

# **HPS III-MH**

The versatile multi tip solution

Direct side gating without cold slug

Compact valve gating

Side gating with open flow channel



# The user-friendly concept

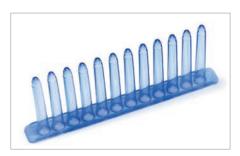
No matter if the application requires a solution for efficient side gating or for compact valve gating of parts – with the HPS III-MH product line EWIKON provides a powerful and versatile multi tip concept for injection moulders and mould makers. All nozzle versions offer a unique ease of maintenance. Especially the version for direct side gating has set new standards here and is successfully used in many demanding applications in the medical and packaging industry. The results: reduced cycle times, enhanced productivity and cost-efficient mould design.

### **Fields of application**

Medical. Packaging. Technical Parts.







### Side gating

- Part geometries without possibility of standard gating, for example long slim tube shaped parts such as syringes, pipettes or sample bulbs in the medical industry.
- Side gating on visible surfaces. Demoulding mostly takes place in a 90° angle to the gating direction. The shear action is used to achieve a good gating point quality.
- Multi point internal gating of rotationsymmetric parts, for example in spouts of screw caps in the packaging industry.

### **Compact valve gating**

Multi point gating of parts, gating on horizontal surfaces close to vertical part contours, for example onto handle plates of syringes or flanges of analysis tubes.

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# The benchmark for direct side gating

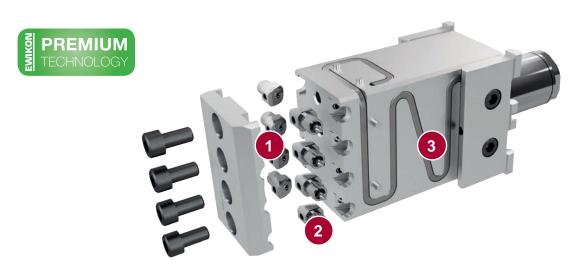
Its unique tip exchange technology makes the HPS III-MH nozzle the most maintenance-friendly solution for direct side gating worldwide. Depending on shot weight and application several versions are available. The tip inserts are installed from the parting line of the mould in the last assembly step after the nozzle body has been installed. Thus, they can be exchanged easily without having to dismantle the mould. Since only standard mould inserts are required a cost-efficient and compact mould design can be realised. Alternatively a linear or radial arrangement of parts is possible.



### **Product features + Benefits**

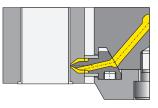
Exceptional gating point quality due to direct gating on part surface Demoulding in a 90° angle to the gating direction. Shear action used to achieve a good gating point quality. No cold slug. Very even temperature profile Problem-free processing of technical resins and thermally sensitive materials (e.g. POM). **Reduced mould costs** Since only standard mould inserts are required a higher mould stability is achieved and the cooling layout is simplified. The design of multi-cavity moulds is facilitated. Unmatched ease of maintenance, minimised downtimes Easy replacement of tip inserts from the parting line. No dismantling of mould required. Broad range of application Shot weights up to 40 g. Reduced residence time and pressure loss Balanced melt distribution in the nozzle body requires minimum space and reduces the complexity of the main manifold system. Thus, minimised flow path lengths are achieved even for systems with an extremely high number of cavities.

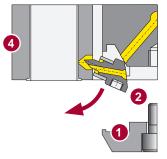




#### Tip insert exchange made easy

Its innovative tip exchange technology makes the HPS III-MH nozzle the most maintenance-friendly solution for direct side gating. The tip inserts (2) are inserted from the parting line of the mould in the last assembly step after installing the nozzle body (3) and can be exchanged just as easily in case of maintenance without dismantling the mould. After removing the clamping cover (1) the tip insert lifts out of the mould insert (4) and is replaced.





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# **Ultra-compact valve gating**

The HPS III-MH valve gate technology features a lateral melt feed. The gate is positioned in demoulding direction (0°). A special characteristic is the position of the valve pin guides and seals in the cooled mould insert. This ensures leakproof operation of the system. The concept allows ultra compact valve gating with a minimum distance between cavities of only 6 mm. Furthermore, gating points can be positioned in hard-to-reach areas such as horizontal surfaces close to vertical contours, for example onto handle plates of syringes or flanges of analysis tubes.

### **Product features + Benefits**

Very compact moulds Minimum distance between cavities 6 mm.

#### Advanced options for positioning of gating points

Problem-free positioning of gating points in hard-to-reach areas, e. g. on horizontal surfaces close to vertical contours.

Stable moulds, reduced mould costs

Only standard mould inserts are required. Thus, the mould stability is enhanced and the cooling is simplified. Easy design of multi-cavity moulds.

#### Unique valve pin sealing technology

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Cold valve pin seal integrated into the cooled mould insert. Ideally suitable for the processing of thermally sensitive materials (e.g. POM homopolymer). Leakproof operation.

#### Reduced residence time and pressure loss

Balanced melt distribution in the nozzle body requires minimum space and reduces the complexity of the main manifold system. Thus, minimised flow path lengths are achieved even for systems with an extremely high number of cavities.

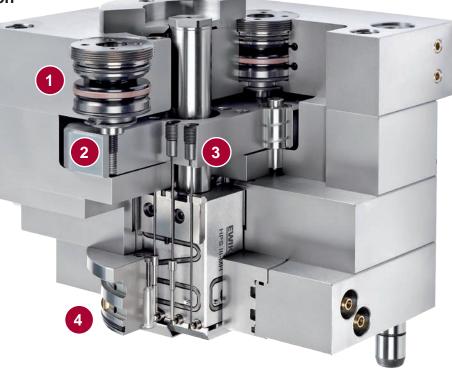


### Technology of the valve gate version









The combined valve pin guides and seals (5) are installed in the cooled standard mould insert. This guarantees a leakage-free operation. Special heat conductive elements (6) embrace the valve pin contactless near the gate and ensure a homogeneous temperature profile in the gate area. The valve pin guide and seal is positioned close to the gate leaving a free valve pin length of only 5 mm.

### Suitable materials\*

PE	PP	РОМ
ABS	PS	TPE
SAN	PMMA	PA
PET	PC	

(\*) Only materials without fillers to be used for valve gating (gating option NV).



### **Gating options**



90° gating



60° gating

Advantage: The gating point can be positioned closer to the location of the inner core. Thus, a core deflection caused by the melt pressure can be avoided when moulding slim, thin-walled tubular parts.



0° valve gating

Advantage: The gating point can be placed in direct proximity to the part's vertical contours, for example on flanges.

### **Nozzle versions**

### HPS III-MH100

- Maximum processing temperature 350 °C
- Maximum shot weight per gate: low viscosity materials: 10 g high viscosity materials: 2 g
- Available gating options:





Linear version HPS III-MHL100



Radial version HPS III-MHR100

For use with adapter nozzle

#### HPS III-MH111

- Maximum processing temperature 350 °C
- Maximum shot weight per gate: low viscosity materials: 10 g high viscosity materials: 2 g
- Available gating options:



Radial version HPS III-MHR111

### HPS III-MH112 / 122

- Maximum processing temperature 350 °C
- Maximum shot weight per gate: low viscosity materials: 10 g high viscosity materials: 2 g
- Available gating options:



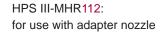
### HPS III-MH200

- Maximum processing temperature 350 °C
- Maximum shot weight per gate: low viscosity materials: 40 g high viscosity materials: 8 g
- Available gating options:





Radial version HPS III-MHR112 / 122



HPS III-MHR122: for use directly under the manifold



Linear version HPS III-MHL200



Radial version HPS III-MHR200

# HPS III-MH1 – the basic version for side gating

The HPS III-MH1 nozzle is designed for particularly cost-efficient use in standard mould inserts. Due to the open flow channel layout quick colour changes are possible.

### **Product features + Benefits**

**Quick colour changes** Open flow channel, Ø 3.5 mm.

Use as system nozzle or single nozzle Available with 1 to 4 tips.

Front installation version for easy maintenance or replacement

#### Broad range of application

Shot weights up to 30 g, maximum processing temperature 300 °C.

### **Nozzle versions**





#### 90° angle, open

Standard configuration for processing of PE, PP and POM (copolymer).

# 90° angle with additional heated tip behind the gate

For optimised gate opening when processing ABS, PS, PMMA and TPE.

**90° angle, open, with angled inserts** Allows to position the gate close to the bottom of the mould insert. Suitable for processing of PE, PP and POM (copolymer).

#### Suitable materials\*

PE	PP
POM (CP)	ABS
PS	PMMA
TPE	

(\*) without fillers



### HPS III-MH nozzle for direct side gating

	HPS III-MHL100 linear version	
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MH200	HPS III-MHR200 radial version	
Σ	Dimensions and tip versions for single nozzle and system nozzle	
	Assembly examples for single nozzle and system nozzle	
	Details of gating geometries for all versions	

### HPS III-MH1 nozzle for side gating with open flow channel

System nozzle for standard installation
System nozzle for front installation
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Single nozzle
Locating rings for single nozzle

HIGH PERFORMANCE SYSTEMS

Single nozzle and system nozzle

### **Dimensions and tip versions**

Version	System nozzle	Single nozzle					
Machine radius ( <b>Dim. R</b> )		0	15	15.5	40	1/2" (13.2)	3/4" (19.5)
Dim. T		0	2	2	0.8	2	1.8
Locating ring		Item number 50456 Diameter .100 / .110 / .125 / .160 / .175			/ .175		

Width of nozzle block ( <b>Dim. B</b> )	42		62	
Number of tips	4	4	8	
Distance between cavities ( <b>Dim. S1, Dim. S2</b> )	<b>S1=</b> 16 or <b>S1=</b> 28	<b>S1=</b> 30 or <b>S1=</b> 48	<b>S1</b> =12 ( <b>S2</b> =36) or <b>S1</b> =16 ( <b>S2</b> =48)	
Nozzle length ( <b>Dim. G</b> ) <sup>(1)</sup>	129, 138, 148, 168			
Positions of bars	A (on nozzle side with tips) B (on nozzle side without tips)			

Tip versions	90°	60°	NV (valve gate)
Distance between cavity rows ( <b>Dim. Y</b> )	60	60	56
Dim. X	60	63	64.5
Recommended gate diameters	0.5 - 1.2	0.9 - 1.5	0.8 - 1.2

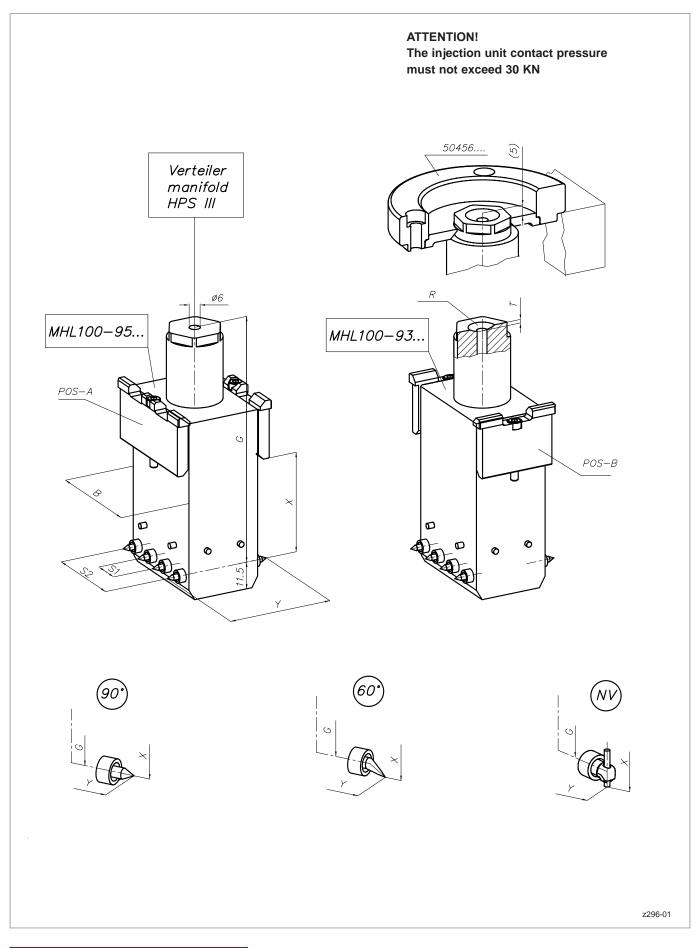
(1) Other nozzle lengths available on request

### Item numbers:

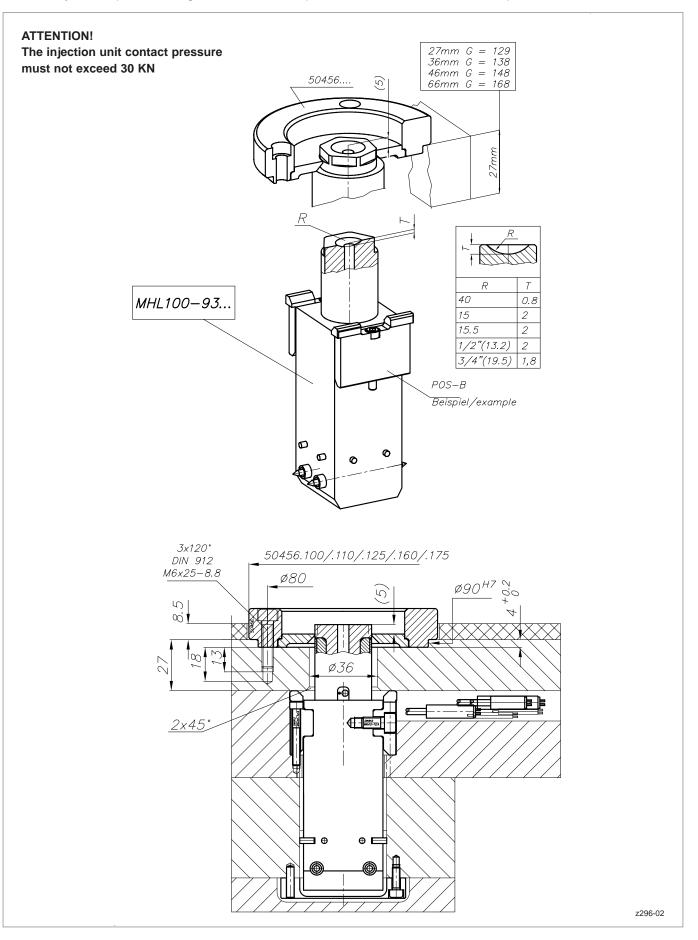
System nozzle: MHL100-95...

Single nozzle: MHL100-93...

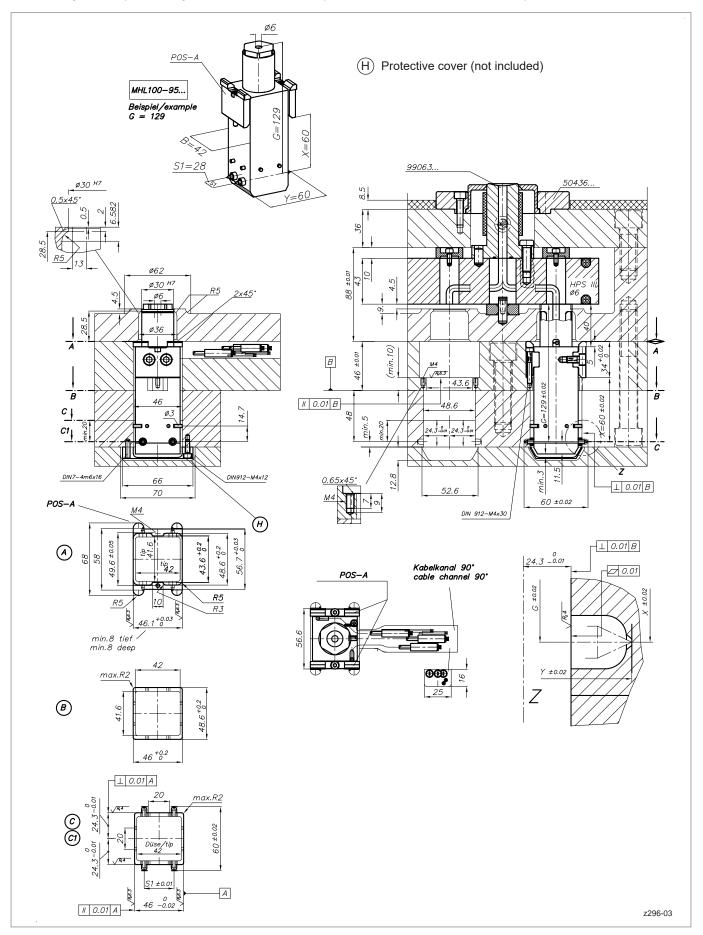
Each nozzle will be configured individually to suit your application requirements. Please contact us!



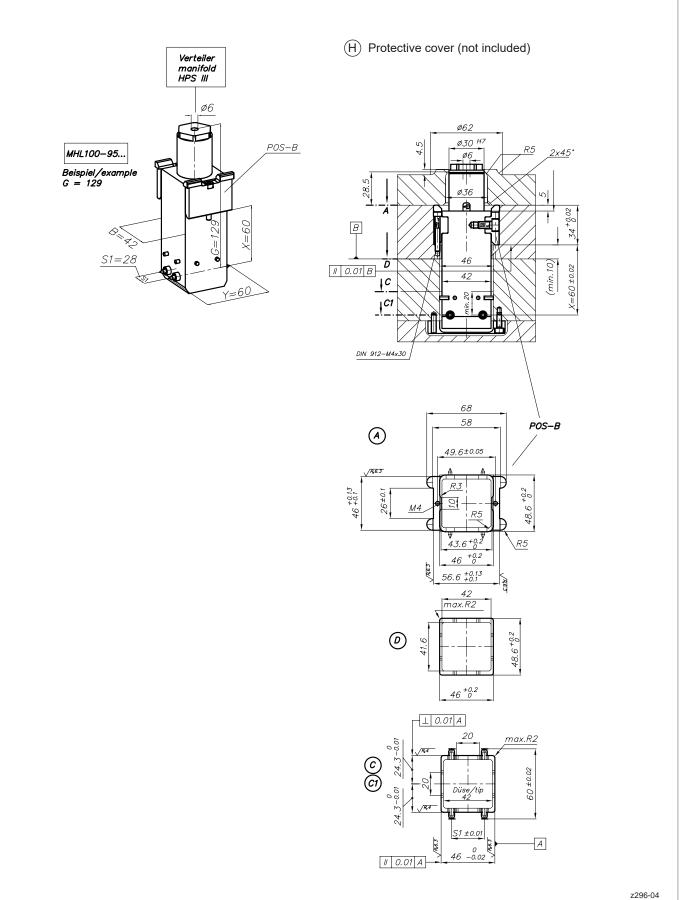
Assembly example for single nozzle, 4-drop, width of nozzle block 42, position of bars B



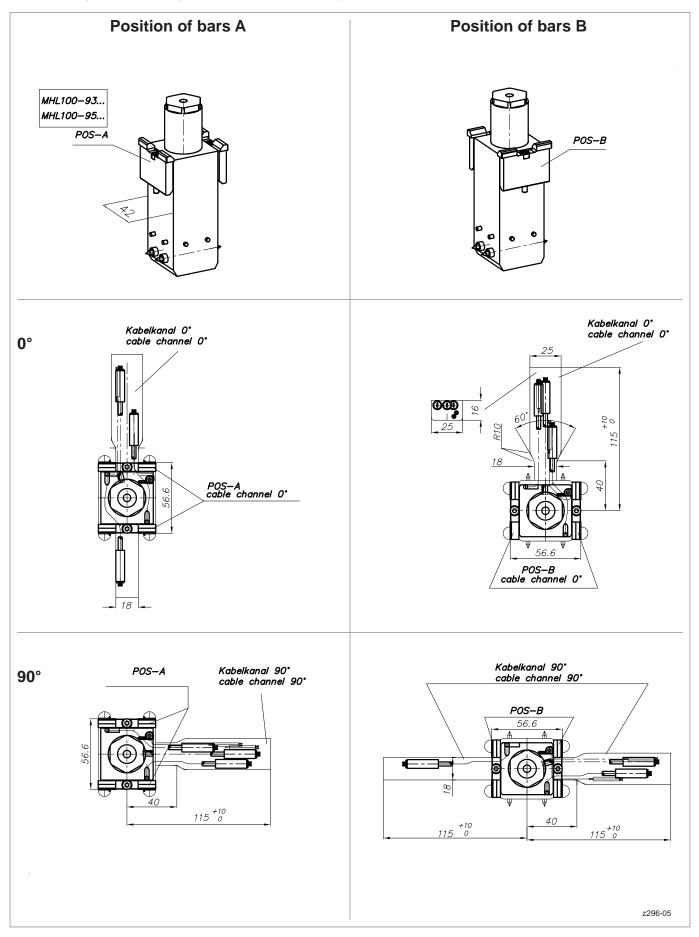
Assembly example for system nozzle, 4-drop, width of nozzle block 42, position of bars A



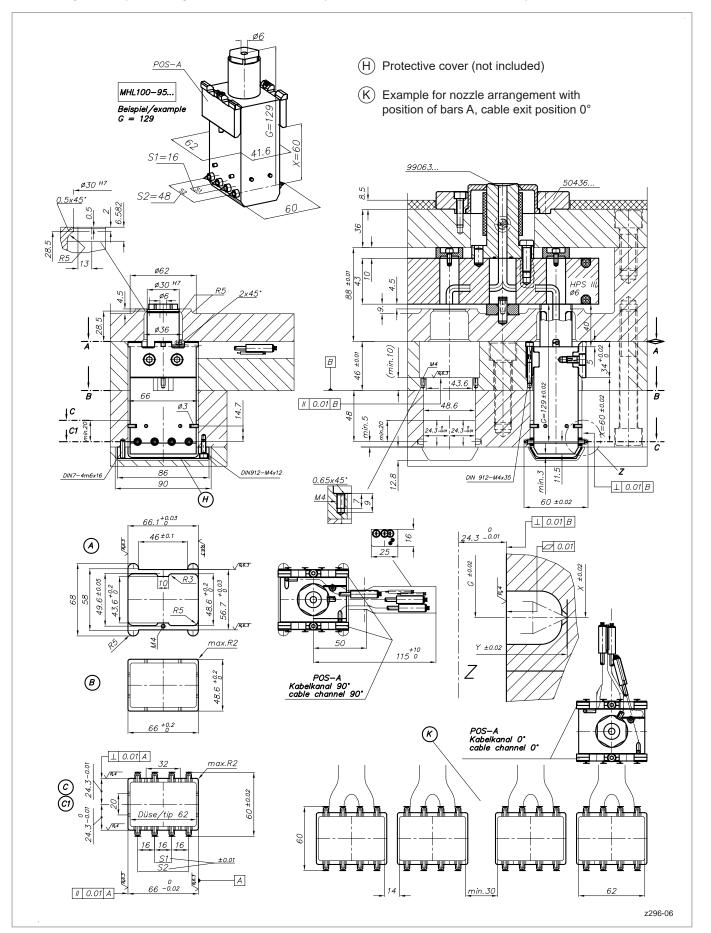
Assembly example for system nozzle, 4-drop, width of nozzle block 42, position of bars B



Cable exit positions for power and thermocouple, width of nozzle block 42



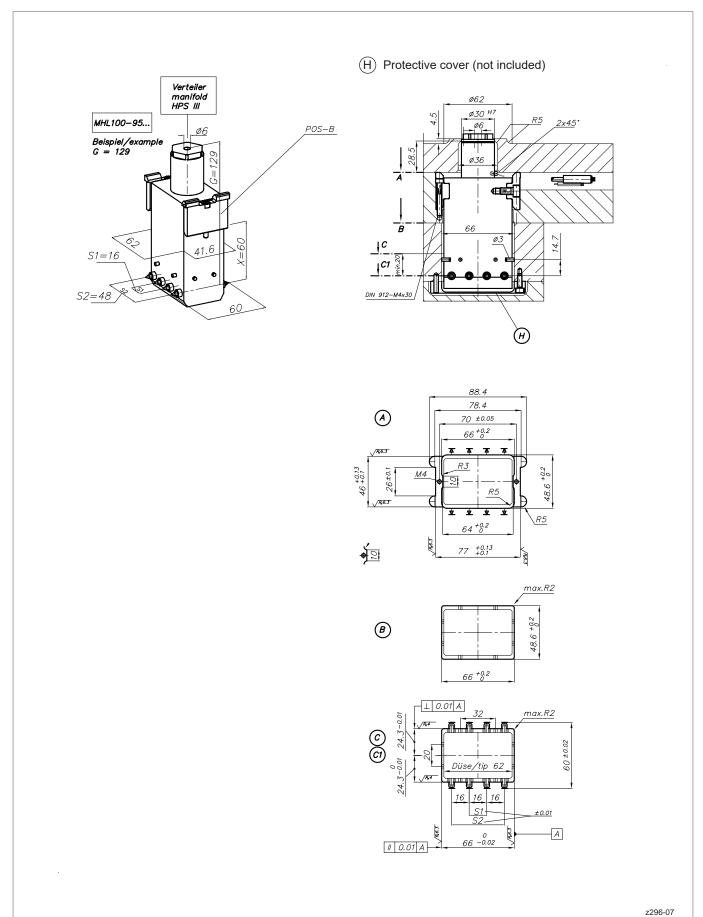
Assembly example for system nozzle, 8-drop, width of nozzle block 62, position of bars A



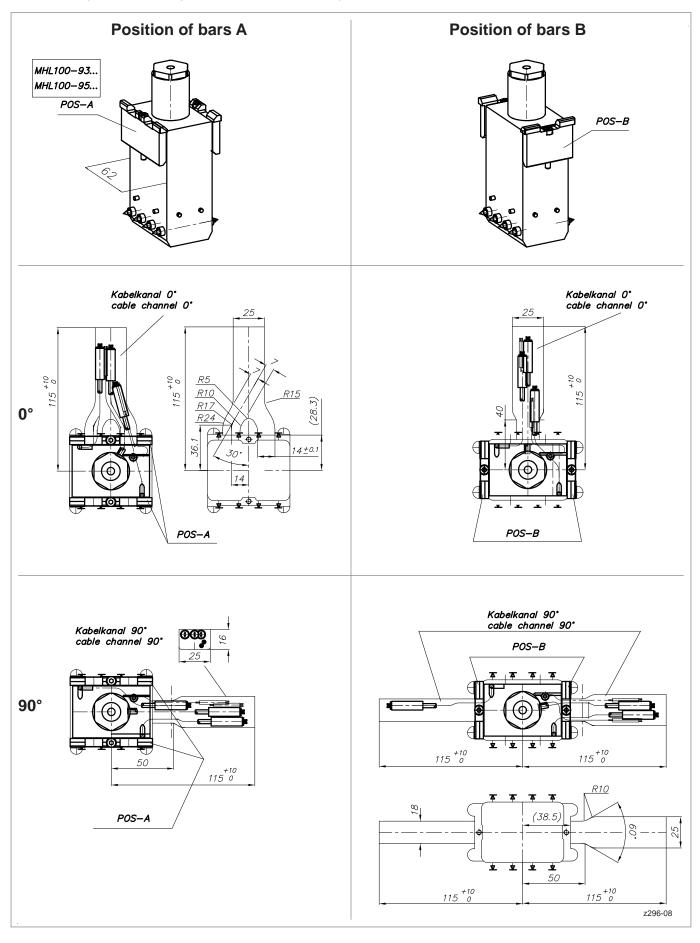
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# HPS III-MHL100 linear version

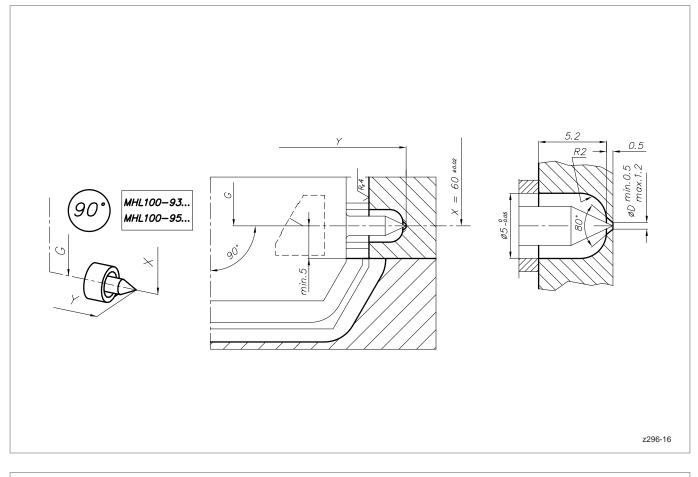
Assembly example for system nozzle, 8-drop, width of nozzle block 62, position of bars B

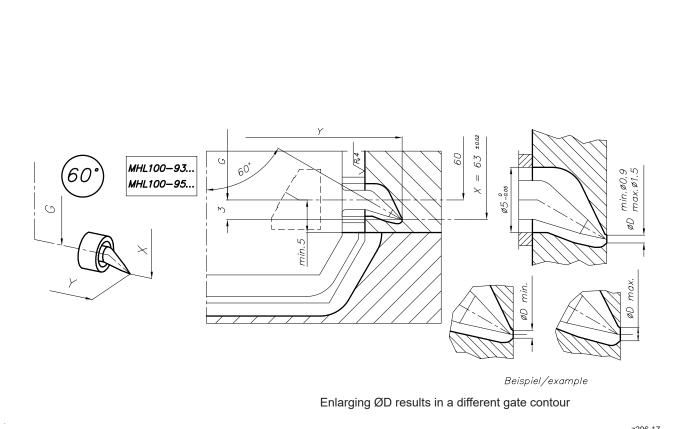


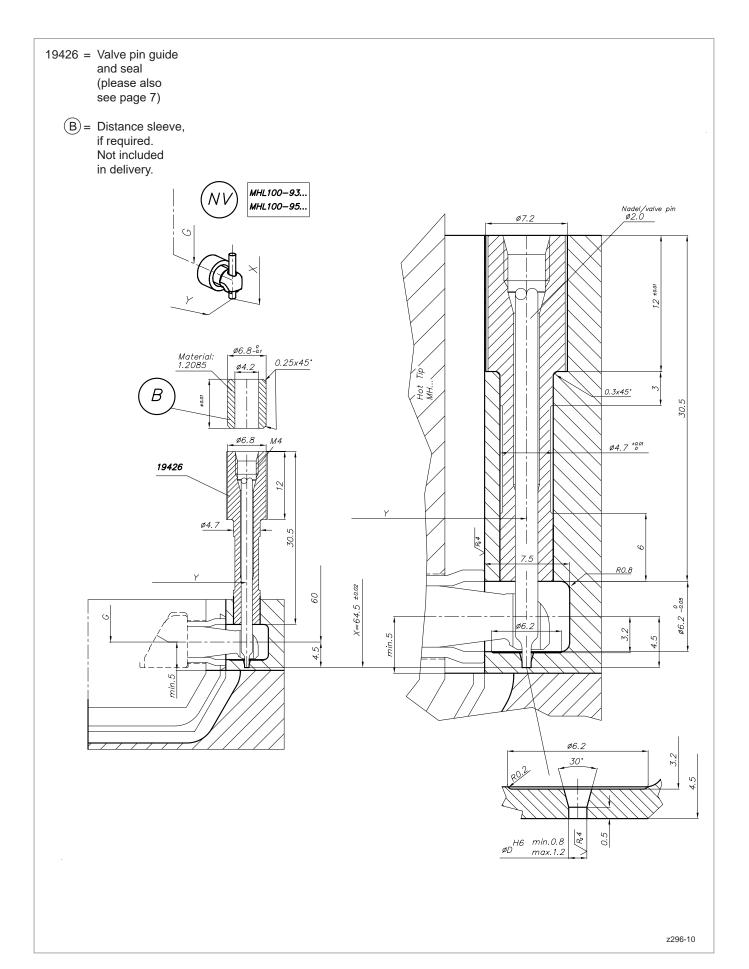
Cable exit positions for power and thermocouple, width of nozzle block 62



Details of gating geometries







Single nozzle and system nozzle

### **Dimensions and tip versions**

Version	System nozzle			Single	nozzle		
Machine radius ( <b>Dim. R</b> )		0	15	15.5	40	1/2" (13.2)	3/4" (19.5)
Dim. T		0	2	2	0.8	2	1.8
Locating ring		Item number 50456 Diameter .100 / .110 / .125 / .160 / .175					

Number of tips <sup>(1)</sup>	2, 4, 8			
Nozzle length ( <b>Dim. G</b> ) $^{(2)}$	105	114	144	
Height of nozzle holder for system nozzle ( <b>Dim. N)</b>	15	15 - 24	15 - 54	

Tip versions	90°	60°
Pitch diameter ( <b>Dim. Y</b> )	58	58
Dim. X	60	63
Recommended gate diameters	0.5 - 1.2	0.9 - 1.5

(1) Other number of tips available on request

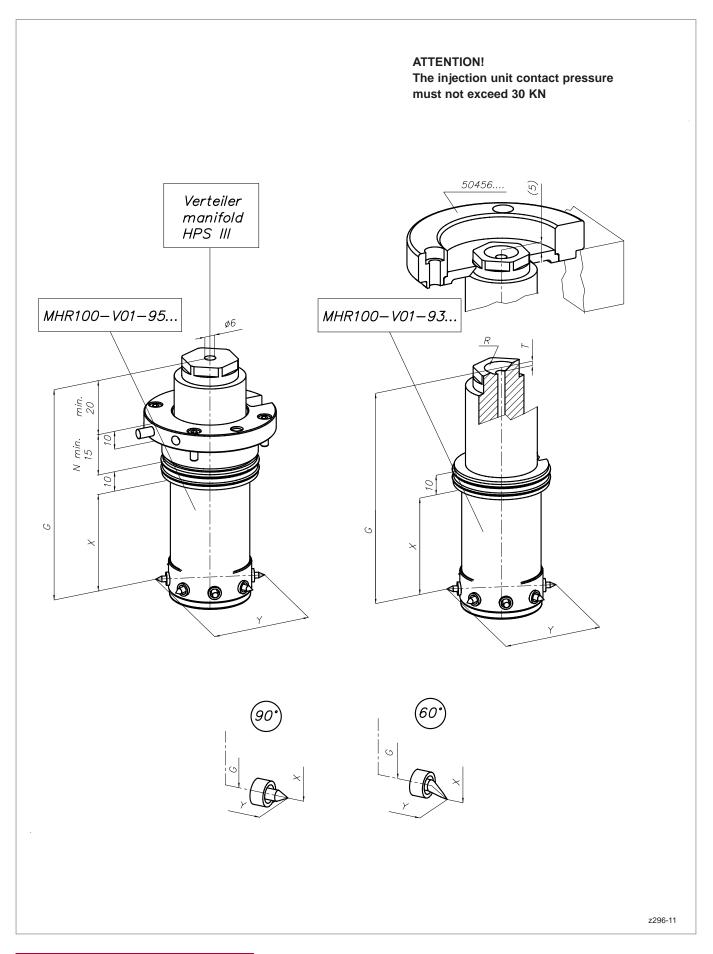
(2) Other nozzle lengths available on request

### Item numbers:

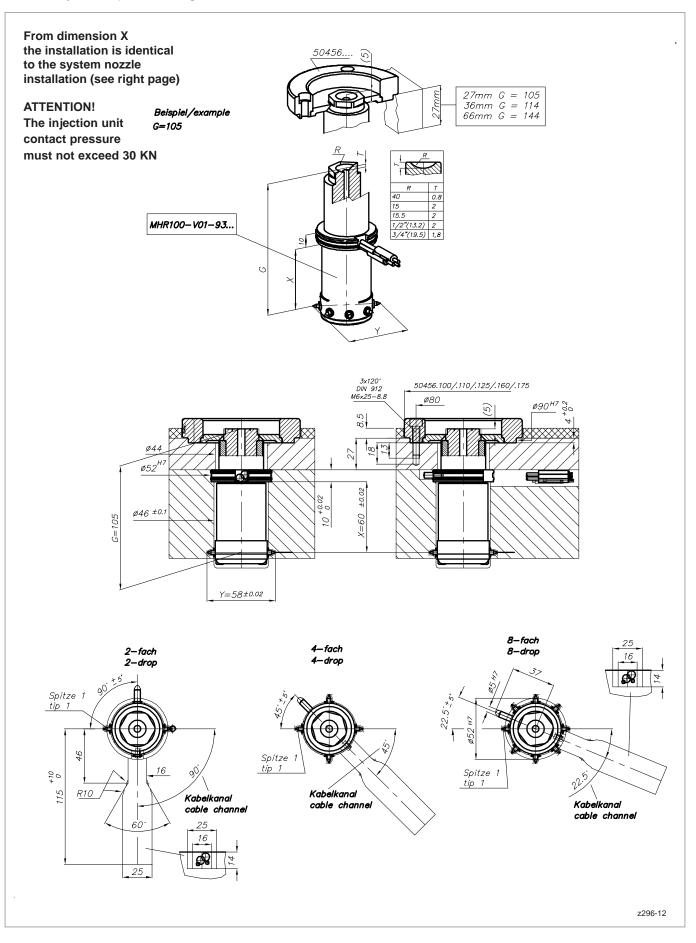
System nozzle: MHR100-V01-95...

Single nozzle: MHR100-V01-93...

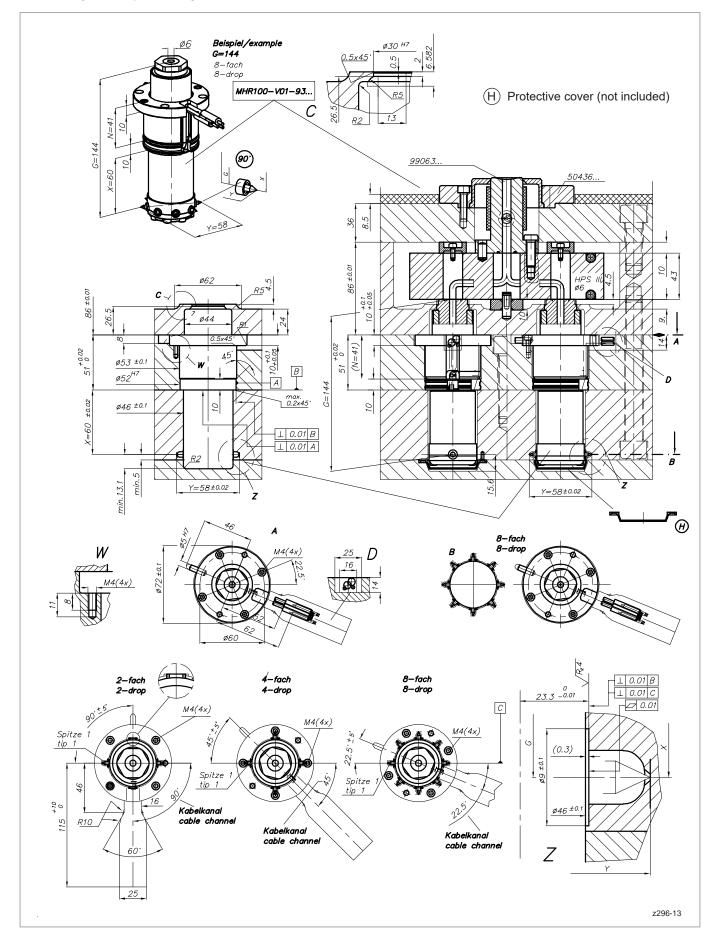
Each nozzle will be configured individually to suit your application requirements. Please contact us!



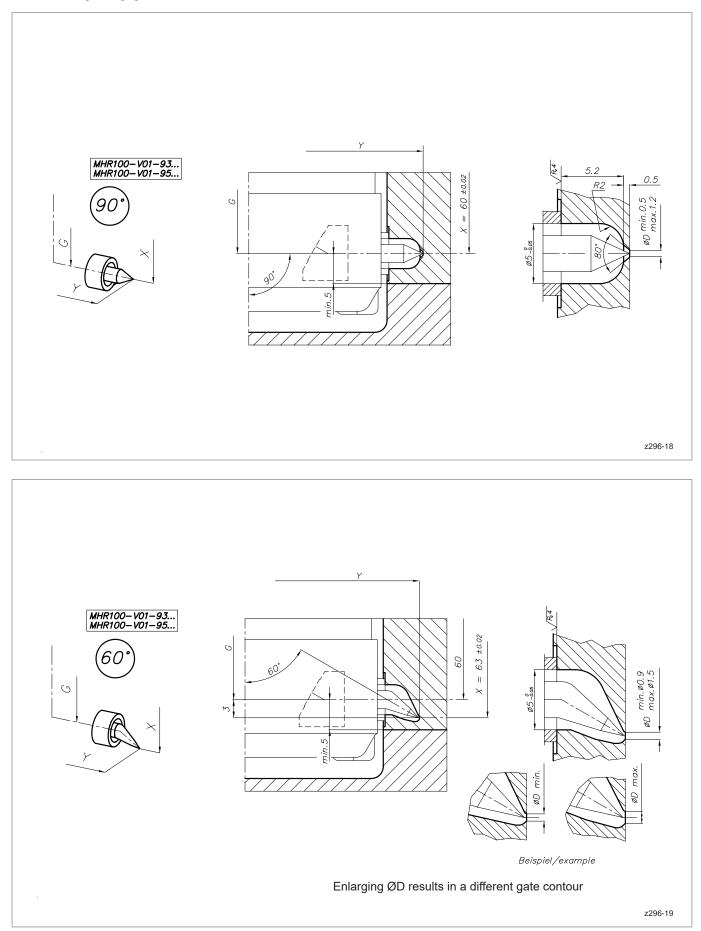
Assembly example for single nozzle



Assembly example for system nozzle



Details of gating geometries



Overview



HPS III-MHR111 radial version for use with adapter nozzle



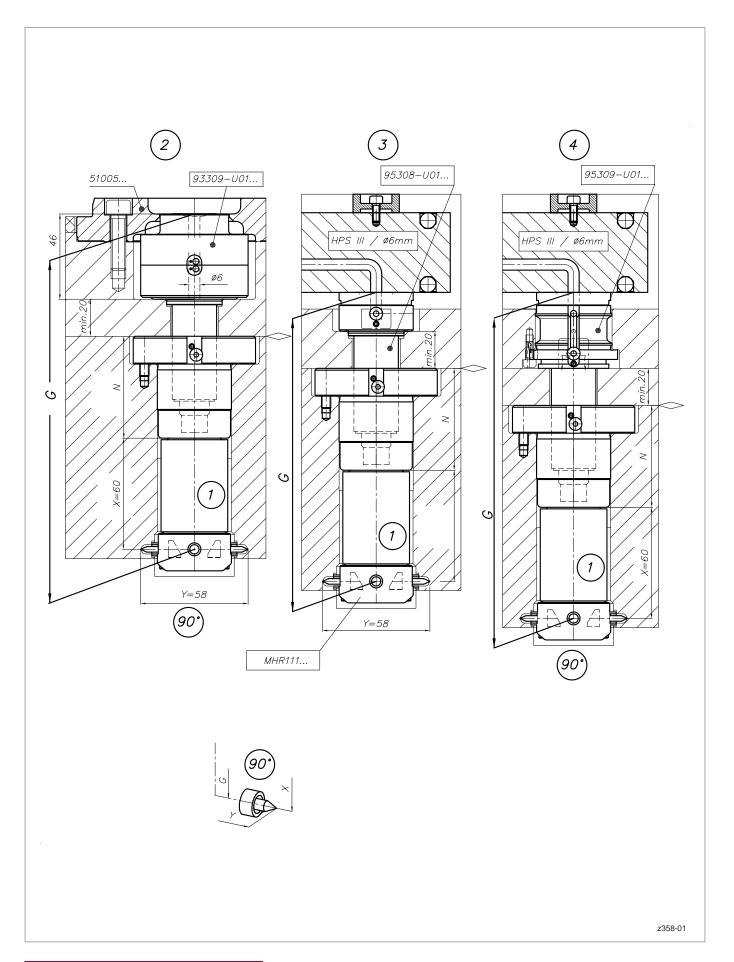
Adapter nozzle 93309-U01... for use as single nozzle



Adapter nozzle 95308-U01... Standard installation for use as system nozzle



Adapter nozzle 95309-U01... Front installation for use as system nozzle



for use with adapter nozzle

### **Dimensions and tip versions**

Number of tips	2, 4, 8											
Version	With adapter nozzle as single nozzle				With adapter nozzle as system nozzle for standard installation				With adapter nozzle as system nozzle for front installation			
Nozzle length <b>(Dim. G)</b> <sup>(1)</sup>	181	201	221	241	156	176	196	216	176	196	216	236
Height of nozzle holder ( <b>Dim. N)</b>	55	75	95	115	55	75	95	115	55	75	95	115

Tip versions	90°	
Pitch diameter (Dim. Y)	58	
Dim. X	60	
Recommended gate diameters	0,5 - 1,2	

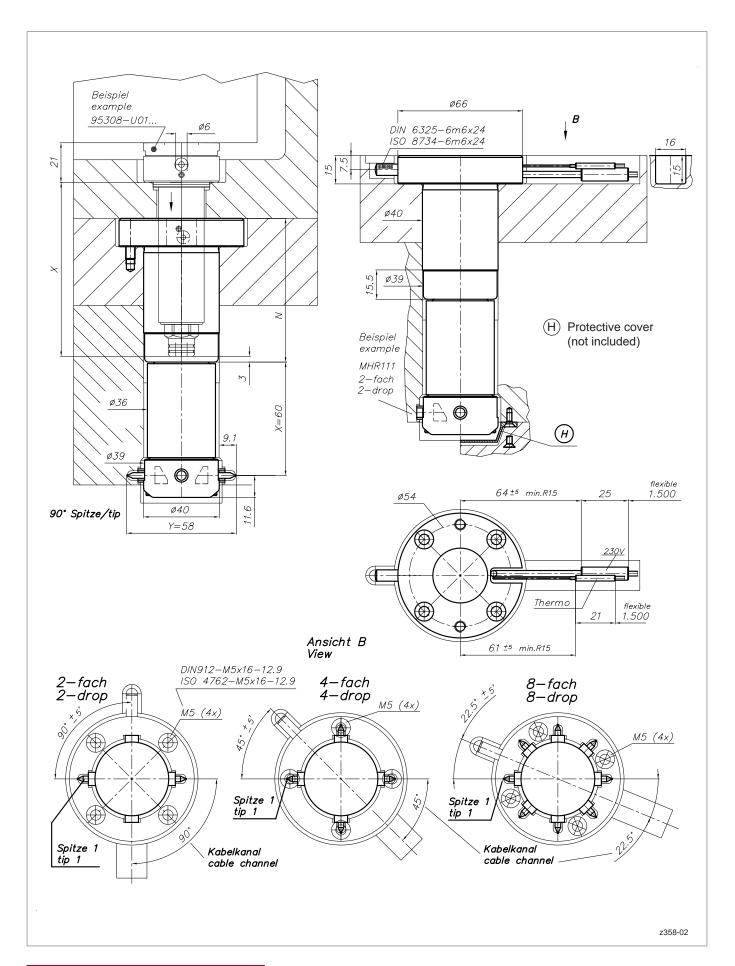
(1) Other nozzle lengths available on request

### Item numbers:

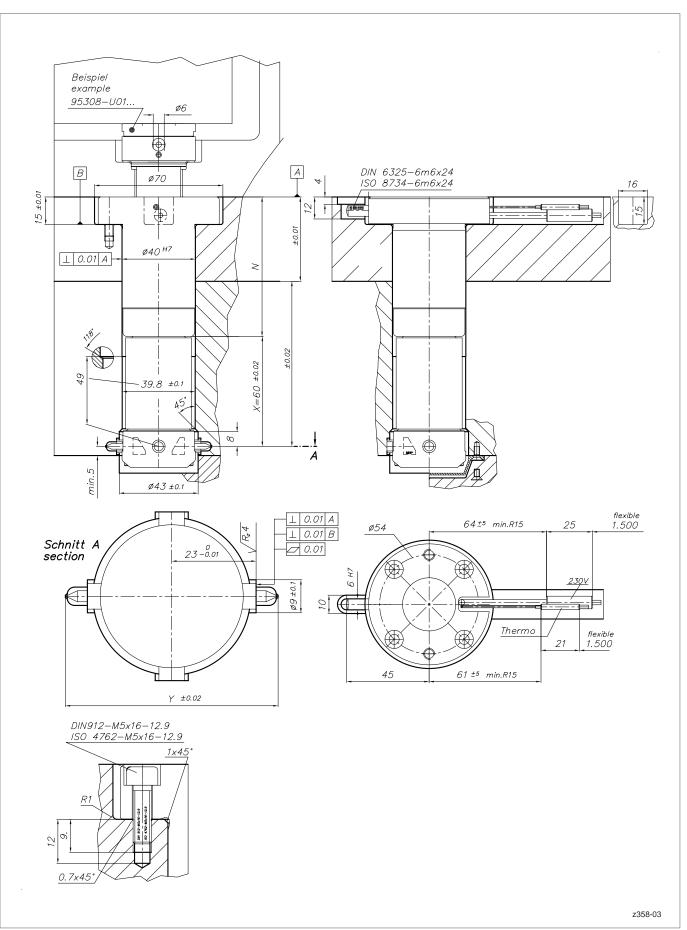
For use with adapter nozzle as system nozzle: MHR111-95...

For use with adapter nozzle as single nozzle: MHR111-93...

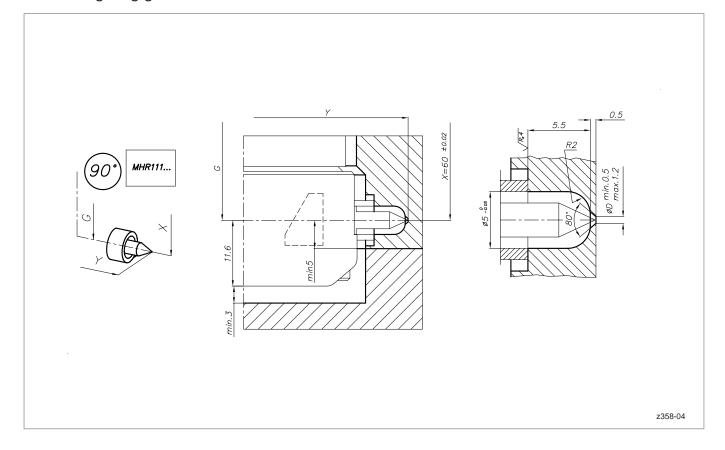
Each nozzle will be configured individually to suit your application requirements. Please contact us!



Installation



Details of gating geometries



Overview



HPS III-MHR112 radial version for use with adapter nozzle



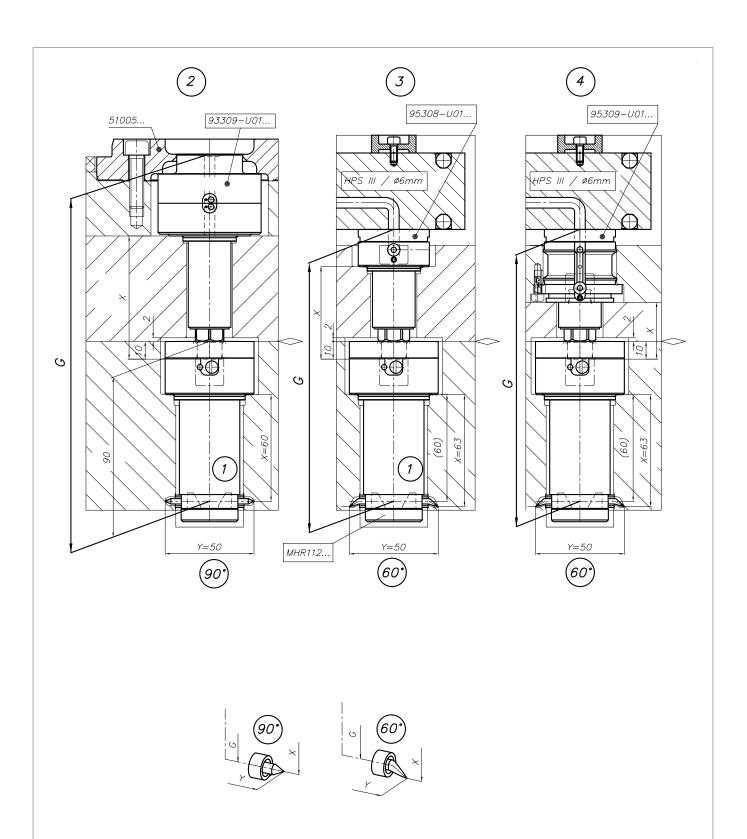
Adapter nozzle 93309-U01... for use as single nozzle



Adapter nozzle 95308-U01... Standard installation for use as system nozzle



Adapter nozzle 95309-U01... Front installation for use as system nozzle



for use with adapter nozzle

### **Dimensions and tip versions**

Number of tips	1, 2				
Version	With adapter nozzle as single nozzle				
Nozzle length ( <b>Dim. G</b> ) <sup>(1)</sup>	178, 198, 218, 238, 258, 278	153, 173, 193, 213, 233, 253, 273	173, 193, 213, 233, 253, 273		

Tip versions	90°	60°
Pitch diameter ( <b>Dim. Y</b> )	50	50
Dim. X	60	63
Recommended gate diameters	0.5 - 1.2	0.9 - 1.5

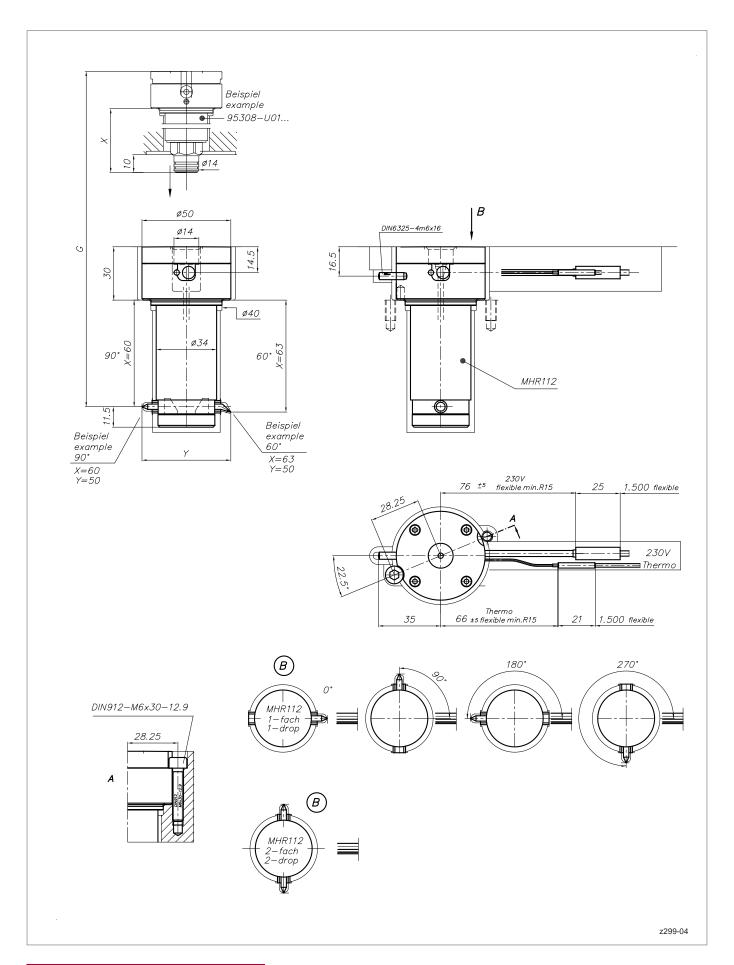
(1) Other nozzle lengths available on request

#### Item numbers:

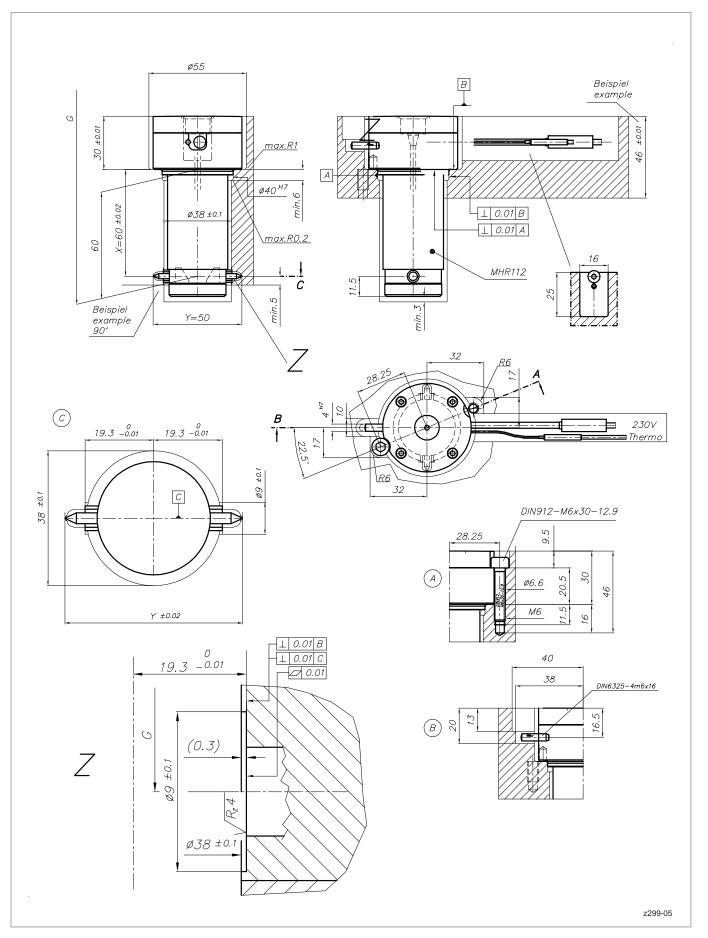
For use with adapter nozzle as system nozzle: MHR112-95...

For use with adapter nozzle as single nozzle: MHR112-93...

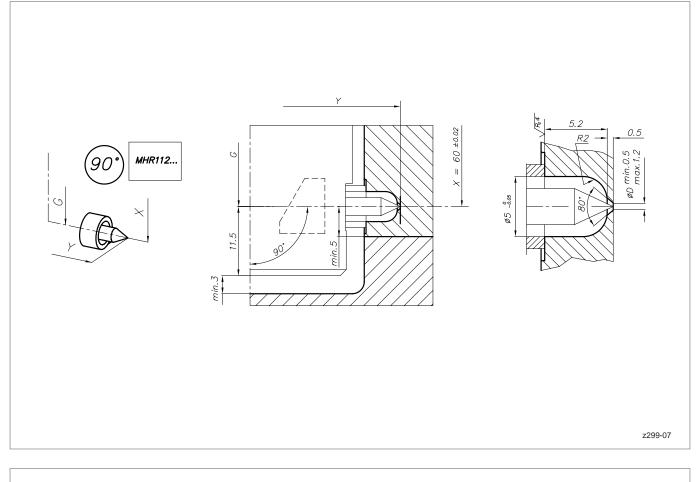
Each nozzle will be configured individually to suit your application requirements. Please contact us!

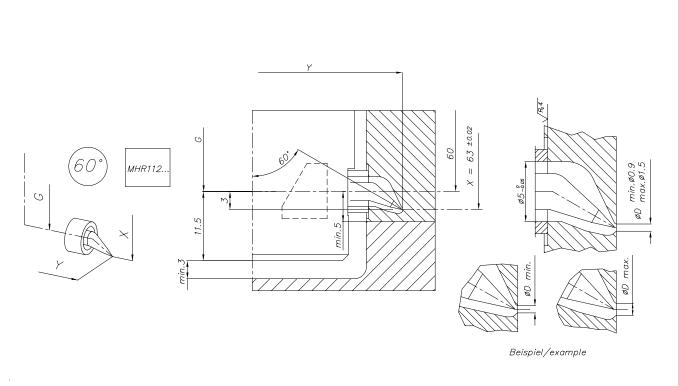


Installation



Details of gating geometries





Enlarging ØD results in a different gate contour

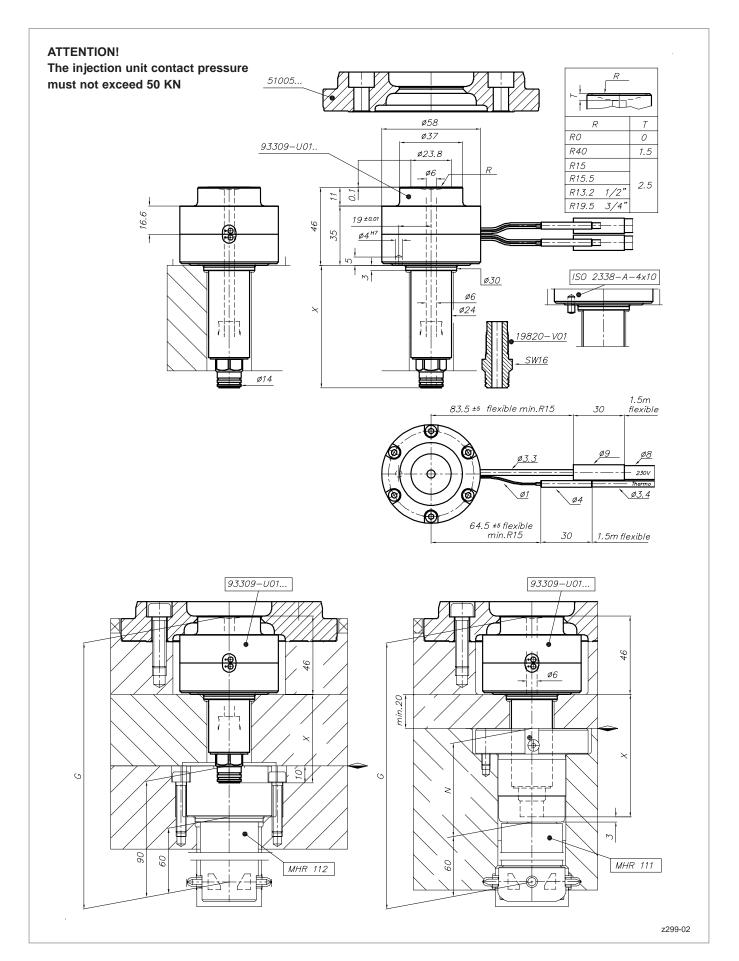
# Adapter nozzle 93309-U01...

for use as single nozzle

Dim. X	HPS III-MHR 111	HPS III-MHR 112
Dim. X	Results in Dim. G	Results in Dim. G
52	-	178
72	181	198
92	201	218
112	221	238
132	241	258
152	-	278

### Ordering example:





## Adapter nozzle 93309-U01...

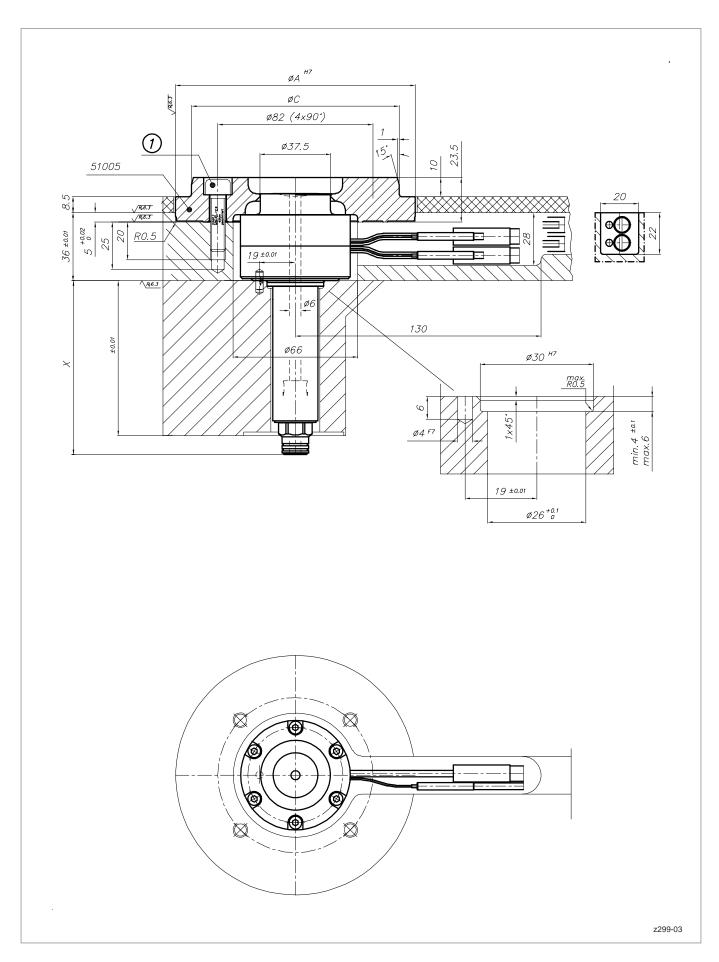
Locating ring / Assembly note

### Locating ring 51005 . . .

Plate thickness 36 mm

1 Screws: 4 x DIN 912, M8 x 30-12.9, 45 Nm lubricated

Item number	ØA	ØC
51005.100	117	99.80
51005.000	118	101.34
51005.110	127	109.80
51005.125	142	124.80
51005.160	177	158.80
51005.175	192	174.80



## Adapter nozzle 95308-U01...

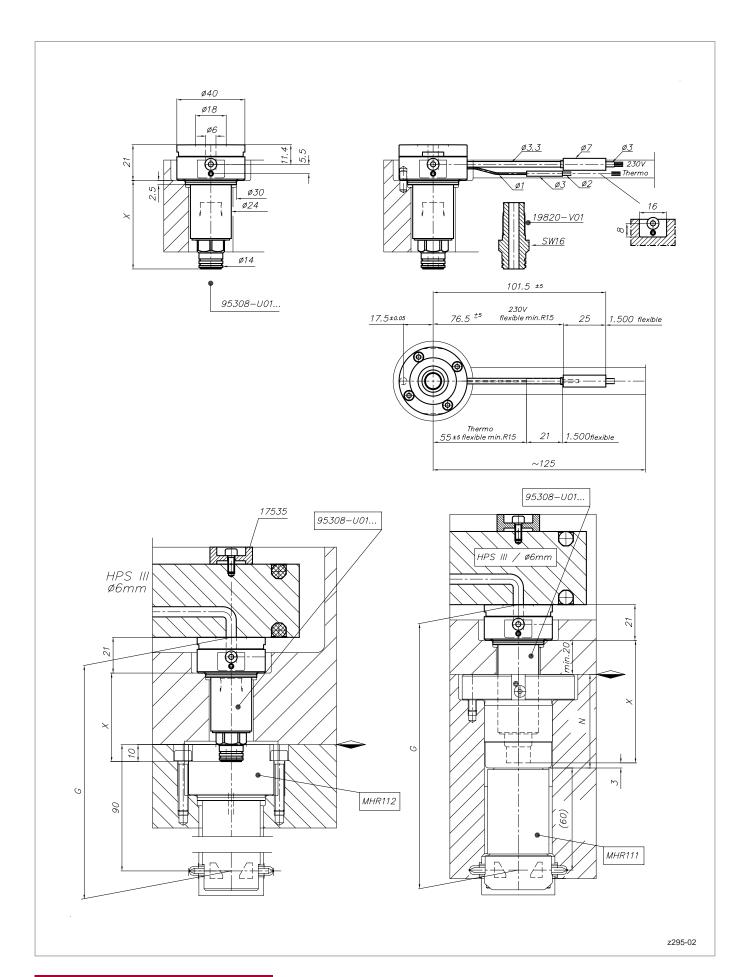
Standard installation for use as system nozzle

Dim. X	HPS III-MHR 111	HPS III-MHR 112
Dini. X	Results in Dim. G	Results in Dim. G
52	-	153
72	156	173
92	176	193
112	196	213
132	216	233
152	-	253
172	-	273

### Ordering example:

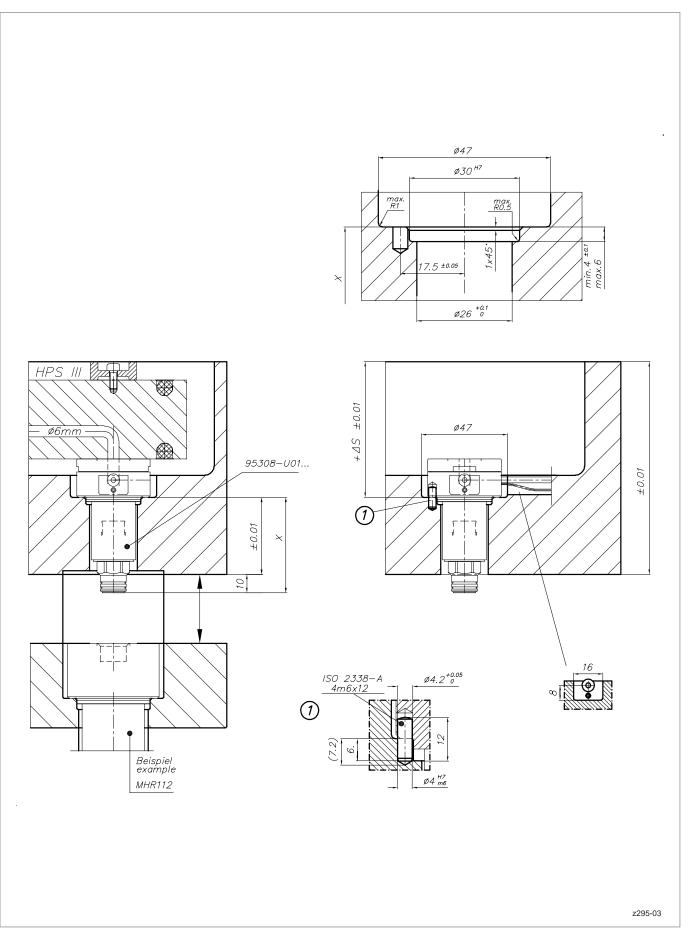
95308-U01.072

\_ Туре



### Adapter nozzle 95308-U01...

Installation



# Adapter nozzle 95309-U01...

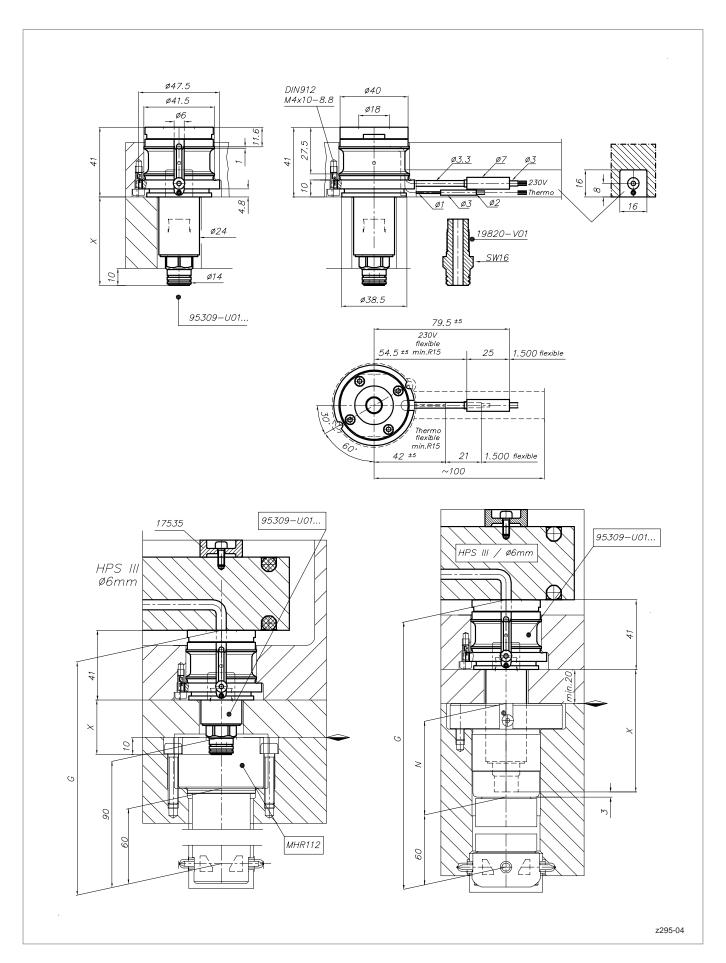
Front installation for use as system nozzle

Dim. X	HPS III-MHR 111	HPS III-MHR 112
Dim. X	Results in Dim. G	Results in Dim. G
52	-	173
72	176	193
92	196	213
112	216	233
132	236	253
152	-	273

### Ordering example:

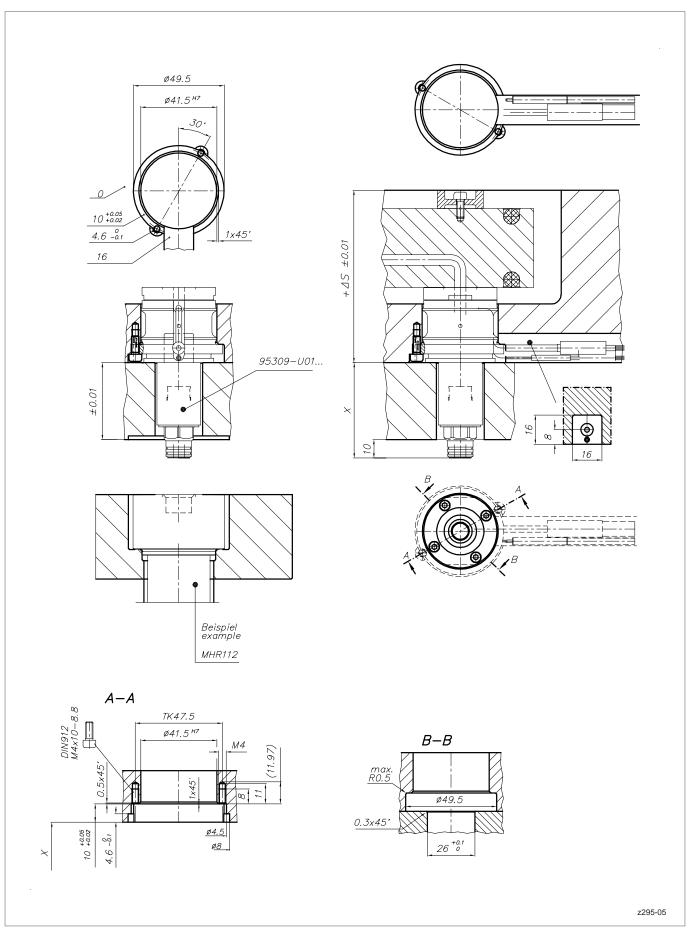
95309-U01.072

\_ Туре



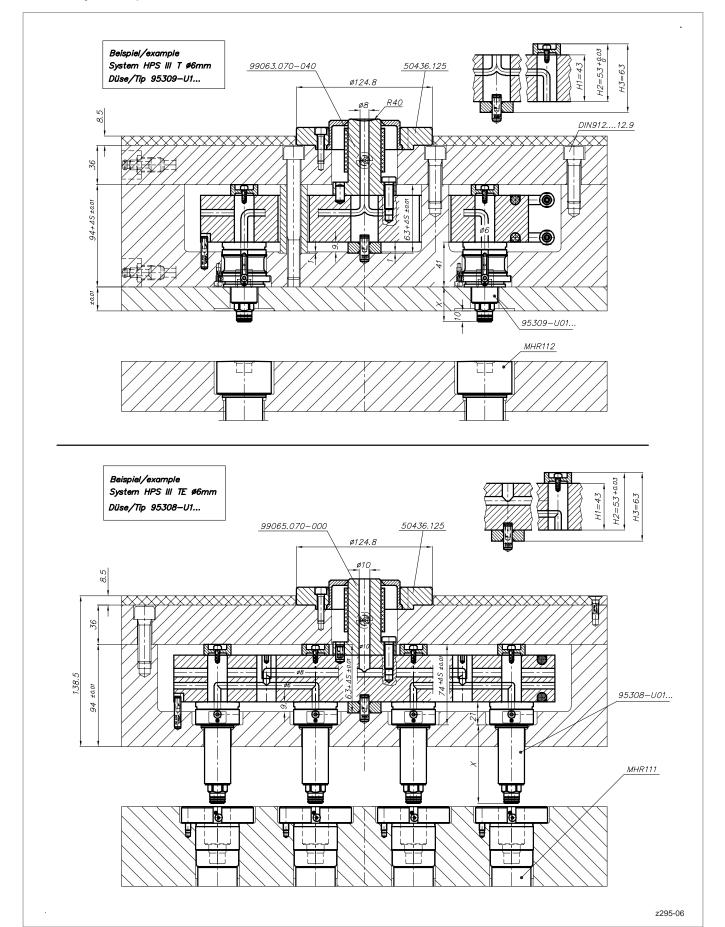
## Adapter nozzle 95309-U01...

Installation



# Adapter nozzle 95308-U01... / 95309-U01...

Assembly examples



for use as system nozzle directly under the manifold

### **Dimensions and tip versions**

Number of tips	1, 2		
Version	System nozzle for standard installation		
Nozzle length ( <b>Dim. G</b> ) <sup>(1)</sup>	90		
Tip versions	90° 60°		

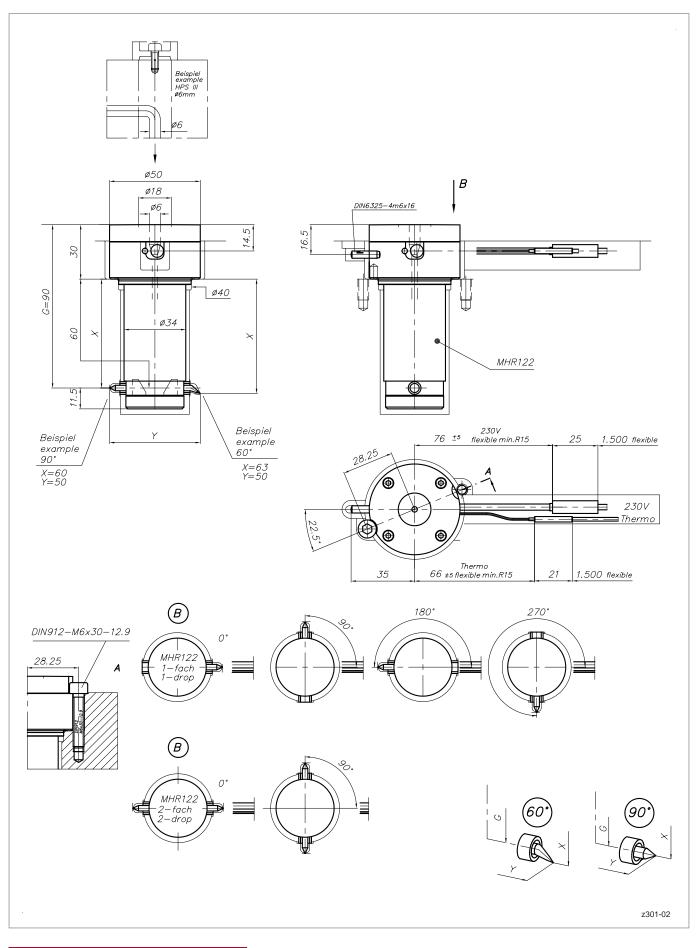
Tip versions	90°	60°
Pitch diameter ( <b>Dim. Y</b> )	50	50
Dim. X	60	63
Recommended gate diameters	0.5 - 1.2	0.9 - 1.5

(1) Other nozzle lengths available on request

#### Item number:

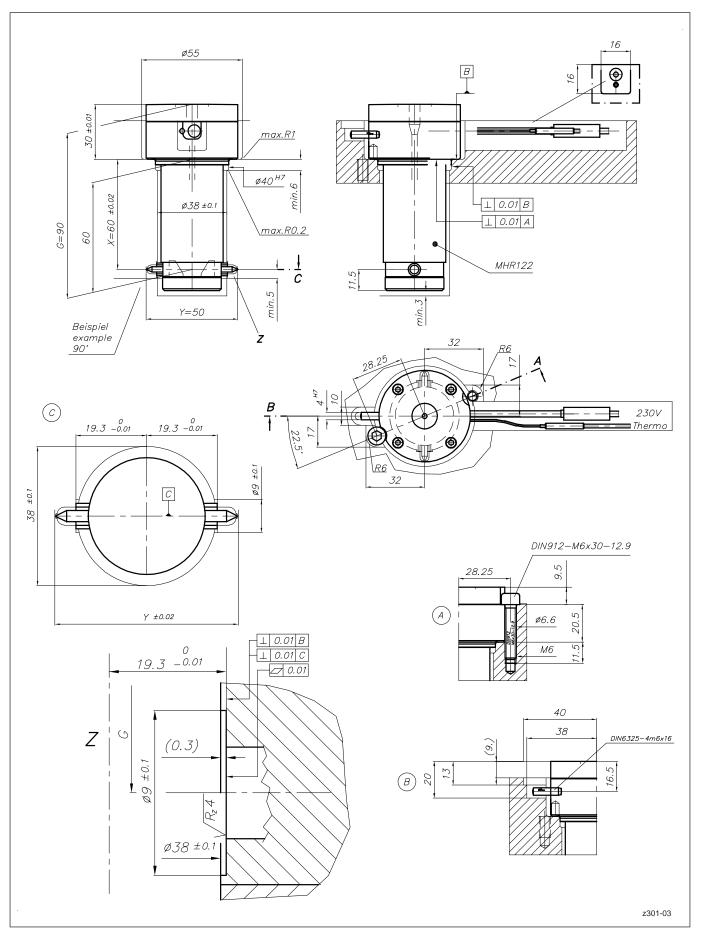
System nozzle: MHR122-95...

Each nozzle will be configured individually to suit your application requirements. Please contact us!

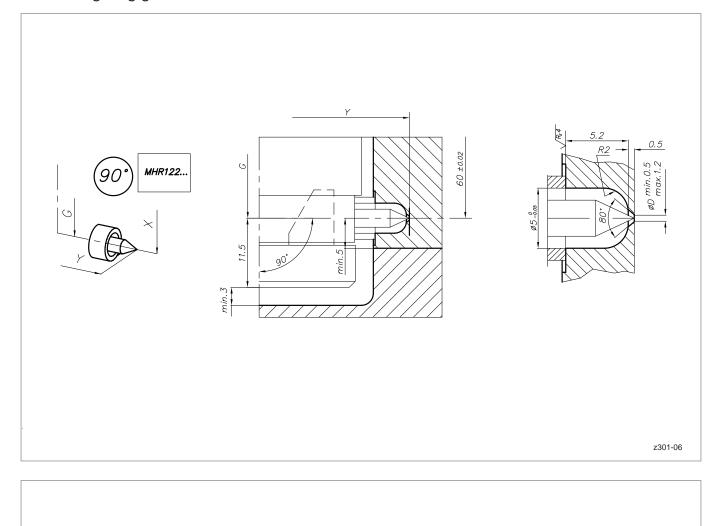


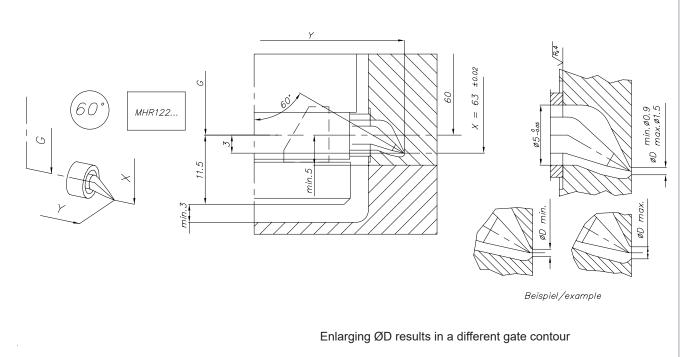
HIGH PERFORMANCE SYSTEMS

Installation

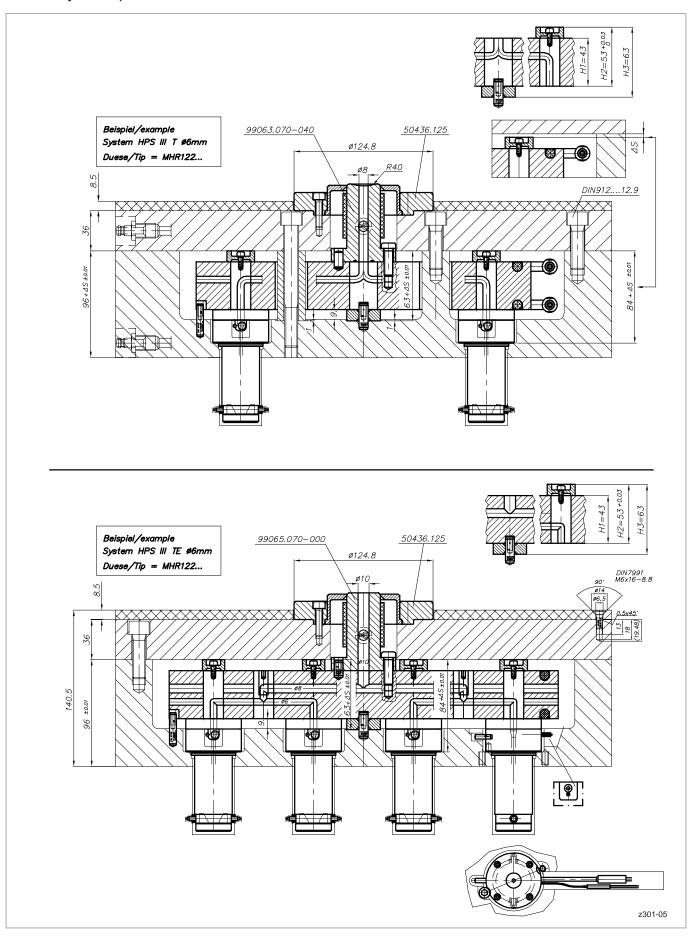


Details of gating geometries





Assembly example



Single nozzle and system nozzle

### **Dimensions and tip versions**

Version	System nozzle	Single nozzle					
Machine radius ( <b>Dim. R</b> )		0	15	15.5	40	1/2" (13.2)	3/4" (19.5)
Dim. T		0	2	2	0.8	2	1.8
Locating ring		0 15 15.5 40 (13.2) (1		5			

Width of nozzle block ( <b>Dim. B</b> )	62
Number of tips	4
Distance between cavities ( <b>Dim. S1</b> )	S1=42
Nozzle length ( <b>Dim. G</b> ) <sup>(1)</sup>	129, 138, 148, 168
Positions of bars	A (on nozzle side with tips) B (on nozzle side without tips)

Tip versions	90°	60°
Distance between cavity rows ( <b>Dim. Y</b> )	62	62
Dim. X	60	64.5
Recommended gate diameters	0.8 - 1.5	0.8 - 1.5

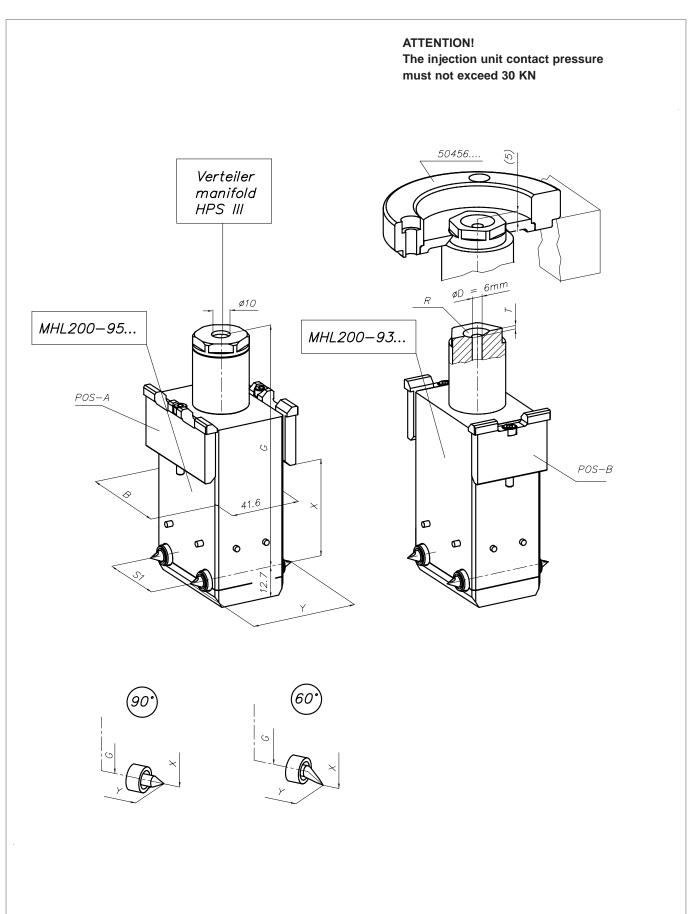
(1) Other nozzle lengths available on request

#### Item numbers:

System nozzle: MHL200-95...

Single nozzle: MHL200-93...

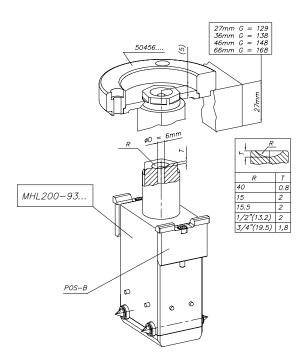
Each nozzle will be configured individually to suit your application requirements. Please contact us!

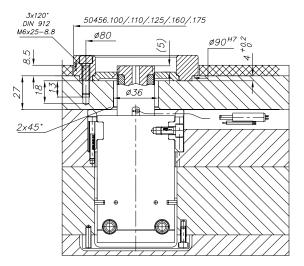


Assembly example for single nozzle, 4-drop, width of nozzle block 62, position of bars B

#### **ATTENTION!**

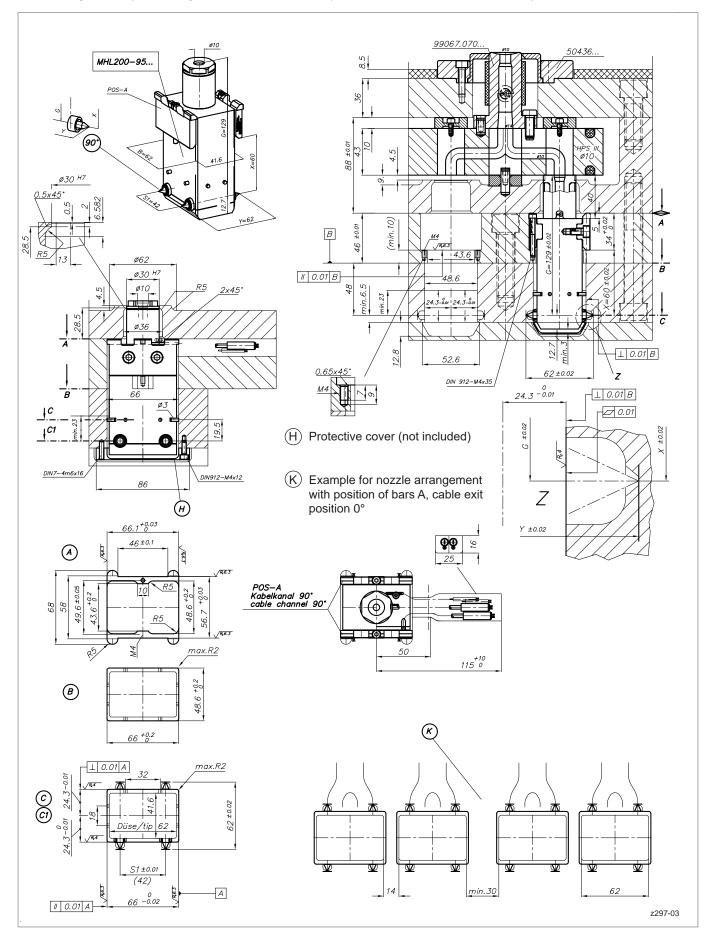
The injection unit contact pressure must not exceed 30 KN



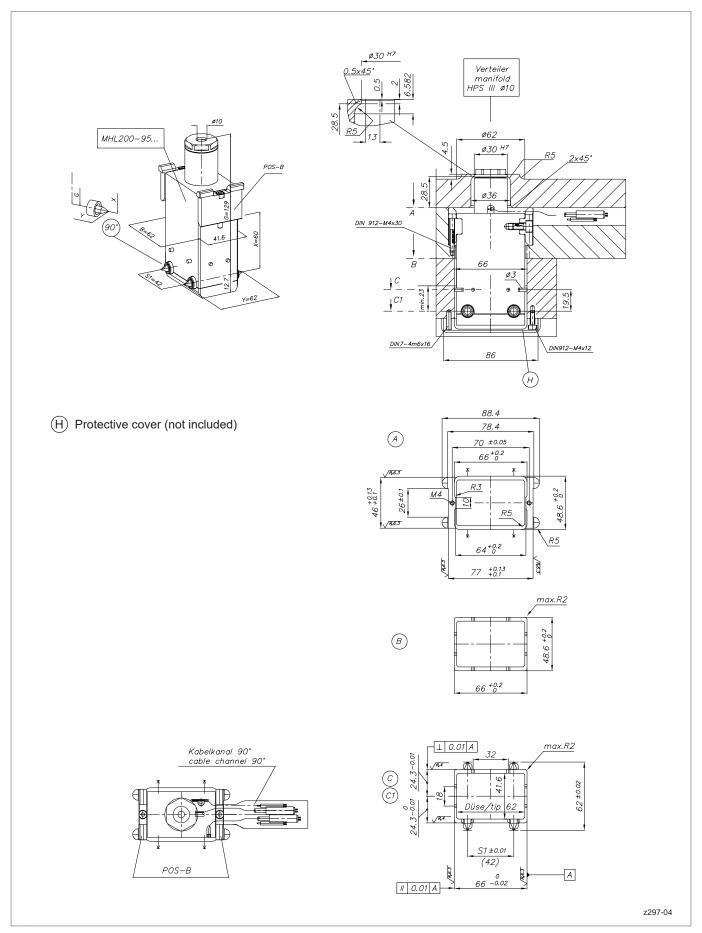


z297-02

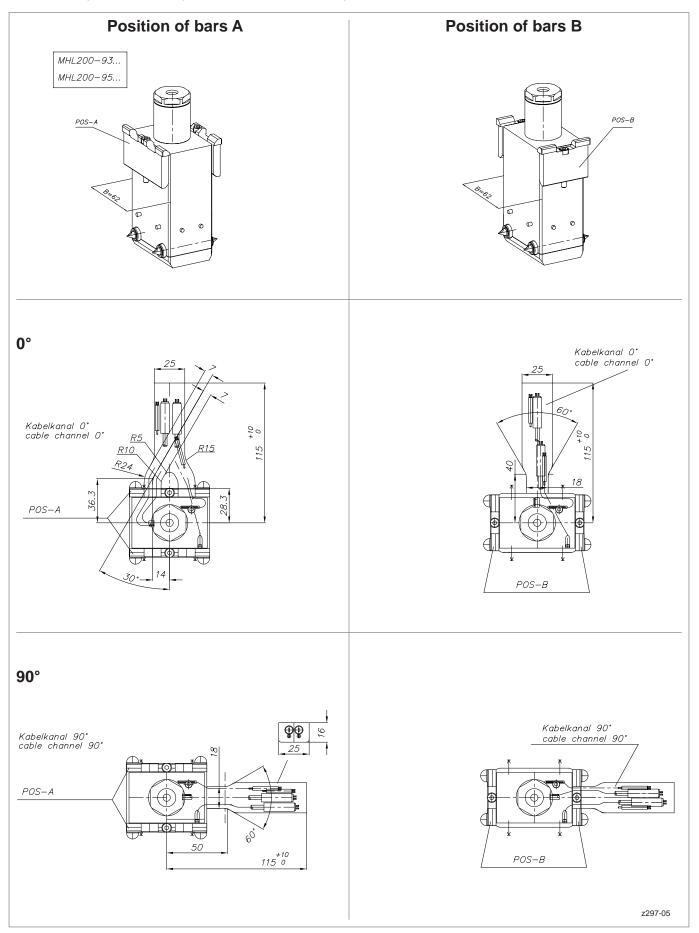
Assembly example for system nozzle, 4-drop, width of nozzle block 62, position of bars A



Assembly example for system nozzle, 4-drop, width of nozzle block 62, position of bars B

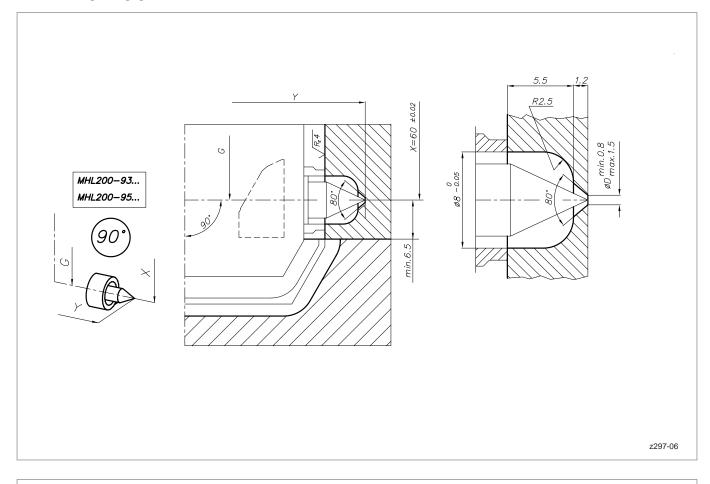


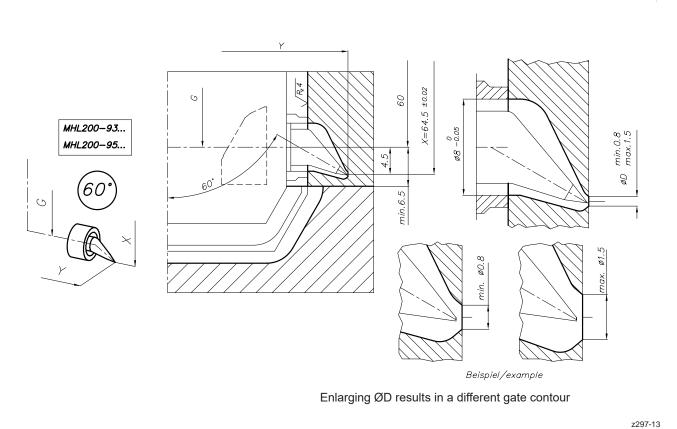
Cable exit positions for power and thermocouple, width of nozzle block 62



HIGH PERFORMANCE SYSTEMS

Details of gating geometries





Single nozzle and system nozzle

### **Dimensions and tip versions**

Version	System nozzle	Single nozzle					
Machine radius ( <b>Dim. R</b> )		0	15	15.5	40	1/2" (13.2)	3/4" (19.5)
Dim. T		0	2	2	0.8	2	1.8
Locating ring			Item number 50456 Diameter .100 / .110 / .125 / .160 / .175				

Number of tips		1, 2, 4	
Nozzle length ( <b>Dim. G</b> ) $^{(1)}$	105	114	144
Height of nozzle holder for system nozzle ( <b>Dim. N)</b>	15	15 - 24	15 - 54

Tip versions	90°	60°
Pitch diameter ( <b>Dim. Y</b> )	60	60
Dim. X	60	64.5
Recommended gate diameters	0.8 - 1.5	0.8 - 1.5

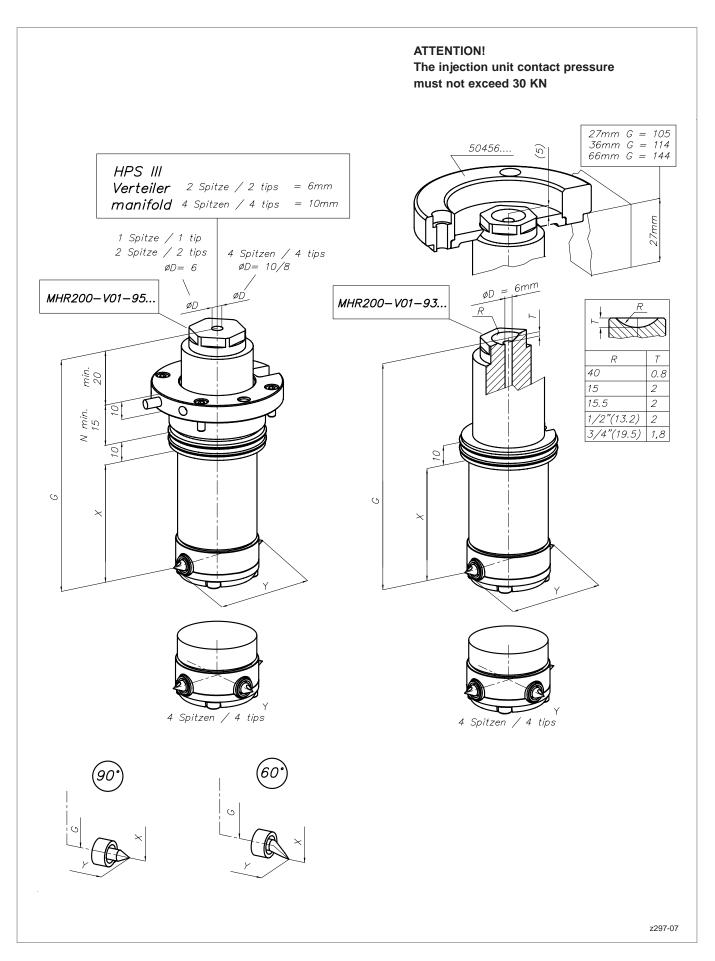
(1) Other nozzle lengths available on request

#### Item numbers:

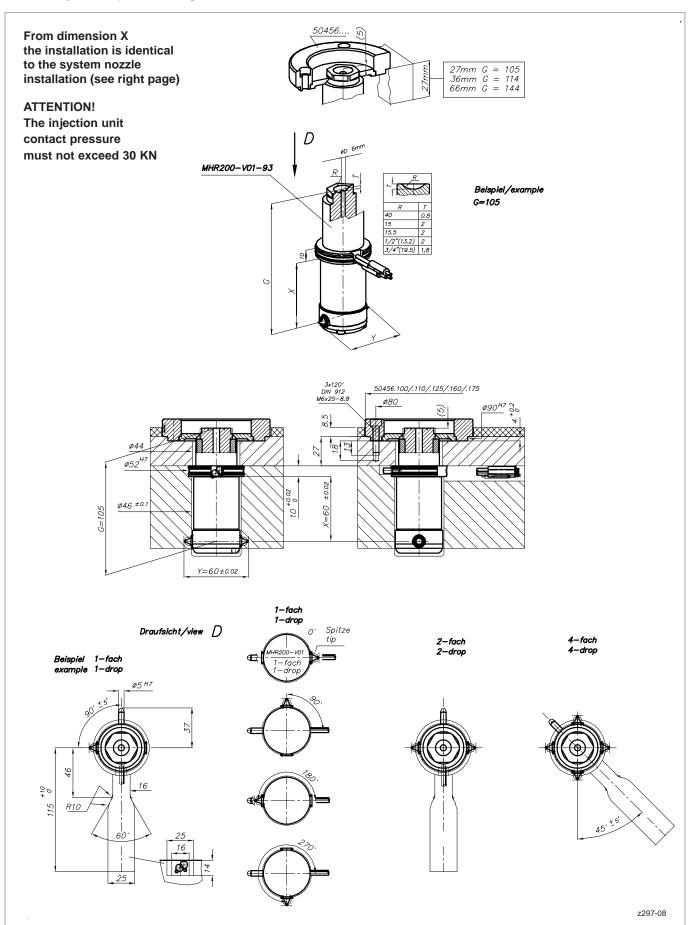
System nozzle: MHR200-V01-95...

Single nozzle: MHR200-V01-93...

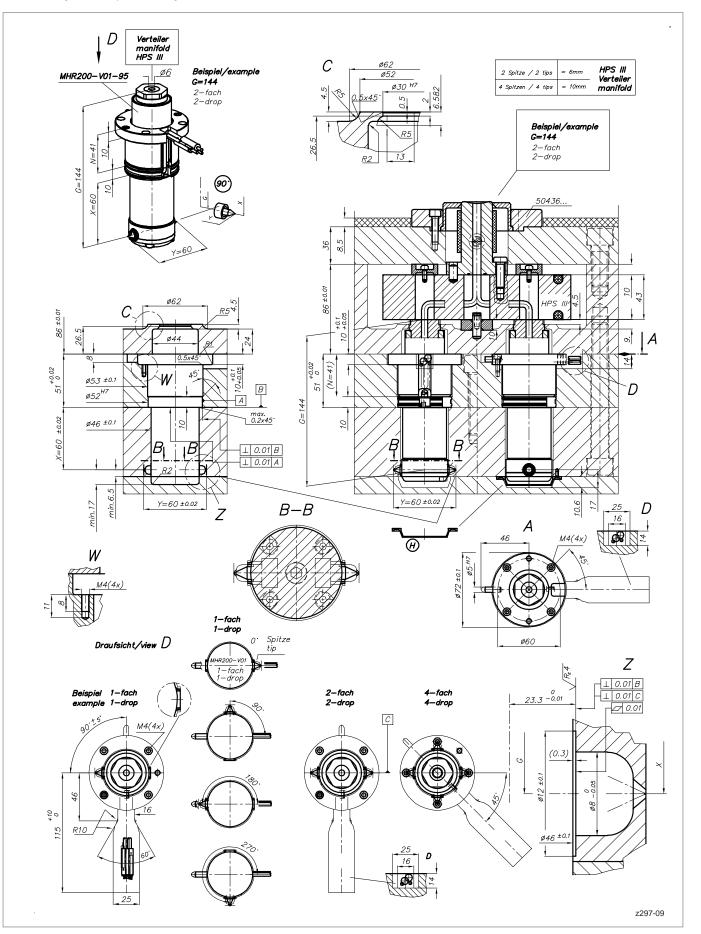
Each nozzle will be configured individually to suit your application requirements. Please contact us!



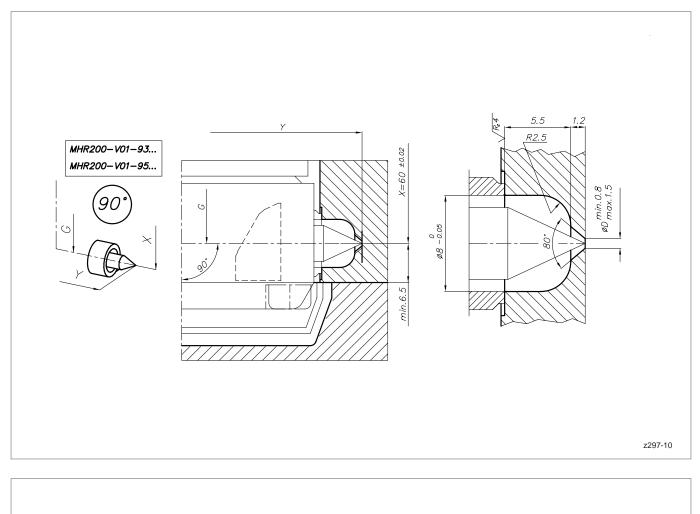
Assembly example for single nozzle

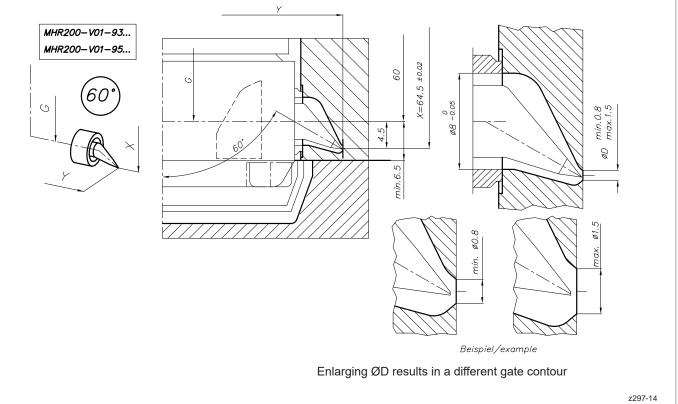


Assembly example for system nozzle



Details of gating geometries

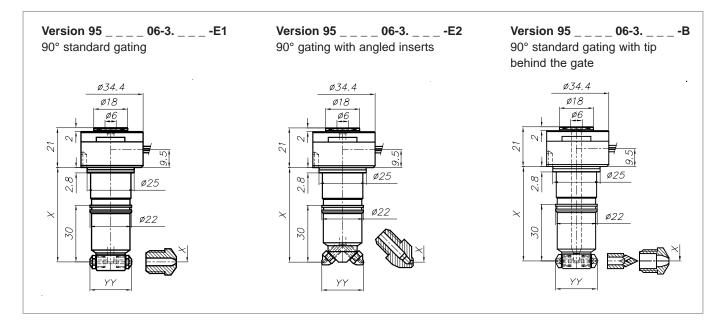




## HPS III-MH1 system nozzle

for side gating with open flow channel, dimensions and item numbers

### Version for standard installation

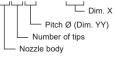


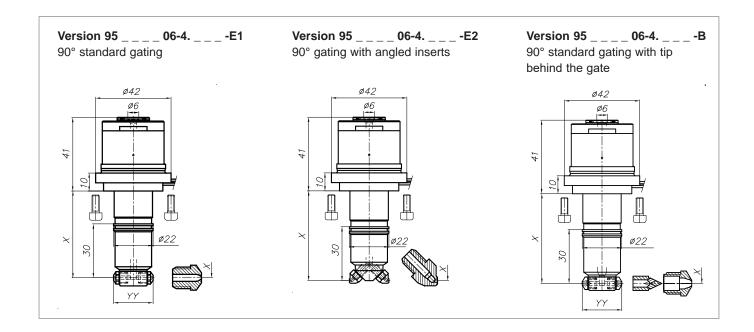
Pitch diameter	Dim. X	Possible number of gates			
(Dim. YY)		1	2	3	4
	50 mm				
22 mm*	90 mm	•	•	•**	•**
	130 mm				
* other pitch diameters on request					
** not for version E2					

#### Ordering example:

Nozzle 95 \_ \_ \_ 06-3. \_ \_ - \_

95042206-3.050-E1 — Gating version





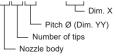
Pitch diameter	Dim. X	Possible number of gates			
(Dim. YY)	Dim. X	1	2	3	4
	30 mm				
22 mm*	70 mm	•	•	•**	•**
	110 mm				
* other pitch diameters on request ** not for version E2					

#### Ordering example:

Nozzle 95 \_ \_ \_ 06-4. \_ \_ -

Version for front installation

95042206-4.030-E1 — Gating version

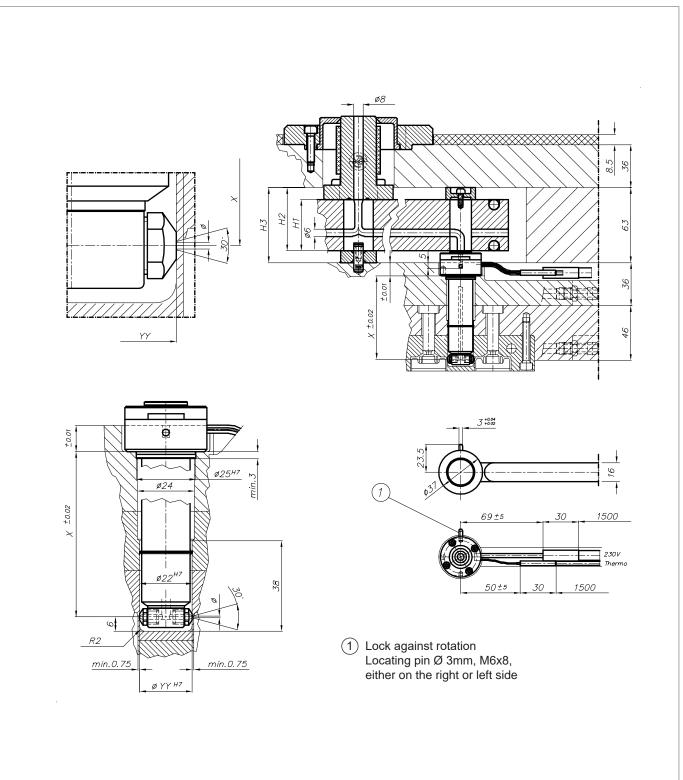


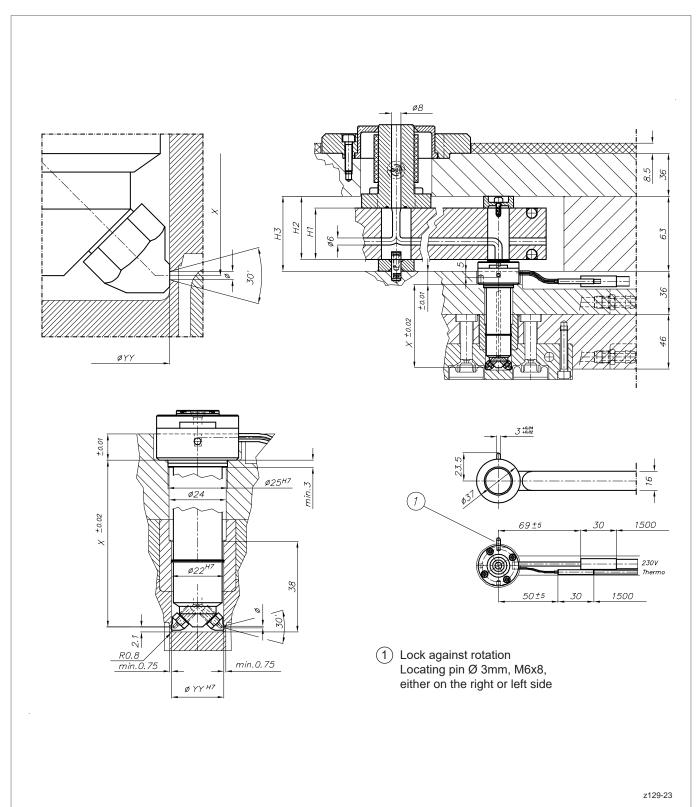
HIGH PERFORMANCE SYSTEMS

# HPS III-MH1 system nozzle

for side gating with open flow channel, assembly examples

### Assembly example for gating version E1, standard installation, 2 gates

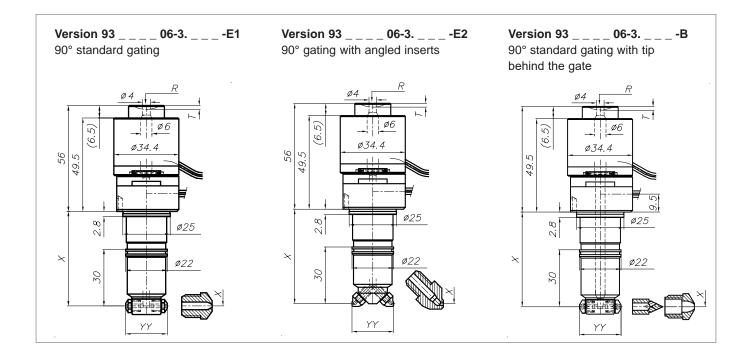




### Assembly example for gating version E2, standard installation, 2 gates

## HPS III-MH1 single nozzle

for side gating with open flow channel, dimensions and item numbers



Pitch diameter	Dim. X	Possible number of gates			tes
(Dim. YY)		1	2	3	4
	50 mm				
22 mm*	90 mm	•	•	•**	•**
	130 mm				
* other pitch diameters on request					
** not for version E2					

Machine radius R	Dim. T
0	0
15	2
40	1
1/2 " (13.2)	2
3/4" (19.5)	2

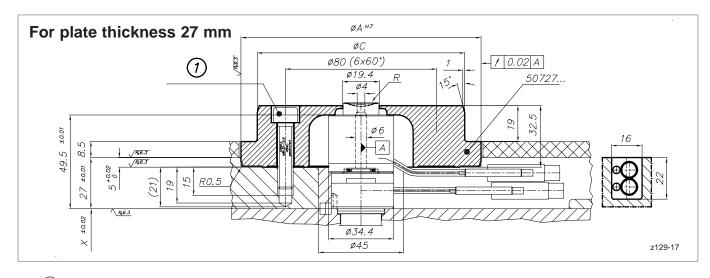
#### Ordering example:

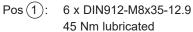
Nozzle 93\_\_\_06-3.\_\_-

#### 93042206-3.050-E1-040 — R —

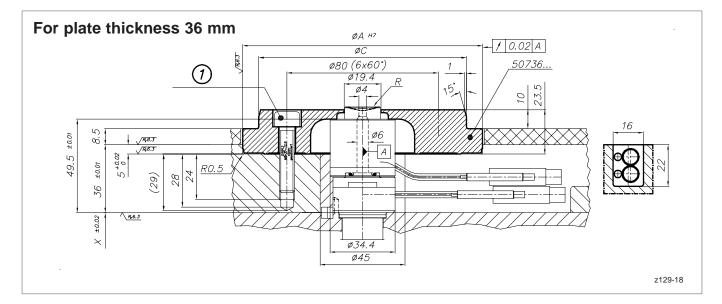
Gating version	*
Dim. X	R0 =000
Pitch Ø (Dim. YY)	R15 =015 R40 =040
Number of tips	R1/2" =1/2
Nozzle body	R3/4" =3/4

Locating rings for 93\_\_\_\_06-3.\_\_-





Item number	ØA	ØC
50727.100	117	99.8
50727.000	118	101.34
50727.110	127	109.8
50727.125	142	124.8
50727.175	192	174.8



Pos (1): 6 x DIN912-M8x35-12.9 45 Nm lubricated

Item number	ØA	ØC
50736.100	117	99.8
50736.000	118	101.34
50736.110	127	109.8
50736.125	142	124.8
50736.175	192	174.8

HIGH PERFORMANCE SYSTEMS

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Technical information subject to alteration | EWIKON 12/2023 EN