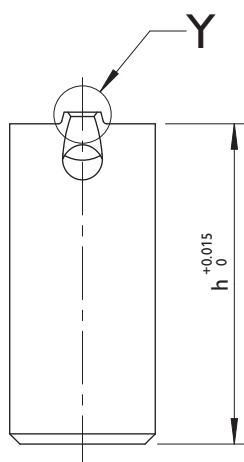
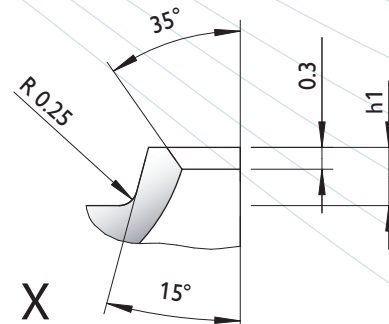


	TGR 6	TGR/TGS 8	TGR/TGS 10	TGR/TGS 12	TGR/TGS 14
 Gate point	0.6	0,6 / 0,8	0,8 / 1,2 / 1,6	1,2 / 1,6 / 2,0	1,6 / 2,0 / 2,4 / 2,8
Ø runner	2.5	3	4	5	6
max. shotweight (g)					
LV	3	5	30	50	200
MV	2	4	20	35	120
HV	1	3	12	25	75

LV = low viscosity
MV = medium viscosity
HV = high viscosity



Anti-rotation locking possibility



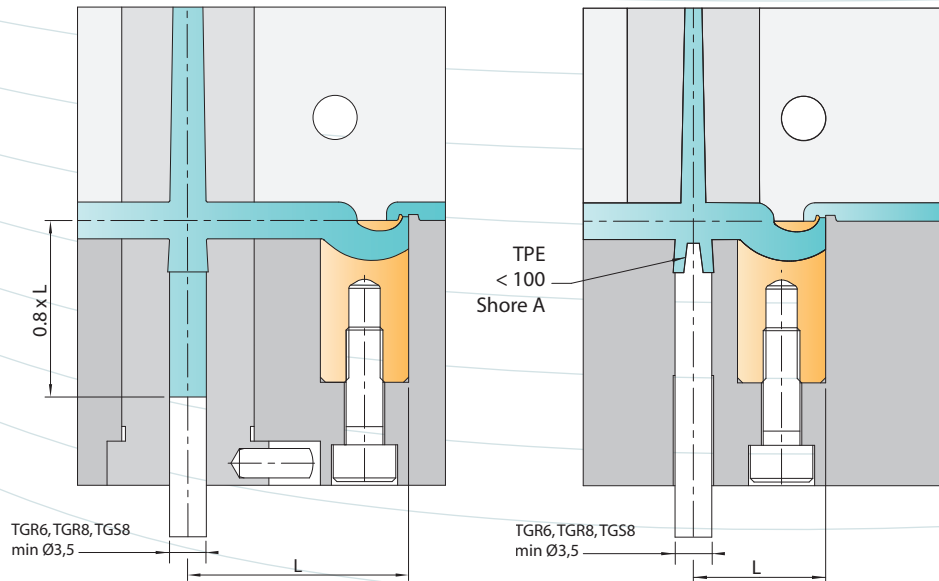
TGS	Typ	b	b1	d1	d2	d3	h	h1	h2	l1	l2	M	Version
	TGS8	8	6	0.6	1.9	3	22.0	0.6	1.1	13	3.25	4	S2
				0.8	2.1								
	TGS10	10	8	0.8	2.2	4	22.0	0.8	1.2	12	4	5	S2
				1.2	2.6								
				1.6	3.0								
	TGS12	12	10	1.2	2.6	5	22.0	0.8	1.40	11	5	5	S2
				1.6	3.0								
				2.0	3.4								
	TGS14	14	12	1.6	3.0	6	22.0	0.8	1.6	10	6	6	S2
				2.0	3.4								
				2.4	3.8								
				2.8	4.2								

TGR	Typ	d	d1	d2	d3	h	h1	h2	l1	l2	M	Version
	TGR6	6	0.6	1.9	2.5	17.0	0.6	0.8	10	2.5	4	S2
	TGR8	8	0.6	1.9	3	22.0	0.6	1.1	13	3.25	4	
			0.8	2.1								
	TGR10	10	0.8	2.2	4	22.0	0.8	1.2	12	4	5	S2
			1.2	2.6								
			1.6	3.0								
	TGR12	12	1.2	2.6	5	22.0	0.8	1.4	11	5	5	S2
			1.6	3.0								
			2.0	3.4								
	TGR14	14	1.6	3.0	6	22.0	0.8	1.6	10	6	6	S2
			2.0	3.4								
			2.4	3.8								
			2.8	4.2								



Example of ordering designation:

TGR6-06-S2



Thermoplastic elastomers

(TPE)

- > Low Shore hardness = shorter distance L
- > Use centering pin
- > Max. hardness 100 Shore A

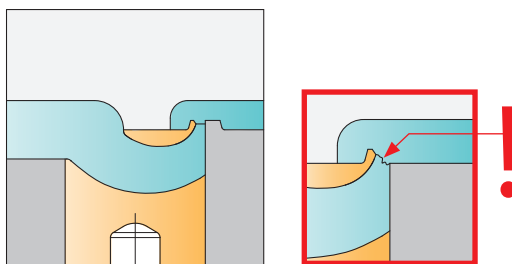
Table for distance L

	Material type			
	TPE, TPU etc.	PE, PP, PET etc.	PC/ABS, PA, POM, HI-PC etc.	PA+GF, PC, SAN, PMMA, etc.
TGR 6	9-12	12-18	15-22	18-25
TGR/TGS 8	11-14	15-22	19-27	23-30
TGR/TGS 10	15-18	19-27	24-33	28-36
TGR/TGS 12	18-22	22-30	27-36	32-40
TGR/TGS 14	20-25	25-33	30-37	35-43

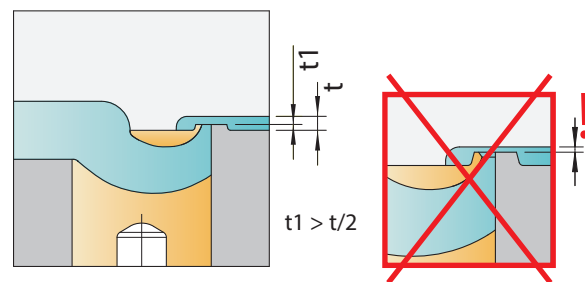
Recommendations

Companion vestige

Flat parts



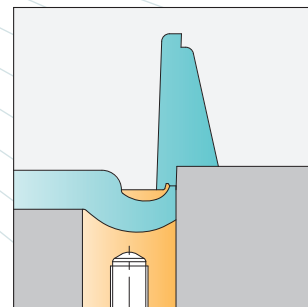
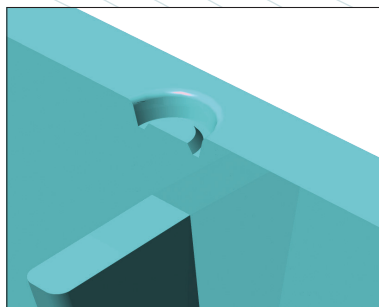
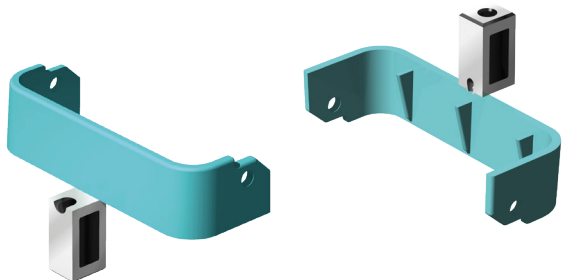
For optimum degating (especially of flat parts), we recommend the use of a companion vestige supplementing the vestige with cutting edge. This configuration will ensure that the part is separated from the runner flush with the parting line. Users will find this particularly advantageous in cases where materials are susceptible to stringing.



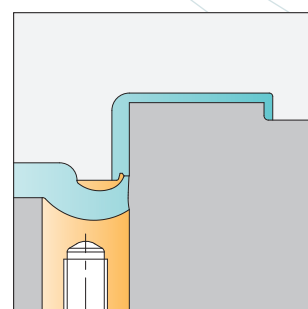
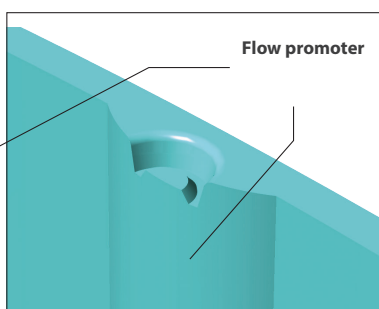
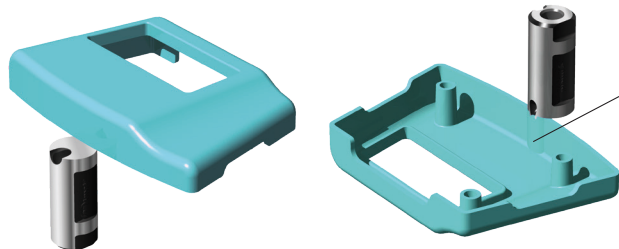
If the molded part is very thin, the calotte must be ground down. ($t_1 > t/2$)

Examples of installation

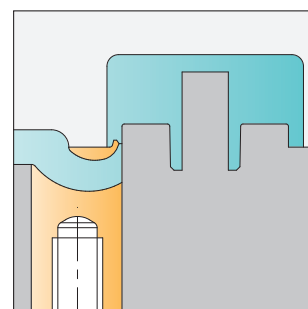
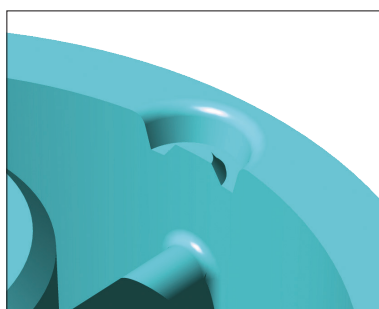
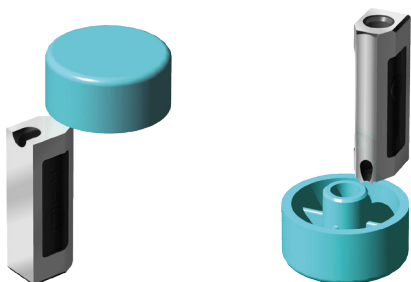
under wall



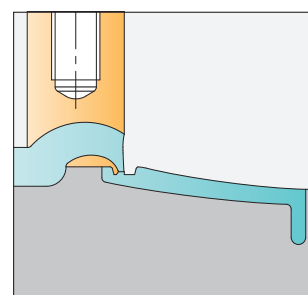
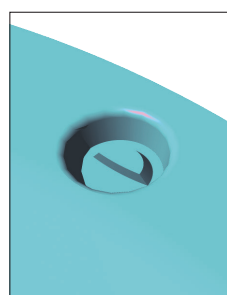
by adding flow promoter



adapted to part

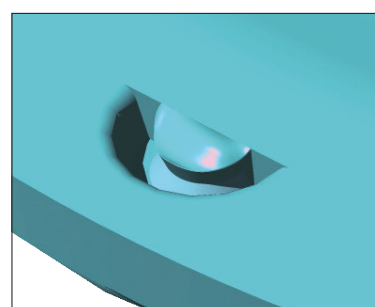


flat part with companion vestige – installation in fixed half of the mold



flat part without companion vestige

If a 100% clean separation of the sprue is not necessary or if reinforced plastics are being processed, the use of a companion vestige may be waived when molding flat parts. (see page 9).



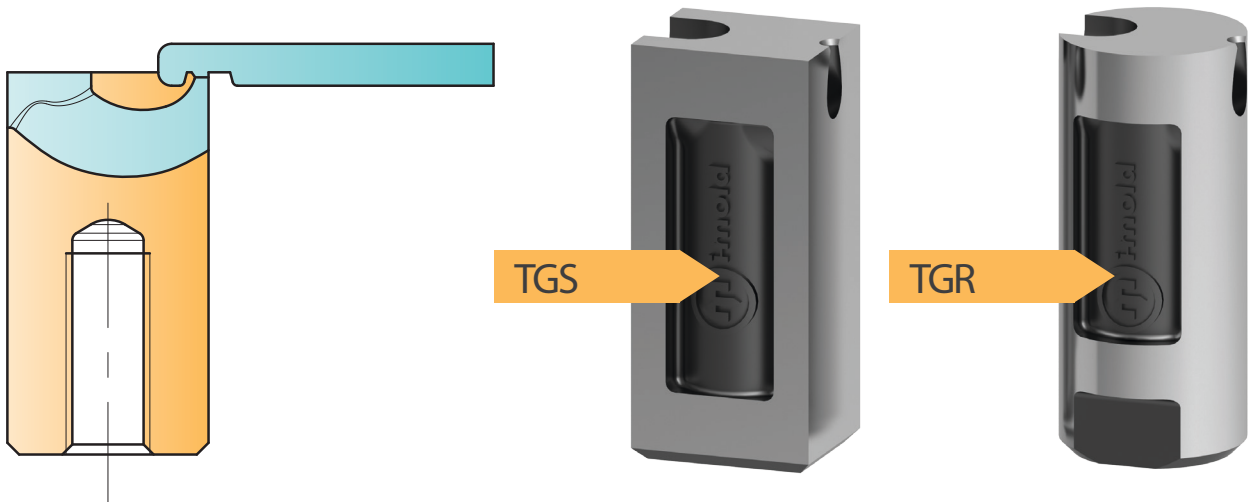
TGR TGS

Suitable for all plastics

S1

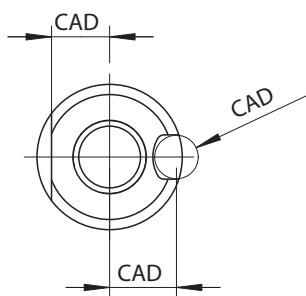
with machining allowance

- > With machining allowance on upper surface
- > Slight contourings possible
- > Same properties as version S2
- > Highly wear-resistant hot working steel M2 (1.3343) – 60 HRC
- > Available in round (TGR) and square (TGS) versions

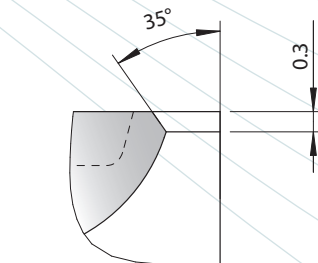
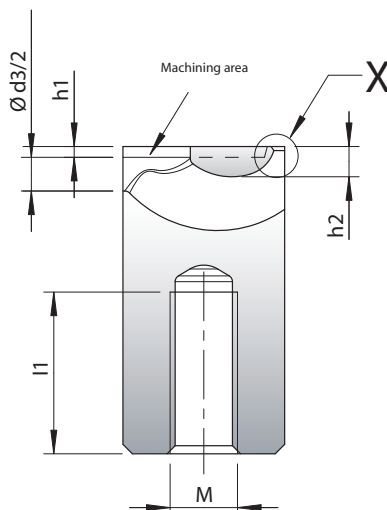
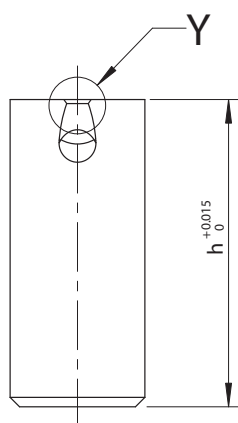


	TGR 6	TGR/TGS 8	TGR/TGS 10	TGR/TGS 12	TGR/TGS 14
 Gate point	0.6	0,6 / 0,8	0,8 / 1,2 / 1,6	1,2 / 1,6 / 2,0	1,6 / 2,0 / 2,4 / 2,8
Ø runner	2.5	3	4	5	6
max. shotweight (g)					
LV	3	5	30	50	200
MV	2	4	20	35	120
HV	1	3	12	25	75

LV = low viscosity
MV = medium viscosity
HV = high viscosity

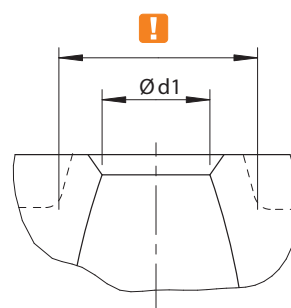


Anti-rotation locking possibility



X

Y



Minimum size of vestige same as version S2

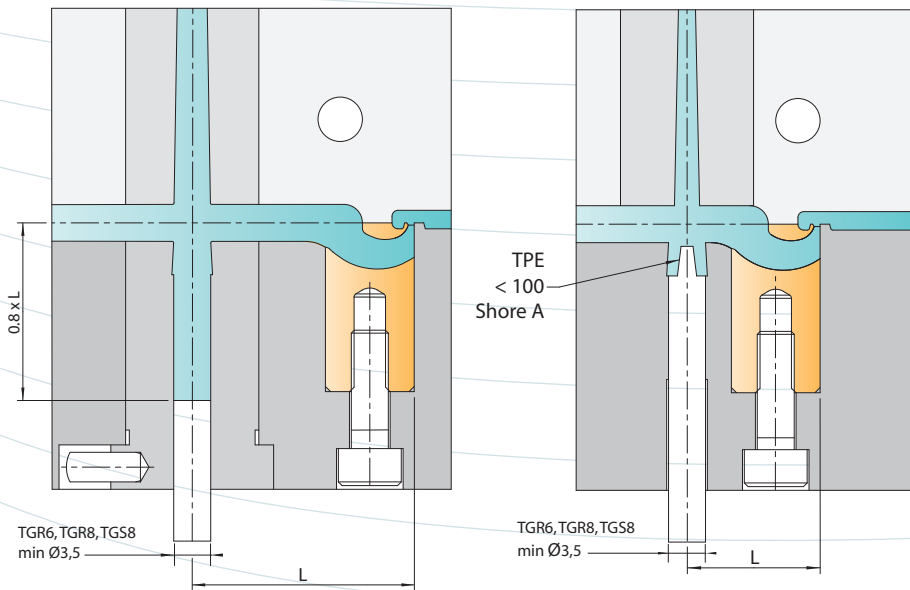
TGS	Typ	b	b1	d1	d3	h	h1	h2	l1	l2	M	Version
	TGS8	8	6	0.6	3	22.6	0.6	1.7	13	3.25	4	S1
				0.8								
	TGS10	10	8	0.8	4	22.8	0.8	2.0	12	4	5	S1
				1.2								
	TGS12	12	10	1.2	5	22.8	0.8	2.2	11	5	5	S1
				1.6								
	TGS14	14	12	1.6	6	22.8	0.8	2.4	10	6	6	S1
				2.0								
				2.4								
				2.8								

TGR	Typ	d	d1	d3	h	h1	h2	l1	l2	M	Version
	TGR6	6	0.6	2.5	17.6	0.6	1.4	10	2.5	4	S1
	TGR8	8	0.6	3	22.6	0.6	1.7	13	3.25	4	S1
			0.8								
	TGR10	10	0.8	4	22.8	0.8	2.0	12	4	5	S1
			1.2								
			1.6								
	TGR12	12	1.2	5	22.8	0.8	2.2	11	5	5	S1
			1.6								
			2.0								
	TGR14	14	1.6	6	22.8	0.8	2.4	10	6	6	S1
			2.0								
			2.4								
			2.8								



Example of ordering designation :

TGR6-06-S1



Thermoplastic elastomers

(TPE)

- > Low Shore hardness = shorter distance L
- > Use centering pin
- > Max. hardness 100 Shore A

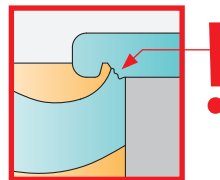
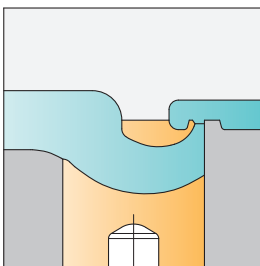
Table for distance L

	Material type			
	TPE, TPU etc.	PE, PP, PET etc.	PC/ABS, PA, POM, HI-PC etc.	PA+GF, PC, SAN, PMMA etc.
TGR 6	9-12	12-18	15-22	18-25
TGR/TGS 8	11-14	15-22	19-27	23-30
TGR/TGS 10	15-18	19-27	24-33	28-36
TGR/TGS 12	18-22	22-30	27-36	32-40
TGR/TGS 14	20-25	25-33	30-37	35-43

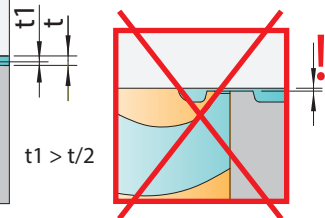
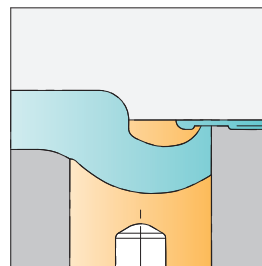
Recommendations

Companion vestige

Flat parts



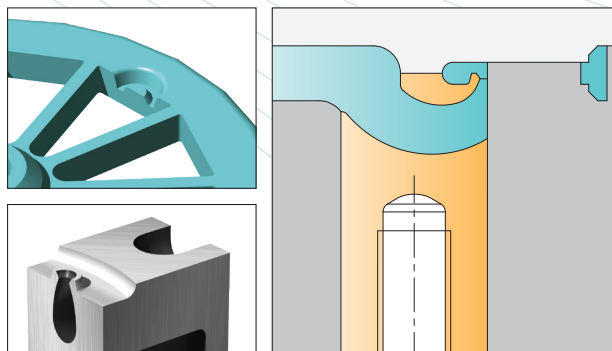
For optimum degating (especially of flat parts), we recommend the use of a companion vestige supplementing the vestige with cutting edge. This configuration will ensure that the part is separated from the runner flush with the parting line. Users will find this particularly advantageous in cases where materials are susceptible to stringing.



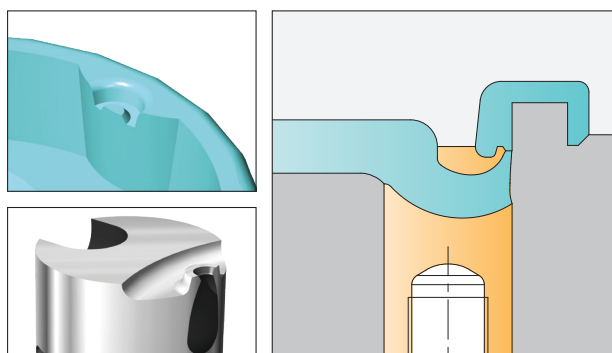
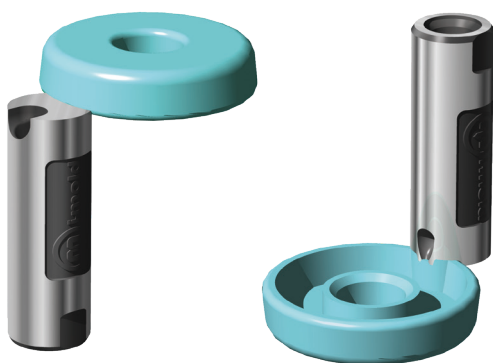
If the molded part is very thin, the calotte must be ground down. ($t_1 > t/2$)

Examples of installation

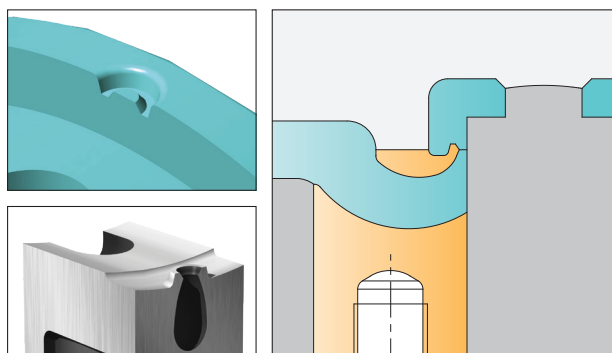
rounded edge



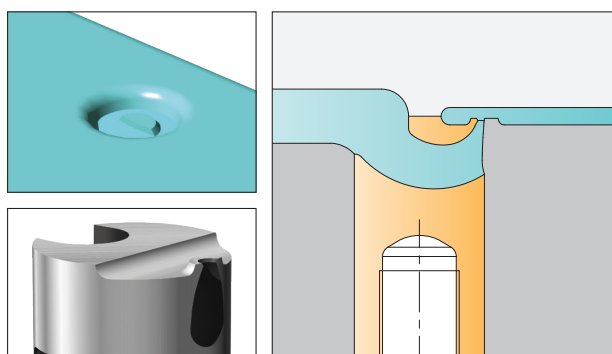
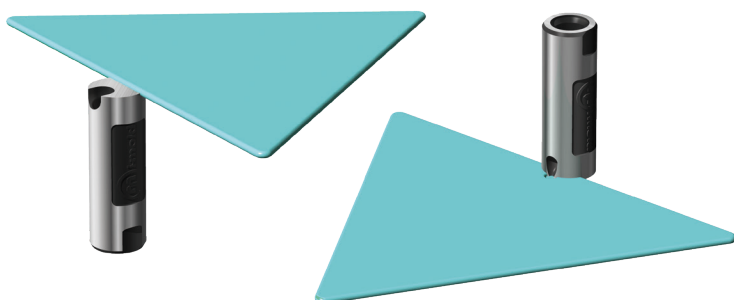
by adding flow promoter



rounded separation



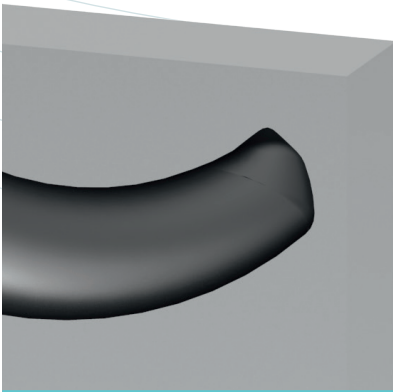
flat, with companion vestige



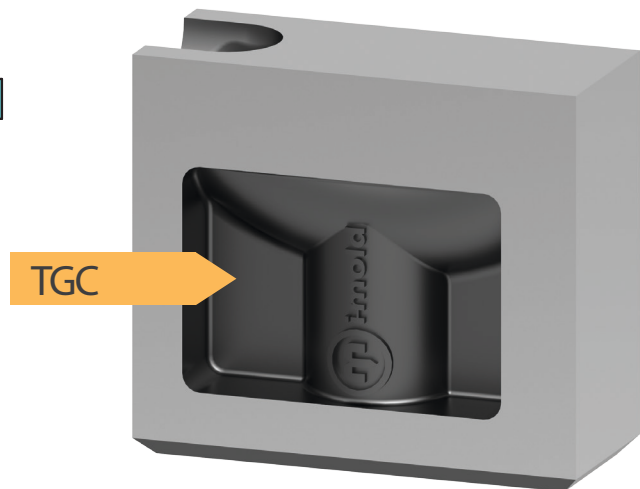
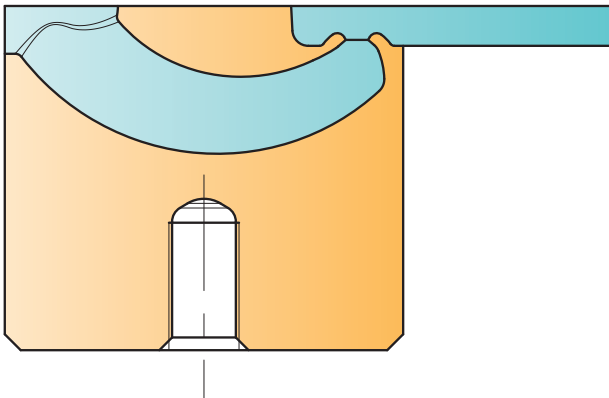
TGC

contourable

Perfect for rigid and enforced plastics

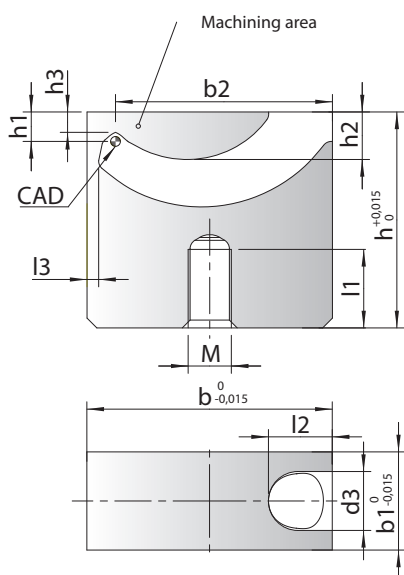


- > For contouring up to 10mm
- > Individually adjustable
- > Highly wear-resistant hot working steel M2 (1.3343).
- > Available in 60 and 40 HRC



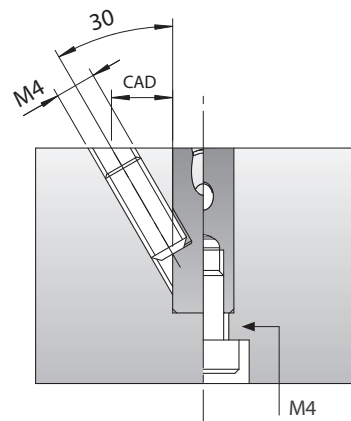
	TGC-XS	TGC-S	TGC-1	TGC-2	TGC-3	TGC-4
max. contour depth	1	2	2	3	5	10
 Gate point	0,4 - 0,6	0,4 - 0,8	0,6 - 1,2	0,8 - 1,8	0,5x4,5 - 1,5x5,5	0,5x4,5 - 1,5x5,5
Ø runner	2.5	2.5	4	6	8	8
max. shotweight (g)						
LV	5	12	35	120	1000	1000
MV	4	7	25	75	500	500
HV	3	5	15	50	300	300

LV = low viscosity
MV = medium viscosity
HV = high viscosity



TGC-XS / TGC-S

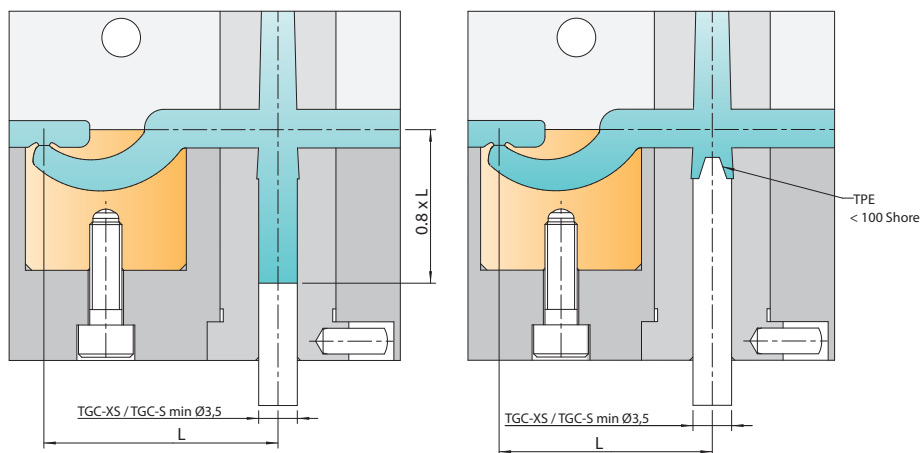
Mounting possibilities



Type	b	b1	b2	d3	h	h1	h2	h3	l1	l2	l3	M	HRC
TGC-XS	10	5	8.5	2.5	12	1	1.9	0.6	5	3.2	0.7	4	Version U = 40 HRC Version H = 60 HRC
TGC-S	15	6	13.3	2.5	18	2	3.5	1.5	8	4	0.9	4	
TGC-1	18	8	16	4	22	2	3.5	1.3	9	5.2	0.9	5	
TGC-2	25	10	22.1	6	22	3	4.8	2.1	8	6.5	1.2	5	
TGC-3	30	12	26.9	8	27	5	7.5	4.1	9	7	1.2	6	
TGC-4	45	12	41.2	8	36	10	16.7	9.1	8	9.6	1.8	6	

➔ Example of ordering designation :

TGC-XS-U



Thermoplastic elastomers (TPE)

- > Low Shore hardness = shorter distance L
- > Use centering pin
- > Max. hardness 100 Shore A

Table for distance L

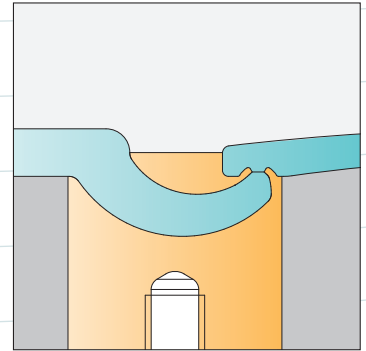
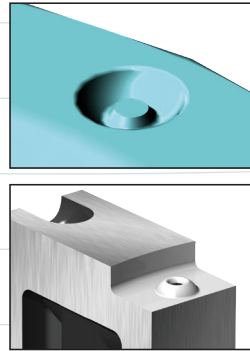
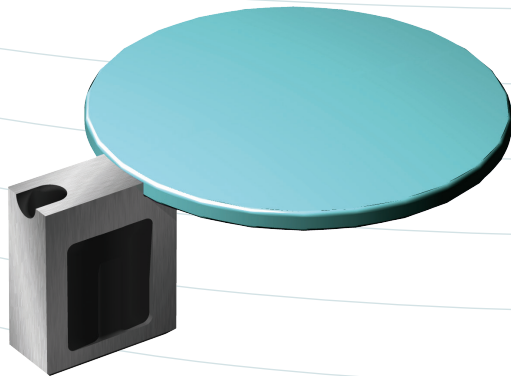
	Material type			
	TPE, TPU etc.	PE, PP, PET etc.	PC/ABS, ABS, PA, POM, HI-PC etc.	PA+GF, PC, SAN, PMMA etc.
TGC-XS	12-16	13-20	16-23	22-29
TGC-S	16-21	18-25	21-28	27-34
TGC-1	21-26	26-34	31-39	36-45
TGC-2	28-33	31-39	36-44	41-50
TGC-3	33-38	38-48	43-53	48-58
TGC-4	48-53	53-63	58-68	X

X = Restrictedly suitable for rigid and reinforced plastics

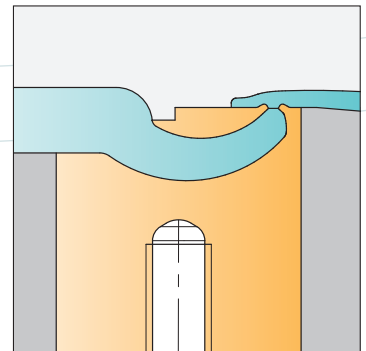
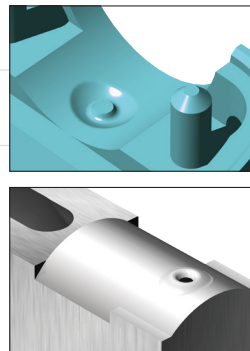
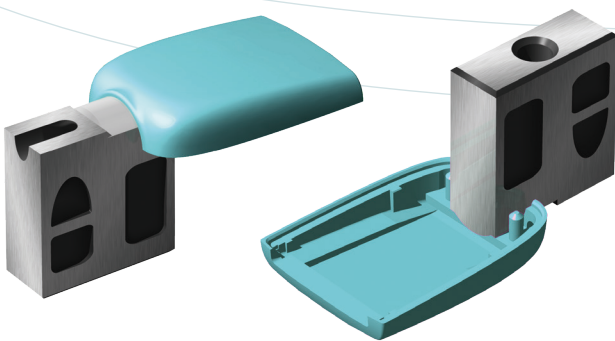
➔ Vestige design > see additional tips (page 35)

Examples of installation

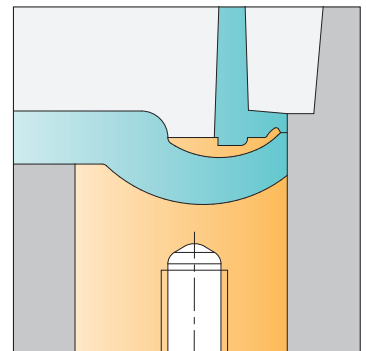
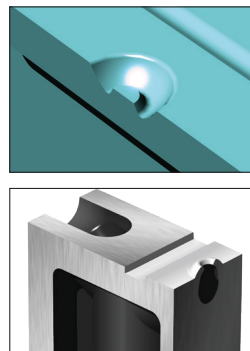
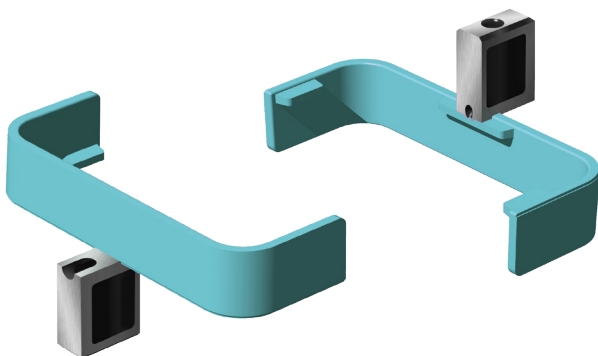
under surface



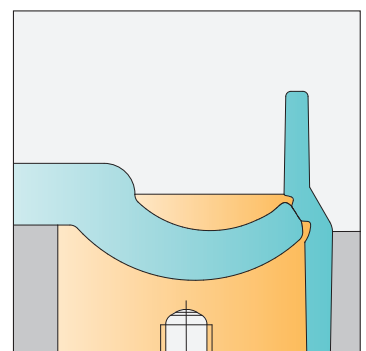
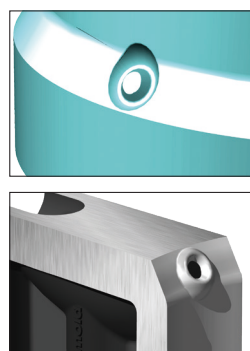
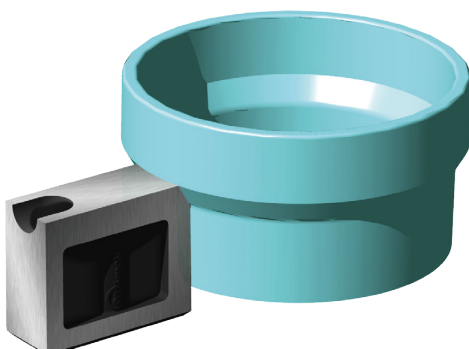
under rounded surface



half gate point



angled gating



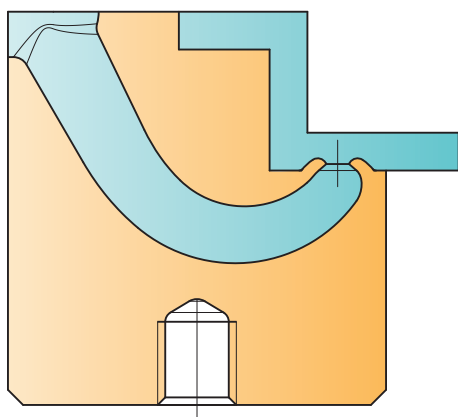
TGLL

contourable

Restrictedly suitable for rigid and reinforced plastics

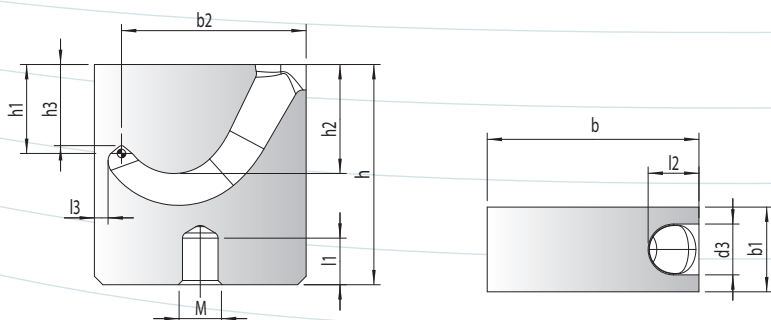


- > Space-saving, contourable Tunnel Gate insert for gating below the parting line
- > Highly wear resistant hot work steel M2 (1.3343) 54 +2 HRC



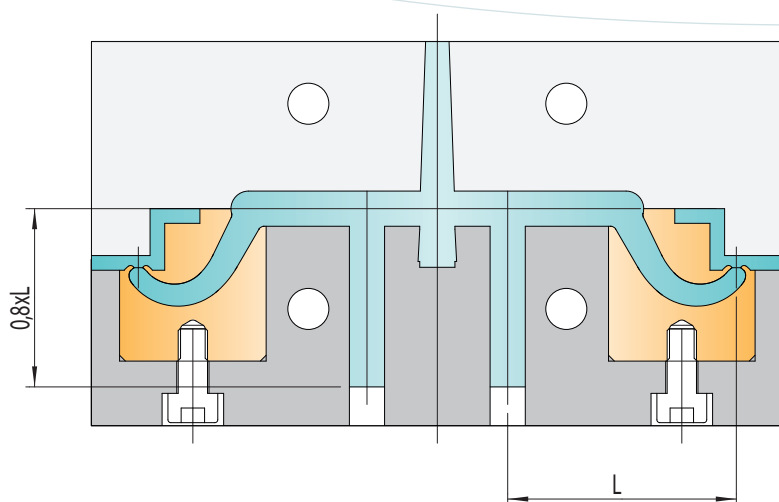
	TGLL-1	TGLL-2	TGLL-3
max. contour depth	8,5	10,5	12,5
 gate point	0,6 - 1,2	0,8 - 1,8	0,5x4,5 - 1,5x5,5
Ø runner	4	6	8
max. shot weight (g)			
LV	35	120	1000
MV	25	75	500
HV	15	50	300

LV = low viscosity
MV = medium viscosity
HV = high viscosity

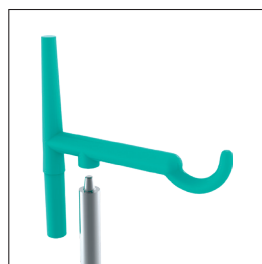
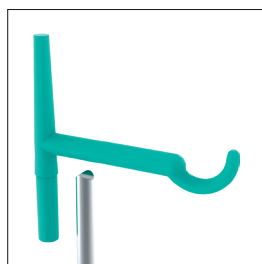
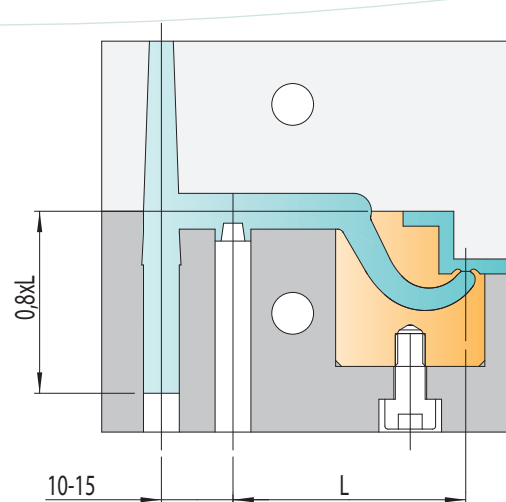


Typ LL	b	b1	b2	d3	h	h1	h2	h3	l1	l2	l3	M	HRC
TGLL-1	18	8	15,7	4	22	8,5	9,9	7,8	5,5	4,5	1,2	5	54+2
TGLL-2	25	10	21,8	6	26	10,5	12,9	9,6	5,5	6	1,6	5	
TGLL-3	30	12	26	8	30	12,5	14,8	11,6	6,5	7	2,2	6	

Example for 2 cavities



Example for 1 cavity



Example for supplementary ejector

Table for distance L

	Material type			
	TPE, TPU, etc.	PE, PP, PET etc.	PC/ABS, PA, POM, HI-PC etc.	PA+GF, PC, SAN, PMMA etc.
TG-1 (HL, ML, LL)	21-27	27-34	34-40	X
TG-2 (HL, ML, LL)	28-34	33-40	39-45	X
TG-3 (HL, ML, LL)	33-40	40-49	46-55	X

X = Restrictedly suitable for rigid and reinforced plastics

➔ Vestige design > see additional tips (page 35)

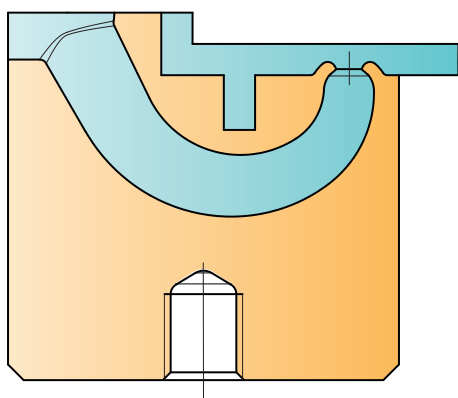
TGML

contourable

Restrictedly suitable for rigid and reinforced plastics

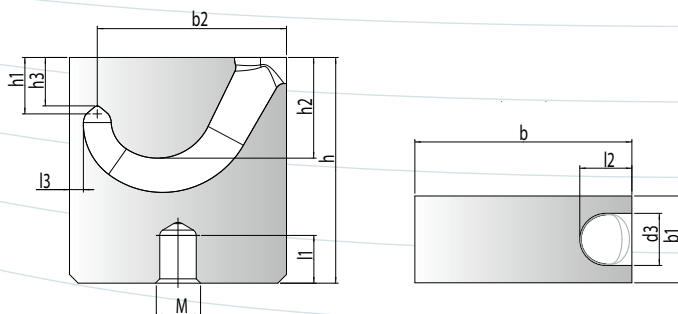


- > Space-saving, contourable Tunnel Gate insert for gating above the parting line
- > Highly wear resistant hot working steel M2 (1.3343) 54+2 HRC



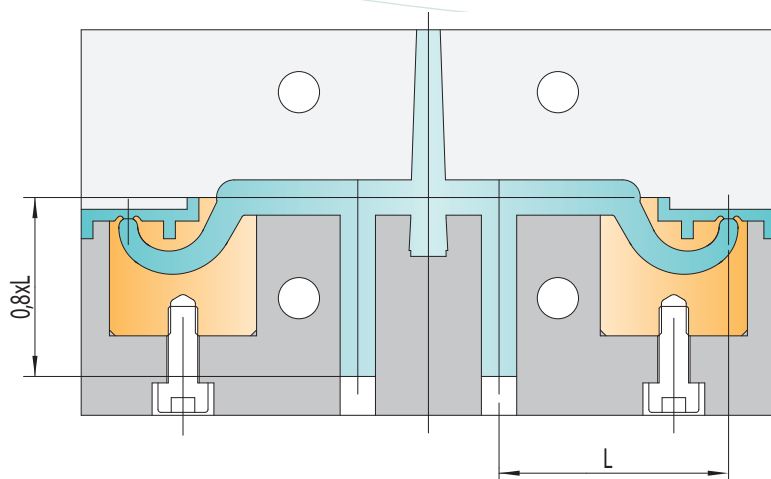
	TGML-1	TGML-2	TGML-3
max. contour depth	5,5	6,5	7,5
 gate point	0,6 - 1,2	0,8 - 1,8	0,5x4,5 - 1,5x5,5
Ø runner	4	6	8
max. shot weight (g)			
LV	35	120	1000
MV	25	75	500
HV	15	50	300

LV = low viscosity
MV = medium viscosity
HV = high viscosity

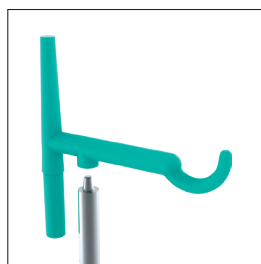
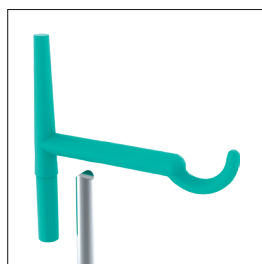
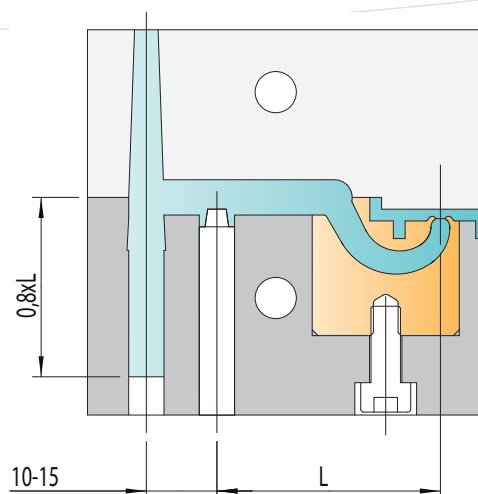


Typ ML	b	b1	b2	d3	h	h1	h2	h3	l1	l2	l3	M	HRC
TGML-1	18	8	15,7	4	22	5,5	9,5	4,86	5,5	4,5	1,2	5	54+2
TGML-2	25	10	21,8	6	26	6,5	11,6	5,6	5,5	6	1,6	5	
TGML-3	30	12	26	8	30	7,5	14,5	6,6	6,5	7	2,0	6	

Example for 2 cavities



Example for 1 cavity



Example of supplementary ejector

Table for distance L

	Material type ·			
	TPE, TPU etc.	PE, PP, PET etc.	PC/ABS, PA, POM, HI-PC etc.	PA+GF, PC, SAN, PMMA etc.
TG-1 (HL, ML, LL)	21-27	27-34	34-40	X
TG-2 (HL, ML, LL)	28-34	33-40	39-45	X
TG-3 (HL, ML, LL)	33-40	40-49	46-55	X

X = Restrictedly suitable for rigid and reinforced plastics

➔ Vestige design > see additional tips (page 35)

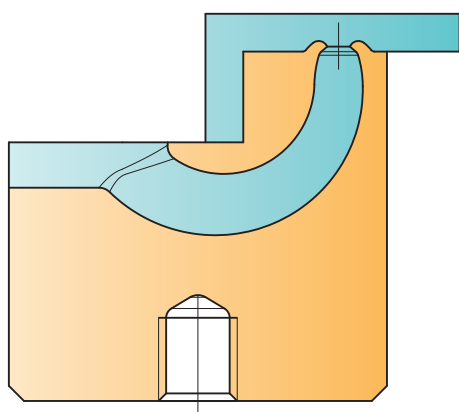
TGHL

contourable

Not suitable for rigid and reinforced plastics



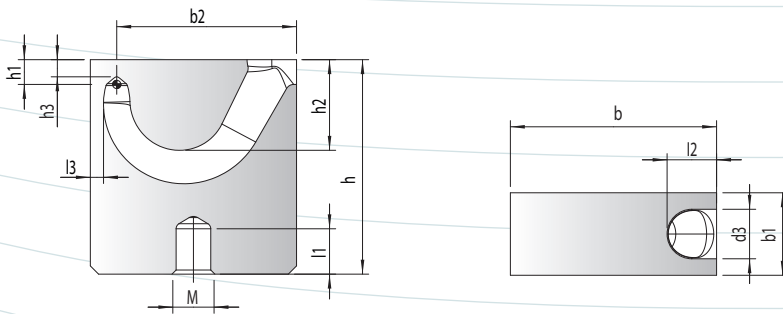
- > Space-saving, contourable Tunnel Gate insert for gating above the parting line
- > Highly wear resistant hot work steel M2 (1.3343) 54 +2 HRC



	TGHL-1	TGHL-2	TGHL-3
max. contour depth	2	3	3
 gate point	0,6 - 1,2	0,8 - 1,8	0,5x4,5 - 1,5x5,5
Ø runner	4	6	8
max. shot weight (g)			
LV	35	120	1000
MV	25	75	500
HV	15	50	300

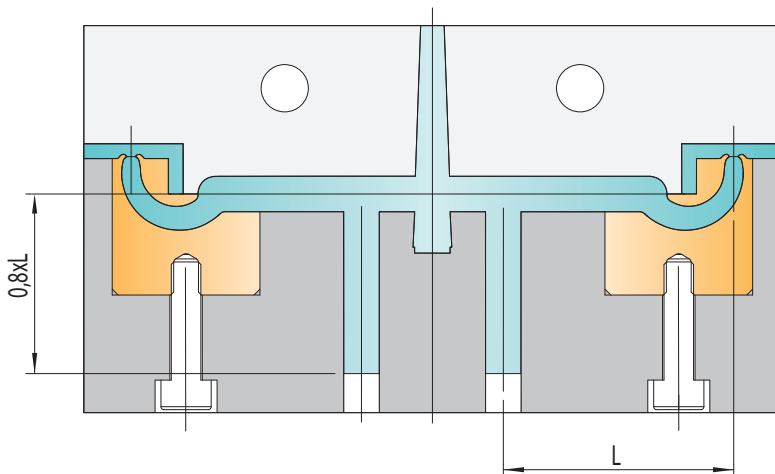
LV = low viscosity
MV = medium viscosity
HV = high viscosity

Vestige by 3D file

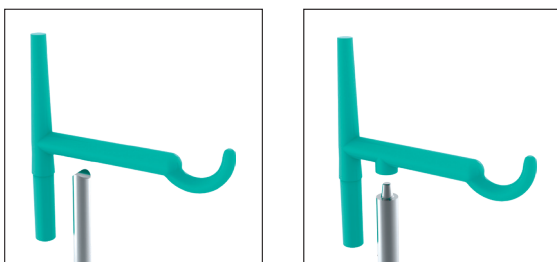
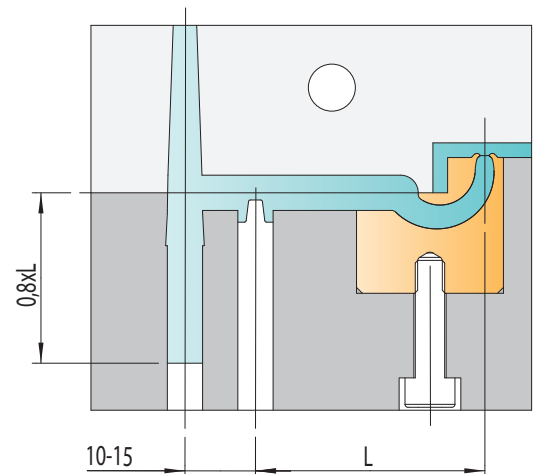


Typ HL	b	b1	b2	d3	h	h1	h2	h3	l1	l2	l3	M	HRC
TGHL-1	18	8	15,7	4	22	2	7,6	1,3	5,5	4,5	1,2	5	54+2
TGHL-2	25	10	21,8	6	26	3	11	2,1	5,5	6	1,6	5	
TGHL-3	30	12	26	8	30	3	12,2	2,1	6,5	7	2,0	6	

Example for 2 cavities



Example for 1 cavity



Example of supplementary ejector

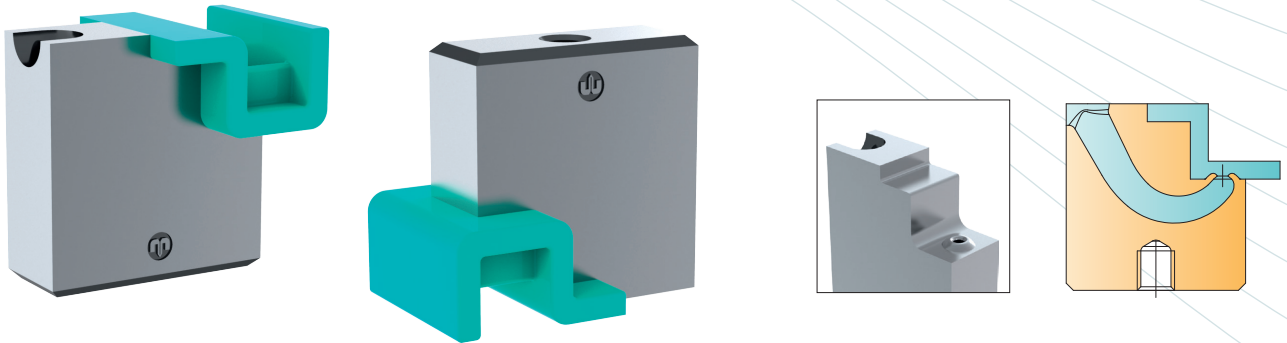
Table for distance L

	Material type			
	TPE, TPU etc.	PE, PP, PET etc.	PC/ABS, PA, POM, HI-PC etc.	PA+GF, PC, SAN, PMMA etc.
TG-1 (HL, ML, LL)	21-27	27-34	34-40	X
TG-2 (HL, ML, LL)	28-34	33-40	39-45	X
TG-3 (HL, ML, LL)	33-40	40-49	46-55	X

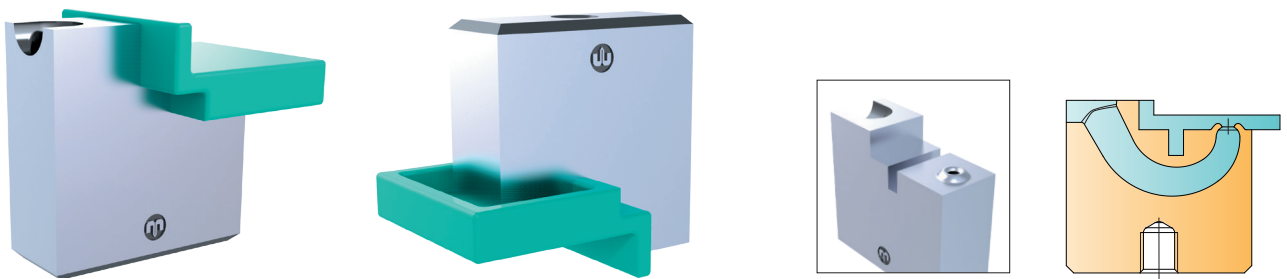
X = Not suitable for rigid and reinforced plastics

Examples of installation TGLL / TGML / TGHL

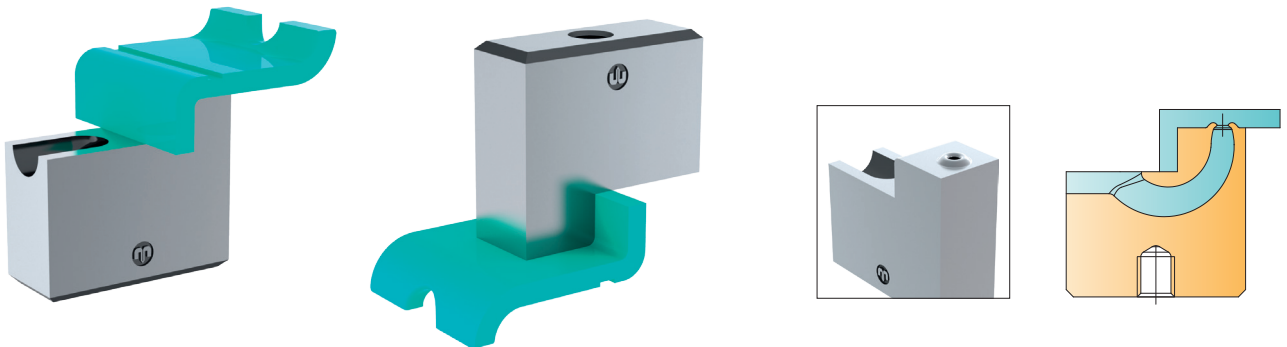
TGLL low contour step



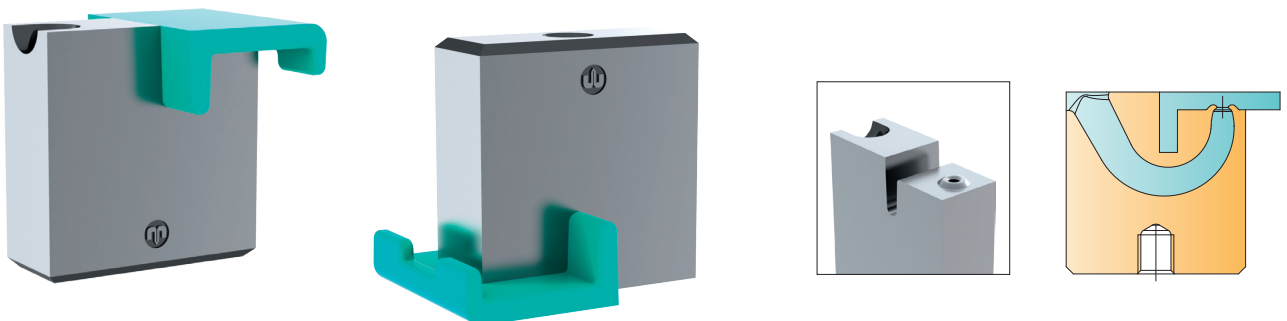
TGML with peripheral rib



TGHL high contour step



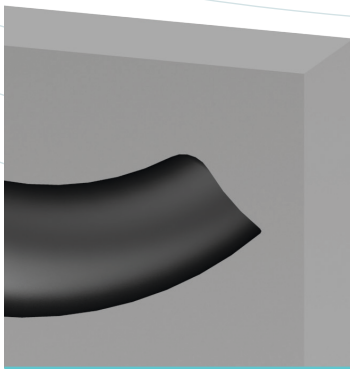
TGHL with peripheral rib



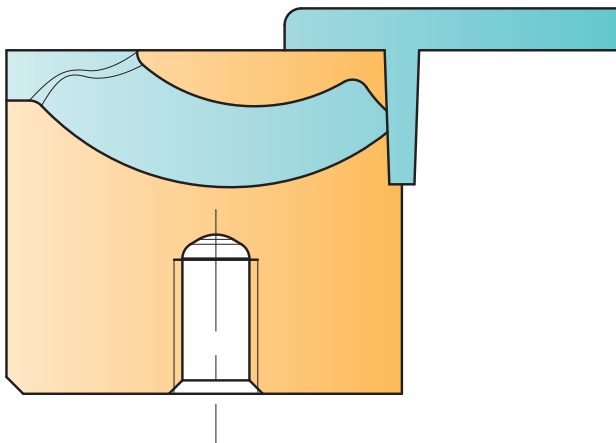
SGC

side gating

Suitable for all plastics

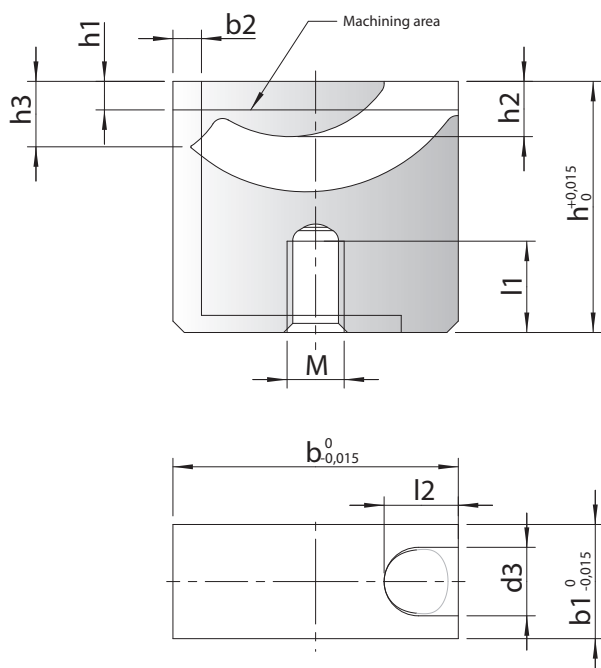


- > Curved tunnel permits gating deep inside the part
- > Integrated dead-end recess reduces loss of pressure and shear stress.
- > Highly wear-resistant hot work steel M2 (1.3343) – 54+2 HRC



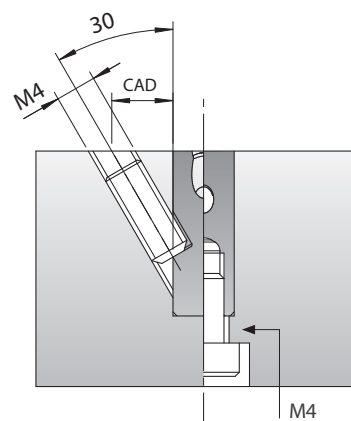
	SGC-XS	SGC-S	SGC-1	SGC-2	SGC-3
 gate point	0,4 - 0,8	0,4 - 1,0	0,6 - 1,4	0,8 - 2,1	~ Ø 1,1 - 3,3
Ø runner	2.5	2.5	4	6	8
max. shot weight (g)					
LV	12	20	35	250	1000
MV	7	12	25	120	500
HV	5	8	15	90	300

LV = low viscosity
MV = medium viscosity
HV = high viscosity



SGC-XS / SGC-S

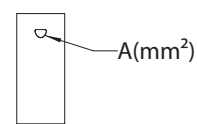
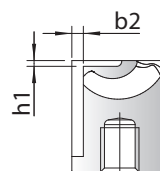
Mounting possibilities



Typ	b	b1	b2 max.	d3	h	h1 max.	h2	h3	l1	l2	M
SGC-XS	10	5	1.1	2.5	12	0.6	1.9	2.0	5	3.2	4
SGC-S	15	6	2.0	2.5	18	2	3.5	4.0	8	4	4
SGC-1	18	8	1.8	4	22	2	3.5	4.1	9	5.2	5
SGC-2	25	10	2.5	6	22	2.5	4.8	5.7	8	6.5	5
SGC-3	30	12	2.8	8	27	4.5	7.5	8.4	9	7	6

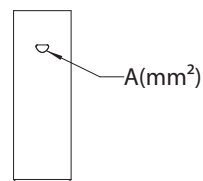
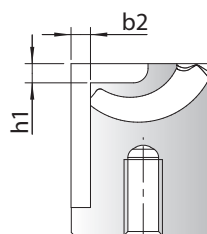
SGC-XS

A [mm ²]	~ Ø [mm]	b2 [mm]
0.13	0.4	0.9
0.3	0.6	1.0
0.53	0.8	1.1



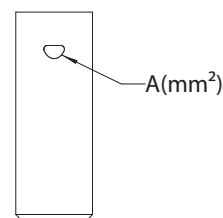
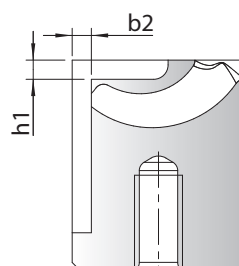
SGC-S

A [mm ²]	~ Ø [mm]	b2 [mm]
0.15	0.4	1.7
0.33	0.6	1.8
0.55	0.8	1.9
0.79	1.0	2.0



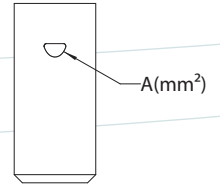
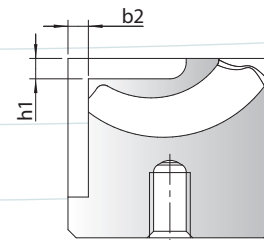
SGC-1

A [mm ²]	~ Ø [mm]	b2 [mm]
0.28	0.6	1.4
0.53	0.8	1.5
0.82	1	1.6
1.15	1.2	1.7
1.52	1.4	1.8



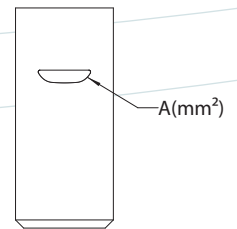
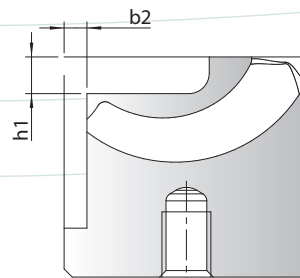
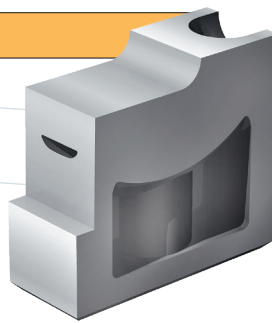
SGC-2

A [mm ²]	~ Ø [mm]	b2 [mm]
0.28	0.6	1.7
0.54	0.8	1.8
0.84	1	1.9
1.2	1.2	2
1.57	1.4	2.1
2	1.6	2.2
2.43	1.75	2.3
2.9	1.9	2.4
3.4	2.1	2.5



SGC-3

A [mm ²]	~ Ø [mm]	b2 [mm]
1	1.1	2
1.75	1.5	2.1
2.56	1.8	2.2
3.43	2.1	2.3
4.35	2.35	2.4
5.32	2.6	2.5
6.33	2.85	2.6
7.38	3	2.7
8.48	3.3	2.8



Standard installation for shallow and medium contour depths

Special installation for deep contours

Thermoplastic elastomers

(TPE)

- > Low Shore hardness = shorter distance LL
- > Use centring pin
- > Max. hardness 100 Shore A

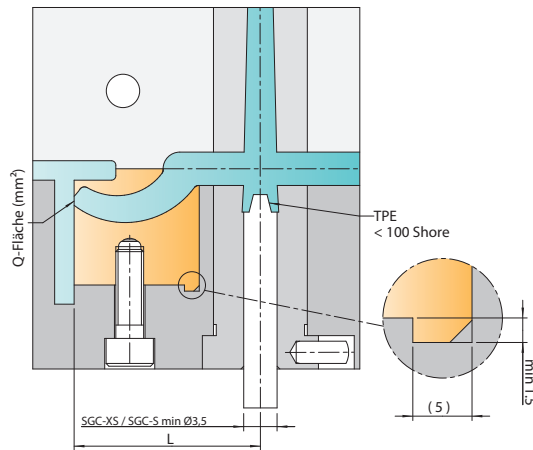
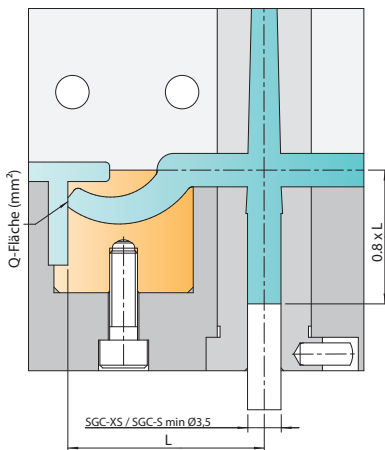
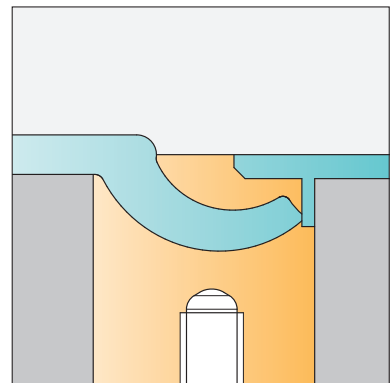
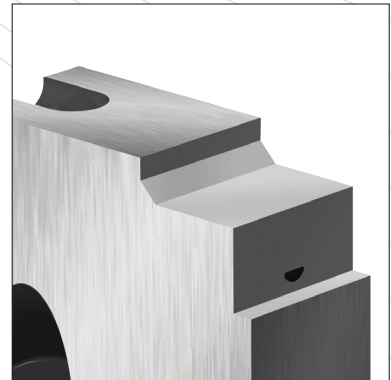
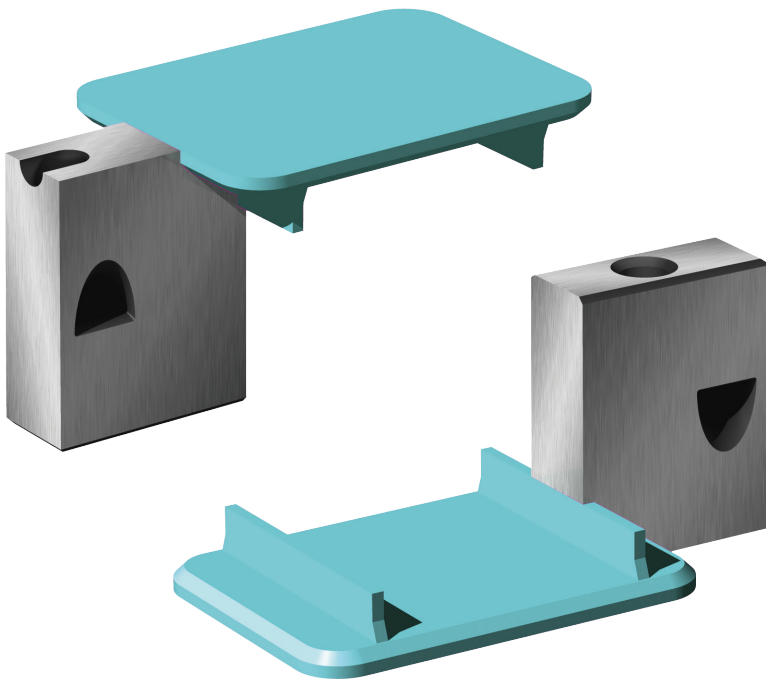


Table for distance L

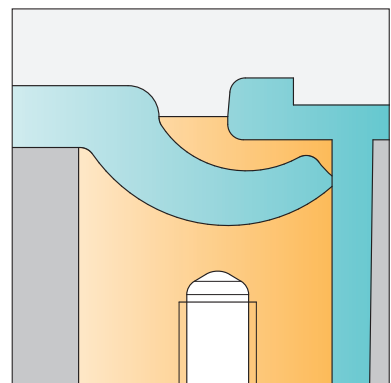
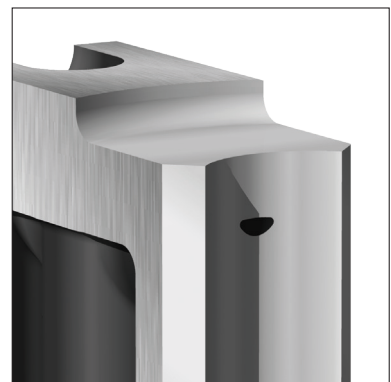
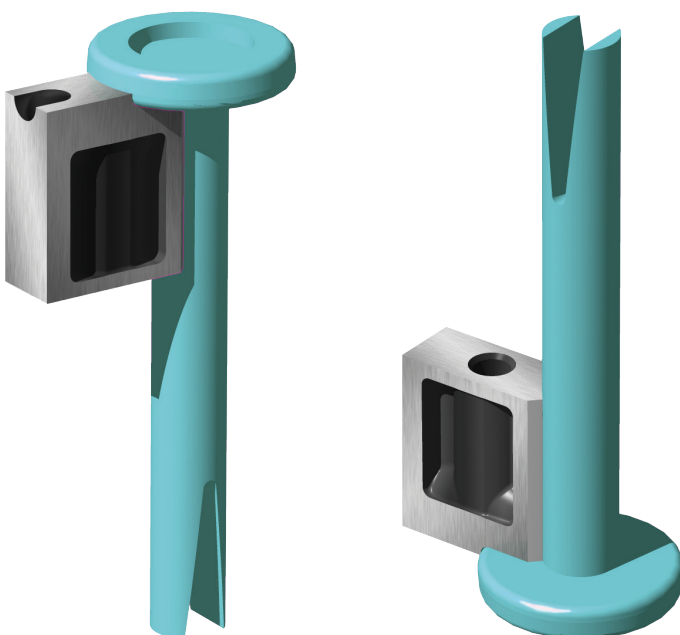
	Material type			
	TPE, TPU etc.	PE, PP, PET etc.	PC/ABS, PA, POM, HI-PC etc.	PA+GF, PC, SAN, PMMA etc.
SGC-XS	12-16	13-20	16-23	22-29
SGC--S	16-21	18-25	21-28	27-34
SGC--1	21-26	26-34	31-39	36-45
SGC--2	28-33	31-39	36-44	41-50
SGC--3	33-38	38-48	43-53	48-58

Examples of installation

Side gating – standard installation



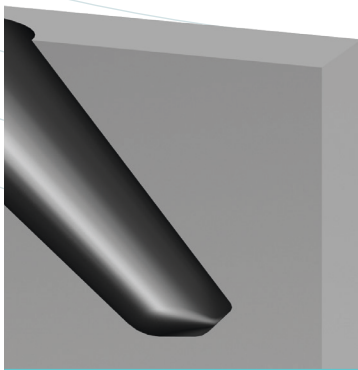
Side gating – adapted to part



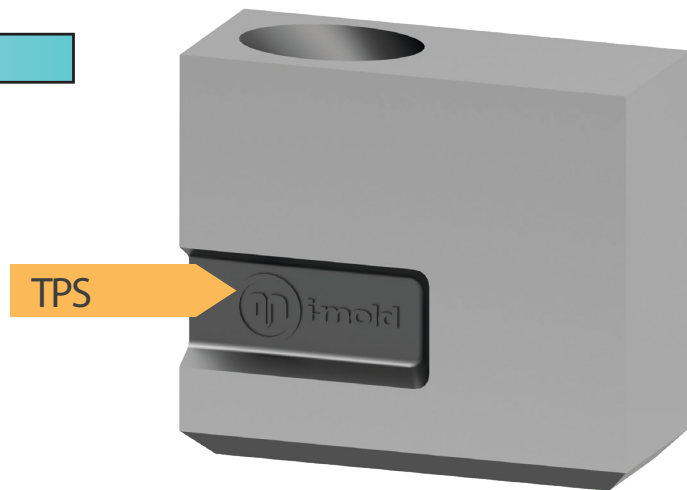
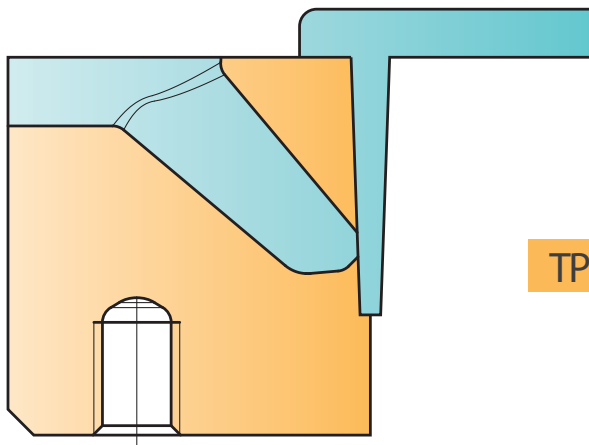
TPS

side gating

Suitable for all plastics

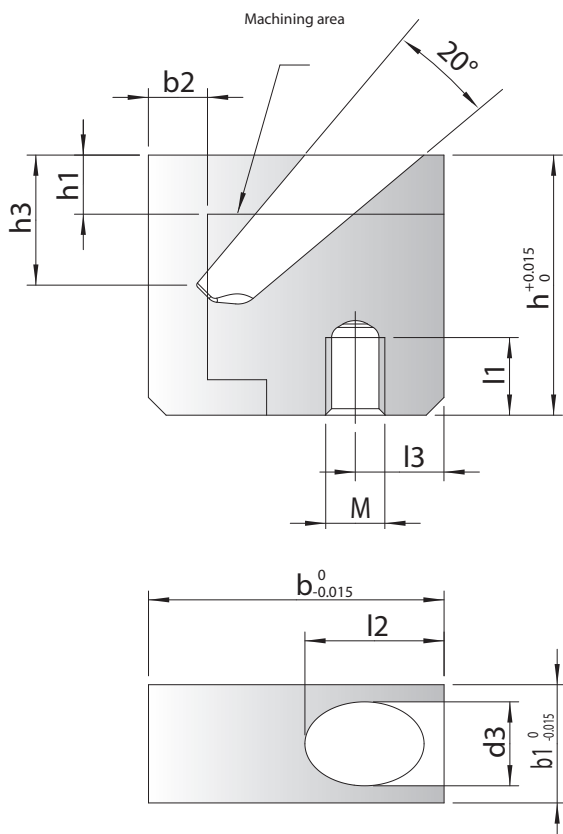


- > Straight standard sub-gate for side-gating
- > Integrated dead-end recess reduces loss of pressure and shear stress
- > Highly wear-resistant hot working steel M2 (1.3343) – 54+2 HRC



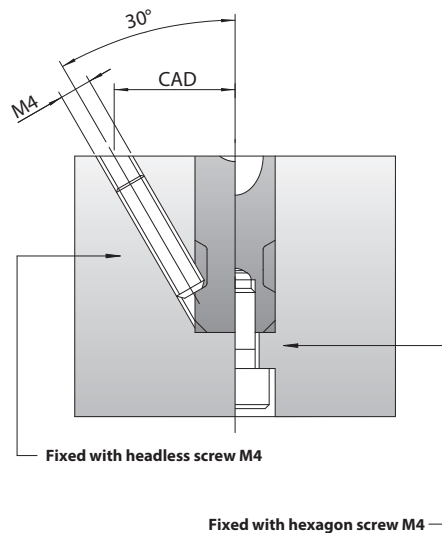
	TPS-S	TPS-1	TPS-2	TPS-3
 Gate point	0,4 - 0,8	0,8 - 1,8	0,8 - 2,8	1,1 - 4,5
max. shotweight (g)				
LV	30	120	600	1800
MV	20	75	350	1000
HV	12	50	175	600

LV = low viscosity
MV = medium viscosity
HV = high viscosity



TPS

Mounting possibilities



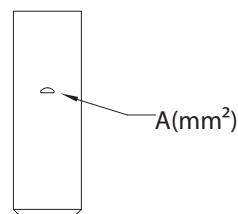
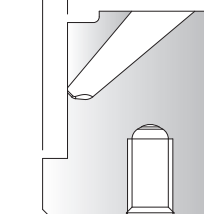
Typ	b	b1	b2 max.	d3	h	h1 max.	h3	l1	l2	l3	M
TPS-S	15	6	2.4	4	18	4	~7	6	7.1	5.5	4
TPS-1	18	8	2.6	6	22	5	~9	6	8.4	6	4
TPS-2	25	10	5	8	22	6	~11	6	11.8	7.5	5
TPS-3	30	12	6.5	10	27	7	~13	6	14.1	8	5

TPS-S

A [mm ²]	~ Ø [mm]	b2 [mm]
0.12	0.4	2.1
0.40	0.7	2.2
0.75	1.0	2.3
1.13	1.2	2.4



b2

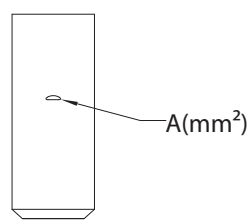
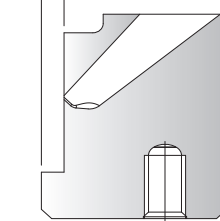


TPS-1

A [mm ²]	~ Ø [mm]	b2 [mm]
0.49	0.8	2.2
0.92	1.1	2.3
1.42	1.4	2.4
1.97	1.6	2.5
2.56	1.8	2.6

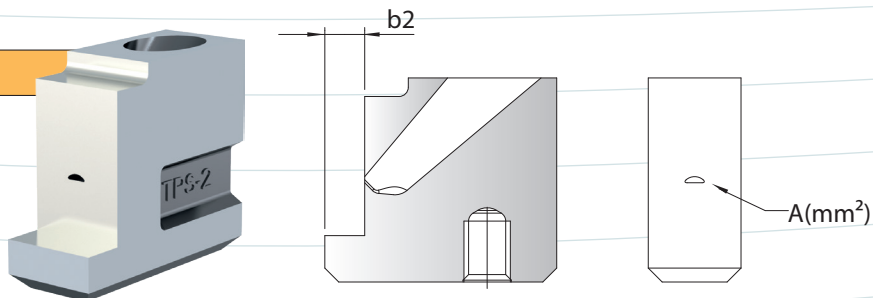


b2



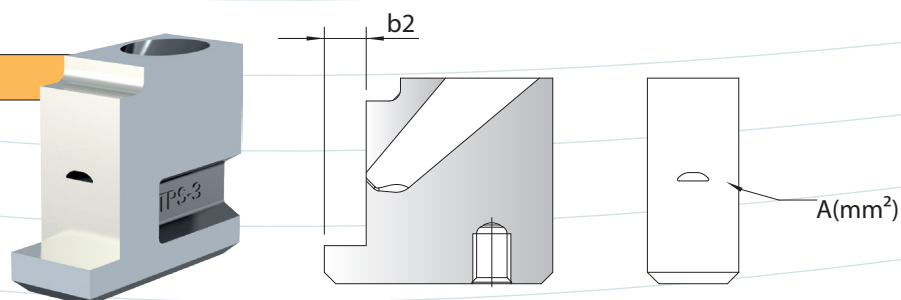
TPS-2

A [mm ²]	~ Ø [mm]	b2 [mm]
0.54	0.8	4.2
1.05	1.2	4.3
1.64	1.5	4.4
2.3	1.7	4.5
3.0	1.9	4.6
3.76	2.2	4.7
4.55	2.4	4.8
5.37	2.6	4.9
6.23	2.8	5.0



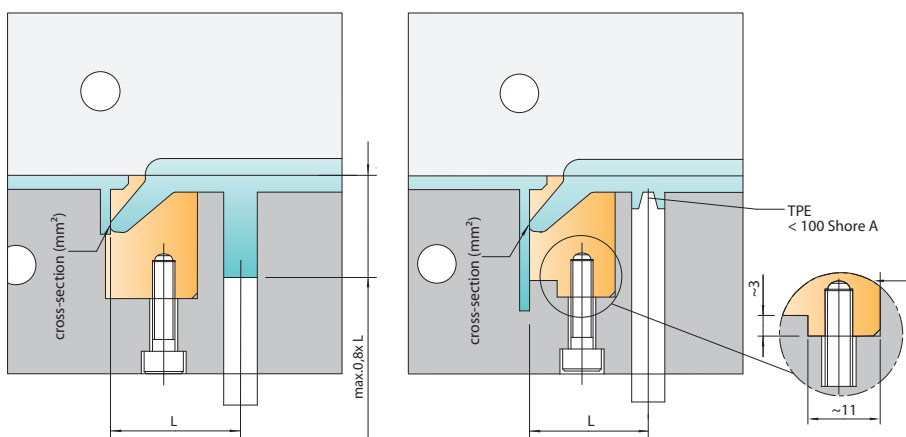
TPS-3

A [mm ²]	~ Ø [mm]	b2 [mm]
1.0	1.1	5.2
1.81	1.5	5.3
2.7	1.9	5.4
3.67	2.2	5.5
4.7	2.4	5.6
5.78	2.7	5.7
6.92	3.0	5.8
8.09	3.2	5.9
9.3	3.4	6.0
max. 15.8	4.5	6.5



Standard installation for shallow and medium contour depths

Special installation for deep contours



Thermoplastic elastomers (TPE)

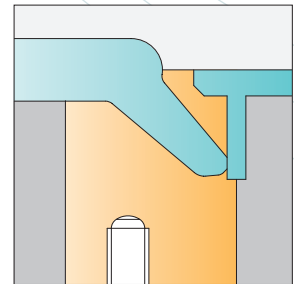
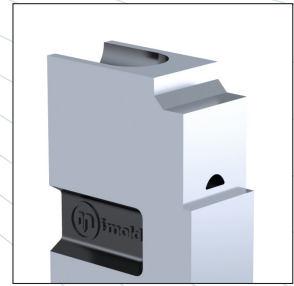
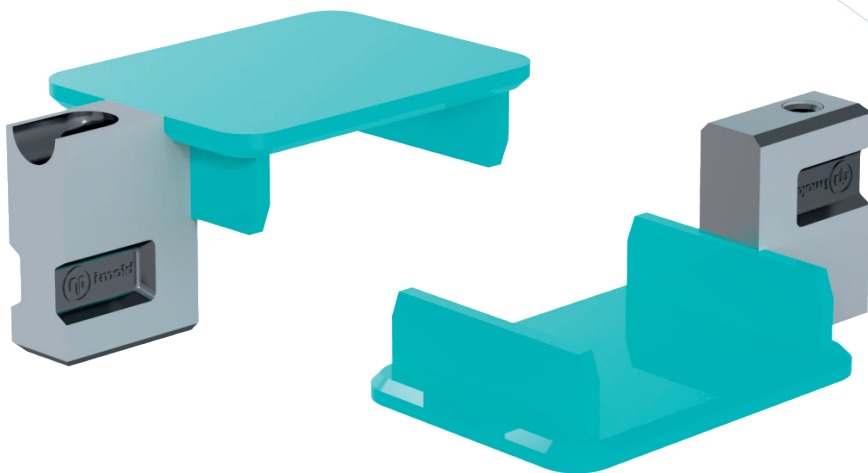
- > Low Shore hardness = shorter distance L
- > Use centring pin
- > Max. hardness 100 Shore A

Table for distance L

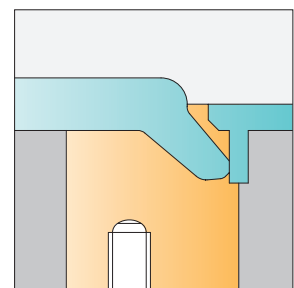
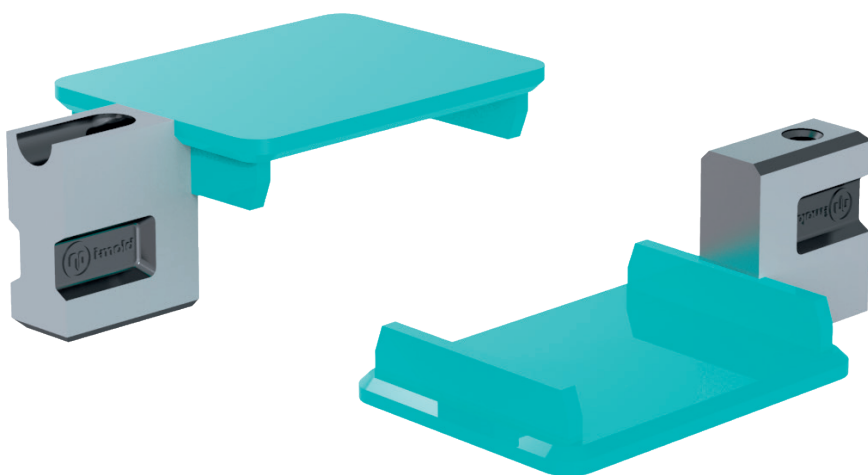
	Material type	
	flexible materials	rigid materials
TPS-S	~ 18	~ 23
TPS-1	~ 22	~ 30
TPS-2	~ 28	~ 38
TPS-3	~ 33	~ 47

Examples of installation

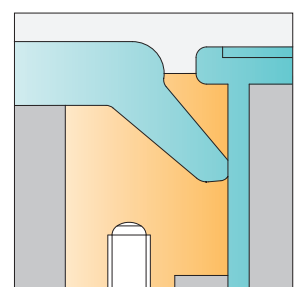
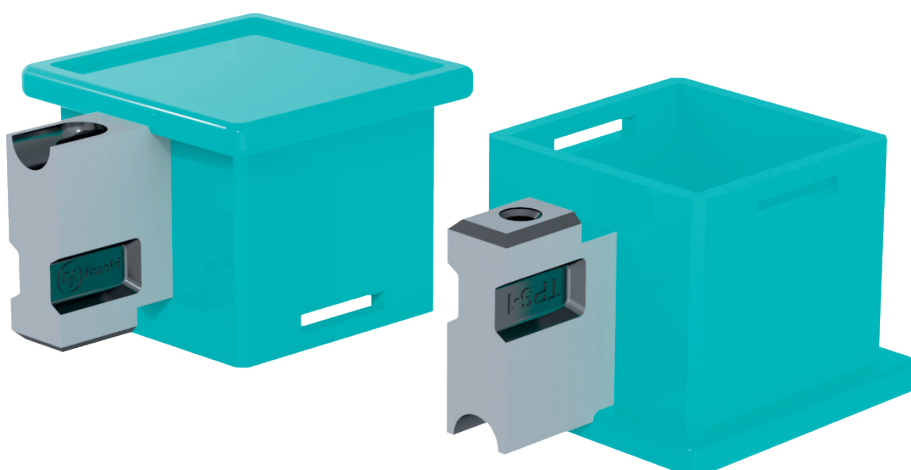
Side gating – standard installation



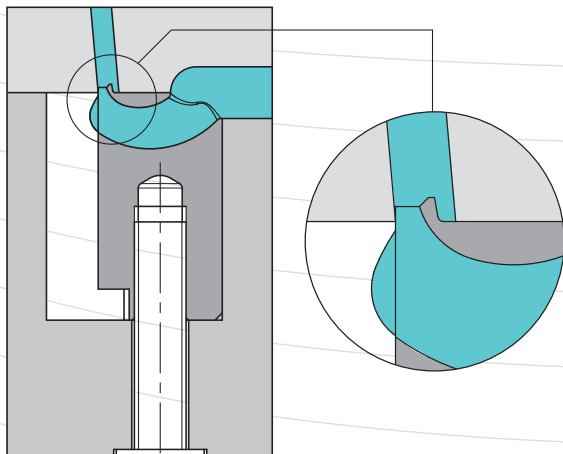
Side gating – for flat contours



Side gating – for deep contours

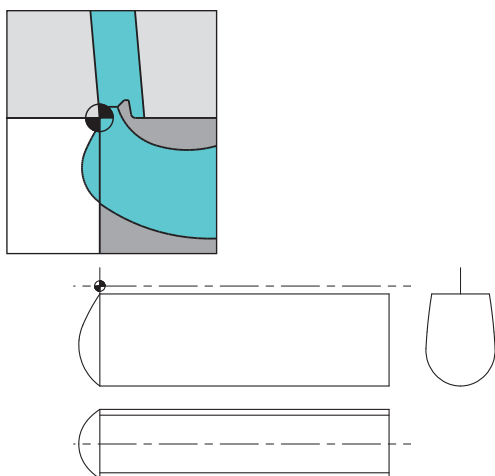


Dead-end recess



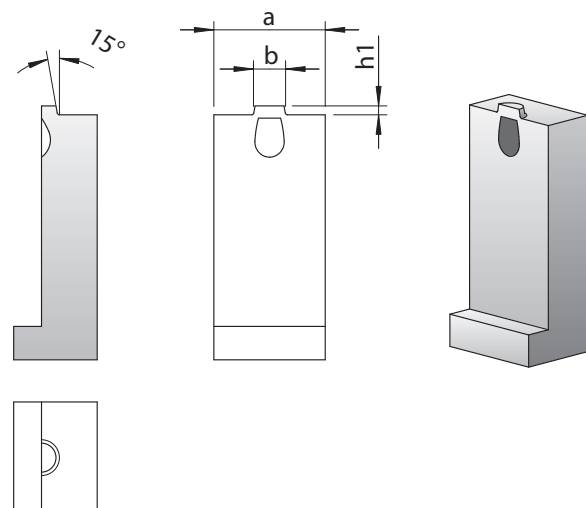
For the gating of housing parts we recommend incorporating a dead-end recess in an auxiliary insert or directly in the mold insert. This feature optimizes the shear velocity in the gate area, gives a superior frontal flow, reduces the pressure loss and helps prevent jetting.

Spark-erosion machining (EDM) of recesses



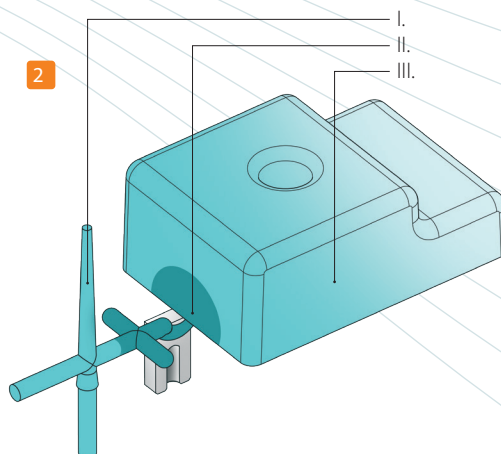
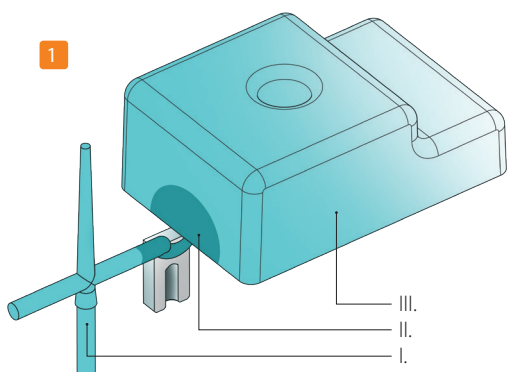
When machining the recess, take care to avoid undercutting the runner. For 3D data relating to standard insert sizes please refer to www.pcs-company.com.

Auxiliary insert



The companion vestige and/or dead-end recess can also be incorporated directly in the mold insert. The auxiliary insert should be made of a highly wear-resistant steel. Customer supplied.

The dimensions a, b and h1 depend on the actual standard gate insert used.



To avoid the risk of jetting and the formation of matt halo effects in the gate area, we recommend the use of a graduated injection profile.

1 Graduated injection profile by machine

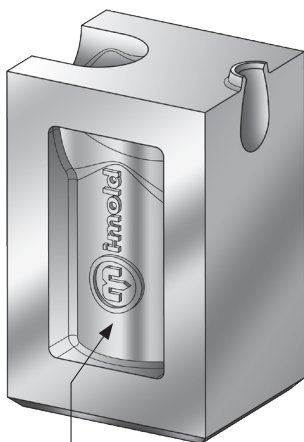
- I. High injection speed for filling the cold runner.
- II. Low injection speed to ensure optimum frontal (laminar) flow.
- III. High injection speed for quick mold filling, followed by holding pressure setting.

2 Mechanically graduated injection profile

- > Transverse runner reduces the velocity of the flow front in the gate area while machine parameters remain constant.
- > For molds frequently used on different injection molding machines.

Heat sink paste

PE, PP, POM, PC, PBT,
PEI, PPO, PS



Heat sink paste

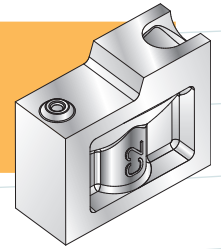
When processing temperature-sensitive materials or plastics susceptible to "stringing", we recommend the use of a heat sink paste in the lateral recesses.

- > Prevents localized heating of the gate insert in molding processes with short cycle times.
- > Improves heat dissipation so that the gate sealing point can be reached sooner.
- > Enhances degating performance (no stringing, important when processing polyolefins).

It goes without saying that these gate inserts can also be used without heat sink paste. In certain applications the somewhat higher insert temperature permits a longer holding pressure phase.

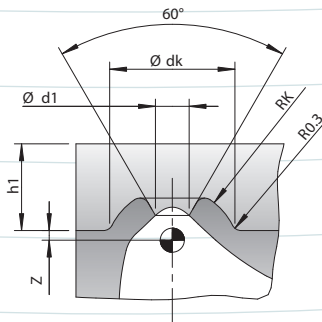
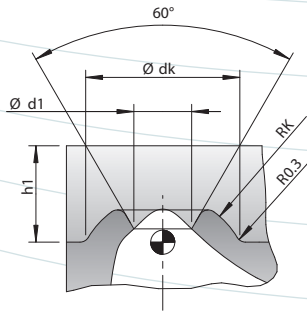
Vestiges

TGC-XS / -S / -1 / -2
TGLL-1 / -2
TGML-1 / -2
TGHL-1 / -2



Standard vestige

Small vestige



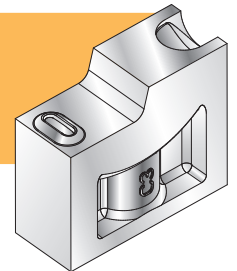
	Vestige	h1	d1max.	dk	Rk	Z
TGC-XS	Standard	1.0	0.6	2.5	1.6	-
TGC-S	Standard	2.0	0.8	2.7	1.7	-
TGC-1 / TGLL-1 /	Small	1.8	0.7	2.6	1.4	0.2
TGML-1 / TGHL-1	Standard	2.0	1.2	3.2	1.8	-
TGC-2 / TGLL-2 /	Small	2.75	1.2	3.5	2.0	0.25
TGML-2 / TGHL-2	Standard	3.0	1.8	4.5	2.6	-



Maintain offset Z from
CAD reference point!

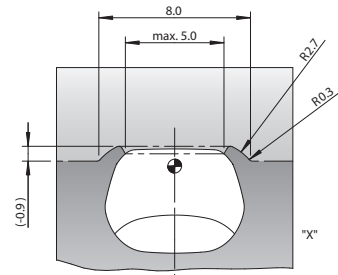
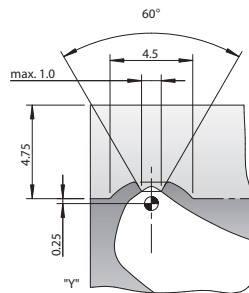
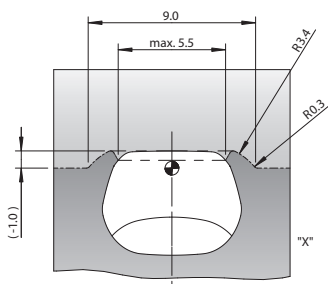
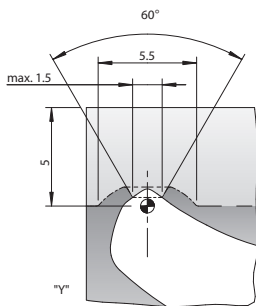
Vestiges

TGC-3 / -4
TGLL-3
TGML-3
TGHL-3

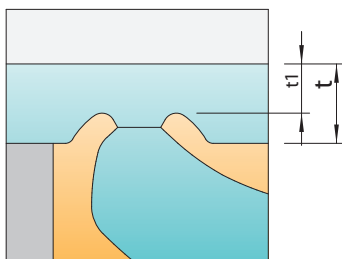


Standard vestige

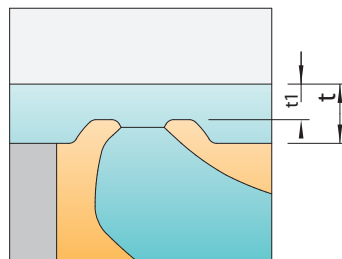
Small vestige



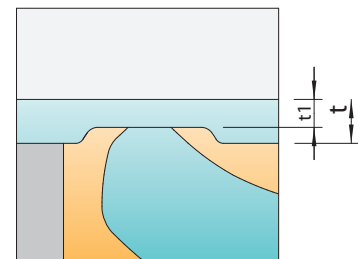
Vestige versions



Spherical vestige with cone



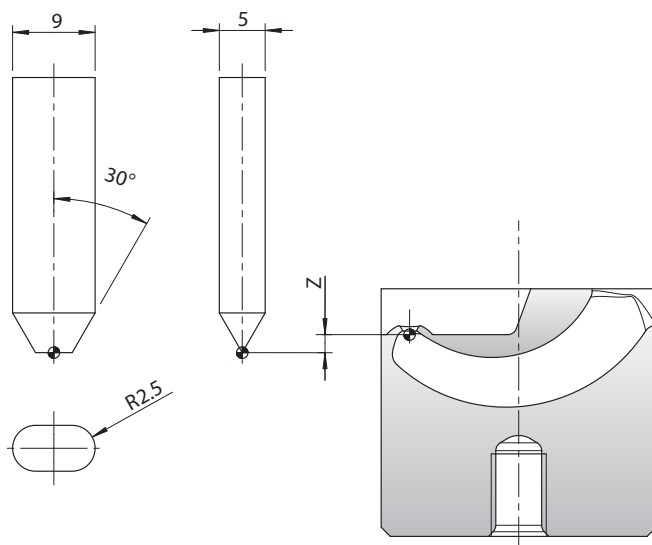
Flattened vestige with cone



Flattened vestige without cone

$t_1 > t/2$ t = wall thickness of plastic part

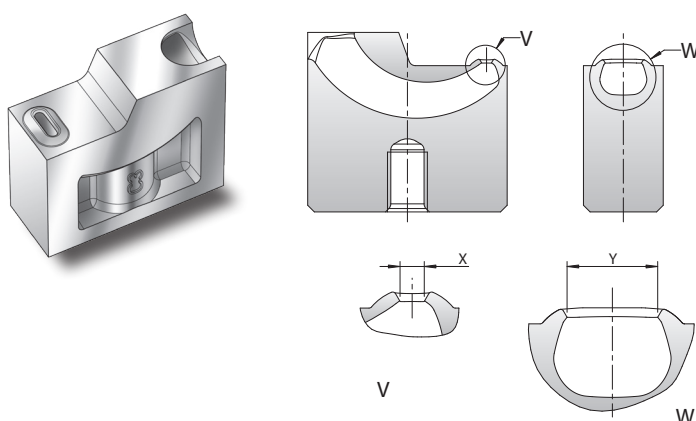
Spark erosion (EDM) of gate area*



Gate machining by spark erosion (EDM)

- > Simple positioning of electrode via coordinate system

Milling of gate area*



Gate machining by milling

- > Easy milling of gate area via Y and Z-axis travel

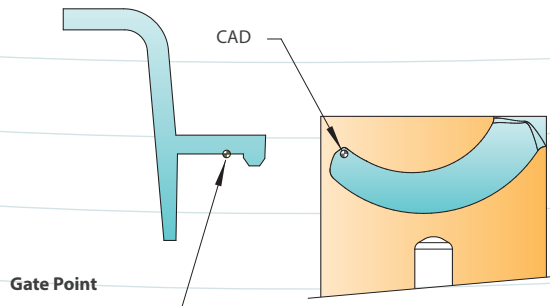
*TGC 3+4 / TGLL-3 / TGML-3 / TGHL-3

	Spark erosion (EDM) of gate area	Milling of gate area	
Cross-sectional area [mm ²]	Electrode depth Z [mm]	Width X [mm]	Length Y [mm]
7,60	-0,86	1,5	5,5
7,00	-0,74	1,4	5,4
6,41	-0,62	1,3	5,3
5,84	-0,49	1,2	5,2
5,27	-0,37	1,1	5,1
4,72	-0,25	1,0	5,0
4,18	-0,13	0,9	4,9
3,65	-0,01	0,8	4,8
3,13	+0,11	0,7	4,7
2,63	+0,23	0,6	4,6
2,14	+0,35	0,5	4,5

Installation TGC / TGLL / TGML / TGH

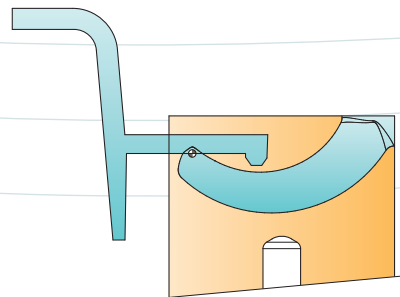
1

CAD reference point



2

Position the tunnel gate insert

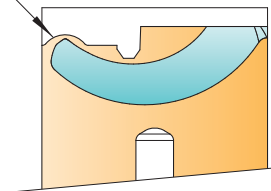


Contour surface of the vestige in contained in the 3D data

3

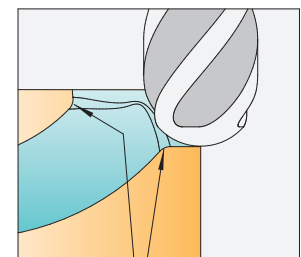
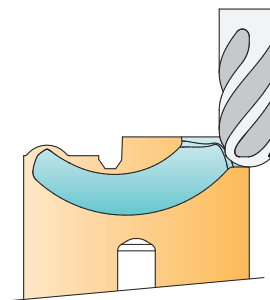
Deduct the part's contour and vestige*

Vestige



4

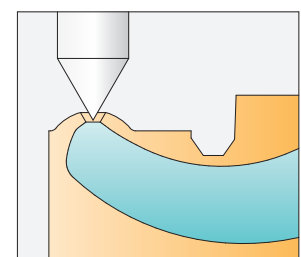
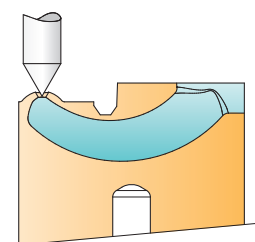
Adapt the feed channel*



Round off the transitions*

5

Machine the gate





Our Capabilities

We are many things to many people. Our state of the art manufacturing facility is equipped with the latest technology to meet industry demands and mold base requirements. Currently, we offer standard size, off-the-shelf, mold bases that are ready to ship or have additional machining options added to meet your requirements. We also offer full custom machined mold bases based on custom size and configuration up to 35.000" long and thickness to 6.000". Let us ship you your next Standard Mold Base or quote your Custom Mold Base from our Mold Shop.

Through our expanded capabilities with reliable mold partners, we can offer imperial and metric custom mold bases up to 157.000" long, and thickness to 28.000", from 2D to rough 3D rough contour machining, rough and precision machined pockets.

Our Commitment to Quality

You can expect the highest level of quality and service when you order from and work with us. Our ISO 9001:2015 is extremely important to us and we take great pride in the products and services. Our Quality Statement is our commitment to continuous improvement and helps us strive to be better. PCS Company is a leader in the plastics industry through exceptional service and product quality with a keen focus on continual improvement in all we do.

[illegible]



Turn To The Industry Experts