Overview

Diaphragm seal of flange design for pressure transmitters for differential pressure, fixed connection and with flexible capillary

Technical specifications

Diaphragm seals of screwed design for pressure transmitters for differential pressure, fixed connection and with flexible capillary

Nominal diameter	Nominal pressure
Connecting standard EN 1092-1	
• DN 40	PN 10/16/25/40/63/100/160
• DN 50	PN 10/16/25/40/63/100
• DN 80	PN 10/16/25/40/100
• DN 100	PN 10/16/25/40
• DN 125	PN 16/40
Connecting standard ASME B16.5	
• 1½ inch	Class 150/300/400/600/900/1500
• 2 inch	Class 150/300/400/600/900/1500
• 3 inch	Class 150/300/600/1500
• 4 inch	Class 150/300/400/1500
• 5 inch	Class 150/300/400
Connecting standard J.I.S.	
• DN 50	10K
• DN 80	20K
• DN 100	40K
Sealing surface	
• For stainless steel, mat. No. 1.4404/316L	To EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA
• For the other materials	To EN 1092-1, form B2 or ASME B16.5 RFSF

Materials	
• Main body	Stainless steel, 1.4404/316L
• Wetted parts	Stainless steel, 1.4404/316L
	• Without coating
	• PTFE coating
	• ECTFE coating (for vacuum on request)
	• PFA coating
	Monel 400, mat. No. 2.4360
	Hastelloy C276, mat. No. 2.4819
	Hastelloy C4, mat. No. 2.4602
	Hastelloy C22, W.-Nr. 2.4602
	Tantalum
	Titanium, W.-Nr. 3.7035
	Nickel 201
	Duplex 2205, mat. no. 1.4462
	Stainless steel 316L, gold plated, thickness approx. 25 µm
• Capillary	Stainless steel, mat. No. 1.4571/316Ti
• Sheath	Spiral protective tube made of stainless steel, mat. No. 1.4404/316L
Sealing material in the process flanges	
• For pressure transmitters, absolute pressure transmitters and low-pressure applications	Copper
• For other applications	Viton
Maximum pressure	See above and the technical data of the pressure transmitter
Tube length	Without tube
	50 mm (1.97 inch)
	100 mm (3.94 inch)
	150 mm (5.91 inch)
	200 mm (7.87 inch)
Capillary	
• Length	Max. 10 m (32.8 ft), longer lengths on request
• Internal diameter	2 mm (0.079 inch)
• Minimum bending radius	150 mm (5.9 inch)
Filling liquid	Silicone oil M5
	Silicone oil M50
	High-temperature oil
	Halocarbon oil (for measuring O_2)
	Food oil (FDA listed)
Max. recommended process temperature	170 °C (338 °F)
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal
	More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals
Weight	Approx. 4 kg (8.82 lb)
Certificate and approvals	
Classification according to pressure equipment directive (DGRL 2014/68/EU)	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)

1

Diaphragm seals of flange design mounted directly and with capillary

Selection and Ordering data		Article No.	Order code
Diaphragm seal			
Flange type design, direct connected at high-side and with flexible capillary tube at low-side to			
• SITRANS P320/P420 transmitter for differential pressure and flow, 7MF03../7MF04.. order separately Scope of delivery: 2 off		**7MF0813-**	
		- 0	
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Nominal diameter	**Nominal pressure**		
Connecting standard EN 1092-1			
DN 40	PN 10/16/25/40	**0DD**	
	PN 63/100	**0DF**	
	PN 160	**0DG**	
DN 50	PN 10/16/25/40	**0ED**	
	PN 63	**0EE**	
	PN 100	**0EF**	
DN 80	PN 10/16/25/40	**0GD**	
	PN 100	**0GF**	
DN 100	PN 10/16	**0HB**	
	PN 25/40	**0HD**	
DN 125	PN 16	**0JB**	
	PN 40	**0JD**	
Connecting standard ASME B16.5			
1½ inch	class 150	**1LA**	
	class 300	**1LB**	
	class 400/600	**1LD**	
	class 900/1500	**1LF**	
2 inch	class 150	**1MA**	
	class 300	**1MB**	
	class 400/600	**1MD**	
	class 900/1500	**1MF**	
3 inch	class 150	**1PA**	
	class 300	**1PB**	
	class 600	**1PD**	
	class 1500	**1PF**	
4 inch	class 150	**1QA**	
	class 300	**1QB**	
	class 400	**1QC**	
	class 1500	**1QF**	
5 inch	class 150	**1RA**	
	class 300	**1RB**	
	class 400	**1RC**	
Connecting standard J.I.S.			
DN 50	10K	**2ES**	
	20K	**2ET**	
	40K	**2EU**	
DN 80	10K	**2GS**	
	20K	**2GT**	
	40K	**2GU**	
DN 100	10K	**2HS**	
	20K	**2HT**	
	40K	**2HU**	
Other version Add Order code and plain text		**9AA**	**H1Y**

Selection and Ordering data	Article No.	Order code
Diaphragm seal		
Flange type design, direct connected at high-side and with flexible capillary tube at low-side to		
• SITRANS P320/P420 transmitter for differential pressure and flow, 7MF03../7MF04.. order separately Scope of delivery: 2 off	**7MF0813-**	
	- 0	
Length of capillary tube at low-side		
1 m	**10**	
1,6 m	**11**	
2 m	**12**	
2,5 m	**13**	
3 m	**14**	
4 m	**15**	
5 m	**16**	
6 m	**17**	
7 m	**18**	
8 m	**20**	
9 m	**21**	
10 m	**22**	
Other version Add Order code and plain text	**98**	**L1Y**
Filling liquid		
Silicone oil M5	**A**	
Silicone oil M50	**B**	
High-temperature oil	**C**	
Halocarbon oil	**D**	
Food-grade oil (FDA listed)	**E**	
Other version Add Order code and plain text	**Z**	**P1Y**

Selection and Ordering data	Article No.	Order code
Diaphragm seal		
Flange type design, direct connected at high-side and with flexible capillary tube at low-side to		
• SITRANS P320/P420 transmitter for differential pressure and flow, 7MF03../7MF04.. order separately Scope of delivery: 2 off	**7MF0813-**	
	-0	
Wetted parts materials		
Stainless steel 316L		
• Without coating	**A**	
• With PFA coating	**D**	
• With PTFE coating	**E 0**	
• With ECTFFE coating	**F**	
Monel 400, 2.4360	**G**	
Hastelloy C276, 2.4819	**J**	
Tantalum	**K**	
Titanium, 3.7035	**L 0**	
Nickel 201	**M 0**	
Diaphragm Duplex, 1.4462	**Q**	
Diaphragm plus flange Duplex, 1.4462	**R**	
Stainless steel 316L with gold coating	**S 0**	
Hastelloy C4, 2.4610	**U 0**	
Hastelloy C22, 2.4602	**V 0**	
Other version Add Order code and plain text	**Z 8**	**Q 1 Y**
Extension length		
• without	**0**	
• 50 mm (2")	**1**	
• 100 mm (4")	**2**	
• 150 mm (6")	**3**	
• 200 mm (8")	**4**	
• 250 mm (10")	**5**	
Other version Add Order code and plain text	**Z 8**	**Q 1 Y**
Customer-specific extension length		
• Wetted parts stainless steel without coating		
Range / Standard length		
20 ... 50 mm (0.79 ... 1.97") / 50 mm (1.97")	**A 1**	
51 ... 100 mm (2.01 ... 3.94") / 100 mm (3.94")	**A 2**	
101 ... 150 mm (3.98 ... 5.91") / 150 mm (5.91")	**A 3**	
151 ... 200 mm (5.94 ... 7.87") / 200 mm (7.87")	**A 4**	
201 ... 250 mm (7.91 ... 9.84") / 250 mm (9.84")	**A 5**	
• Wetted parts stainless steel with ECTFE coating		
Range / Standard length		
20 ... 50 mm (0.79 ... 1.97") / 50 mm (1.97")	**F 1**	
51 ... 100 mm (2.01 ... 3.94") / 100 mm (3.94")	**F 2**	
101 ... 150 mm (3.98 ... 5.91") / 150 mm (5.91")	**F 3**	
151 ... 200 mm (5.94 ... 7.87") / 200 mm (7.87")	**F 4**	
201 ... 250 mm (7.91 ... 9.84") / 250 mm (9.84")	**F 5**	
• Wetted parts stainless steel with PFA coating		
Range / Standard length		
20 ... 50 mm (0.79 ... 1.97") / 50 mm (1.97")	**D 1**	
51 ... 100 mm (2.01 ... 3.94") / 100 mm (3.94")	**D 2**	
101 ... 150 mm (3.98 ... 5.91") / 150 mm (5.91")	**D 3**	
151 ... 200 mm (5.94 ... 7.87") / 200 mm (7.87")	**D 4**	
201 ... 250 mm (7.91 ... 9.84") / 250 mm (9.84")	**D 5**	
• Wetted parts Monel 400		
Range / Standard length		
20 ... 50 mm (0.79 ... 1.97") / 50 mm (1.97")	**G 1**	
51 ... 100 mm (2.01 ... 3.94") / 100 mm (3.94")	**G 2**	
101 ... 150 mm (3.98 ... 5.91") / 150 mm (5.91")	**G 3**	
151 ... 200 mm (5.94 ... 7.87") / 200 mm (7.87")	**G 4**	
• Wetted parts Hastelloy C276		
Range / Standard length		
20 ... 50 mm (0.79 ... 1.97") / 50 mm (1.97")	**J 1**	
51 ... 100 mm (2.01 ... 3.94") / 100 mm (3.94")	**J 2**	
101 ... 150 mm (3.98 ... 5.91") / 150 mm (5.91")	**J 3**	
151 ... 200 mm (5.94 ... 7.87") / 200 mm (7.87")	**J 4**	
• Wetted parts Tantalum		
Range / Standard length		
20 ... 50 mm (0.79 ... 1.97") / 50 mm (1.97")	**K 1**	
51 ... 100 mm (2.01 ... 3.94") / 100 mm (3.94")	**K 2**	
101 ... 150 mm (3.98 ... 5.91") / 150 mm (5.91")	**K 3**	
151 ... 200 mm (5.94 ... 7.87") / 200 mm (7.87")	**K 4**	

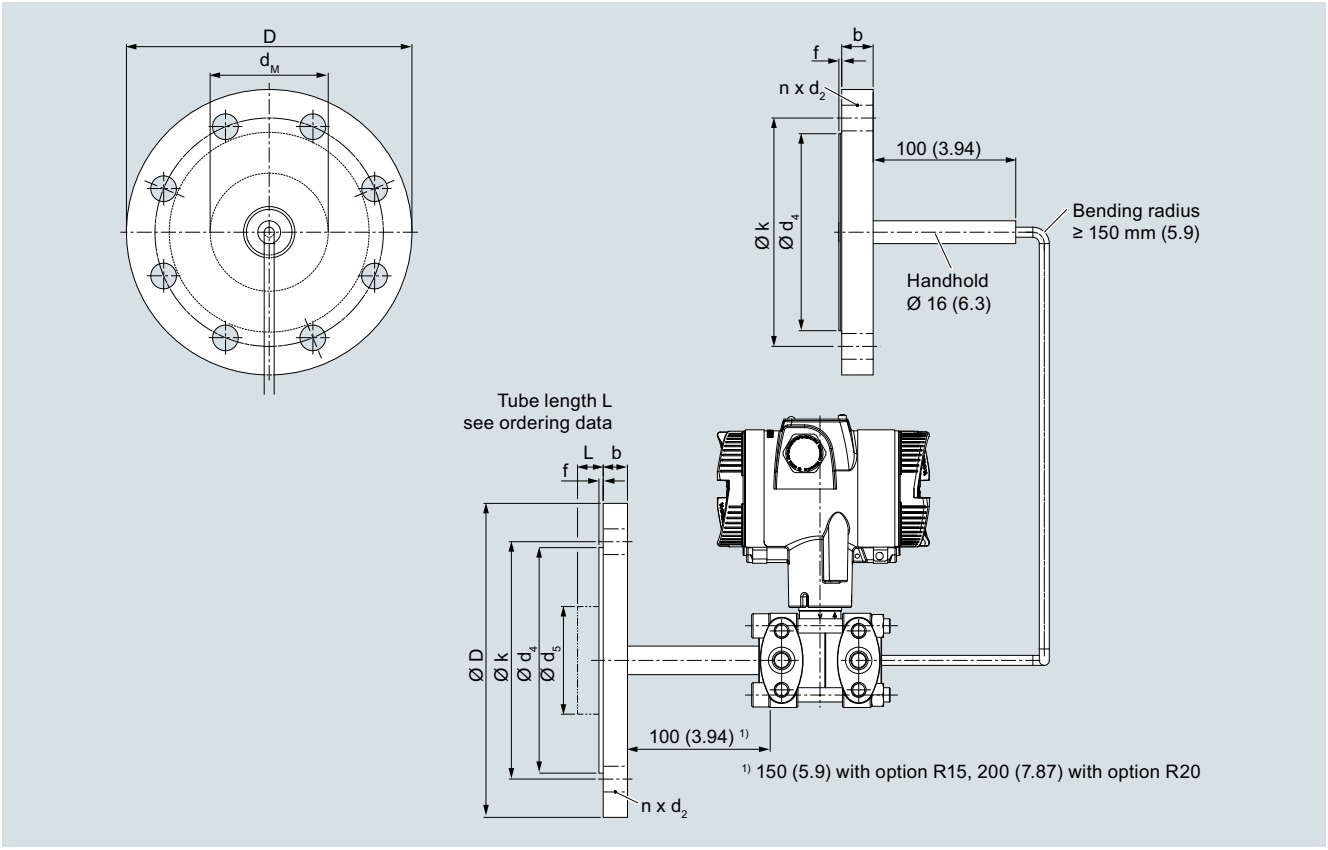
Diaphragm seals of flange design mounted directly and with capillary

Selection and Ordering data	Order code
Further designs	
Add "**-Z**" to Article No. and specify Order code.	
Factory certificates	
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	**C11**
Inspection certificate to EN 10204-3.1 - material of body and wetted parts	**C12**
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)	**C13**
Inspection certificate (EN 10204-3.1) - PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil (to EN10204-2.2)	**C17**
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (Includes SIL conformity declaration)	**C20**
Accessories	
Spark arrestor (for differential pressure and level transmitters)	**D62**
Low-temperature version (for Silicon Oil M50 only)	**D67**
Negative pressure services	
Negative pressure service (for differential pressure transmitters)	**D83**
Extended negative pressure service (for differential pressure transmitters)	**D88**
General product approvals without explosion proof approvals	
Oil-and grease-free cleaned version (for O_2-appl. including certificate EN10204-2.2 (only with fill fluid Halocarbon oil max. temperature 60 °C and max. pressure 50 bar)	**E80**
Oil-and grease-free cleaned version (not for O_2-appl. including certificate EN10204-2.2 (only with fill fluid Halocarbon oil)	**E87**
Sealing surface	
Sealing surface smooth, form B2/EN1092-1 resp. RFSF/ANSI B16.5 (wetted parts 316L only)	**M50**
Sealing surface groove to EN1092-1, form D (instead of sealing surface B1, wetted parts 316L only)	**M54**
Sealing surface RJF (groove) to ASME B16.5 (instead of sealing surface RF 125...250AA, wetted parts 316L only)	**M64**
Sealing surface with tongue to EN1092-1, form C (wetted parts 316L only)	
• DN 25	**M70**
• DN 40	**M71**
• DN 50	**M72**
• DN 80	**M73**
• DN 100	**M74**
• DN 125	**M75**
Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only)	
• DN 25	**M76**
• DN 40	**M77**
• DN 50	**M78**
• DN 80	**M79**
• DN 100	**M80**
• DN 125	**M81**
Sealing surface with recess to EN1092-1, form F (wetted parts 316L only)	
• DN 25	**M82**
• DN 40	**M83**
• DN 50	**M84**
• DN 80	**M85**
• DN 100	**M86**
• DN 125	**M87**

Selection and Ordering data	Order code
Further designs	
Add "**-Z**" to Article No. and specify Order code.	
Capillary coating	
PE protective tube	
1 m	**S10**
1,6 m	**S11**
2 m	**S12**
2,5 m	**S13**
3 m	**S14**
4 m	**S15**
5 m	**S16**
6 m	**S17**
7 m	**S18**
8 m	**S19**
9 m	**S20**
10 m	**S21**
PTFE protective tube	
1 m	**S40**
1,6 m	**S41**
2 m	**S42**
2,5 m	**S43**
3 m	**S44**
4 m	**S45**
5 m	**S46**
6 m	**S47**
7 m	**S48**
8 m	**S49**
9 m	**S50**
10 m	**S51**
PVC protective tube	
1 m	**S70**
1,6 m	**S71**
2 m	**S72**
2,5 m	**S73**
3 m	**S74**
4 m	**S75**
5 m	**S76**
6 m	**S77**
7 m	**S78**
8 m	**S79**
9 m	**S80**
10 m	**S81**
Customer-specific tube length	
Customer-specific tube length (specify in plain text)	**Y44**
Specification of process conditions[1]	
Ambient temperature range	
• -10 ... +50 °C (14 ... +122 °F) preset	**D66**
• -40 ... +50 °C (-40 ... +122 °F)	**D67**
• -10 ... +85 °C (14 ... +185 °F)	**D68**
Process temperature min. ... °C/(°F)/max. ... °C/(°F)	**Y50**

[1] See also "Specification of process conditions for selection and ordering data", page 1/338.

Dimensional drawings



Diaphragm seals of screwed design with flexible capillary, fixed connection, for connection to a SITRANS P320/420 pressure transmitter for differential pressure, dimensions in mm (inch)

1

Diaphragm seals of flange design mounted directly and with capillary

Connection to EN 1092-1

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with extension	d_M without extension	f	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 40	PN 10/16/25/40	16	150	18	88	38	30	42	2	110	4	0, 50, 100, 150 oder 200
	PN 63/100	24	170	22	88	38	30	42	2	125	4	
	PN 160	26	170	22	88	38	30	42	2	125	4	
DN 50	PN 10/16/25/40	18	165	18	102	48.3	40	51	2	125	4	
	PN 63/100	26	195	26	102	48.3	40	51	2	145	4	
	PN 160	28	195	26	102	48.3	40	51	2	145	4	
DN 80	PN 10/16/25/40	22	200	18	138	76	65	85	2	160	8	
	PN 100	30	230	26	138	76	65	85	2	180	8	
DN 100	PN 10/16	18	220	18	158	94	85	85	2	180	8	
	PN 25/40	22	235	22	162	94	85	85	2	190	8	
DN 125	PN 16	20	250	18	188	127	85	116	2	210	8	
	PN 40	24	270	26	188	127	85	116	2	220	8	

Connection to ASME B16.5

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with extension	d_M without extension	f	k	n	L
	lb./sq.in	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)		inch (mm)
1½ inch	150	0.63 (15.9)	4.92 (125)	0.63 (15.9)	2.87 (73)	1.5 (38)	1.18 (30)	1.42 (36)	0.08 (2)	3.87 (98.4)	4	0, 2, 3.94, 5.94 oder 7.87 (0, 50, 100, 150 oder 200)
	300	0.75 (19.1)	6.10 (155)	0.87 (22.2)	2.87 (73)	1.5 (38)	1.18 (30)	1.42 (36)	0.08 (2)	4.5 (114.3)	4	
	400/600	0.88 (22.3)	6.10 (155)	0.87 (22.2)	2.87 (73)	1.5 (38)	1.18 (30)	1.42 (36)	0.28 (7)	4.5 (114.3)	4	
	900/1500	1.25 (31.8)	7.09 (180)	1.13 (28.6)	2.87 (73)	1.5 (38)	1.18 (30)	1.42 (36)	0.28 (7)	4.87 (123.8)	4	
2 inch	150	0.69 (17.5)	5.91 (150)	0.75 (19.1)	3.63 (92.1)	1.9 (48.3)	1.57 (40)	2.01 (51)	0.08 (2)	4.75 (120.7)	4	
	300	0.81 (20.7)	6.5 (165)	0.75 (19.1)	3.63 (92.1)	1.9 (48.3)	1.57 (40)	2.01 (51)	0.08 (2)	5 (127)	8	
	400/600	1.00 (25.4)	6.5 (165)	0.75 (19.1)	3.63 (92.1)	1.9 (48.3)	1.57 (40)	2.01 (51)	0.28 (7)	5 (127)	8	
	900/1500	1.5 (38.1)	8.46 (215)	1.00 (25.4)	3.63 (92.1)	1.9 (48.3)	1.57 (40)	2.01 (51)	0.28 (7)	6.5 (165.1)	8	
3 inch	150	0.88 (22.3)	7.48 (190)	0.75 (19.1)	5 (127)	3 (76)	2.65 (65)	3.35 (85)	0.08 (2)	6 (152.4)	4	
	300	1.06 (27)	8.27 (210)	0.87 (22.2)	5 (127)	3 (76)	2.65 (65)	3.35 (85)	0.08 (2)	6.63 (168.3)	8	
	600	1.23 (31.8)	8.27 (210)	0.87 (22.2)	5 (127)	3 (76)	2.65 (65)	3.35 (85)	0.28 (7)	6.63 (168.3)	8	
	1500	1.88 (47.7)	10.43 (265)	1.25 (31.8)	5 (127)	3 (76)	2.65 (65)	3.35 (85)	0.28 (7)	8 (203.2)	8	
4 inch	150	0.88 (22.3)	9.06 (230)	0.75 (19.1)	6.19 (157.2)	3.69 (94)	3.35 (85)	3.35 (85)	0.08 (2)	7.5 (190.5)	8	
	300	1.19 (30.2)	10.04 (255)	0.87 (22.2)	6.19 (157.2)	3.69 (94)	3.35 (85)	3.35 (85)	0.08 (2)	7.87 (200)	8	
	400	1.38 (35)	10.04 (255)	0.87 (22.2)	6.19 (157.2)	3.69 (94)	3.35 (85)	3.35 (85)	0.28 (7)	7.87 (200)	8	
	1500	2.13 (54)	12.20 (310)	1.37 (34.9)	6.19 (157.2)	3.69 (94)	3.35 (85)	3.35 (85)	0.28 (7)	9.5 (241.3)	8	
5 inch	150	0.88 (22.3)	10.04 (255)	0.87 (22.2)	7.31 (185.7)	5 (127)	4.57 (116)	4.57 (116)	0.08 (2)	8.5 (215.9)	8	
	300	1.31 (33.4)	11.02 (280)	0.87 (22.2)	7.31 (185.7)	5 (127)	4.57 (116)	4.57 (116)	0.08 (2)	9.25 (235)	8	
	400	1.50 (38.1)	11.02 (280)	0.87 (22.2)	7.31 (185.7)	5 (127)	4.57 (116)	4.57 (116)	0.28 (7)	9.25 (235)	8	

Connection to J.I.S

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with extension	d_M without extension	f	k	n	L
		mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)		mm (inch)
DN 50	10K	14 (0.55)	155 (6.10)	19 (0.75)	96 (3.78)	48.3 (1.9)	40 (1.57)	51 (2.01)	2	120 (4.72)	4	0, 50, 100, 150 oder 200 (0, 2, 3.94, 5.94 oder 7.87)
	20K	16 (0,63)	165 (6.50)	19 (0.75)	96 (3.78)	48.3 (1.9)	40 (1.57)	51 (2.01)	2	120 (4.72)	8	
	40K	26 (1.02)	165 (6.50)	19 (0.75)	105 (4.13)	48.3 (1.9)	40 (1.57)	51 (2.01)	2	130 (5.12)	8	
DN 80	10K	16 (0.63)	185 (7.28)	19 (0.75)	126 (4.96)	76 (2.99)	65 (2.56)	85 (3.35)	2	150 (5.91)	8	
	20K	20 (0.79)	200 (7.87)	23 (0.91)	132 (5.20)	76 (2.99)	65 (2.56)	85 (3.35)	2	160 (6.30)	8	
	40K	32 (1.26)	210 (8.27)	23 (0.91)	140 (5.51)	76 (2.99)	65 (2.56)	85 (3.35)	2	170 (6.30)	8	
DN 100	10K	16 (0.63)	210 (8.27)	19 (0.75)	151 (5.94)	94 (3.7)	85 (3.35)	85 (3.35)	2	175 (6.89)	8	
	20K	22 (0.87)	225 (8.86)	23 (0.91)	160 (6.30)	94 (3.7)	85 (3.35)	85 (3.35)	2	185 (7.28)	8	
	40K	36 (1.42)	250 (9.84)	25 (0.98)	165 (6.50)	94 (3.7)	85 (3.35)	85 (3.35)	2	205 (8.07)	8	

d: Internal diameter of gasket to DIN 2690
d_M: Effective diaphragm diameter