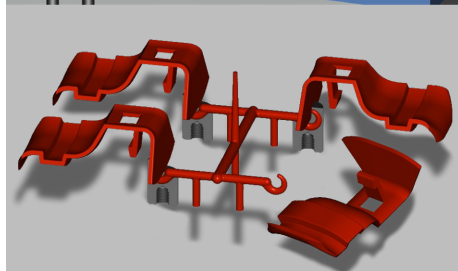
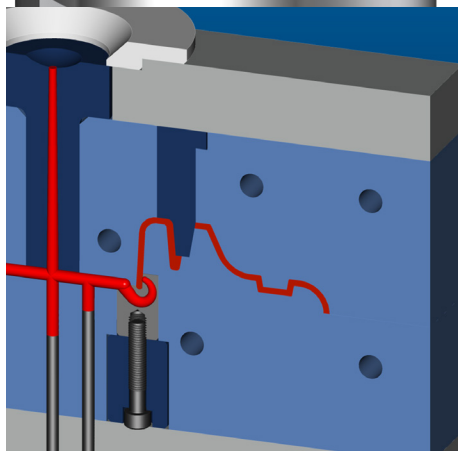
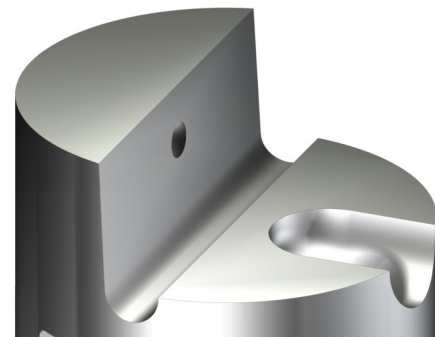


## Tunnel Gate Inserts - EXAflow®



Innovation is a key success driver at EXAflow®. Their ambition is to create innovative products and solutions for the injection molding industry, and to provide customers with a decisive head start in a highly competitive environment, now and in the future.

- EXAflow® products are designed to help you build molds reliably and at an affordable cost.
- We are determined to provide you with just the right gate insert for your application.
- Innovative products and sales support expertise, designed to amaze you.

As a specialist for gate insert technology, we are committed to developing and producing sophisticated solutions for plastic injection molders while offering support with a maximum level of service.



### Competitive Advantage:

- Perfect surface quality and concealed gate marks through tunnel gating, even on rear molding wall thanks to innovative Ringelflow® technology
- Variable gate diameters from 0.5 to 3.5 mm
- Clearly defined separating edge for precise degating
- Save time and cost through fast & easy interchangeability
- High wear resistance
- Compact dimensions due to single-part design
- Enhances molding process reliability
- Unsurpassed balance in multiple gating applications



## Standard Tunnel Gate Inserts



**Round Tunnel Gate Inserts**  
**Standardflow GTR**



**Square Tunnel Gate Inserts**  
**Standardflow GTE**



**Miniflow® GTM**

## Contourable Tunnel Gate Inserts



**Konturflow® GTK**



**Ringelflow® GRF-1**

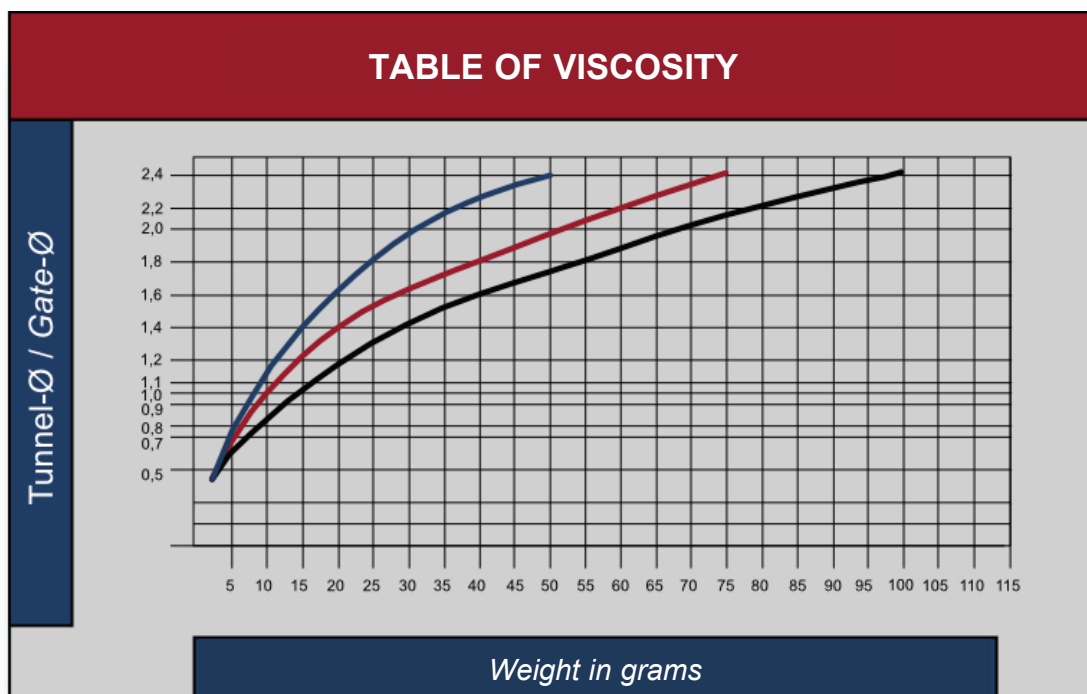


**Midiflow GMK**



**Maxiflow® GXK**

## Standard Tunnel Gates - Table of Viscosity



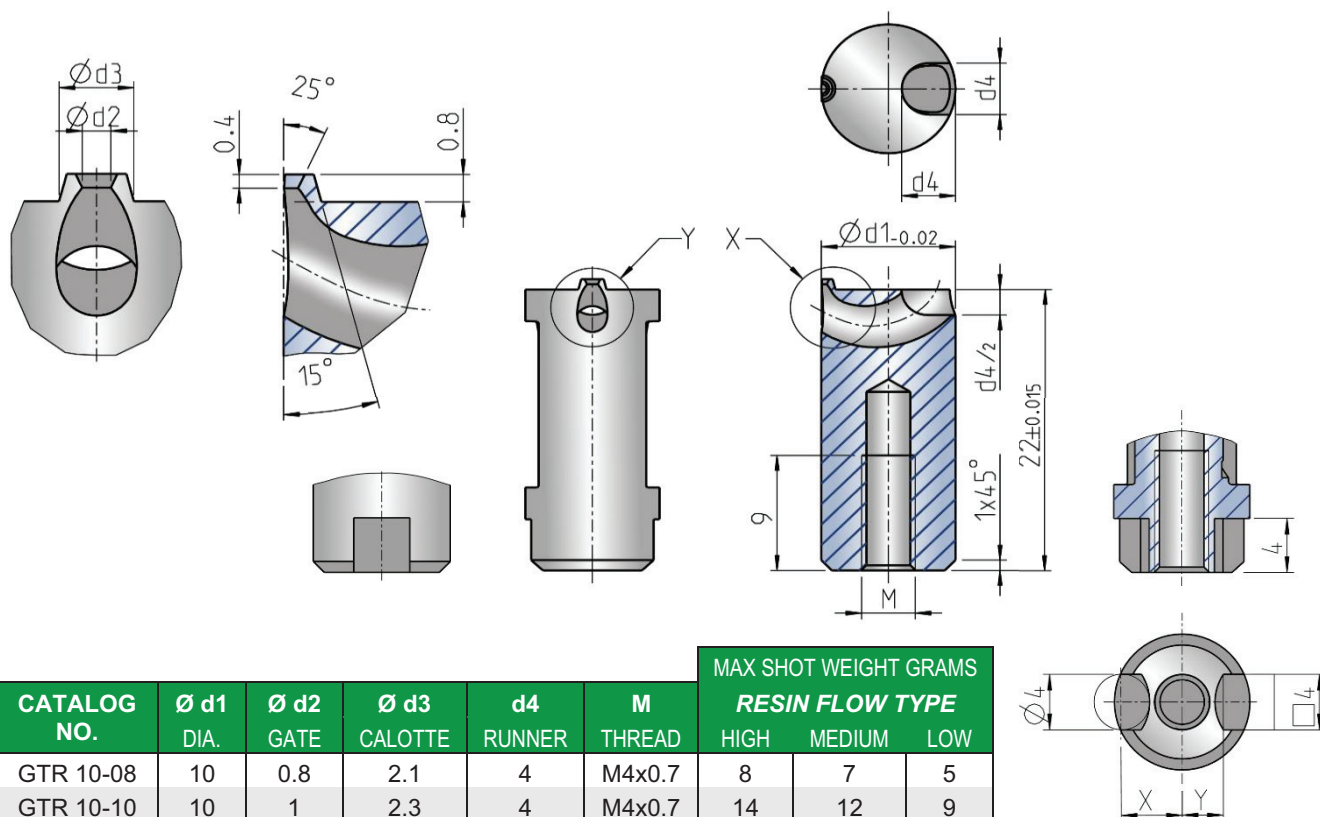
RESIN FLOW TYPE	MATERIALS
— HIGH FLOW ( <i>Low Viscosity</i> )	PA, PE, PC, PP, PET, PVC, PS, SB, TPA, TPE, TPU
— MEDIUM FLOW ( <i>Medium Viscosity</i> )	ABS, ASA, PS, PC/ABS, PBT, SAN
— LOW FLOW ( <i>High Viscosity</i> )	PC, PPS, PSU, POM-H, PES, PPO, PEI, PC-ABS, PC-PBT, PMMA, PVC

## Round Tunnel Gate Inserts - Standardflow GTR



For tunnel gating of small to medium sized parts along a flat parting line. The projecting calotte ensures concealed degating.

- Available gate diameters from 0.8 to 2.4 mm
- Usable for all thermoplastics including fillers up to 50% glass fiber



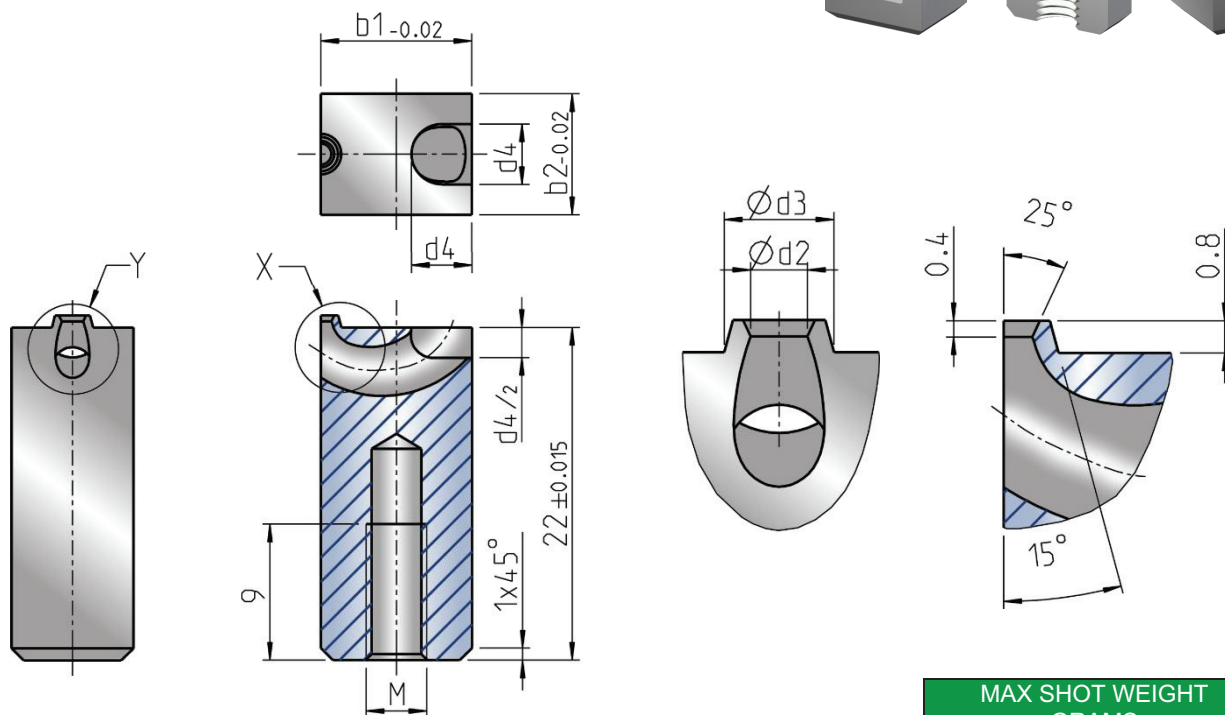
CATALOG NO.	Ø d1 DIA.	Ø d2 GATE	Ø d3 CALOTTE	d4 RUNNER	M THREAD	MAX SHOT WEIGHT GRAMS RESIN FLOW TYPE		
						HIGH	MEDIUM	LOW
GTR 10-08	10	0.8	2.1	4	M4x0.7	8	7	5
GTR 10-10	10	1	2.3	4	M4x0.7	14	12	9
GTR 10-12	10	1.2	2.5	4	M4x0.7	20	16	10
GTR 10-14	10	1.4	2.7	4	M4x0.7	30	23	15
GTR 10-16	10	1.6	2.9	4	M4x0.7	40	30	20
GTR 12-08	12	0.8	2.1	5	M5x0.8	8	7	5
GTR 12-10	12	1	2.3	5	M5x0.8	14	12	9
GTR 12-12	12	1.2	2.5	5	M5x0.8	20	16	10
GTR 12-14	12	1.4	2.7	5	M5x0.8	30	23	15
GTR 12-16	12	1.6	2.9	5	M5x0.8	40	30	20
GTR 12-18	12	1.8	3.1	5	M5x0.8	54	40	27
GTR 12-20	12	2	3.3	5	M5x0.8	68	52	34
GTR 14-12	14	1.2	2.5	6	M6x1.0	20	16	10
GTR 14-14	14	1.4	2.7	6	M6x1.0	30	23	15
GTR 14-16	14	1.6	2.9	6	M6x1.0	40	30	20
GTR 14-18	14	1.8	3.1	6	M6x1.0	54	40	27
GTR 14-20	14	2	3.3	6	M6x1.0	68	52	34
GTR 14-22	14	2.2	3.5	6	M6x1.0	85	65	43
GTR 14-24	14	2.4	3.7	6	M6x1.0	100	80	50

KEYING FEATURES		
CAT. NO.	X	Y
GTR 10-xx	4.5	3.0
GTR 12-xx	5.2	3.8
GTR 14-xx	6.0	4.5

## Square Gate Inserts - Standardflow GTE

For tunnel gating of small to medium sized parts along a flat parting line. The projecting calotte ensures concealed degating.

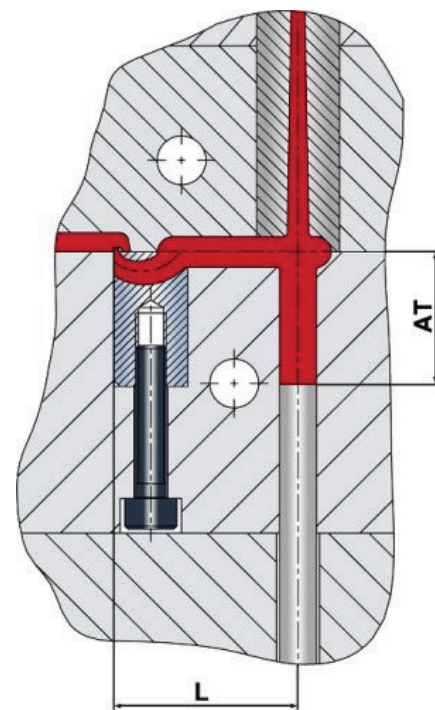
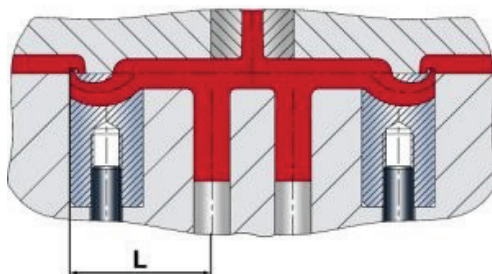
- Available gate diameters from 0.8 to 2.4 mm
- Usable for all thermoplastics including fillers up to 50% glass fiber



CATALOG NO.	b1 LENGTH	b2 WIDTH	Ø d2 GATE	Ø d3 CALOTTE	d4 RUNNER	M THREAD	MAX SHOT WEIGHT GRAMS		
							RESIN FLOW TYPE		
							HIGH	MEDIUM	LOW
GTE 10-08	10	8	0.8	2.1	4	M4x0.7	8	7	5
GTE 10-10	10	8	1	2.3	4	M4x0.7	14	12	9
GTE 10-12	10	8	1.2	2.5	4	M4x0.7	20	16	10
GTE 10-14	10	8	1.4	2.7	4	M4x0.7	30	23	15
GTE 10-16	10	8	1.6	2.9	4	M4x0.7	40	30	20
GTE 12-08	12	10	0.8	2.1	5	M5x0.8	8	7	5
GTE 12-10	12	10	1	2.3	5	M5x0.8	14	12	9
GTE 12-12	12	10	1.2	2.5	5	M5x0.8	20	16	10
GTE 12-14	12	10	1.4	2.7	5	M5x0.8	30	23	15
GTE 12-16	12	10	1.6	2.9	5	M5x0.8	40	30	20
GTE 12-18	12	10	1.8	3.1	5	M5x0.8	54	40	27
GTE 12-20	12	10	2	3.3	5	M5x0.8	68	52	34
GTE 14-12	14	12	1.2	2.5	6	M6x1.0	20	16	10
GTE 14-14	14	12	1.4	2.7	6	M6x1.0	30	23	15
GTE 14-16	14	12	1.6	2.9	6	M6x1.0	40	30	20
GTE 14-18	14	12	1.8	3.1	6	M6x1.0	54	40	27
GTE 14-20	14	12	2	3.3	6	M6x1.0	68	52	34
GTE 14-22	14	12	2.2	3.5	6	M6x1.0	85	65	43
GTE 14-24	14	12	2.4	3.7	6	M6x1.0	100	80	50

## GTR & GTE Installation Dimensions

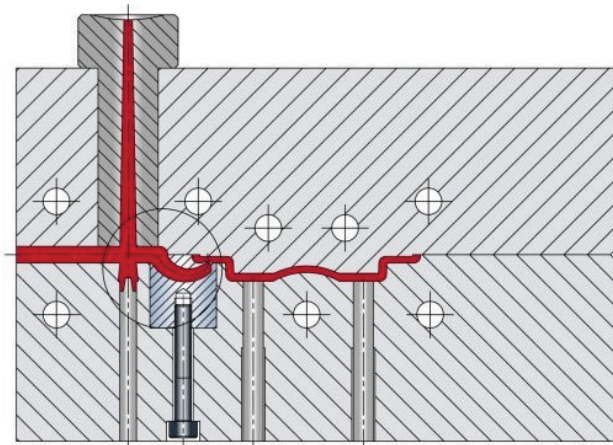
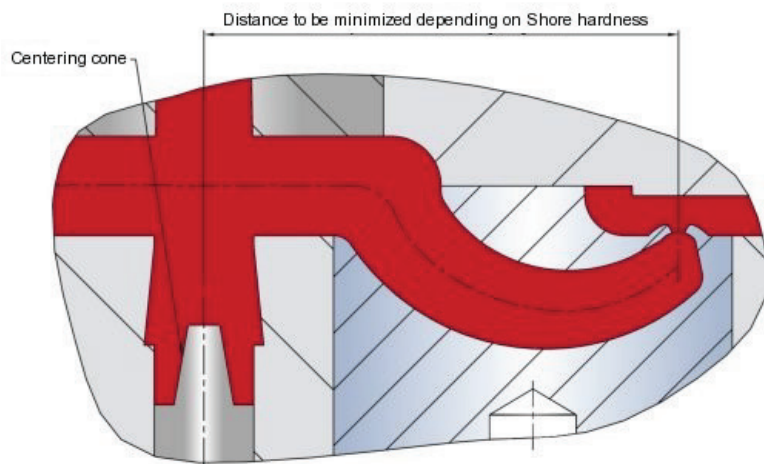
EJECTOR LOCATION TABLE FOR GTR / GTE			
PLASTIC GROUP	RUNNER DESIGN	L	AT
HD-PE, LD-PE, PET, PP, PA, PC, PVC	round	>20	>16
ABS, M ABS, ASA, PS, PC/ABS, POM, PBT	round	>25	>20
Elastomer TPE, TPU, TPP, TPA	any	>15	>11
Brittle Plastics	half-round	>30	>24



## Thermoplastic Elastomers

When processing thermoplastic elastomers, please observe the following recommendations to ensure reliable degating:

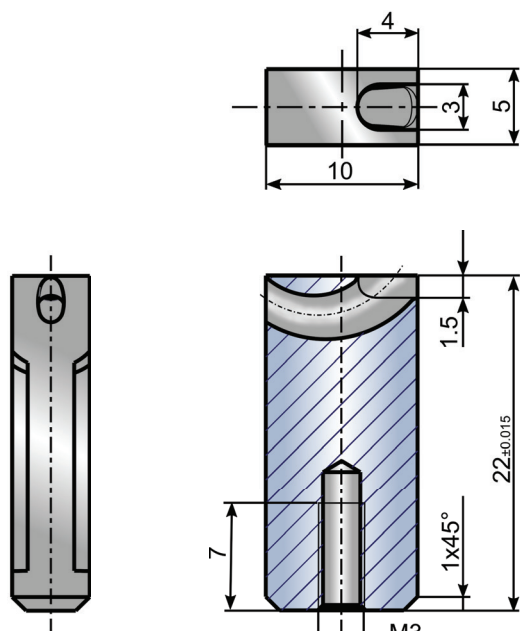
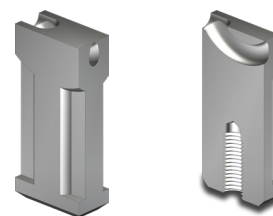
- Distance "L" should decrease with the Shore hardness value.
- A centering cone should be provided as shown.
- This instruction applies to elastomers in the medium Shore hardness range up to 100 Shore A.



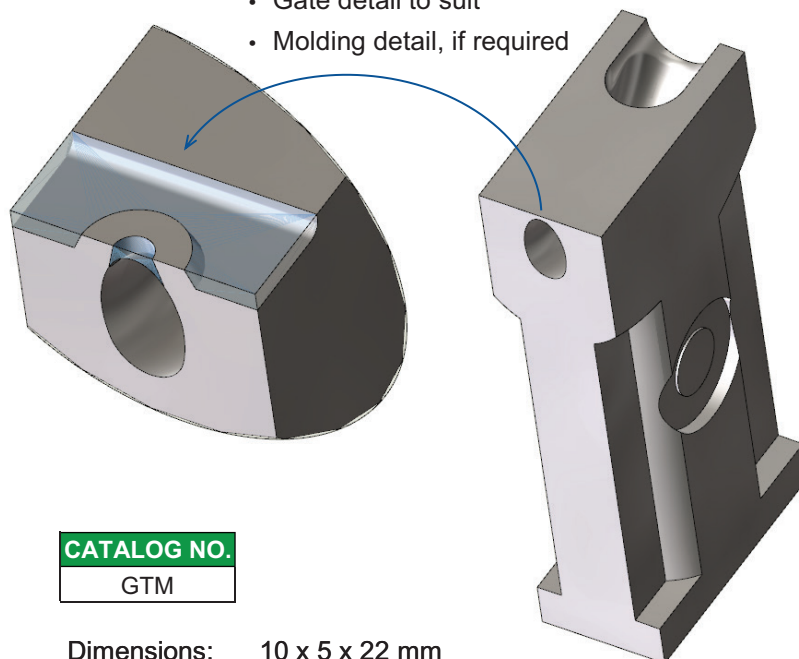
## Miniflow® - GTM

For tunnel gating of small, thin-walled parts. This gate insert has a closed gate diameter and is, therefore, suitable for the use of low article weight and for very thin-walled parts.

- The closed surface enables the creation of individual gate diameter.
- Usable for all thermoplastics including fillers up to 50% glass fiber.



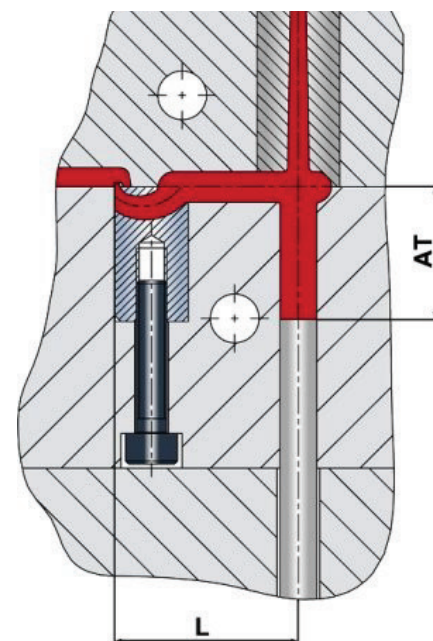
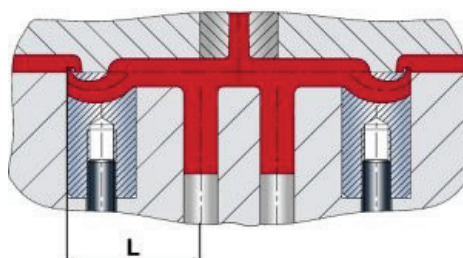
- Customer to machine:**
- Gate detail to suit
  - Molding detail, if required



**CATALOG NO.**  
GTM

Dimensions: 10 x 5 x 22 mm  
Material: 1.4028 (420W)  
Hardness: 50-55 HRC

Gate Ø	GRAMS		
	RESIN FLOW TYPE		
	HIGH	MEDIUM	LOW
0.5	4	4	3
0.7	6	5	4
0.9	12	9	7
1.1	17	14	9



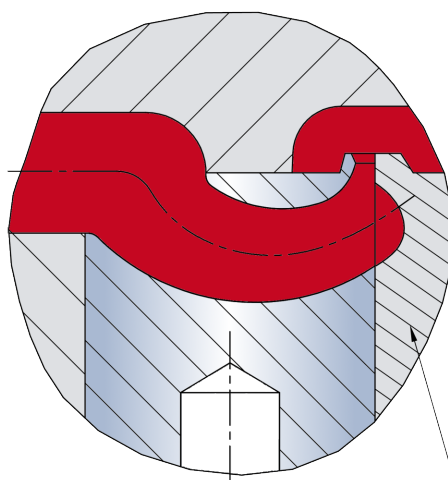
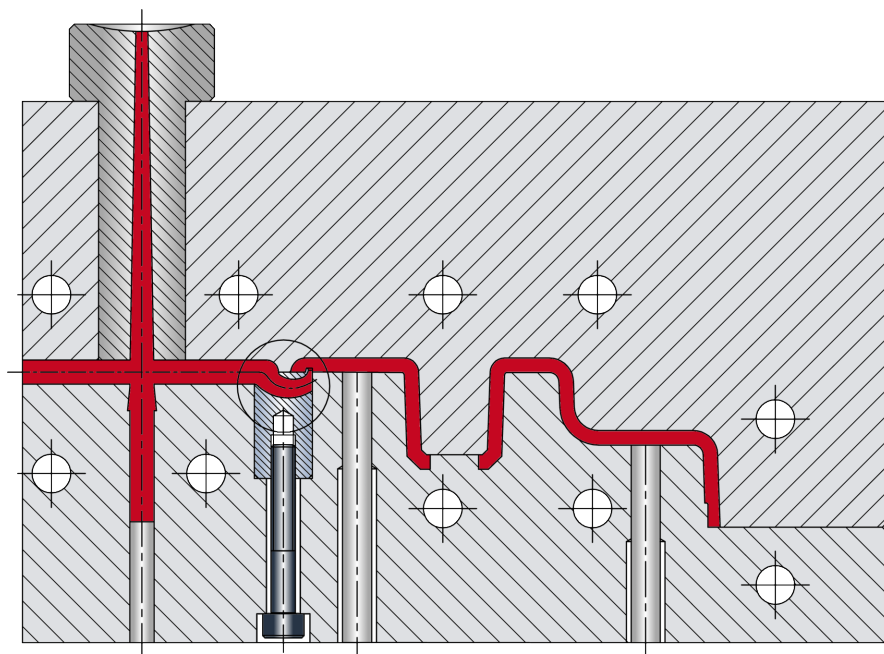
EJECTOR LOCATION TABLE FOR GTM			
PLASTIC GROUP	RUNNER DESIGN	L	AT
HD-PE, LD-PE, PET, PP, PA, PC, PVC	round	>15	>11
ABS, M ABS, ASA, PS, PC/ABS, POM, PBT	round	>20	>14
Elastomer TPE, TPU, TPP, TPA	any	>15	>11
Brittle Plastics	half-round	>25	>18

## Installation Example: Standard

### Technical information

The front of the gate insert is sealed off by the mold cavity:

- To reduce pressure loss
- To avoid jetting



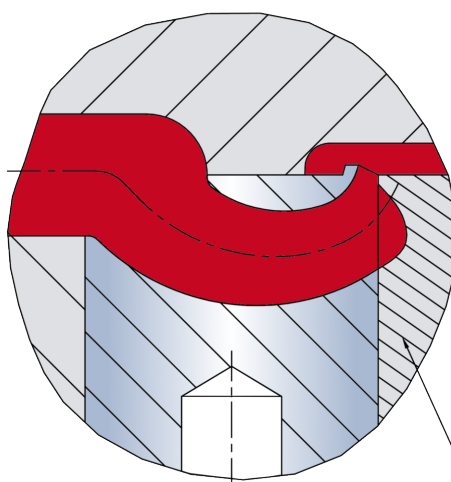
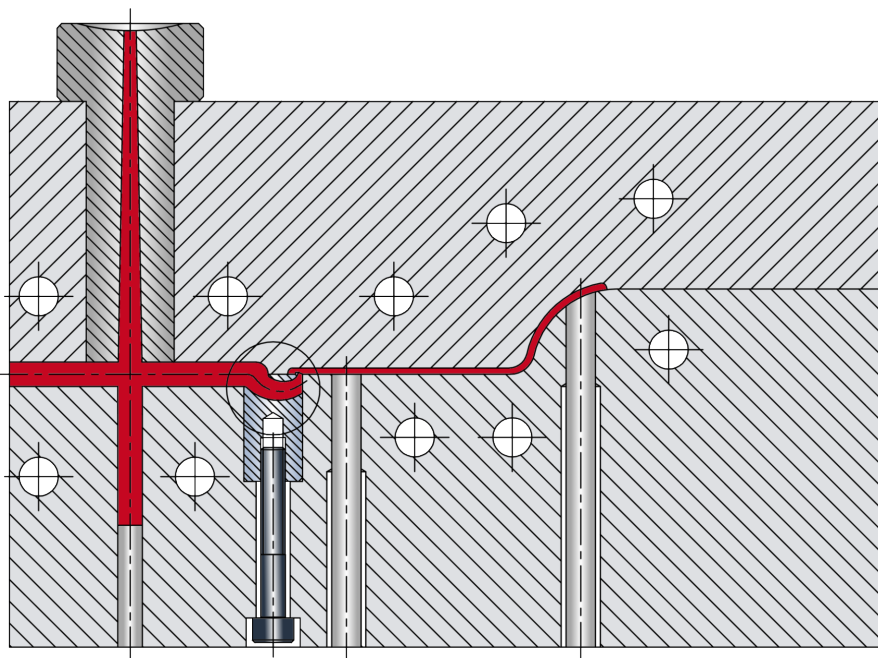
Optionally, provide a dead-end recess.

## Installation Example: Thin-Walled Parts Standardflow

### Technical information

The calotte height can be reduced to a minimum of 0.4 mm. This is the height defined by the cutting edge. The front of the gate insert is sealed off by the cavity to the height of the parting line.

- To reduce pressure loss
- To minimize shear



Optionally, provide a dead-end recess.

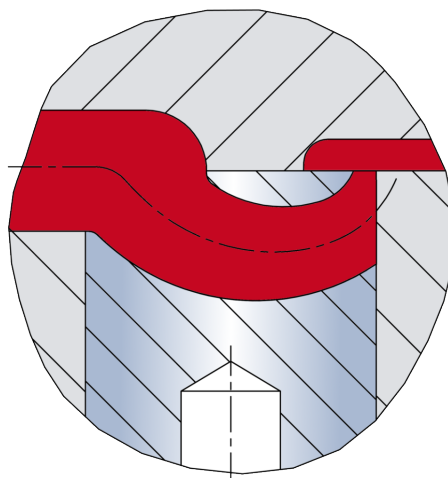
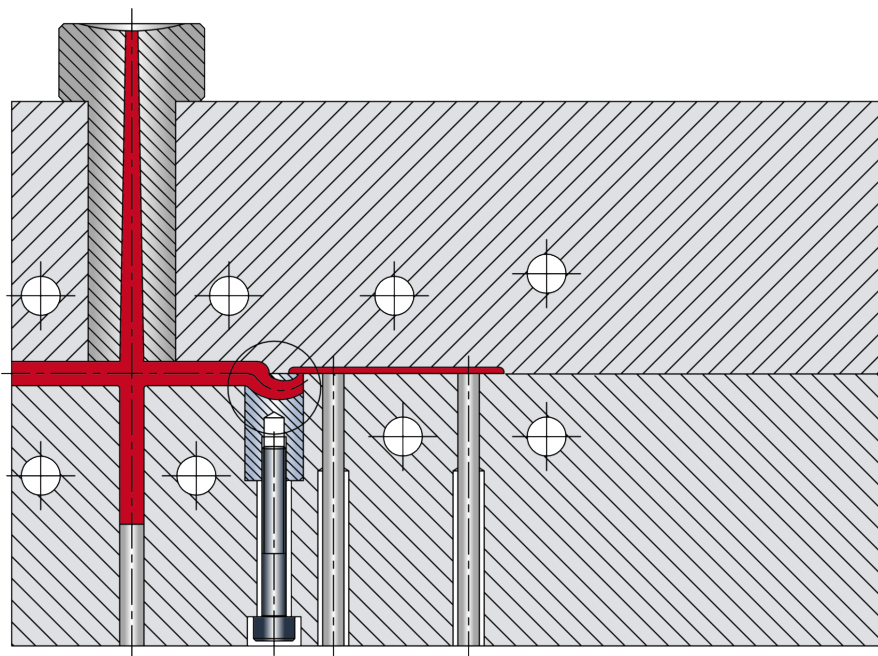
## Installation Example: Thin-Walled Parts Miniflow®

### Technical information

Designed for particularly thin-walled Parts (0.5 to 1.2 mm wall thickness). The tunnel gate insert has no calotte.

Gating will occur flush with the molding.

- The gating point will be flush with, or slightly projecting from, the bottom surface depending on plastic used.

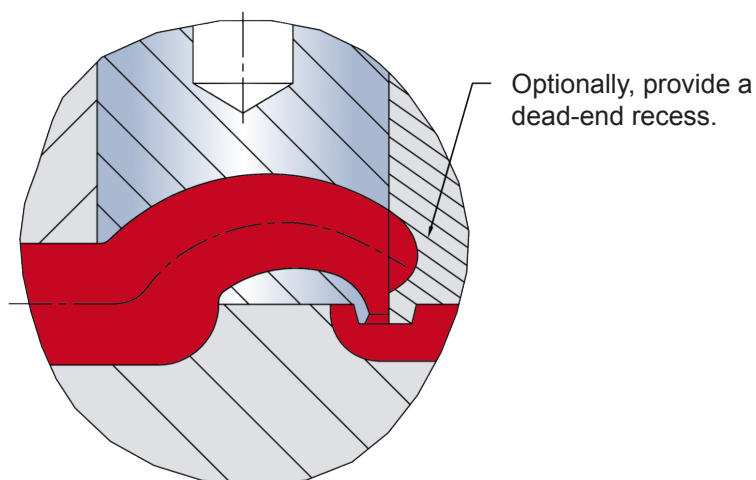
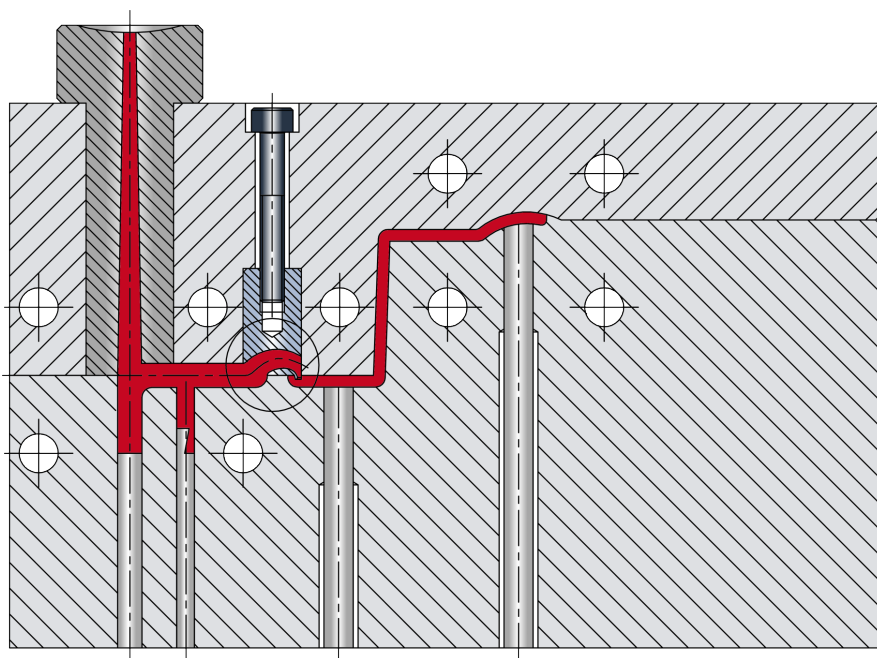


## Installation Example: Nozzle-Side

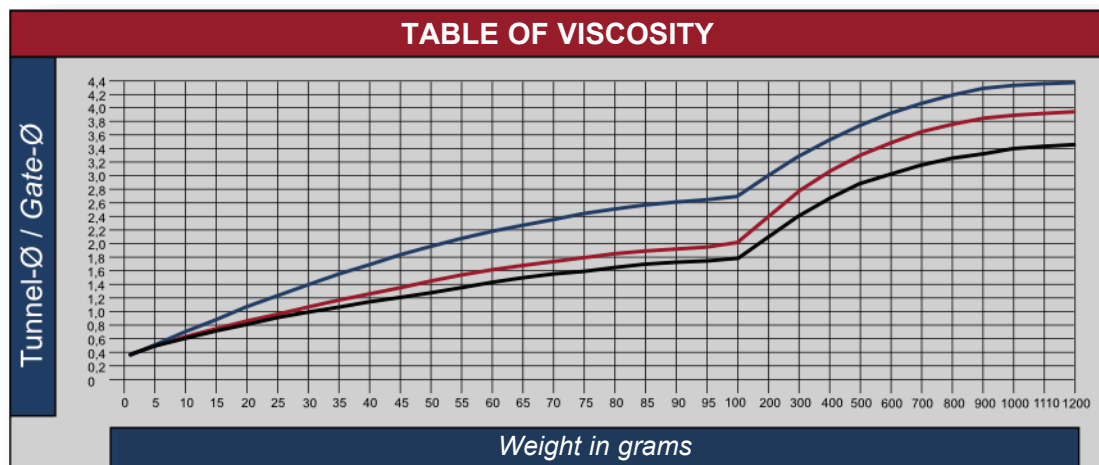
### Technical information




The gate insert is screwed into the nozzle side of the mold.  
The front of the gate insert is sealed off by the cavity:

- To reduce pressure loss
- To minimize shear



## Contourable Inserts - Table of Viscosity

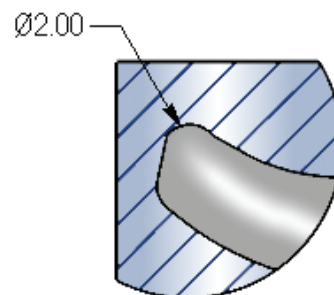
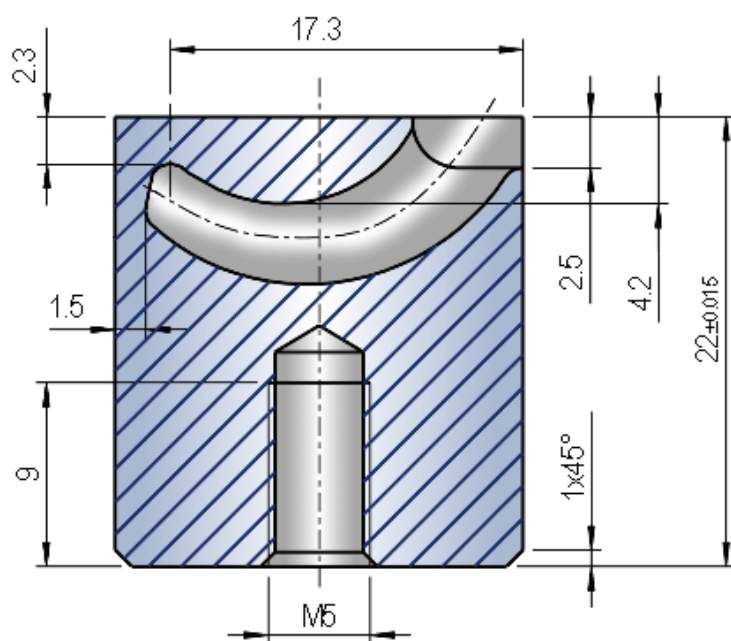
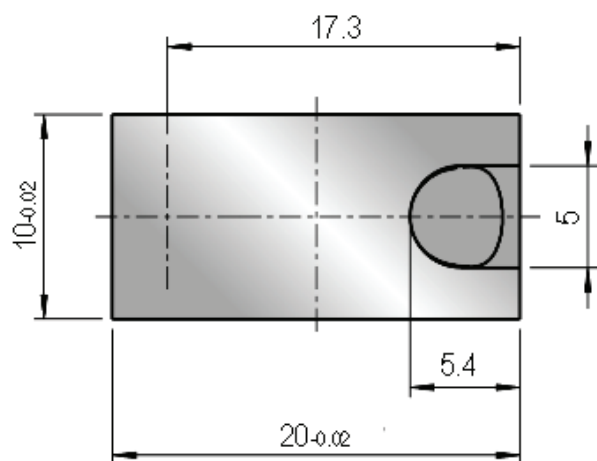
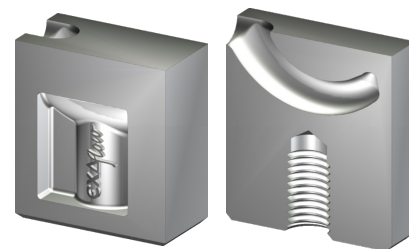


<i>RESIN FLOW TYPE</i>		<i>MATERIALS</i>
	HIGH FLOW ( <i>Low Viscosity</i> )	PA, PE, PC, PP, PET, PVC, PS, SB, TPA, TPE, TPU
	MEDIUM FLOW ( <i>Medium Viscosity</i> )	ABS, ASA, PS, PC/ABS, PBT, SAN
	LOW FLOW ( <i>High Viscosity</i> )	PC, PPS, PSU, POM-H, PES, PPO, PEI, PC-ABS, PC-PBT, PMMA, PVC

## Konturflow® - GTK

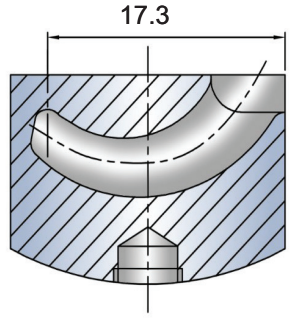
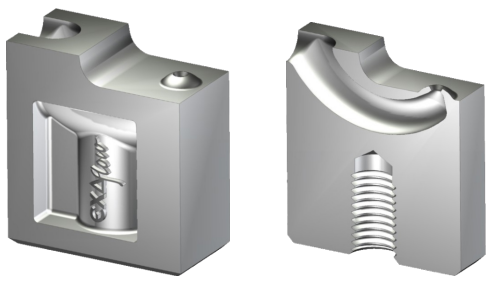
For tunnel gating of small to medium sized parts that are contoured in the gate area.

- Maximum gate diameter (pointed tunnel) up to 1.7 mm.
- Contourable up to 3 mm depth.
- Usable for all thermoplastics including fillers up to 50% glass fiber.

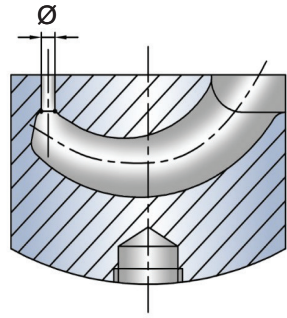


The spherical geometry in the gate area permits gating on inclined or curved surfaces.

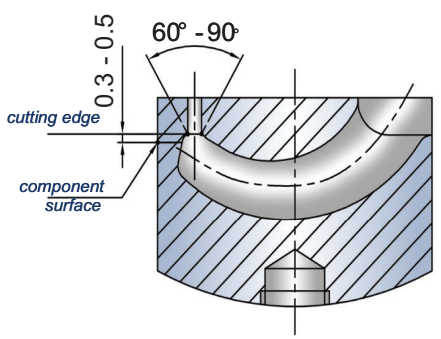
# Calotte Design: Standard



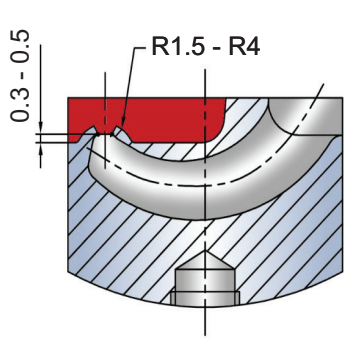
*Contourable insert in unfinished state*



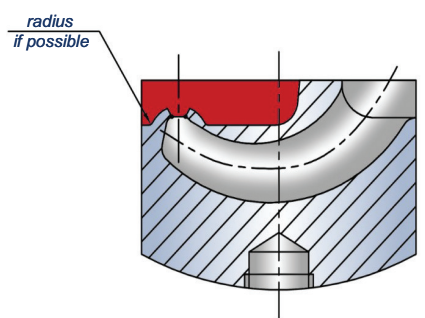
*Diameter to be defined in accordance with the table*



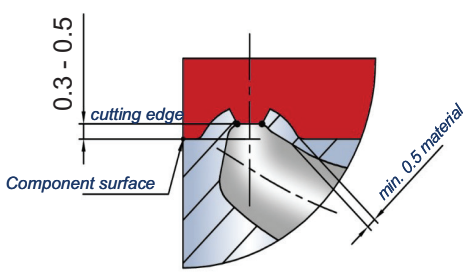
*Define 60 to 90 angle at bore / tunnel intersection point*



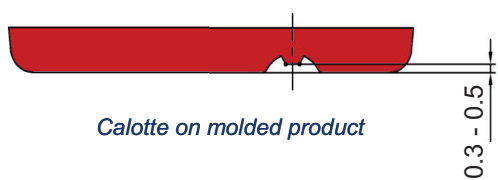
*Calotte wall thickness to be between 0.5 and 0.7 mm*



*Provide radius if possible*

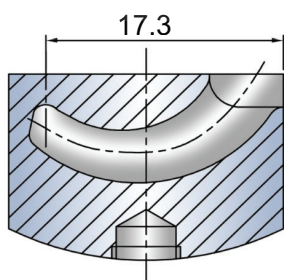
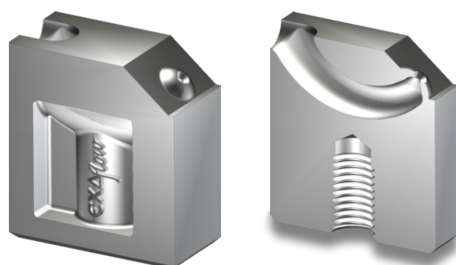


*Finished calotte drawing*

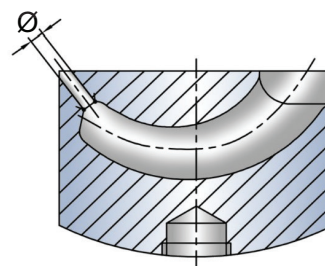


*Calotte on molded product*

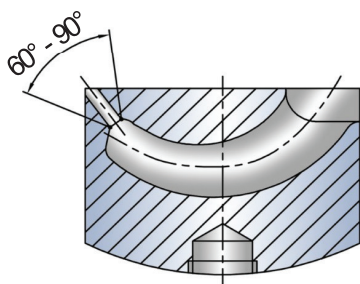
## Calotte Design: Inclined Surface



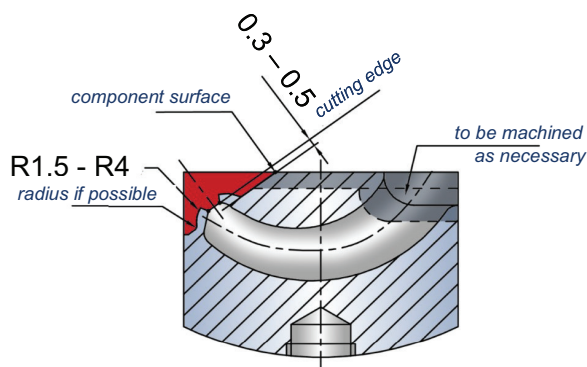
*Contourable insert in unfinished state*



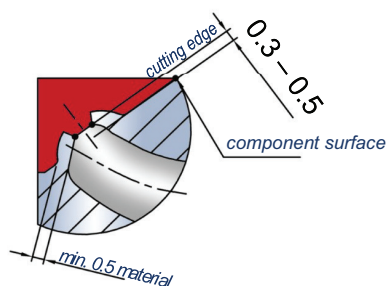
*Diameter to be defined in accordance with the table*



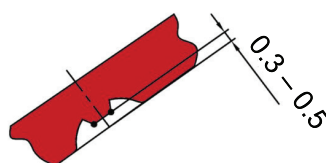
*Define 60 to 90 angle at bore / tunnel intersection point*



*Calotte wall thickness to be between 0.5 and 0.7 mm*

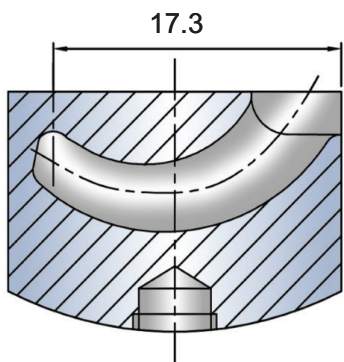
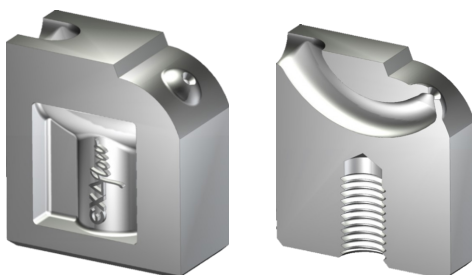


*Provide radius if possible*

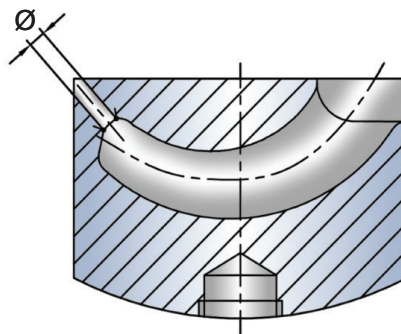


*Calotte on molded product*

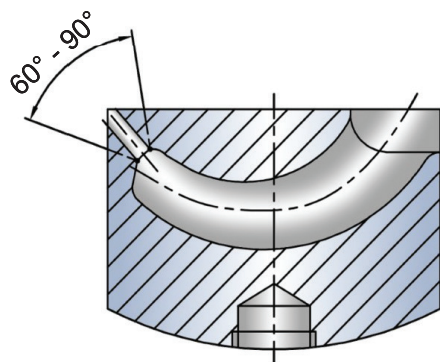
## Calotte Design: Curved Surface



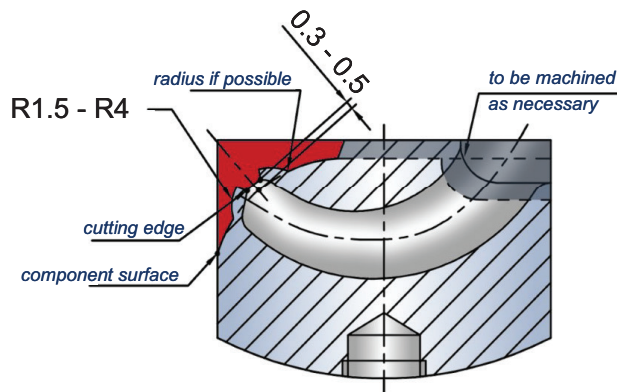
*Contourable insert in unfinished state*



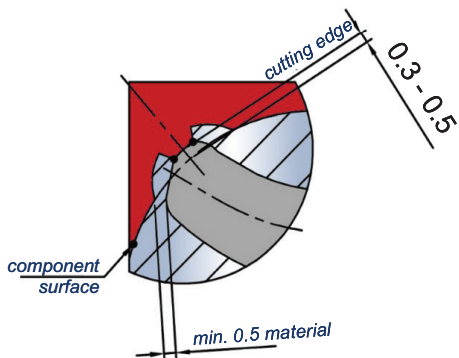
*Diameter to be defined in accordance with the table*



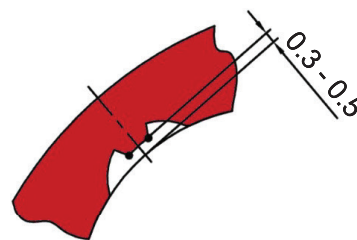
*Define 60 to 90 angle at bore / tunnel intersection point*



*Calotte wall thickness to be between 0.5 and 0.7 mm*



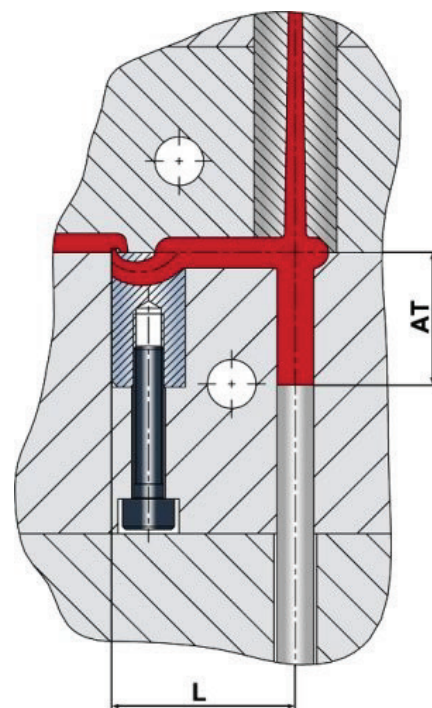
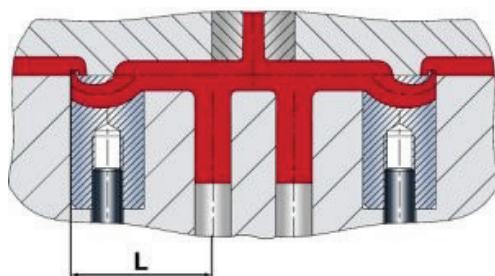
*Provide radius if possible*



*Calotte on molded product*

## GTK Installation Dimensions

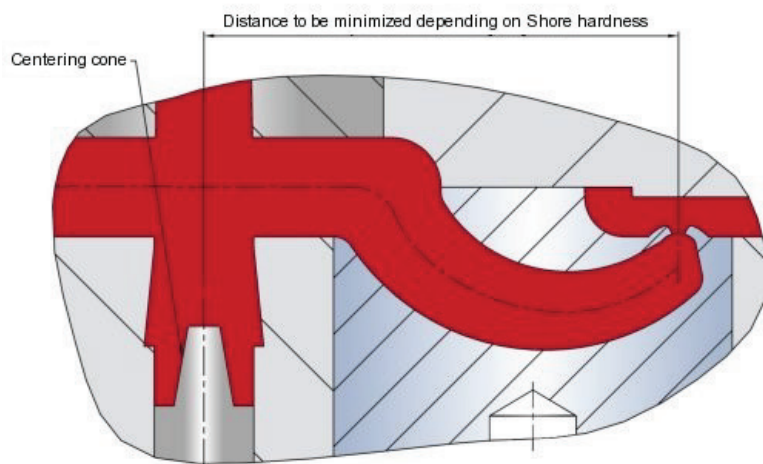
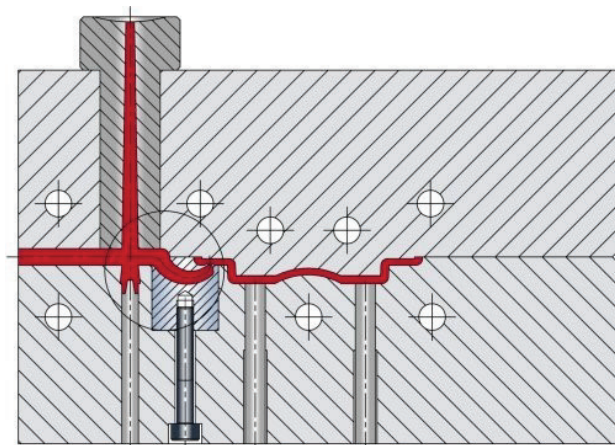
EJECTOR LOCATION TABLE FOR GTK			
PLASTIC GROUP	RUNNER DESIGN	L	AT
HD-PE, LD-PE, PET, PP, PA, PC, PVC	round	>25	>20
ABS, M ABS, ASA, PS, PC/ABS, POM, PBT	round	>30	>24
Elastomer TPE, TPU, TPP, TPA	any	>20	>16
Brittle Plastics	half-round	>40	>32



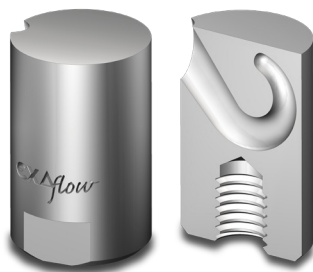
## Thermoplastic Elastomers

When processing thermoplastic elastomers, please observe the following recommendations to ensure reliable de-gating:

- Distance "L" should decrease with the Shore hardness value.
- A centering cone should be provided as shown.
- This instruction applies to elastomers in the medium Shore hardness range up to 100 Shore A.

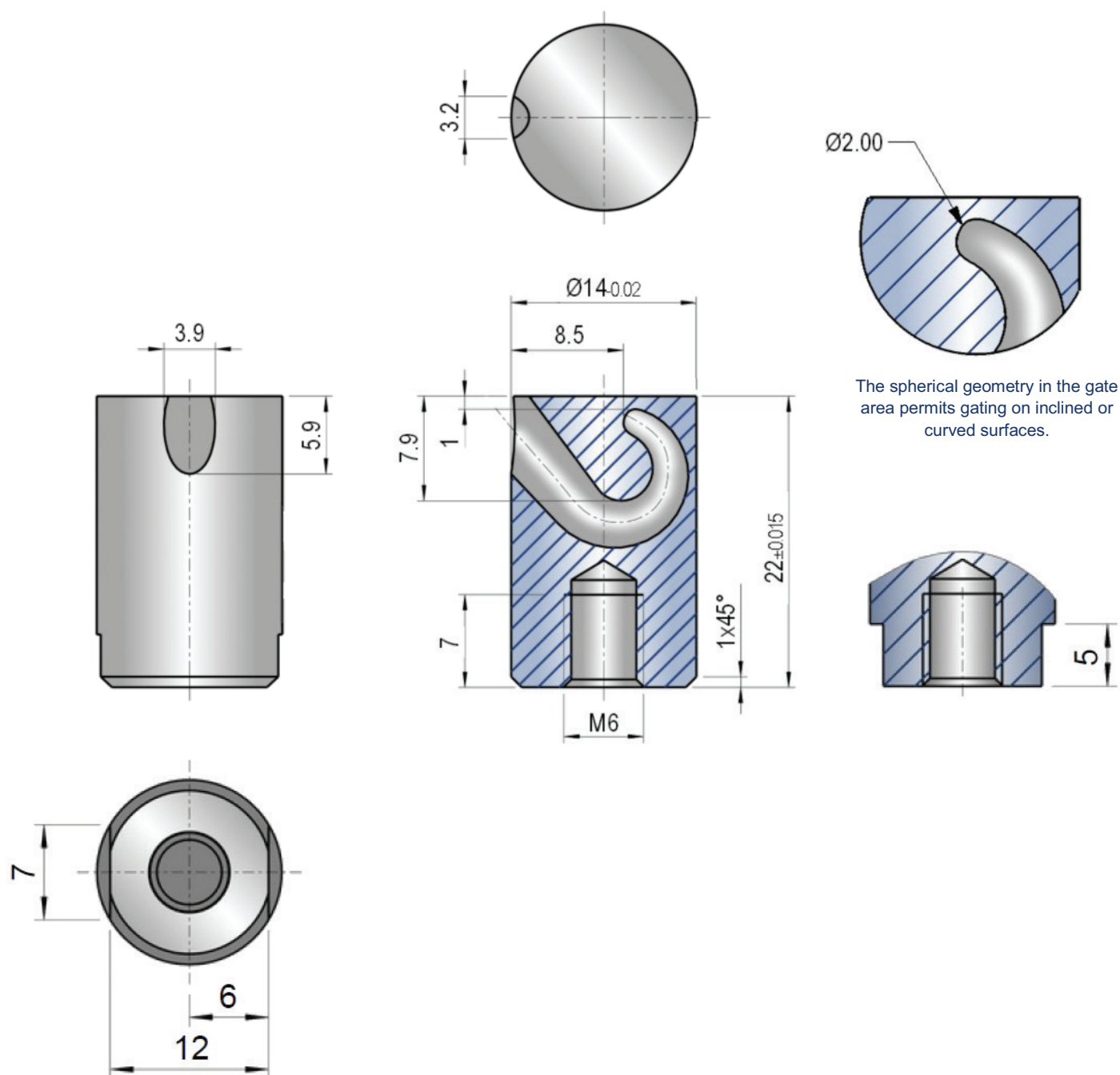


## Ringelflow® - GRF-1

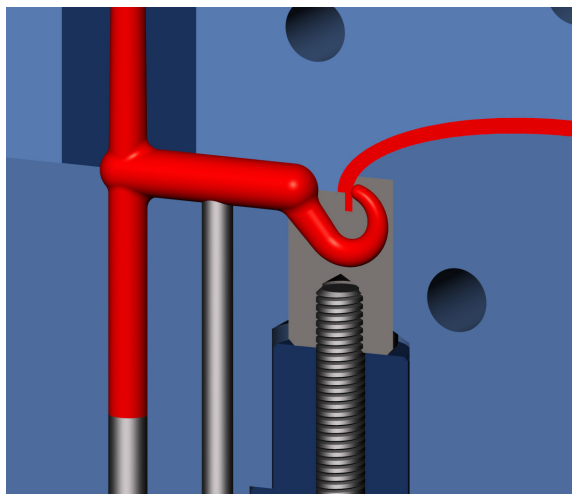


For rear surface gating of small-to-medium-sized moldings.

- Supports gate diameters up to 1.8 mm and shot weights up to 100 g per insert.
- Suitable for all common non-reinforced plastic types.



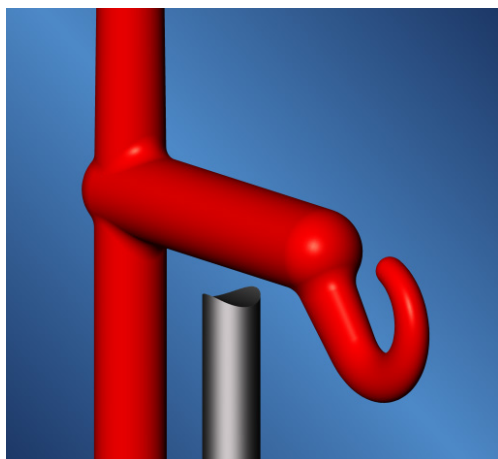
## Installation Example: Ringelflow® - GRF-1



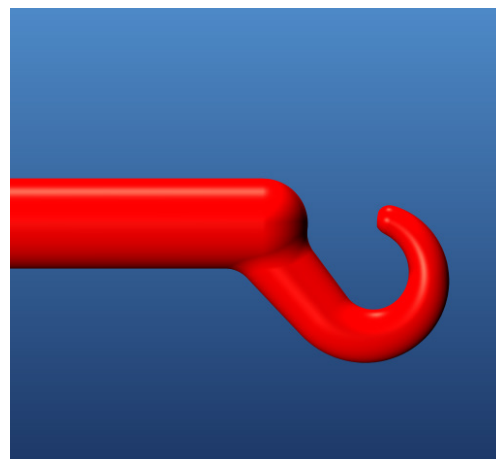
### Ringelflow® - GRF-1 benefits:

- Optimum solution to prevent jetting
- No gate marks on visible external surfaces and bottom wall
- Ideal for fully rounded edges
- Permits internal gating of 2-component moldings

For best operating results the Ringelflow® insert requires one central ejector and one supporting ejector. Please ensure that all sharp edges in the runner are thoroughly rounded. For reliable degating, the diameter of the runner must exceed that of the curved tunnel.



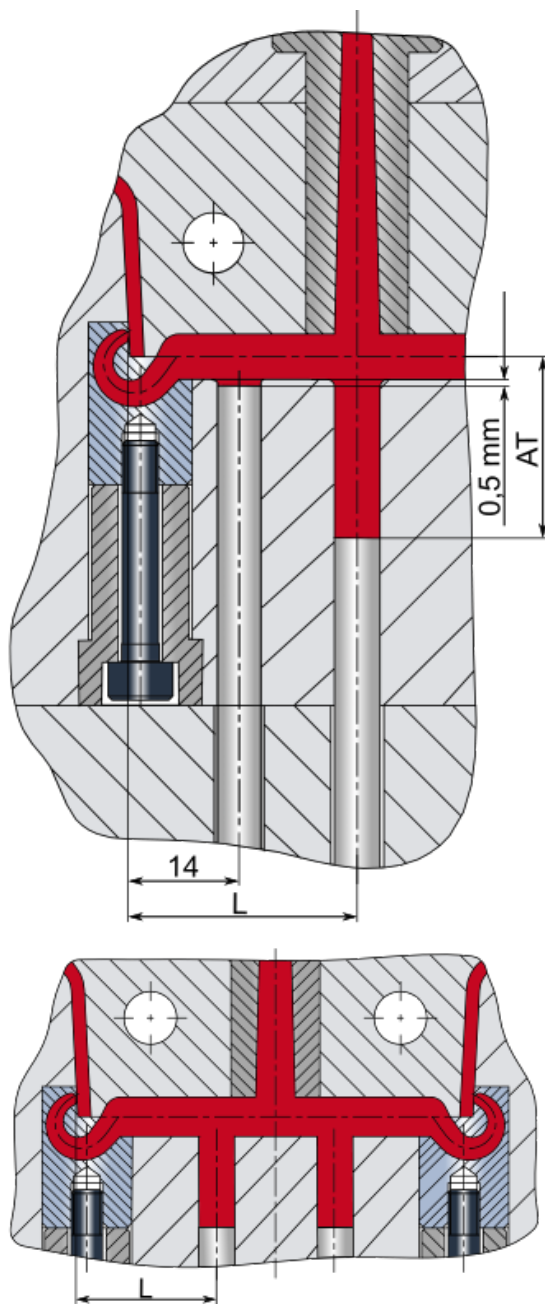
Contouring of a supporting ejector.



Optimum gate geometry,  
with edges rounded.

## Ringelflow® GRF Installation Dimensions

EJECTOR LOCATION TABLE FOR GRF			
PLASTIC GROUP	RUNNER DESIGN	L	AT
HD-PE, LD-PE, PET, PP, PA, PC, PVC	round	>30	>30
ABS, M ABS, ASA, PS, PC/ABS, POM, PBT	round	>30	>30
Elastomer TPE, TPU, TPP, TPA	any	>20	>20
Brittle Plastics	half-round	on request	

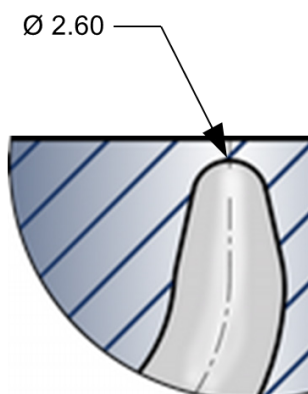
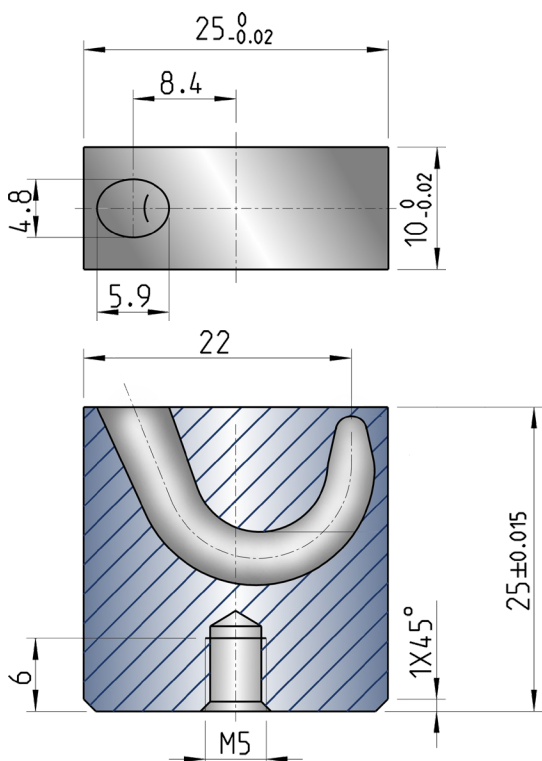
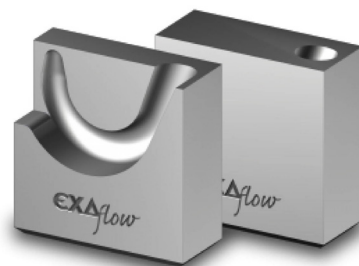


## Midiflow GMK

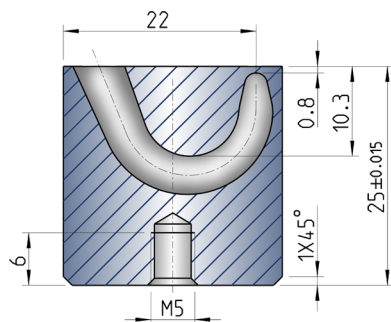
### Technical information

For bottom (submarine) gating of medium sized parts. Supports contouring to a depth of 8 mm.

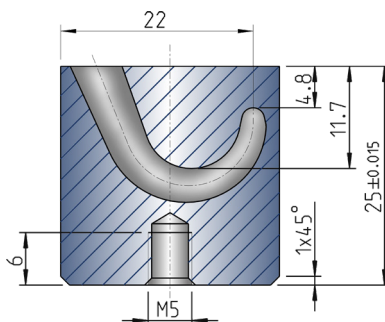
- Suitable for gate diameters up to 2 mm and shot weights up to 200 g per insert.
- Suitable for all common plastics, including reinforced types.



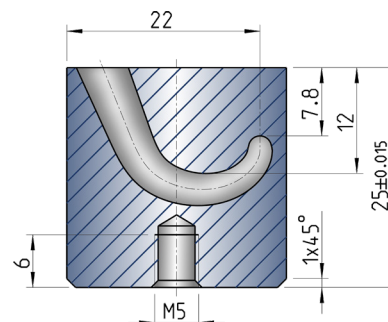
The spherical geometry in the gate area permits gating on inclined or curved surfaces.



**GMK-1**



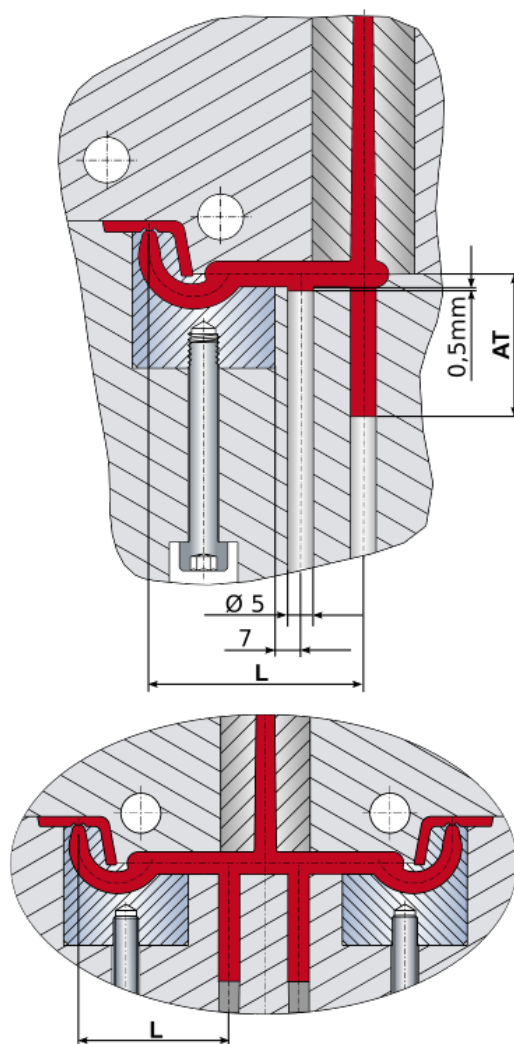
**GMK-2**



**GMK-3**

## Midiflow GMK Installation Dimensions

EJECTOR LOCATION TABLE FOR GMK			
PLASTIC GROUP	RUNNER DESIGN	L	AT
HD-PE, LD-PE, PET, PP, PA, PC, PVC	round	>30	>30
ABS, M ABS, ASA, PS, PC/ABS, POM, PBT	round	>35	>35
Elastomer TPE, TPU, TPP, TPA	any	>25	>16
Brittle Plastics	half-round	on request	



## Midiflow GMK-1

### Midiflow GMK-1 benefits:

- Gating point may be located up to 8 mm above the parting line.
- Permits gating immediately behind projecting ribs.
- Gate may be remote from molding wall.
- The spherical geometry in the gate area permits gating on inclined or curved surfaces.



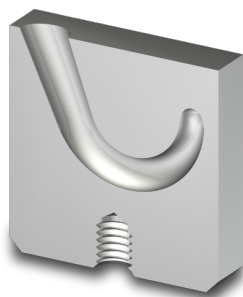
### Installation Example: Below the Parting Line



### Installation Example: Above the Parting Line



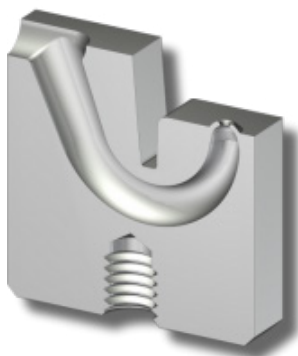
## Midiflow GMK-2



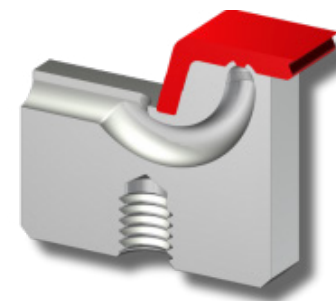
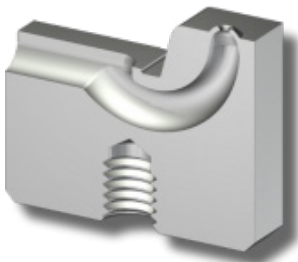
### Midiflow GMK-2 benefits:

- Gating point may be located up to 5 mm below or above the parting line.
- Permits gating immediately behind projecting ribs.
- Gate may be remote from molding wall.
- The spherical geometry in the gate area permits gating on inclined or curved surfaces.

### Installation Example: Below the Parting Line



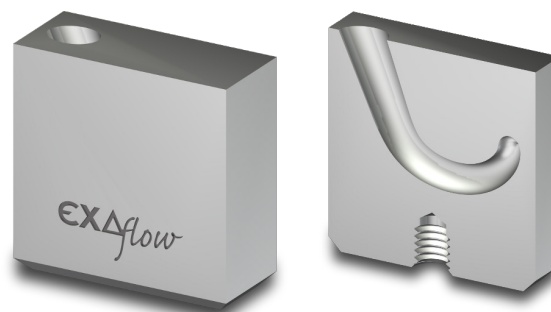
### Installation Example: Above the Parting Line



## Midiflow GMK-3

### Midiflow GMK-3 benefits:

- Gating point may be located up to 8 mm below the parting line.
- Permits gating immediately behind projecting ribs.
- Gate may be remote from molding wall.
- The spherical geometry in the gate area permits gating on inclined or curved surfaces.



### Installation Example: Below the Parting Line



### Installation Example: Above the Parting Line

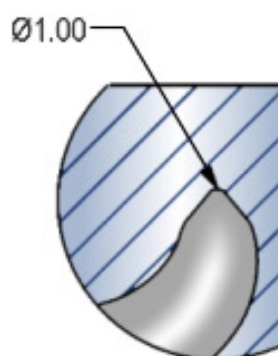
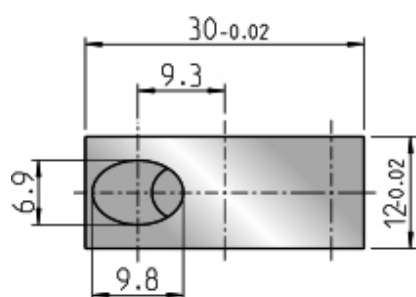


## Maxiflow® - GXK

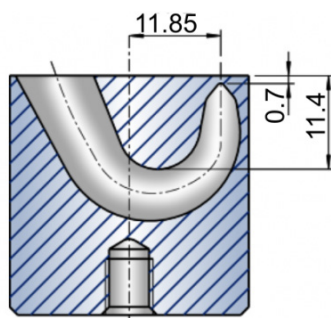
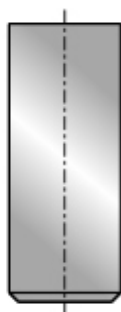
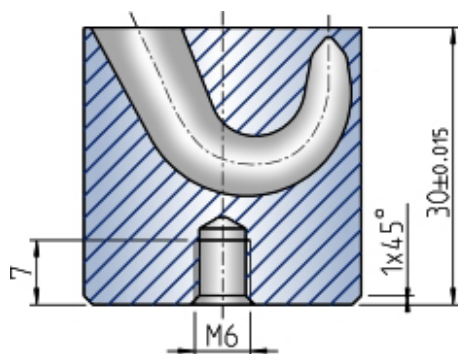


### Technical information

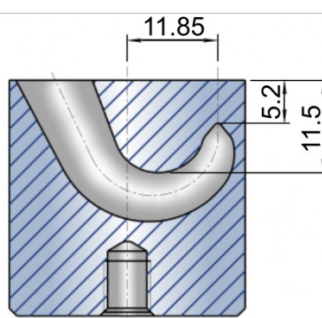
For bottom (submarine) gating of medium to large components. Supports contouring to a depth of 10 mm. Suitable for gate diameters up to 3.5 mm and shot weights up to 1200 g per insert. Suitable for all common plastics, including reinforced types.



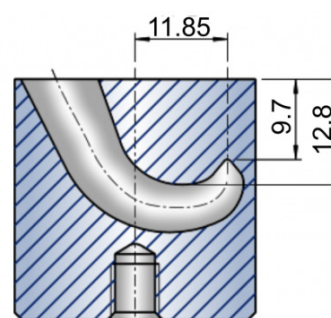
The spherical geometry in the gate area permits gating on inclined or curved surfaces.



**GXK-1**



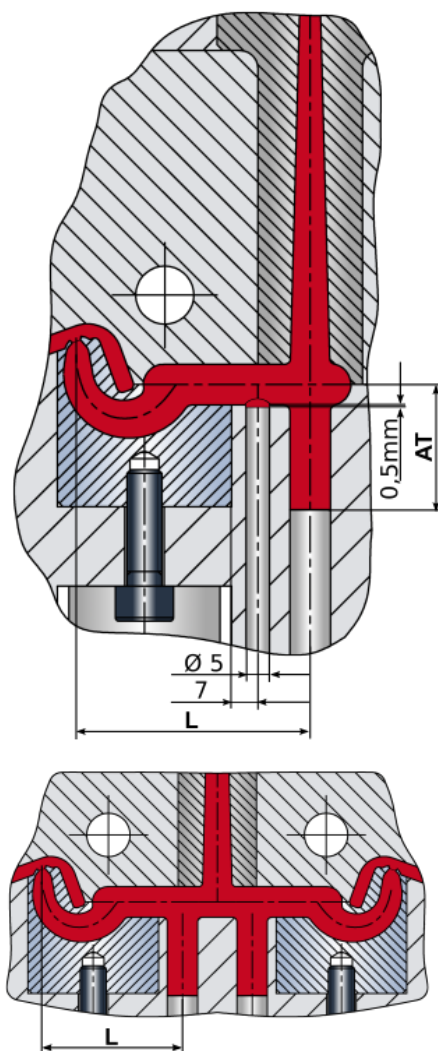
**GXK-2**



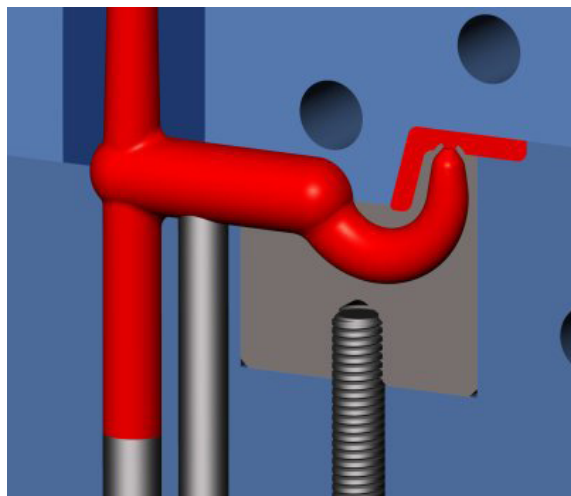
**GXK-3**

## Maxiflow® GXK Installation Dimensions

EJECTOR LOCATION TABLE FOR GXK			
PLASTIC GROUP	RUNNER DESIGN	L	AT
HD-PE, LD-PE, PET, PP, PA, PC, PVC	round	>35	>35
ABS, M ABS, ASA, PS, PC/ABS, POM, PBT	round	>40	>40
Elastomer TPE, TPU, TPP, TPA	any	>30	>30
Brittle Plastics	half-round	on request	



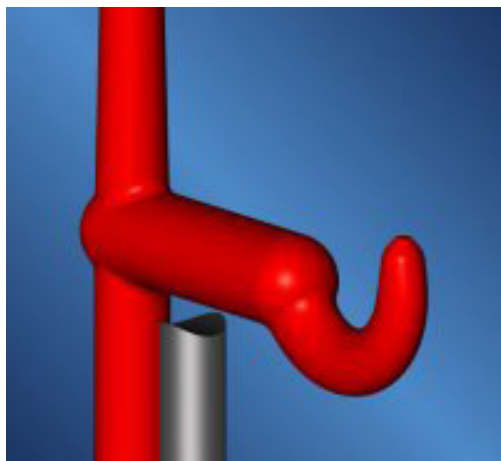
## Maxiflow® - GXK-1



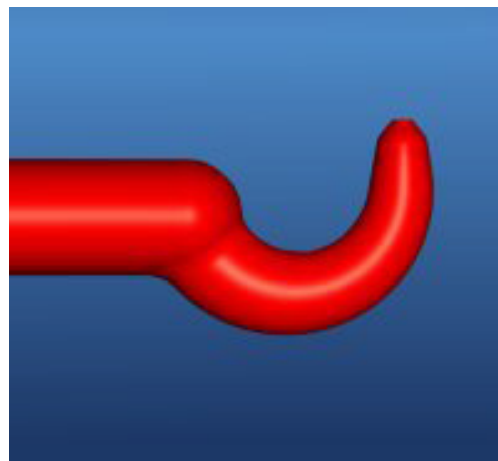
### Maxiflow® - GXK-1 benefits:

- Gating point may be located up to 10 mm above the parting line.
- Permits gating immediately behind projecting ribs.
- Gate may be remote from molding wall.
- The spherical geometry in the gate area permits gating on inclined or curved surfaces.

For best operating results the Maxiflow® insert requires one central ejector and one supporting ejector. Please ensure that all sharp edges in the runner are thoroughly rounded. For reliable degating, the diameter of the runner must exceed that of the curved tunnel.

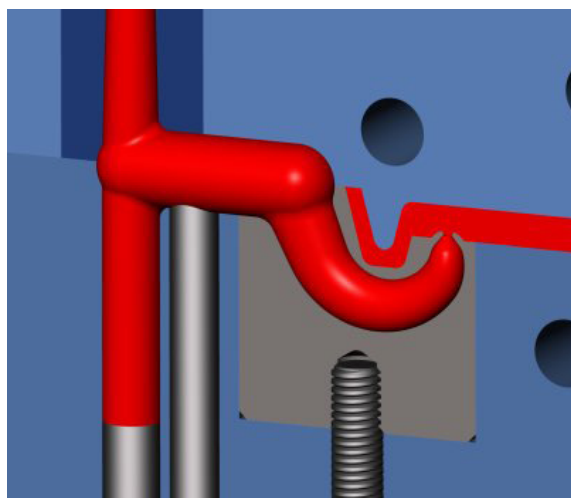


Contouring of a supporting ejector.



Optimum gate geometry,  
with edges rounded.

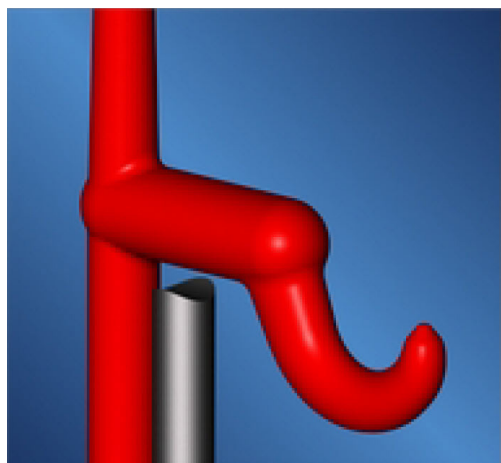
## Maxiflow® - GXK-2



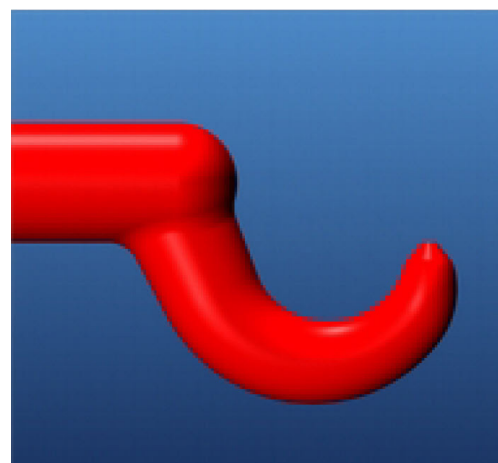
### Maxiflow® - GXK-2 benefits:

- Gating point may be located up to 5 mm above or below the parting line.
- Gate may be remote from molding wall.
- The spherical geometry in the gate area permits gating on inclined or curved surfaces.

For best operating results the Maxiflow® insert requires one central ejector and one supporting ejector. Please ensure that all sharp edges in the runner are thoroughly rounded. For reliable degating, the diameter of the runner must exceed that of the curved tunnel.

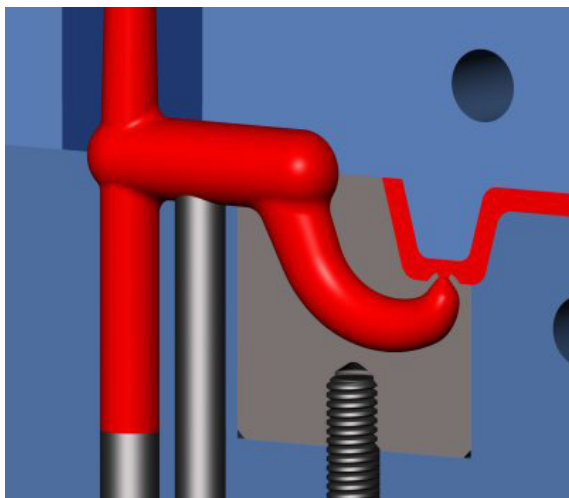


Contouring of a supporting ejector.



Optimum gate geometry,  
with edges rounded.

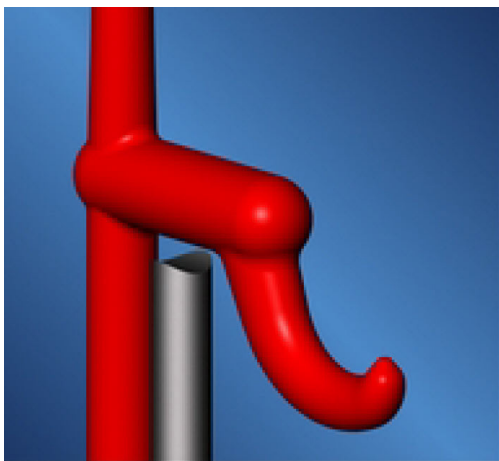
## Maxiflow® - GXK-3



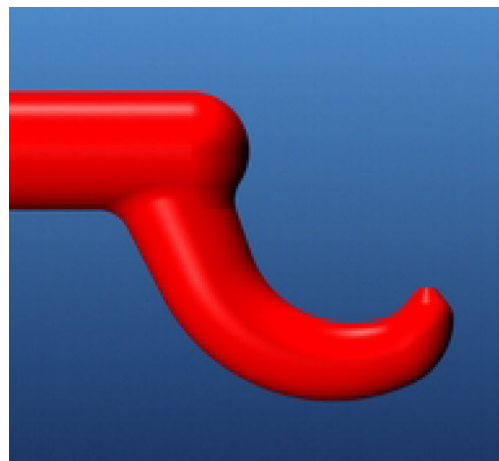
### Maxiflow® - GXK-3 benefits:

- Gating point may be located up to 10 mm below the parting line.
- Gate may be remote from molding wall.
- The spherical geometry in the gate area permits gating on inclined or curved surfaces.

For best operating results the Maxiflow® insert requires one central ejector and one supporting ejector. Please ensure that all sharp edges in the runner are thoroughly rounded. For reliable demolding, the diameter of the runner must exceed that of the curved tunnel.



Contouring of a supporting ejector.



Optimum gate geometry,  
with edges rounded.