

Mould making

Hot runner moulds



AVAILABLE
IMMEDIATELY

A white icon of a truck, indicating immediate availability.

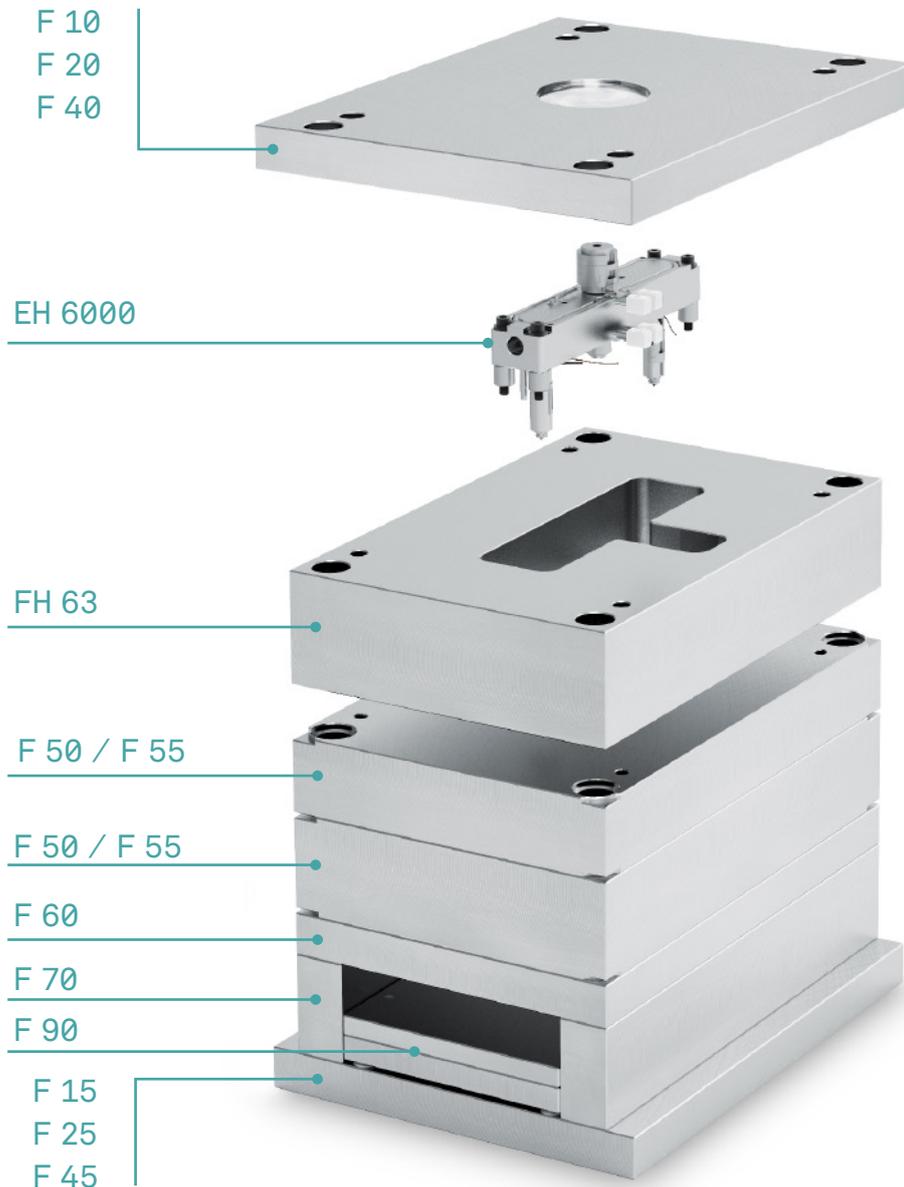
Highlights

- › Manifold plate FH 63
- › Hot runner configurator in the web shop
- › High-quality customer support on-site & at headquarters



A hot runner mould in just 5 minutes

The configurator for hot runner moulds from Meusburger offers numerous advantages that allow you to save time and reduce costs. The complete mould base including hot runner system can be customised with just a few clicks and dispatched shortly thereafter in just one order.



Find more details on our hot runner mould at:

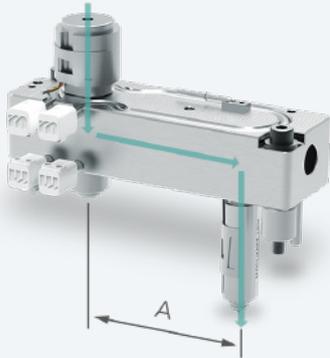
www.meusburger.com/hot-runner-moulds

Advantages:

Hot runner system EH 6000: delivered completely machined and assembled
Manifold plate FH 63: delivered including milled recesses for the manifold
Standard label E 19100/43 70/1/2: delivered including system-relevant data

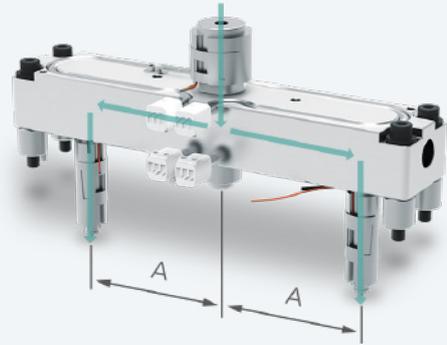
4 variants – maximum flexibility

For our standardised hot runner moulds, you can choose between four different manifold types. With the offered manifold sizes, the variable nozzle positions and the large nozzle selection you can configure the right hot runner solution for your project quickly and reliably.



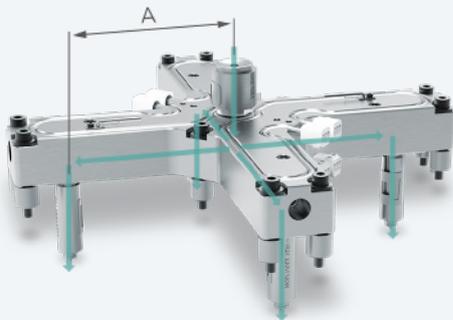
Deflection manifold IMT1 with 1 nozzle

Possible hole patterns:
A: 37.5 – 206.25 mm



In-line manifold IMT2 with 2 nozzles

Possible hole patterns:
A: 25.0 – 206.25 mm



Cross manifold CMT4 with 4 nozzles

Possible hole patterns:
A: 35.5 – 220.5 mm



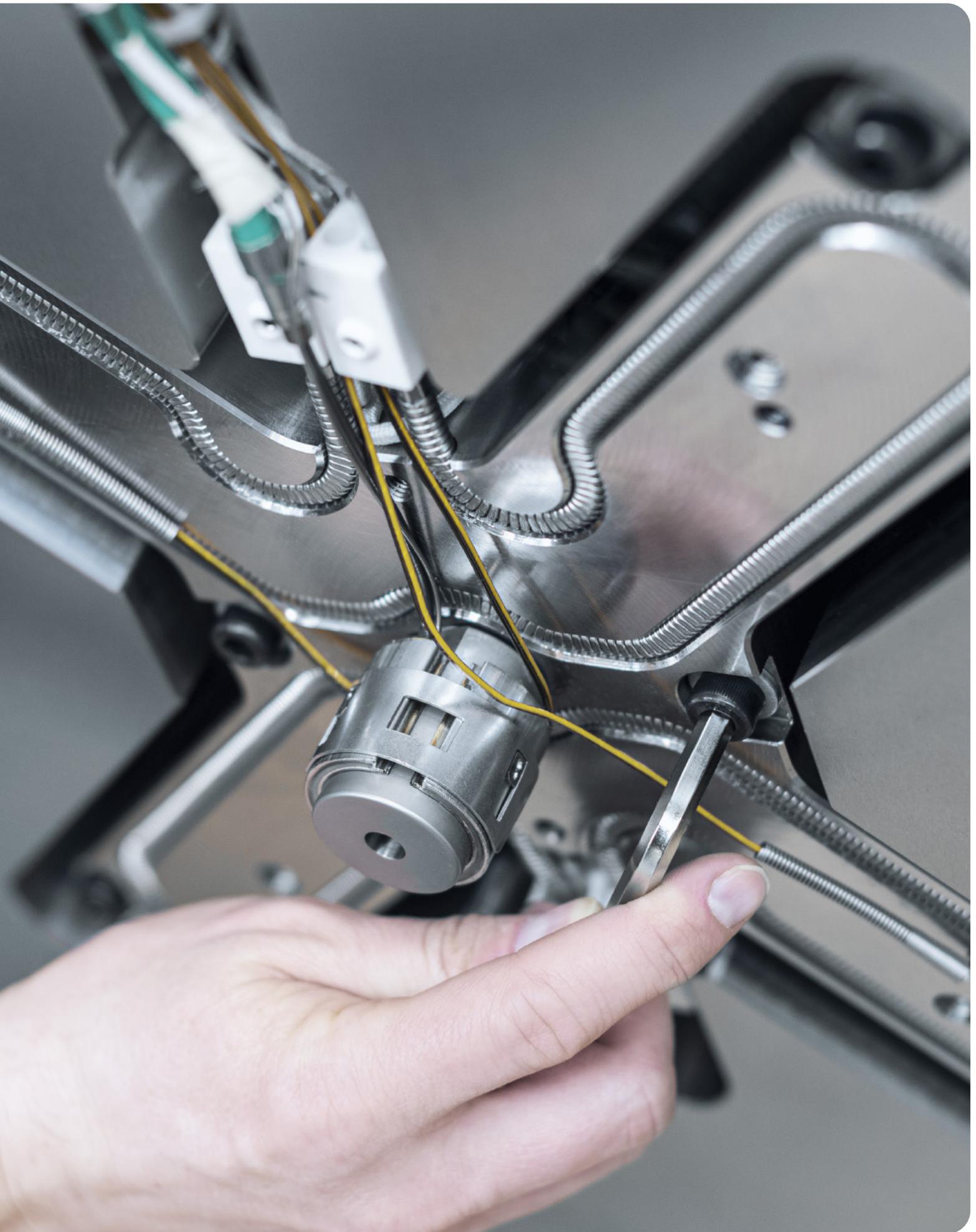
H manifold HMT4 with 4 nozzles

Possible hole patterns:
L1: 40.0 – 210.0 mm
L2: 25.0 – 206.25 mm



You can find more information here:

www.meusburger.com/hot-runner-moulds



Composition of the hot runner system EH 6000

Benefit from innumerable combination possibilities with standardised hot runner components for your customised hot runner solution that is adapted to your mould project.

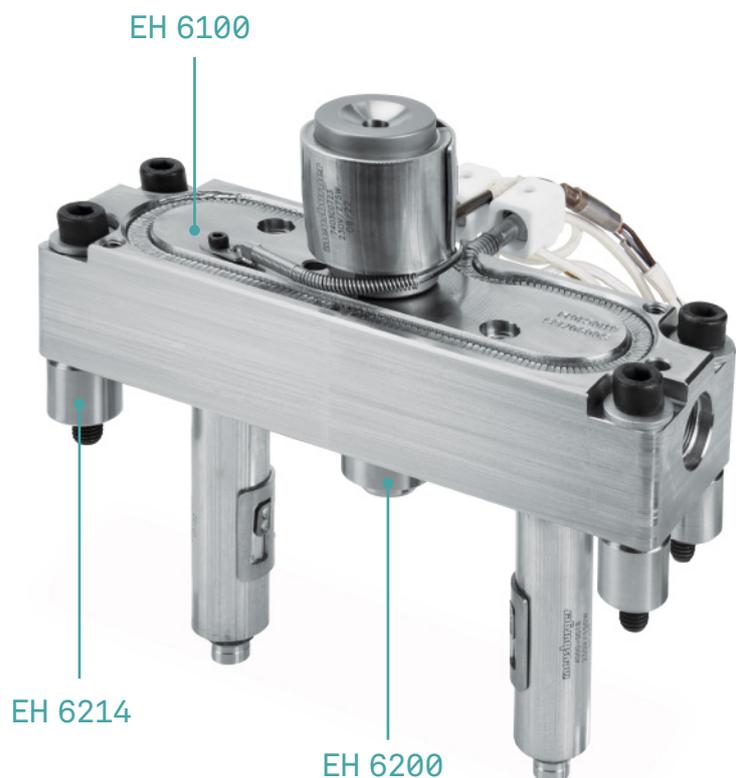
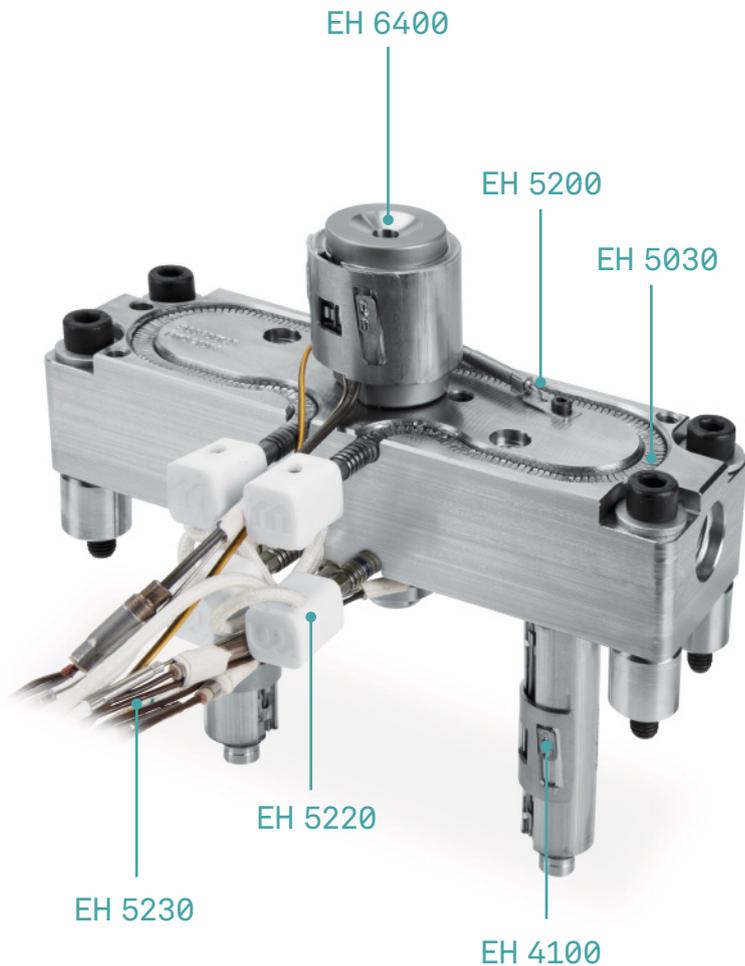


KLAUS DIETER

KAPP

Product development
hot runner systems

We make standardised and customised hot runner systems, based on our standardised hot runner components and adapted to customer-specific needs. In case of repairs, shortest downtimes are guaranteed thanks to the immediate availability of our components.



The components in detail

Hot runner nozzle, smartFILL, screw-in type EH 4100:

- › Including gate assembly in 4 versions
- › Heater: 230 V; cable length: 2000 mm
- › With integrated thermocouple Fe-CuNi (type J), DIN 43710, black+/white-
- › Maximum injection pressure: 1800 bar

Flexible tubular heater EH 5030:

- › Power: 700–2800 W, depending on manifold size

90° bent thermocouple EH 5200:

- › Fe-CuNi (type J)
- › Thermocouple with kink protection spring
- › Connection length: 5000 mm

Connection terminal EH 5220:

Connector clamp

- › Allows a screwable connection of the electrical supply lines to any flexible heater
- › Two clamping options provided on each connector clamp, so that by attaching a 'bridge' the flexible heater can be connected in parallel directly at the heating outlet

Connecting cable

- › 2.5 mm² pure nickel cable, with glass fibre insulation, 4-fold up to 300 °C

Protective conductor EH 5230:

- › Connection length: 2500 mm

Manifold EH 6100:

- › Available in material grades 1.2311 / 1.2316 depending on the plastic used

Centring piece EH 6200:

- › Positions the manifold in the mould centre opposite the sprue bush

Spacer screwing set EH 6214:

- › For the correct position and for screwing in the manifold

Sprue bush for hot runner manifold EH 6400:

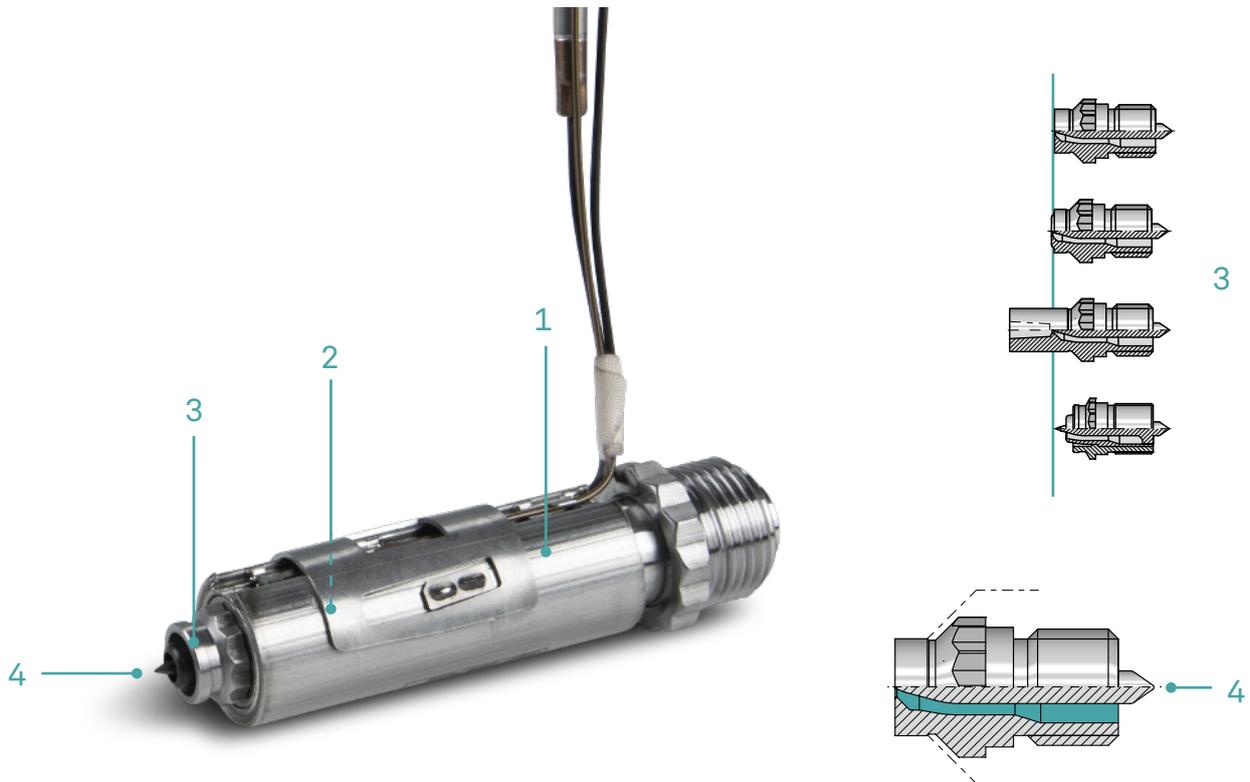
- › With integrated thermocouple Fe-CuNi (type J), DIN 43710, black+/white-
- › Heater: 230 V; cable length: 2000 mm

90° bent thermocouple EH 5200

Small and slim design. Very fast reaction times within a measuring range from 300 °C to 450 °C.



Hot runner nozzle, smartFILL, screw-in type EH 4100



Innovative heating technology

1

- › Optimal heat transfer into the plastic used
- › Homogeneous temperature profile on the entire nozzle length through differentiated power distribution
- › Easy and fast change of heater and thermocouple due to intelligent clip lock

Streamlined melt channel with high-quality surface

2

- › Optimal melt exchange since there are no dead spots
- › Low shear stress of the melt
- › Good colour changing qualities

Unterschiedliche Anschnittvarianten

3

- › Flexible adjustment of the hot runner nozzles to different applications and materials
- › Easily exchangeable, highly wear-resistant gate assemblies
- › Consistent nozzle lengths (l dimension) for different types of gates

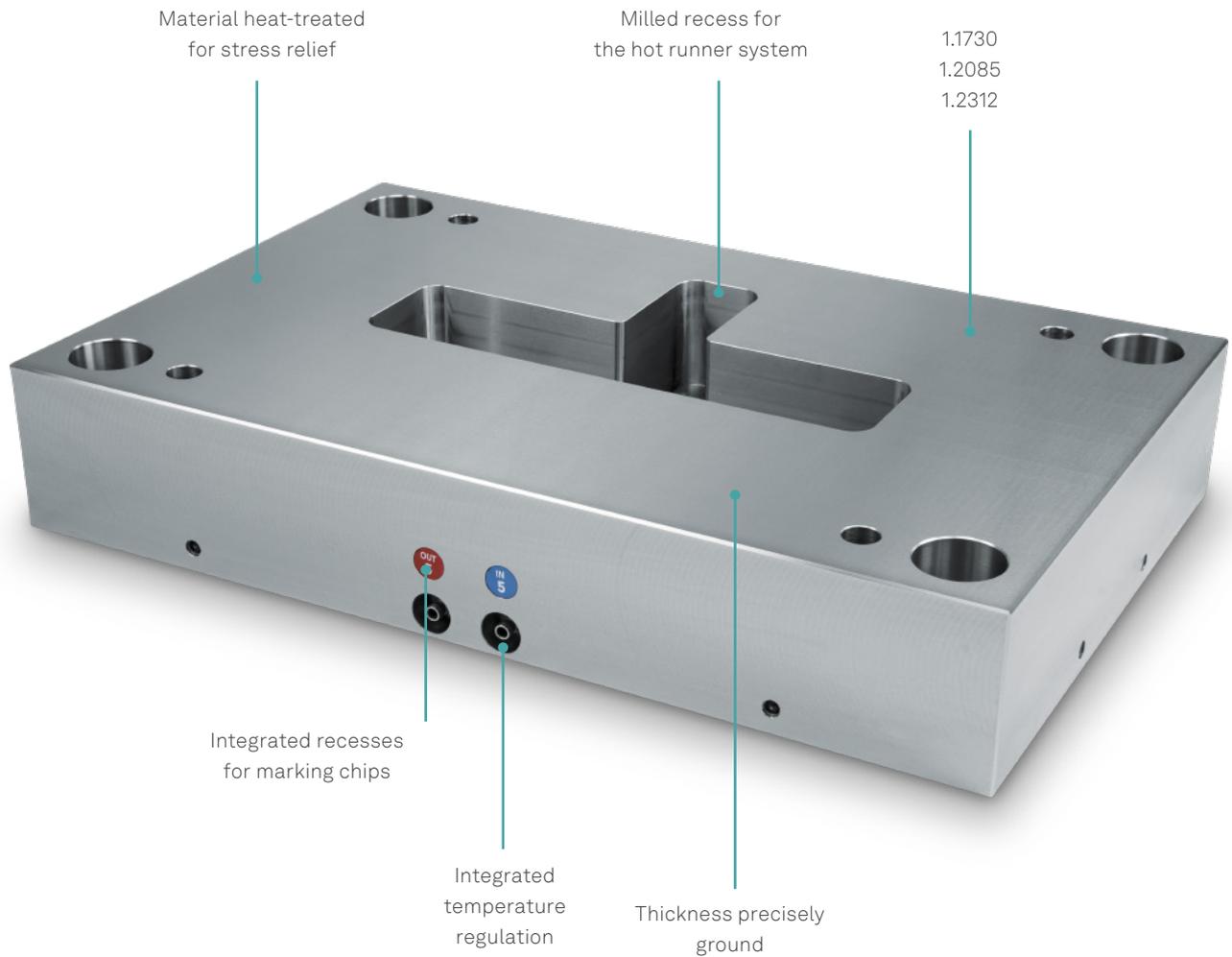
Nozzle tip for optimal flow properties

4

- › Partitioning and re-merging of the melt in the hot area of the nozzle
- › Reduction of flow line development
- › Better optical and mechanical quality of the parts

Manifold plate FH 63

The manifold plate FH 63 is automatically created by entering the parameters in the configurator. Width and length can be selected by the user, the thickness is generated automatically. Mould sizes from 216 x 246 to 796 x 1196 mm can be selected. The 3D model already has the appropriate recesses for the hot runner system. Furthermore, three different material grades are available.

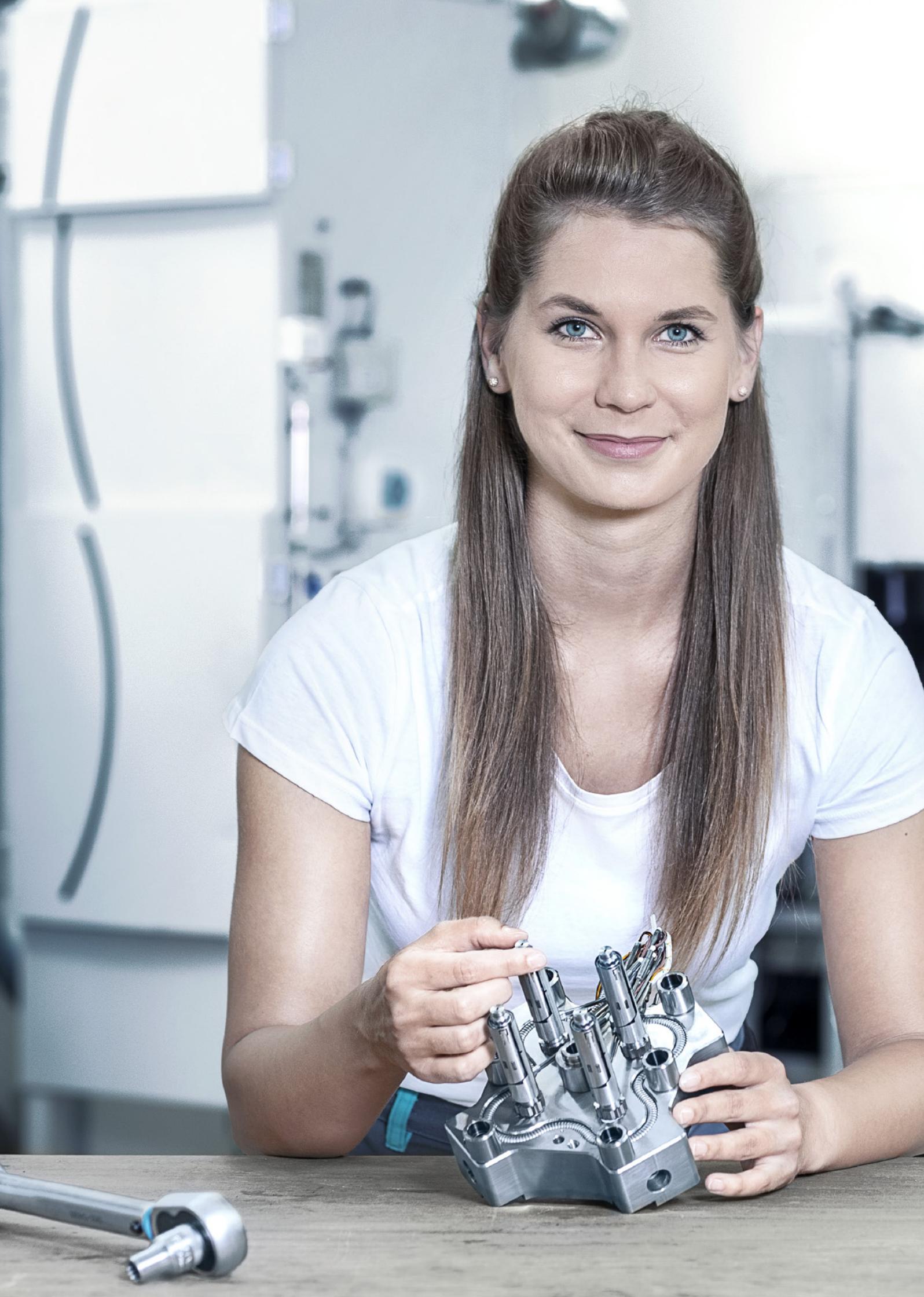


Marking chips for temperature regulation



E 2030

E 2030 S
Individually printable



A hot runner mould in just a few clicks

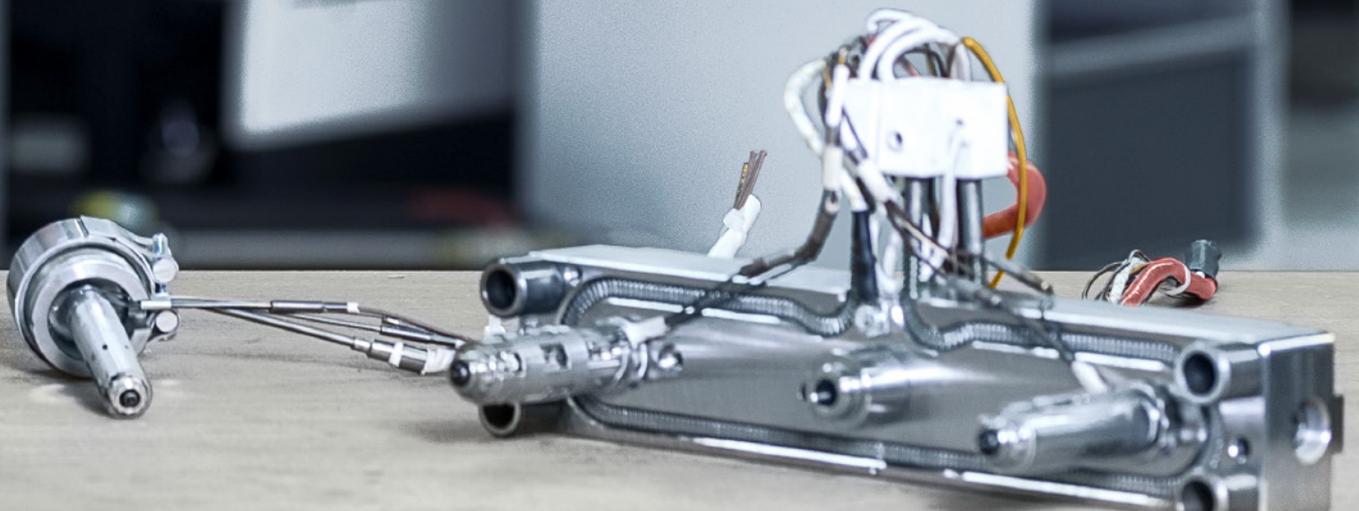
The configurator for hot runner moulds is the optimal tool for all designers. With just a few clicks, you get the complete mould base including the hot runner system in the usual high quality. Of course, the 3D data is available for download as usual. The advantages are plain to see. The designer can concentrate on other matters during the mould design and thus saves valuable time and costs.

Your benefits at a glance:

- › Easy and fast configuration of the hot runner mould
- › High flexibility through individually adjustable nozzle positions
- › Live display of the manifold and 3D data immediately available
- › Transparent costs due to immediate price display
- › Short lead times of the configured components

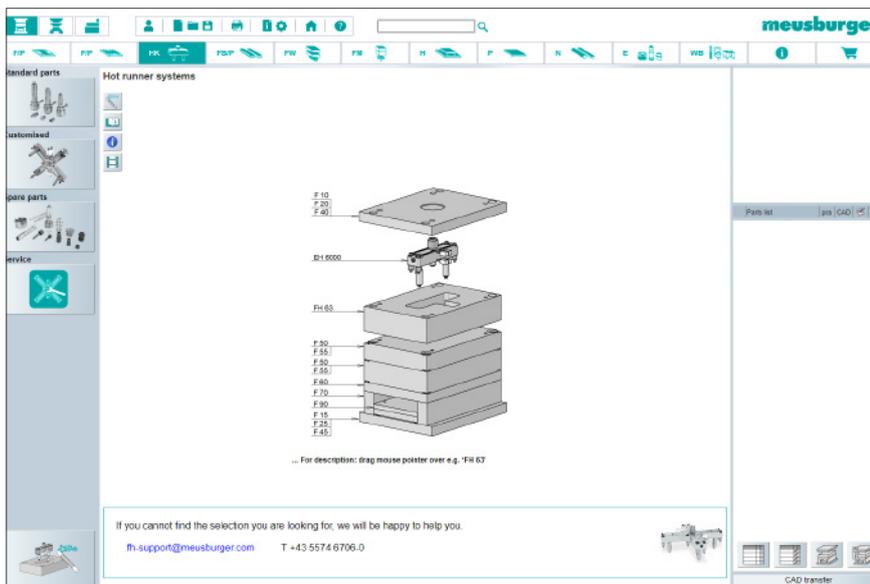


For detailed information on our FH configurator watch our film:
www.meusburger.com/fh-configurator-video

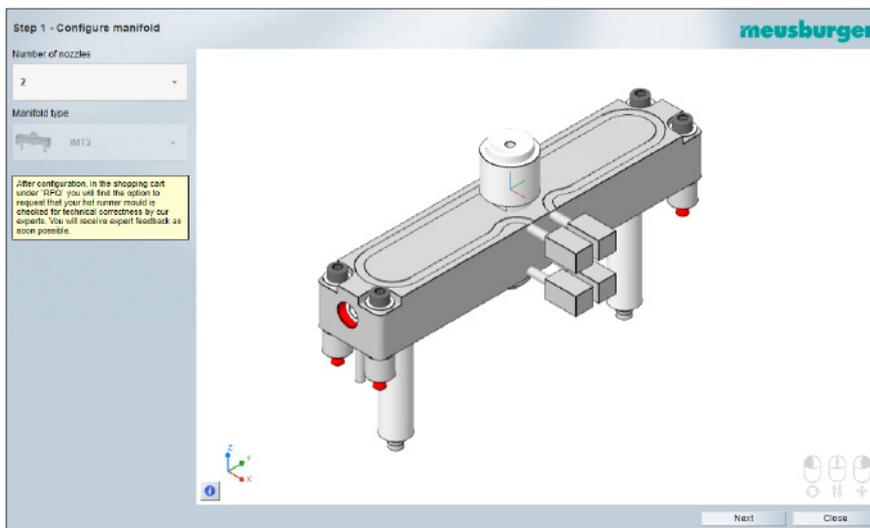


FH configurator for hot runner moulds

The configurator for hot runner moulds is the optimal tool for all designers. With just a few clicks, you get the complete mould base including the hot runner system in the usual high quality. Of course, the 3D data is available for download as usual.

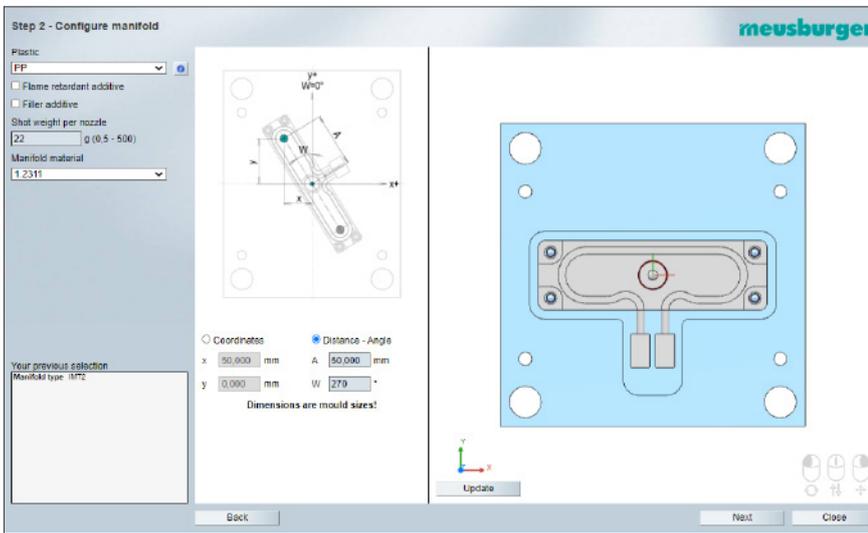
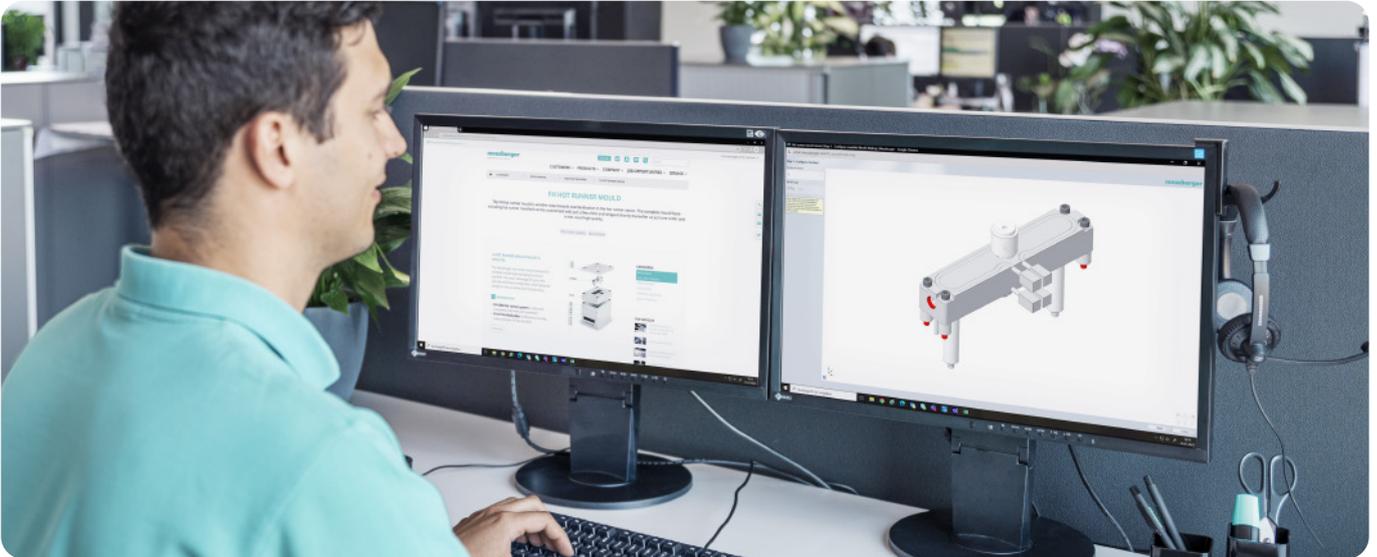


The configurator for hot runner moulds can be easily opened via the 'HK' button in the web shop.



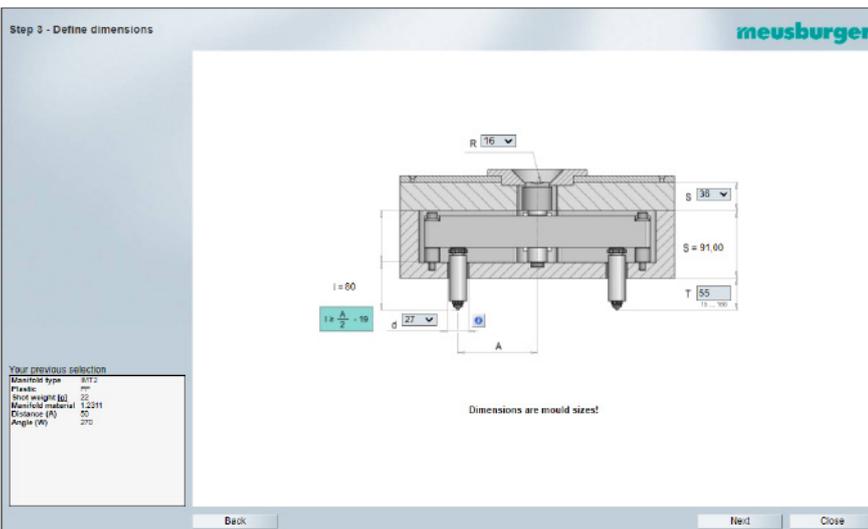
In the first step, the number of nozzles and the manifold type are determined.





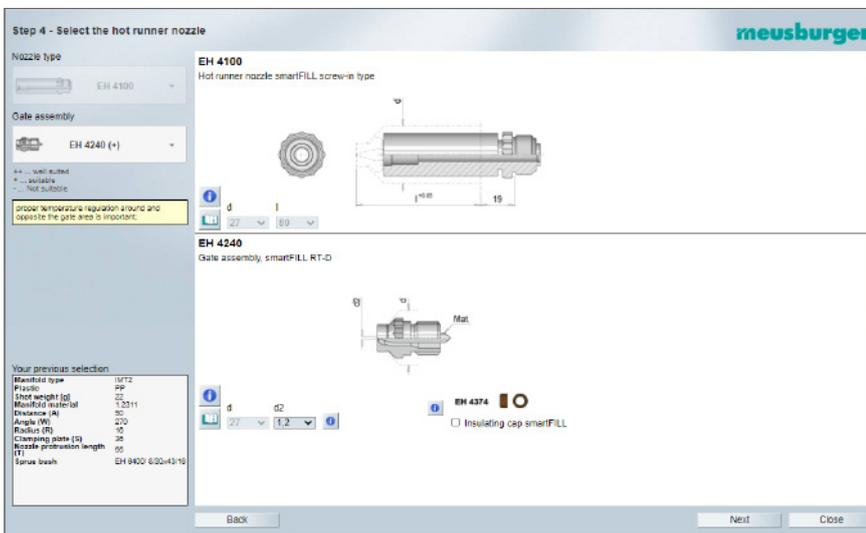
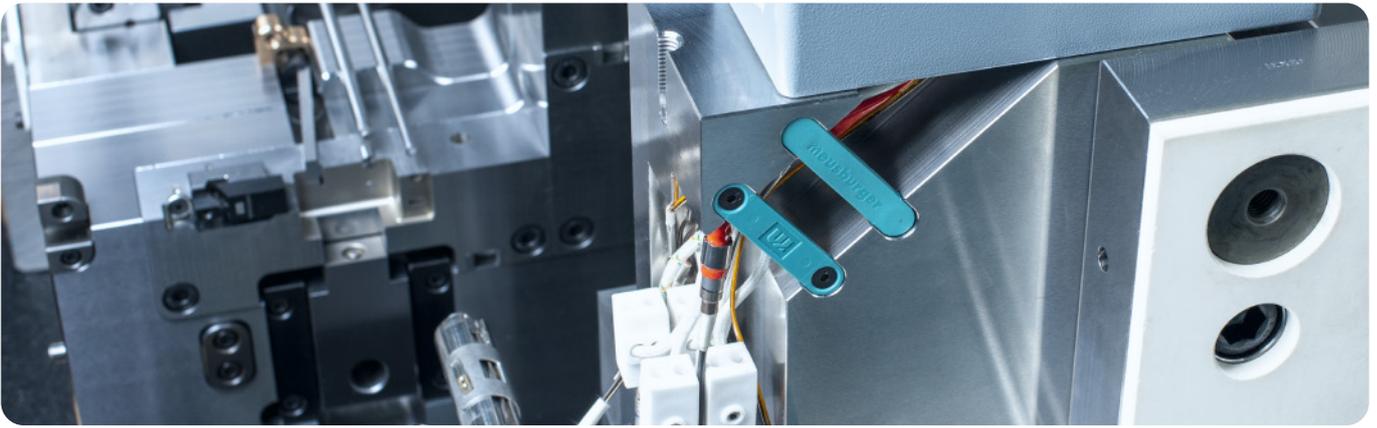
In the next step, the plastic to be processed and the shot weight of the component are entered. Depending on the version, the material for the manifold can be selected.

The position of the manifold in the manifold plate can be defined by entering the X and Y coordinates of the feed point or by entering the nozzle distance and the angle.



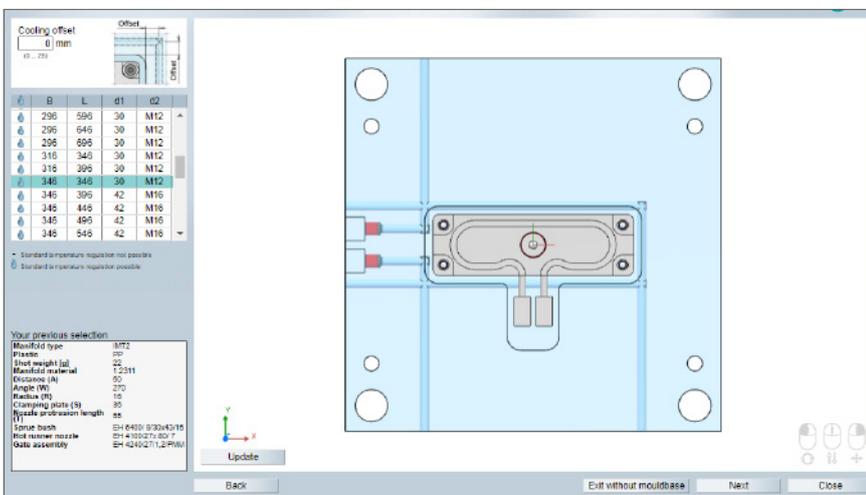
In the third step, various dimensions of the hot runner mould are defined. In addition, the nozzle diameter can be changed. The most suitable nozzle has already been selected here.





The gate type EH 4200 / RT is set as default because this is the ideal solution in most cases. But we also offer the possibility to switch to another type.

If the combination of material and gate assembly results in a recommendation for an insulating cap, then the cap is preselected and can be ordered directly.

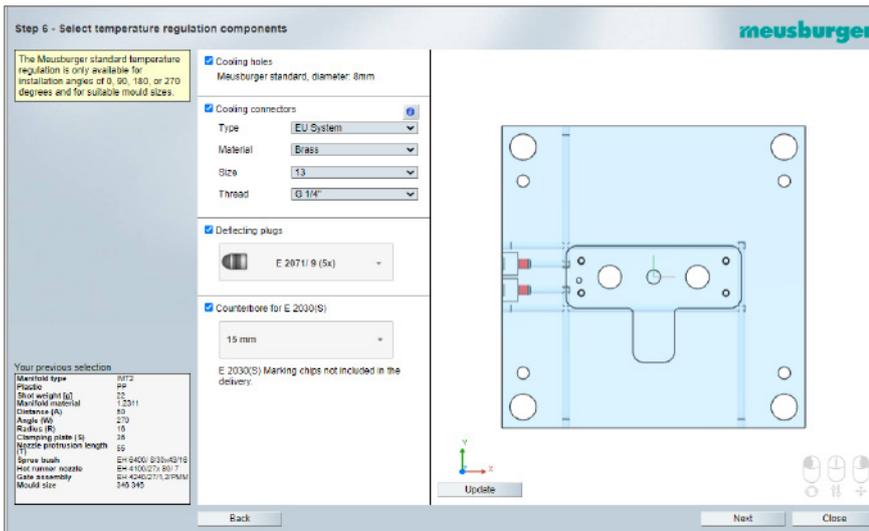


The next step is to select the desired mould size.

The dynamic display of the mould size optimally shows the relationship between the manifold and the manifold plate. In case of doubt, the next larger or smaller mould size can be selected.

The offset of the cooling hole to the manifold cutout can be adjusted from 0 to 25 mm, so the need for a different mould size may arise.

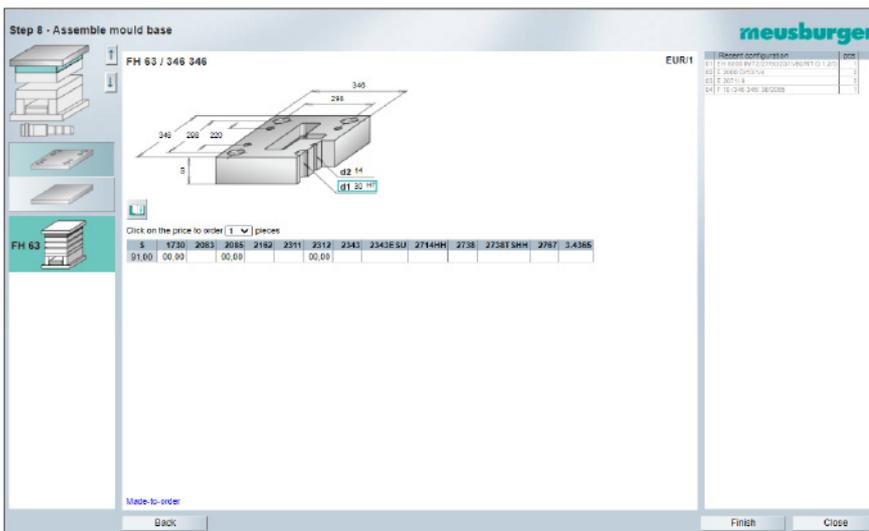




In this step, the temperature regulation system can be configured by selecting the cooling connectors, sealing plugs, and possible recesses for the marking chips E 2030.

NOTE:

An automatically generated standard temperature regulation system is only possible if the angle (W) entered in step 3 is 0°, 90°, 180° or 270°.



Finally, you get to the familiar mould base wizard where you can select the material of the manifold plate and the rest of the plates and components required to complete your mould base.



The screenshot shows the Meusburger website's shopping cart interface. The header includes the Meusburger logo and navigation icons. The main content area displays a list of items with columns for Item, Designation, Description, Price, EUR, and Value in EUR. The items listed include various hot runner components like manifolds, bushings, and plates. On the right side, there is a 'CAD transfer' section with buttons for 'Export', 'Print', and 'Technical enquiry of hot runner components'. A 'Send the order...' button is also visible at the bottom right.

Item	Designation	Description	Price	EUR	Value in EUR
10	EH 6000 IMT2/27/50/2311/80/RT-D 1.20/43/16	Hot runner system	1	00.00	00.00
20	E 2000 D13/14	Filling	2	00.00	00.00
30	E 2071/9	Expander sealing plug	5	00.00	00.00
40	F 10 /346 346/ 35/2085	Clamp plate	1	00.00	00.00
50	PH 63 /346 346/91 00/MT2/27/50/270/2085	Manifold plate	1	00.00	00.00
60	F 50 /346 346/ 22/2085	Cavity plate	1	00.00	00.00
70	F 50 /346 346/ 27/2085	Cavity plate	1	00.00	00.00
80	F 70 /346 346/ 44/76/2085	Riser	2	00.00	00.00
90	F 90 /346 346/ 256/2085	Ejector seat	1	00.00	00.00
100	F 10 /346 346/ 27/2085	Clamp plate	1	00.00	00.00
110	E 1000/22- 22/ 35	Guide pillar	1	00.00	00.00
120	C 1000/24- 22/ 35	Guide pillar	3	00.00	00.00
130	E 1100/22- 27	Guide bush	1	00.00	00.00
140	E 1100/24- 27	Guide bush	3	00.00	00.00
150	E 1160/30 x 40	Centring bush	4	00.00	00.00
160	E 1160/30 x 40	Centring bush	4	00.00	00.00
170	E 1200/12 x130	Cylinder head screw	4	00.00	00.00
180	E 1200/12 x115	Cylinder head screw	4	00.00	00.00
190	E 1400/346 396/8/90	Insulation board	1	00.00	00.00
200	E 1400/346 396/8/90	Insulation board	1	00.00	00.00

The configuration can be inspected by our experts upon request.

To request such an inspection, click the 'Technical enquiry' button in the shopping cart view, which opens a form with the data already filled in. Fill in the rest of the required fields and then click the 'Send' button to send the enquiry.



The screenshot shows the 'CAD preview / output' interface. It features a 3D model of a hot runner component on the left, with a coordinate system (X, Y, Z) visible. On the right, there are controls for '3D' and '2D' views, a 'Download' section with a 'Format' dropdown and a 'Direct insert' section with a 'CAD system' dropdown. The interface is powered by CADClick.

The CAD data is transferred via CADClick. 3D data for all common CAD systems can be generated.



For special solutions, please use the enquiry form on our web site:

www.meusburger.com/technical-enquiry

Everything from one source



Guiding elements

The guiding elements are automatically selected in the appropriate diameters and lengths and are shown in the correct position in the 3D model.



Electrical components

Suitable electrical components can be directly ordered from the shop. 3D data is also available here. This enables the designer to integrate all components in the design and have a clear overview of the dimensions.



profiTEMP+ hot runner controller

The profiTEMP+ hot runner controller features both innovative technology and space-saving design. In addition to new intelligent functions like Smart Power Limitation (SPL) and MoldCheck, tried-and-trusted features were also further developed in the hot runner controller. Due to the clearly designed 7" multi-touch screen, easy and intuitive operation is guaranteed.



More information in our film:

www.meusburger.com/profitemppplus-en



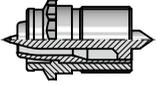
Delivery

The hot runner system is completely assembled and tested. The mould base for the hot runner mould is not pre-assembled, as in its standard version. Thus, valuable time can be saved by not having to take it apart and the components are available much faster for subsequent machining.

4 different gate assemblies

EH 4200 / RT

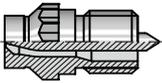
Gate assembly, smartFILL ring gate



- › Good thermal separation from the mould by plastic isolation
- › For direct gating or gating on cold runner
- › Suitable for all thermoplastics with a medium to narrow processing window, including filler material and reinforcing fillers
- › Nozzle tip and centring head are highly wear-resistant and replaceable

EH 4240 / RT-D

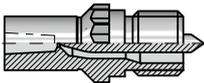
Gate assembly, smartFILL ring gate, plunging



- › For direct gating or gating on cold runner
- › Suitable for all thermoplastics with a medium to narrow processing window, including filler material and reinforcing fillers
- › Nozzle tip and centring head are highly wear-resistant and replaceable

EH 4245 / RT-DL

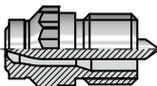
Gate assembly, smartFILL ring gate, plunging with extension



- › With extension on the centring head
- › Gating to free-form surfaces
- › Adjustment to the product's geometry
- › Sprue scrap with scrap cone
- › Suitable for all thermoplastics with a medium to narrow processing window, including filler material and reinforcing fillers
- › Nozzle tip and centring head are highly wear-resistant and replaceable

EH 4250 / RT-DC

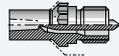
Gate assembly, smartFILL ring gate, plunging with calotte



- › Sprue scrap remains recessed 1 mm in the calotte
- › For direct gating or gating on cold runner
- › Suitable for all thermoplastics with a medium to narrow processing window, including filler material and reinforcing fillers
- › Nozzle tip and centring head are highly wear-resistant and replaceable

All of the subsequent data is general recommendations based on our calculations and many years of experience. We do not guarantee the accuracy of the information, as our products are only one part of the production process. For unclear or difficult cases, please contact us.

Selection of the correct gate type

Gate types		EH 4200 / RT			EH 4240 / RT-D			EH 4245 / RT-DL			EH 4250 / RT-DC		
													
		A	B(5)	C(5)	A	B(5)	C(5)	A	B(5)	C(5)	A	B(5)	C(5)
Semi crystalline	PE	++	++	+	+	++	+	+	++	+	+	++	+
	PP	++	++	+	+	++	+	+	++	+	+	++	+
	PPS	++	++	+	++	++	+	++	++	+	++	++	+
	PET (1)	++	++	+	++	++	+	++	++	+	++	++	+
	PBT (1)	++	++	+	++	++	+	++	++	+	++	++	+
	PPO (4)	++	++	+	++	++	+	++	++	+	++	++	+
	PA6	++	++	+	++	++	+	++	++	+	++	++	+
	PA6.6 (1)	++	++	+	++	++	+	++	++	+	++	++	+
	POM-Co	++	++	+	+	++	+	+	++	+	+	++	+
	POM-H (5)	++	++	+	+	++	+	+	++	+	+	++	+
Amorphous	PMMA (5)	++	++	+	+	++	+	+	++	+	+	++	+
	ABS	++	++	+	+	++	+	+	++	+	+	++	+
	ASA	++	++	+	+	++	+	+	++	+	+	++	+
	SAN	++	++	+	+	++	+	+	++	+	+	++	+
	PS (SB)	++	++	+	+	++	+	+	++	+	+	++	+
	PC (5)	++	++	+	+	++	+	+	++	+	+	++	+
	PES	++	++	+	+	++	+	+	++	+	+	++	+
	PSU	++	++	+	+	++	+	+	++	+	+	++	+
	PEI	++	++	+	+	++	+	+	++	+	+	++	+
	PVC soft (5)	++	++	+	+	++	+	+	++	+	+	++	+
Blend	PC/ABS	++	++	+	+	++	+	+	++	+	+	++	+
	PC/PBT	++	++	+	++	++	+	++	++	+	++	++	+
Elastomers	PP-EPDM	++	++	+	+	++	+	+	++	+	+	++	+
	TPE-A (5)	+	+	+	-	+	+	-	+	+	-	+	+
	TPE-C (5)	+	+	+	-	+	+	-	+	+	-	+	+
	TPE-U (5)	+	+	+	+	+	+	+	+	+	+	+	+
	TPE-O (5)	+	+	+	-	+	+	-	+	+	-	+	+
	TPE-S (5)	+	+	+	-	+	+	-	+	+	-	+	+

Material suitability:

- ++ well suited
- + suited
- not suited

Material additives:

- A without additives (1) recommended minimum gate diameter = 1.2 mm
- B glass fibre (4) no Noryl GTX
- C flame retardant (5) insulating cap recommended

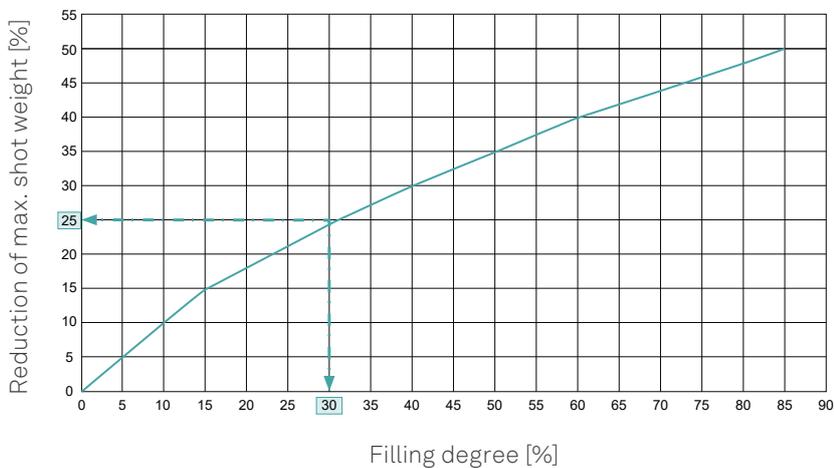


Shot weight per nozzle

Gate types		Low viscosity		Medium viscosity		High viscosity	
		$\pi (T_{set}/3000 \text{ s}^{-1}) < 60 \text{ Pa}\cdot\text{s}$		$\pi (T_{set}/3000 \text{ s}^{-1}) = (60-150) \text{ Pa}\cdot\text{s}$		$\pi (T_{set}/3000 \text{ s}^{-1}) > 150 \text{ Pa}\cdot\text{s}$	
		PE-HD, PE-LD, PP, PS, SB, TPE-O, TPE-S		ABS, ABS/ASA, ABS/PA, ASA, PA11, PA12, PA4.6, PA6, PA6.10, PA6.12, PA6.6, PBT, PET, PES, POM-C, PPE(PPO), PP/EPDM, PPS, PSU, SAN, TPE-A, TPE-C, TPE-V		PC, PC/ABS, PC/PBT, PEI, PMMA, POM-Homo, PSU, PVC-soft, TPE-U	
		min. [g]	max. [g]	min. [g]	max. [g]	min. [g]	max. [g]
ø 19	EH 4200 / RT	0.5	30	0.5	15	0.5	8
	EH 4240 / RT-D						
	EH 4250 / RT-DC						
ø 27	EH 4200 / RT	3	70	3	35	3	20
	EH 4240 / RT-D						
	EH 4245 / RT-DL						
	EH 4250 / RT-DC						
ø 37	EH 4200 / RT	15	500	15	300	15	150
	EH 4240 / RT-D						
	EH 4245 / RT-DL						
	EH 4250 / RT-DC						

Reduction of the shot weight per nozzle according to the filling degree

The maximum permissible shot weight for reinforced and filled plastics is reduced as shown in the following diagram:



Example: filling degree 30%, therefore shot weight reduced by 25%

Dimensioning of the gate diameter

Determining the gate diameter:

The vestige quality is influenced by many factors such as: gate diameter, wall thickness, plastic type, volume flow, part weight, temperature regulation / cooling in the gate area. Gate diameters that are too small cause an inadmissibly high shear, high loss of pressure and high frictional heating. If the gate diameters selected are too large, this results in inadmissibly high and poor-quality tear points.

Rule:

Direct gating:

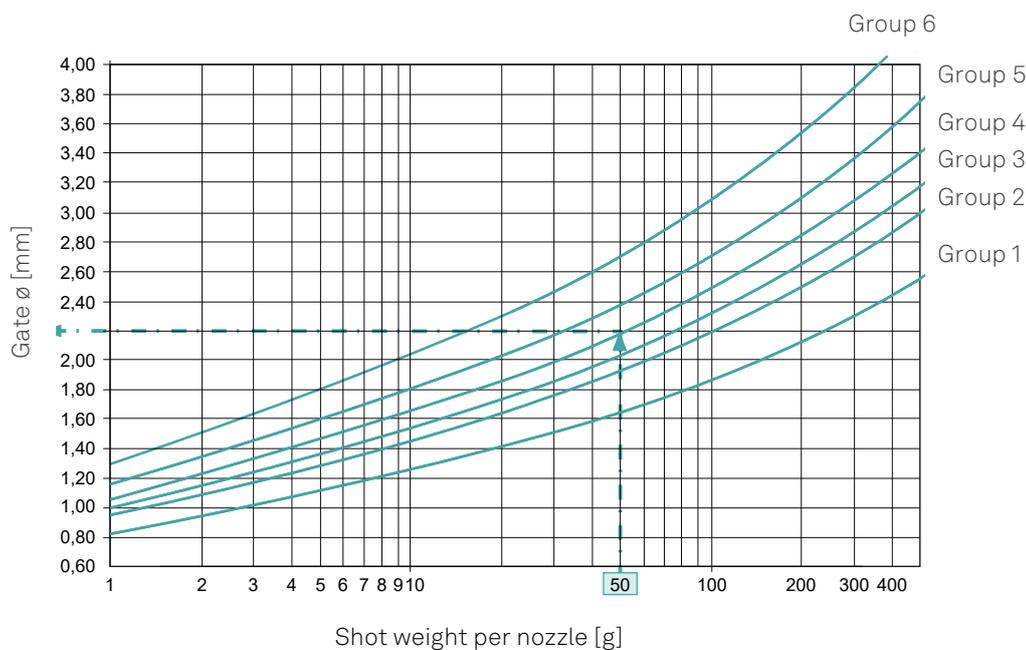
- › Gate selection according to the graphic, taking plastic into consideration

Gating on cold runner via sub-manifold:

- › Gate diameter as large as possible (about 0.5 mm to 1 mm larger; take into consideration stringing and drooling)

The information on the dimensioning of the gate diameter includes only general recommendations, which are based on our calculations and extensive experience. We do not guarantee the accuracy of the information, as our products are only one part of a complex production process. For unclear or difficult cases, please contact us.

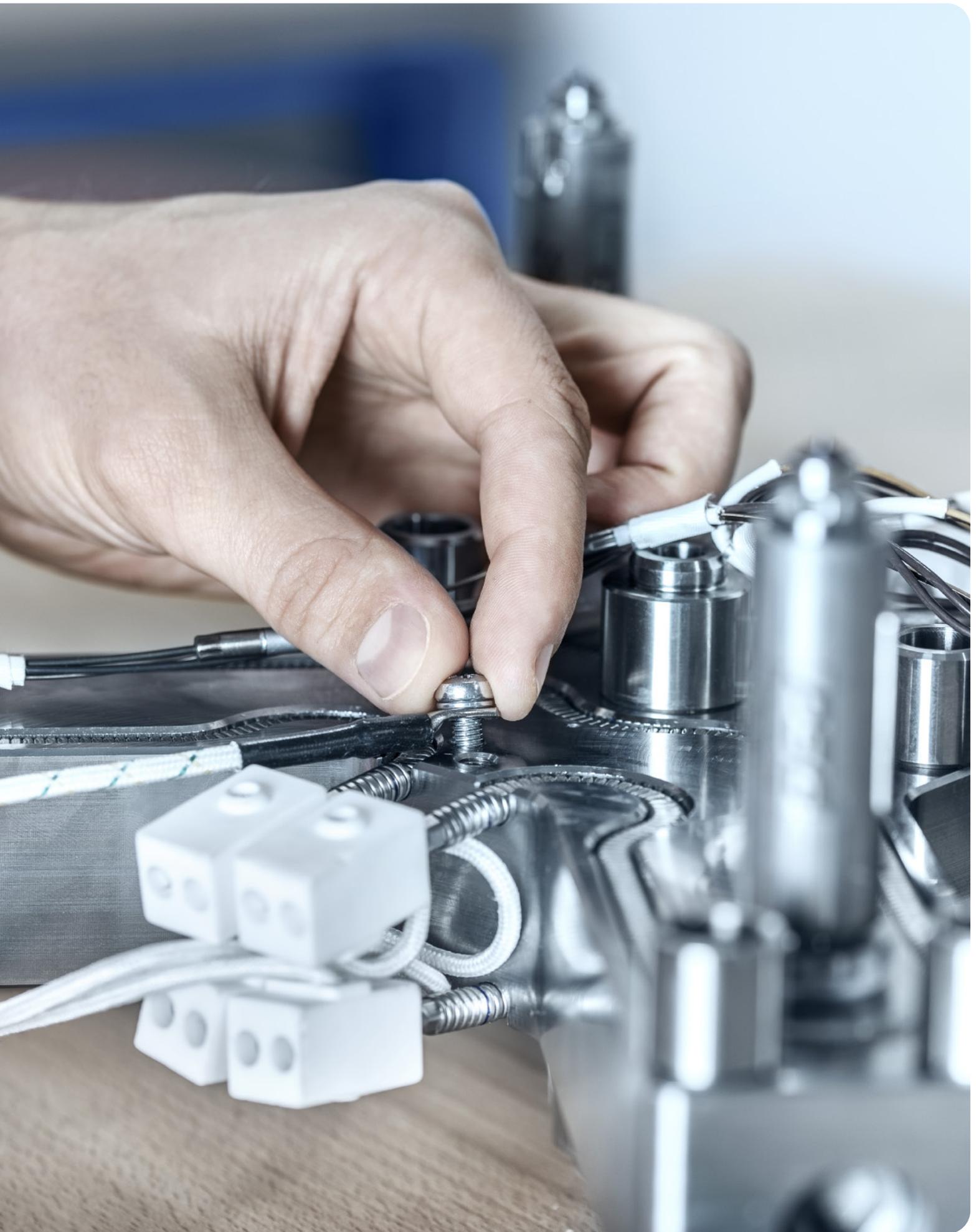
Gate diameter: EH 4100/19... EH 4100/27... EH 4100/37...

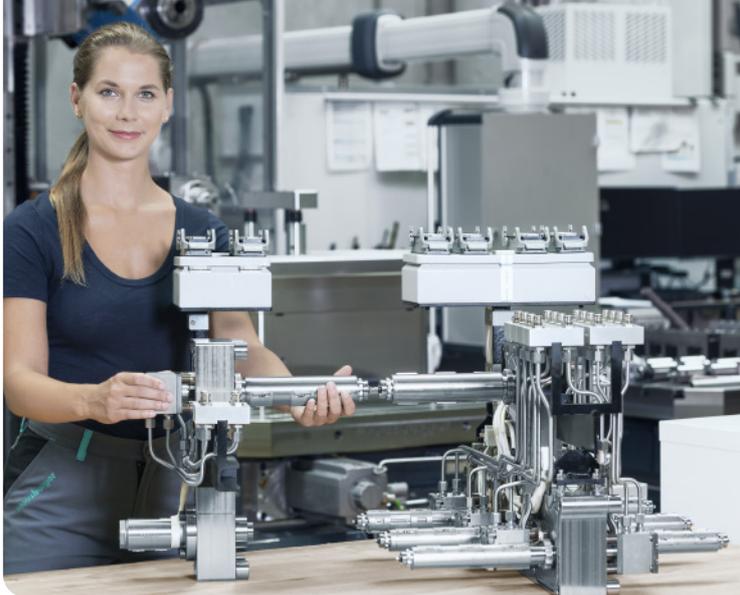


- Example for 50 g PC,
gate assembly EH 4240 / RT-D
Result: \varnothing 2.20 mm
Selected for direct gating 2.0 mm (standard)
Selected for gating on cold runner 3.0 mm (standard)

Thermoplastics groups

Group 1	PP	Polypropylene
Group 2	PA4.6	Polyamide 4.6
	PA6	Polyamide 6
	PA6.6	Polyamide 6.6
	PA6.10	Polyamide 6.10
	PA6.12	Polyamide 6.12
	PA11	Polyamide 11
	PA12	Polyamide 12
	TPE-O (TPO)	Olefin-based thermoplastic elastomers
	TPE-S	Styrene-based thermoplastic elastomers
	TPE-V	Thermoplastic vulcanizates / cross-linked olefin-based thermoplastic elastomers
Group 3	PBT	Polybutylenterephthalat
	PET	Polyethylenerephthalat
	PES	Polyethersulfone
	PSU	Polysulfone
	ABS	Acrylonitrile butadiene styrene copolymer
	ABS+PA	Acrylonitrile butadiene styrene + polyamide (blend)
	PS	Polystyrene
	PE-HD	High-density polyethylene
	PE-LD	Low-density polyethylene
	PP+EPDM	Polypropylene + ethylene propylene diene (blend)
Group 4	PC	Polycarbonate
	PC+PBT	Polycarbonate + polybutylene terephthalate (blend)
	PC+ABS	Polycarbonate + acrylonitrile butadiene styrene (blend)
	ABS+ASA	Acrylonitrile butadiene styrene + acrylonitrile styrene acrylate (blend)
	SMA	Styrene maleic acid anhydride
	TPE-A	Thermoplastic polyamides
	TPE-C	Thermoplastic copolyester
	PMMA	Polymethylmethacrylat
	PEI	Polyetherimide
	SAN	Styrene acrylonitrile
	ASA	Acrylonitrile styrene acrylate
	PPS	Polyphenylene sulphide
	PPE (PPO)	Polyphenylene ether
	PPA	Polyphthalamide
	Group 5	POM-C
Group 6	POM-H	Polyoxymethylene (homopolymer)
	TPE-U (TPU)	Urethane-based thermoplastic elastomers
	PVC-soft	Polyvinyl chloride, soft





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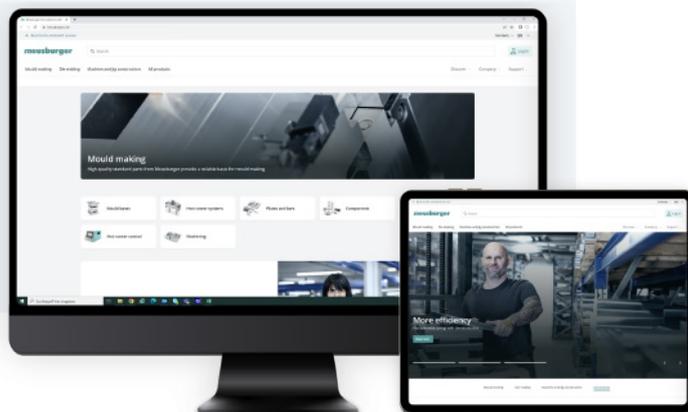
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