



## Bypass Level Indicator



measuring  
•  
monitoring  
•  
analysing

SZM



- Measuring length: 370 ... 3080 mm
- $p_{\max}$ : 10 bar;  $t_{\max}$ : -20 °C ... 100 °C
- Viscosity: max. 50 mm<sup>2</sup>/s
- Connection:  
DIN flange DN 15 ... 50,  
ANSI flange ½" ... 2",  
union nut G ½, ½" NPT
- Material:  
Stainless steel 1.4301 / 1.4404
- Local indication without  
auxiliary power
- Limit contacts



N2

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### Description

The SZM type glass tube level indicator is applicable for the indication of liquid level in small and middle-sized, standing or lying round containers used in food, pharmaceutical and chemical industries.

The loads occurring at the installation are absorbed by the outer armature, thus the glass tube is protected against breaking. The outer armature also protects the glass tube against the mechanical impacts that may occur following the installation.

It is recommended that the normal design level indicators be fitted on vessels containing pure liquids, while the indicators mounted with cleaning stubs (a bottom, or bottom-top stub) be fitted on containers filled with contaminated liquid.

Installation length means the distance between the horizontal centre lines of the two flanges, that is minimum 370 mm, and maximum 3080 mm.

The glass tubes longer than 1500 mm are welded. The bottom, and top sealing of the glass tube is by two O-rings each, the material of which is to be chosen to be chemically compatible with the liquid measured. Standard sealing material is FPM, whereas EPDM or NBR are available on request.

The level indicator may be furnished with capacitive level sensors - max. 3 pieces over 100 mm - as requested, which monitor the minimum and/or maximum level or any level along the scale. Anodised aluminium rule with indication of level or volume may be mounted optionally on side of the outer armature.

The scale can be engraved on the glass tube, or can be printed on a foil and to be attached to the glass tube or aluminium rule.

### Areas of Application:

- Pharmaceutical
- Chemical
- Food
- Water Treatment
- Oil
- Milk
- Storage tanks for liquids

### Technical Details

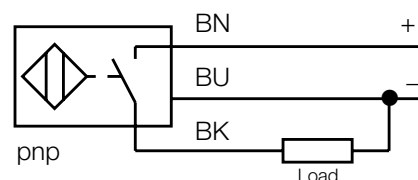
Measuring length:	370 ... 3080 mm
Material:	stainless steel
Gasket:	FPM (standard) EPDM, NBR on request
Process connection:	DIN flange DN 15 ... 50, ANSI flange ½" ... 2" or union nut G ½", ½" NPT
Scale resolution:	engraved, 1 cm printed on foil, 2 mm
Max. pressure:	10 bar
Temperature:	-20 °C ... 100 °C
Density:	any (no float used)
Max. viscosity:	50 mm <sup>2</sup> /s

### Limit Contacts

Type:	capacitive sensor
Operating voltage:	10 ... 65 V <sub>DC</sub>
Short-circuit protection:	yes
Voltage drop:	≤ 1.8 V
Operating current:	≤ 200 mA
No-load current:	≤ 15 mA
Output function:	3-wire, N/O-contact, PNP
Connection type:	2 m PVC cable
Core cross section:	3 x 0.34 mm <sup>2</sup>
Fine adjustment:	via potentiometer
Switching indication:	LED, yellow
Protection:	IP 67

*Note:* Customer **cannot** retrofit the contacts himself. If retrofitting of contacts is desired, the SZM should be ordered with a remark "prepared for retrofitting of limit contact".

### Wiring diagram





**Materials**

Ordering code	Measuring tube	Connection	Flange (not wetted part)	Sealing
SZM-K	glass	1.4301	1.4301	FPM
SZM-S	glass	1.4404	1.4404	FPM

**Order Details SZM-K..., S... (Example: SZM-K 0 1 F4 G1 00)**

Model	Version (top/bottom)	Valves	Connection	Scale	Switches <sup>3)</sup>
<p>SZM-K = 1.4301</p> <p>SZM-S = 1.4404</p>	<p><b>Top: closed</b></p> <p>0 = Bottom: drain plug 2 = Bottom: cleaning hole 4 = Bottom: drain valve</p> <p><b>Top: cleaning hole</b></p> <p>1 = Bottom: drain plug 3 = Bottom: cleaning hole 5 = Bottom: drain valve</p> <p><b>Top: vent valve</b></p> <p>7 = Bottom: drain plug 8 = Bottom: cleaning hole 6 = Bottom: drain valve</p>	<p>0 = without</p> <p>1 = 2 x shut-off valves</p>	<p><b>S4</b> = welding fitting DN15; Ø20 <b>G4</b> = union nut G ½ male <b>I4</b> = union nut G ½ female <b>N4</b> = union nut ½" NPT male <b>M4</b> = union nut ½" NPT female <b>F4</b> = loose flange DIN 2526, C DN15; PN16 <b>F5</b> = loose flange DIN 2526, C DN20; PN16 <b>F6</b> = loose flange DIN 2526, C DN25; PN16 <b>F7</b> = loose flange DIN 2526, C DN32; PN16 <b>F8</b> = loose flange DIN 2526, C DN40; PN16 <b>F9</b> = loose flange DIN 2526, C DN50; PN16 <b>A4</b> = loose flange ANSI B 16.5 ½"; 150 lbs <b>A5</b> = loose flange ANSI B 16.5 ¾"; 150 lbs <b>A6</b> = loose flange ANSI B 16.5 1"; 150 lbs <b>A7</b> = loose flange ANSI B 16.5 1¼"; 150 lbs <b>A8</b> = loose flange ANSI B 16.5 1½"; 150 lbs <b>A9</b> = loose flange ANSI B 16.5 2"; 150 lbs <b>B4</b> = loose flange ANSI B 16.5 ½"; 300 lbs <b>B5</b> = loose flange ANSI B 16.5 ¾"; 300 lbs <b>B6</b> = loose flange ANSI B 16.5 1"; 300 lbs <b>B7</b> = loose flange ANSI B 16.5 1¼"; 300 lbs <b>B8</b> = loose flange ANSI B 16.5 1½"; 300 lbs <b>B9</b> = loose flange ANSI B 16.5 2"; 300 lbs</p>	<p>00 = without</p> <p><b>G1</b><sup>1)</sup> = plastic foil on measuring tube (2 mm division)</p> <p><b>G2</b><sup>1)</sup> = engraved measuring tube (1 cm-division)</p> <p><b>S1</b><sup>2)</sup> = sidewise Alu-scale (with plastic-foil, 2 mm-division)</p>	<p>00 = without</p> <p><b>1D</b><sup>4)</sup> = 1 x N/O, PNP <b>2D</b><sup>4)</sup> = 2 x N/O, PNP <b>nD</b><sup>4)</sup> = n x N/O, PNP</p> <p><b>1S</b><sup>5)</sup> = 1 x N/O, PNP <b>2S</b><sup>5)</sup> = 2 x N/O, PNP <b>nS</b><sup>5)</sup> = n x N/O, PNP</p>

<sup>1)</sup> scale length = Installation length - 120 mm

<sup>2)</sup> scale length = Installation length - 100 mm

<sup>3)</sup> Capacitive sensors

<sup>4)</sup> Ideal for water, water-based solutions and solvent-based liquids.

<sup>5)</sup> Ideal for oils, greases, lubricants, inks, acids, sauces, water-based alkalis and cleaning agents.

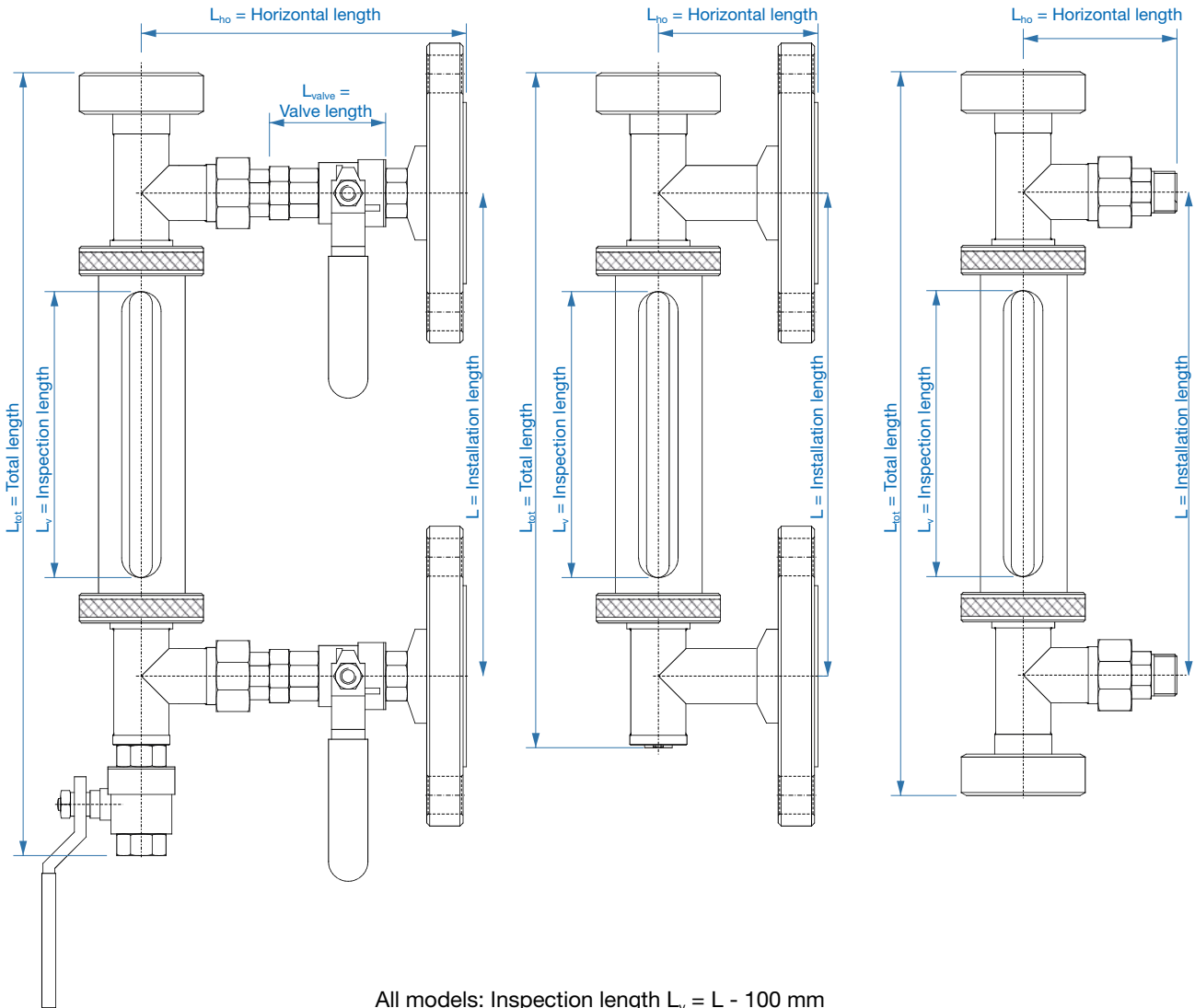
**Note:** Please specify the installation length "L" in clear text, while ordering.

Dimensions

SZM-x 5 1 Fx...

SZM-x 1 0 Fx...

SZM-x 3 0 G4...



Vertical dimensions  $L_{tot}$  [mm]

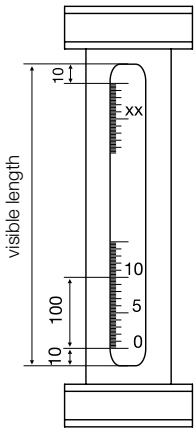
	Top end					
	closed		cleaning hole		vent valve	
Bottom end	Model code	Length	Model code	Length	Model code	Length
drain plug	SZM-x 0 x xx	$L + 72$	SZM-x 1 x xx	$L + 95$	SZM-x 7 x xx	$L + 129$
cleaning hole	SZM-x 2 x xx	$L + 93$	SZM-x 3 x xx	$L + 116$	SZM-x 8 x xx	$L + 150$
drain valve	SZM-x 4 x xx	$L + 127$	SZM-x 5 x xx	$L + 150$	SZM-x 6 x xx	$L + 184$

Horizontal dimensions  $L_{ho}$  [mm]

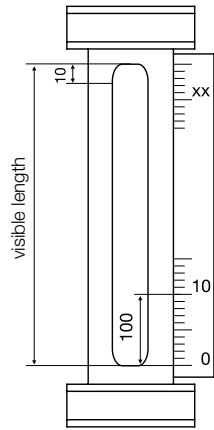
Description	With shut-off valves		Without shut-off valves	
	Model code	Length	Model code	Length
Union-nut	SZM-x x 1 Sx	160	SZM-x x 1 Sx	85
	SZM-x x 1 Gx			
	SZM-x x 1 Nx			
	SZM-x x 1 Mx			
	SZM-x x 1 lx			
Flange DIN	SZM-x x 1 Fx	165	SZM-x x 1 Fx	75
Flange ANSI #150	SZM-x x 1 Ax			
Flange ANSI #300	SZM-x x 1 Bx			

**Measuring scale**

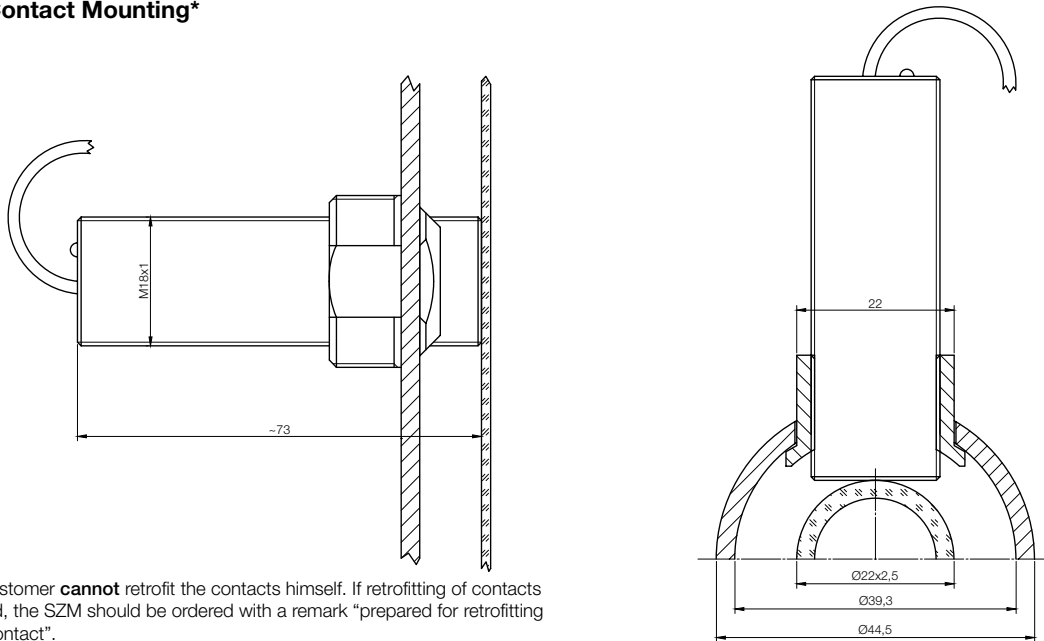
foil on glass tube



aluminium scale

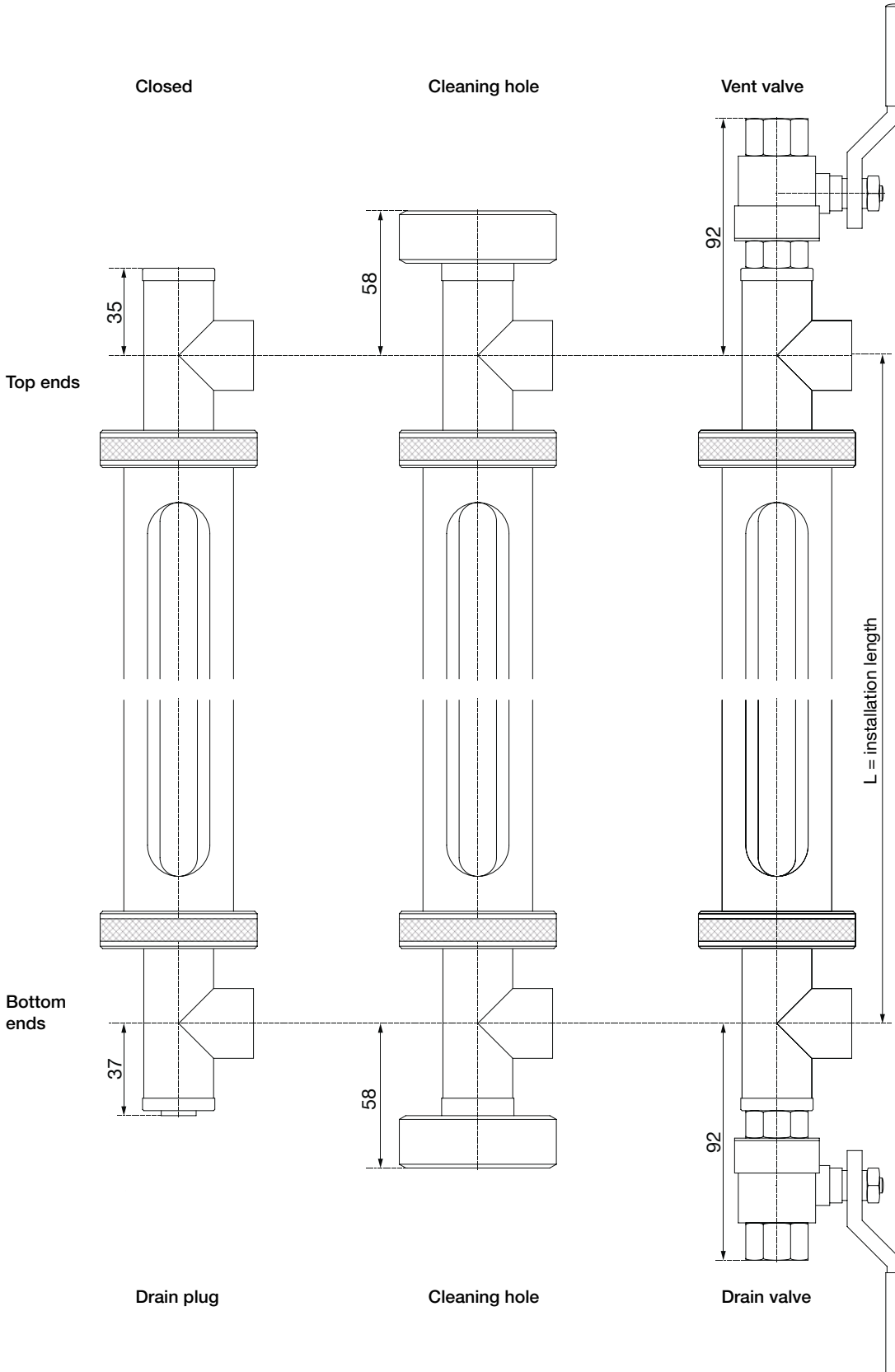


**Limit Contact Mounting\***

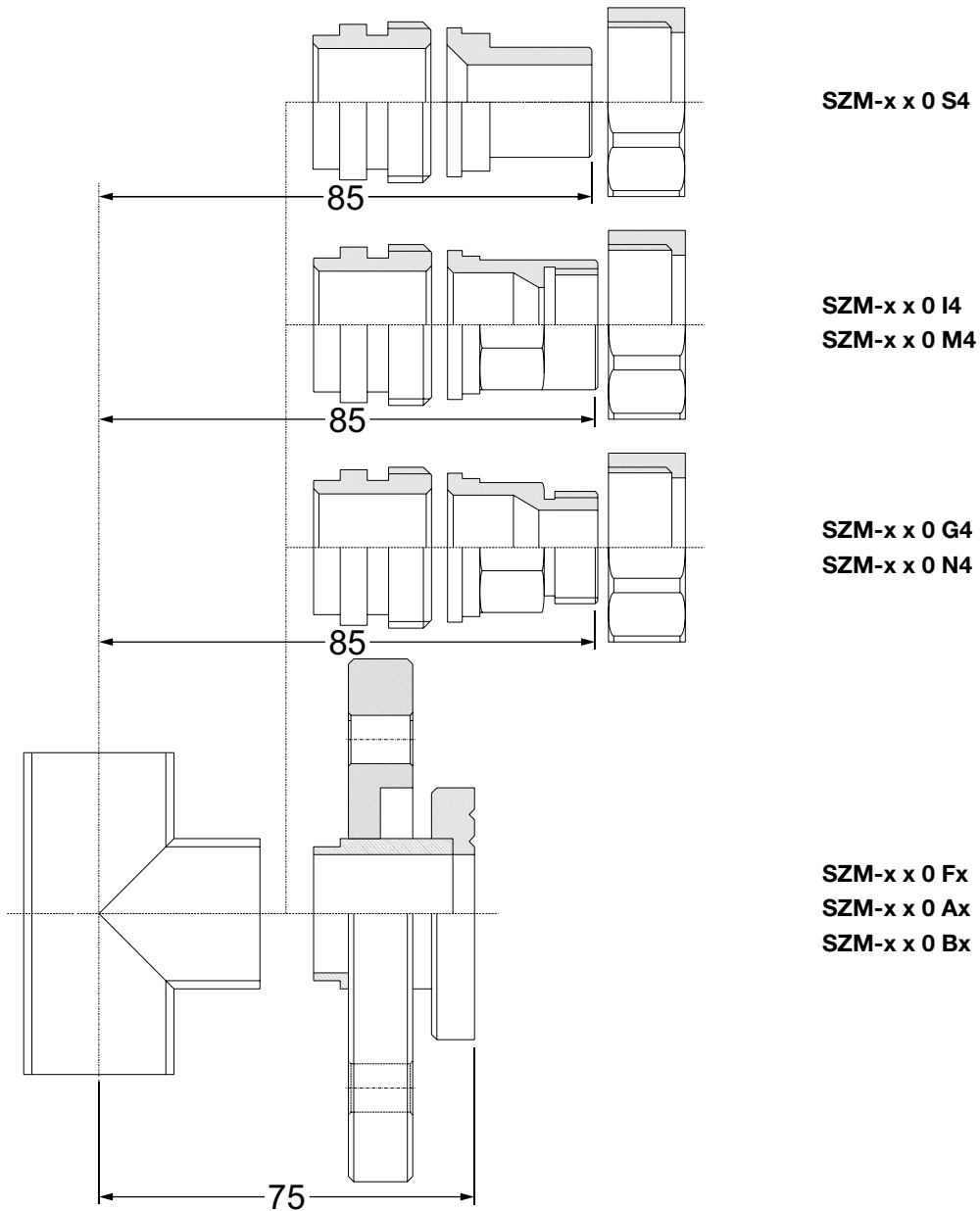


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Design of the Ends



**SZM connections without shut-off valve**



**SZM connections with shut-off valve**

