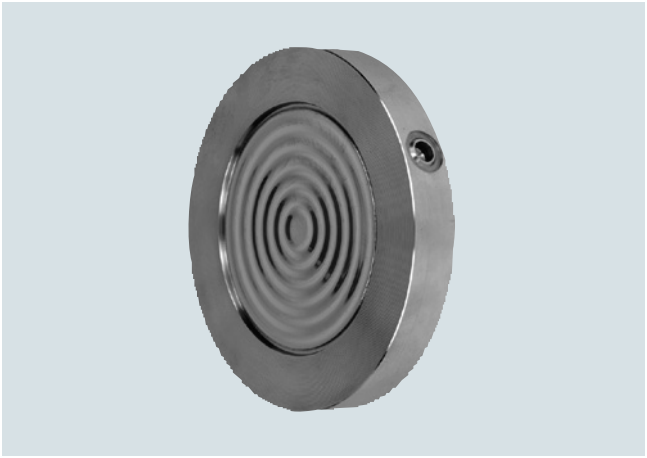
Diaphragm seals of sandwich design with flexible capillary

Overview



Diaphragm seals of sandwich design

Technical specifications

Diaphragm seals of sandwich design	
Nominal diameter	Nominal pressure
• DN 50	PN 16 ... PN 400
• DN 80	PN 16 ... PN 400
• DN 100	PN 16 ... PN 400
• DN 125	PN 16 ... PN 400
• 2 inch	Class 150 ... class 2500
• 3 inch	Class 150 ... class 2500
• 4 inch	Class 150 ... class 2500
• 5 inch	Class 150 ... class 2500
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 mat. no. 1.4404/316L
• Wetted parts	Stainless steel mat. no. 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, mat. no. 2.4602
	Tantalum
	Titanium, mat. no. 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 transmitters
Tube length	Without tube as standard (tube available on request)
Capillary	
• Length	Max. 10 m (32.8 ft), longer lengths on request
• Internal diameter	max. 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)
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)

Diaphragm seals of sandwich design with flexible capillary

Selection and Ordering data	Article No. Ord.code
Diaphragm seal	
Sandwich-type design, with flexible capillary connected to a SITRANS P transmitter (order separately):	
for pressure 7MF2033-...; 7MF403.-... and 7MF423.-... together with Order code "V01" (Negative pressure service) and 7MF802.-...[1]; Scope of delivery (1 off)	↗ **7MF4900-**
for absolute pressure 7MF433.-...; Scope of delivery (1 off)	↗ **7MF4901-**
for differential pressure and flow 7MF243.-...;7MF443.-... and 7MF54..-...; scope of delivery 2 off	↗ **7MF4903-**
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	**1** ■■■■ **-** ■**B** ■■■
Nominal diameter and nominal pressure	
• DN 25	**Z** **J 0 A**
• DN 40	**Z** **J 0 B**
• DN 50 PN 16 ... 400	**A**
(recommended only for pressure transmitters for pressure)	
• DN 80 PN 16 ... 400	**B**
• DN 100 PN 16 ... 400	**C**
• DN 125 PN 16 ... 400	**D**
• 2 inch Class 150 ... 2500	**E**
(recommended only for pressure transmitters for pressure)	
• 3 inch Class 150 ... 2500	**H**
• 4 inch Class 150 ... 2500	**L**
• 5 inch Class 150 ... 2500	**N**
Smooth sealing surface to EN 1092-1, form B1 or to ASME B16.5 RF 125 ... 250 AA	
Other version Add Order code and plain text: Nominal diameter: ...; Nominal pressure: ... Sealing surface: see "Technical data"	**Z** **J 1 Y**
Wetted parts materials	
• Stainless steel 316L	
- without coating	**A**
- with PTFE coating[2]	**E 0**
- with ECTFE coating [2) 3) 4)]	**F**
- with PFA coating [2) 4)]	**D**
• Monel 400, mat. No. 2.4360	**G**
• Hastelloy C276, mat. No. 2.4819	**J**
• Hastelloy C4, mat. No. 2.4602	**U 0**
• Hastelloy C22, mat. No. 2.4602	**V 0**
• Tantalum	**K**
• Titanium, mat. No. 3.7035 (max. 150 °C (302 °F))	**L 0**
• Nickel 201 (max. 260 °C (500 °F))	**M 0**
• Duplex 2205, mat. no. 1.4462	**Q**
• Duplex 2205, mat. no. 1.4462, incl. main body	**R**
• Stainless steel 316L, gold plated, thickness approx. 25 µm	**S 0**
Tube length	
• without tube	**0**
Other version: Add Order code and plain text: Wetted parts materials: ..., Tube length: ...	**Z 8** **K 1 Y**

Selection and Ordering data	Article No. Ord.code
Diaphragm seal	
Sandwich-type design, with flexible capillary connected to a SITRANS P transmitter (order separately):	
for pressure 7MF2033-...; 7MF403.-... and 7MF423.-... together with Order code "V01" (Negative pressure service) and 7MF802.-...[1]; Scope of delivery (1 off)	**7MF4900-**
for absolute pressure 7MF433.-...; Scope of delivery (1 off)	**7MF4901-**
for differential pressure and flow 7MF243.-...;7MF443.-... and 7MF54..-...; scope of delivery 2 off	**7MF4903-**
	1 ■■■■ **-** ■**B** ■■■
Customer-specific tubus length	
Specify customer-specific length with Y44, see Order Code	

• Wetted parts materials: Stainless steel without foil

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 materials: Stainless steel coated with ECTFE

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 materials: Stainless steel coated with PFA

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 materials: 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 materials: 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 materials: 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 sandwich design with flexible capillary

Selection and Ordering data	Article No. Ord.code
Diaphragm seal	
Sandwich-type design, with flexible capillary connected to a SITRANS P transmitter (order separately):	
for pressure 7MF2033-...; 7MF403.-... and 7MF423.-... together with Order code "V01" (Negative pressure service) and 7MF802.-...[1]; Scope of delivery (1 off)	**7MF4900-**
for absolute pressure 7MF433.-...; Scope of delivery (1 off)	**7MF4901-**
for differential pressure and flow 7MF243.-...;7MF443.-... and 7MF54..-...; scope of delivery 2 off	**7MF4903-**
	1 ■■■ - ■B ■■■
Filling liquid	
• Silicone oil M5	**1**
• Silicone oil M50	**2**
• High-temperature oil	**3**
• Halocarbon oil (for measuring O_2)[5]	**4**
• Food oil (FDA listed)I	**7**
Other version Add Order code and plain text: Filling liquid: ...	**9** **M1Y**
Length of capillary[6]	
• 1.0 m (3.28 ft)	**2**
• 1.6 m (5.25 ft)	**3**
• 2.5 m (8.20 ft)	**4**
• 4.0 m (13.1 ft)	**5**
• 6.0 m (19.7 ft)	**6**
• 8.0 m (26.25 ft)	**7**
• 10.0 m (32.8 ft)	**8**
Special lengths for capillaries	
• 2.0 m (6.56 ft)	**9** **N1C**
• 3.0 m (9.84 ft)	**9** **N1E**
• 5.0 m (16.40 ft)	**9** **N1G**
• 7.0 m (23.97 ft)	**9** **N1J**
• 9.0 m (29.53 ft)	**9** **N1L**
only for 7MF4903-...	
• 11.0 m (36.09 ft)	**9** **N1N**
• 12.0 m (39.37 ft)	**9** **N1P**
• 13.0 m (42.65 ft)	**9** **N1Q**
• 14.0 m (45.93 ft)	**9** **N1R**
• 15.0 m (49.21 ft)	**9** **N1S**

1) With 7MF802.-... and the measuring cells Q, S, T and U also order negative pressure service version.
2) Only possible up to max. PN 100.
3) For vacuum on request
4) Only for use in non-hazardous atmospheres.
5) Oil- and grease- free cleaning to DIN 25410, level 2 and packaging included in the scope of delivery. Refer to "Further designs" C10 and E10.
6) Max. capillary length, see section "Technical description".

Selection and Ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code.	
Customer-specific tubus length	**Y44**
Select range, enter desired length in plain text (No entry = standard length)	
Spark arrestor	
With spark arrestor for mounting on zone 0 (including documentation)	
• Pressure and absolute pressure	**A01**
• for differential pressure transmitters	**A02**
Remote seal nameplate	**B20**
Attached out of stainless steel, contains Article No. and order number of the remote seal supplier	
Oil- and grease-free cleaned version	**C10**
Oil- and grease-free cleaned and packed version, not for oxygen application, only in conjunction with halocarbon oil fill fluid, certified by certificate acc. to EN 10204-2.2	
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2	**C11**
Inspection certificate	**C12**
to EN 10204, section 3.1	
2.2 Certificate of FDA approval of fill oil	**C17**
Only in conjunction with "Food-grade oil" fill liquid (FDA listed)"	
Functional safety certificate ("SIL 2") to IEC 61508	**C20**
(Only in conjunction with the Order code "C20" in the case of SITRANS P DSIII transmitter)	
Functional safety certificate ("SIL 2/3") to IEC 61508	**C23**
(Only in conjunction with the Order code "C23" in the case of SITRANS P DSIII transmitter)	
Certification acc. to NACE MR-0175	**D07**
Includes acceptance test certificate 3.1 according to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)	
Certification acc. to NACE MR-0103	**D08**
Includes acceptance test certificate 3.1 according to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)	
Oil- and grease-free cleaned version	**E10**
Oil- and grease-free cleaned and packed version, only for oxygen application, only inert fill fluid may be used. Max. temperature: 60 °C (140 °F), max. pressure 50 bar (725 psi), only in connection with halocarbon oil, certified by certificate acc. to EN 10204-2.2	
Epoxy painting	**E15**
(not possible with vacuum-proof design and not for 7MF4901-...)	
Color: transparent, coverage: front and rear of the remote seal, capillary(ies) or connecting tube, process connection of the transmitter. With transmitters 7MF40.. and 7MF42.., only possible with process connection G½B according to EN 837-1	
One-sided mounting on differential pressure transmitters	
(only for 7MF4900-...)	
on high-pressure side	**H10**
on low-pressure side	**H11**

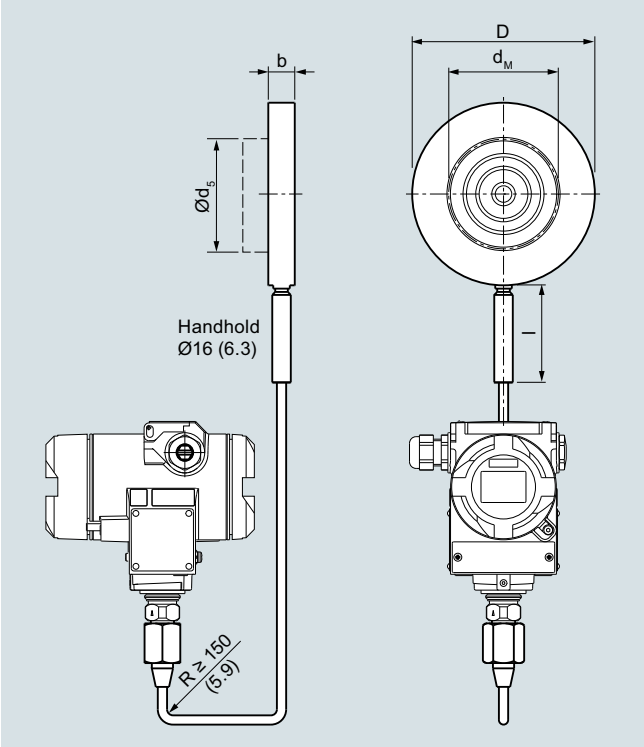
Selection and Ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code.	
Sealing surface smooth, form B2 or RFSF (Stainless steel diaphragm)	**J11**
previously DIN 2501, form E	
Sealing surface B1 or ASME B16.5 RF 125 ... 250 AA	**J12**
instead of sealing surface B2 or RFSF (only for wetted parts made of Hastelloy C276 (2.4819), tantalum and Duplex 2205 (1.4462) and for nominal sizes 2", 3", DN 50 and DN 80)	
Sealing surface groove, EN 1092-1, form D	**J14**
instead of sealing surface B1 (only for wetted parts made of stainless steel 316L)	
Sealing surface RJF (groove, previously RTJ) ASME B16.5	**J24**
instead of sealing surface ASME B16.5 RF 125 ... 250 AA (only for wetted parts made of stainless steel 316L)	
Sealing surface with spring according to EN 1092-1, form C, (previously DIN 2512, form F) in stainless steel 316L	
DN 25	**J30**
DN 40	**J31**
DN 50	**J32**
DN 80	**J33**
DN 100	**J34**
DN 125	**J35**
Sealing surface with male face according to EN 1092-1, form E (previously DIN 2512, form V13) in stainless steel 316L	
DN 25	**J40**
DN 40	**J41**
DN 50	**J42**
DN 80	**J43**
DN 100	**J44**
DN 125	**J45**
Sealing surface with female face according to EN 1092-1, form F (previously DIN 2512, form R13) in stainless steel 316L	
DN 25	**J50**
DN 40	**J51**
DN 50	**J52**
DN 80	**J53**
DN 100	**J54**
DN 125	**J55**

Selection and Ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code.	
PE protective tube over the spiral protective tube of the capillaries (color: white)	
1.0 m (3.28 ft)	**N20**
1.6 m (5.25 ft)	**N21**
2.0 m (6.56 ft)	**N22**
2.5 m (8.20 ft)	**N23**
3.0 m (9.84 ft)	**N24**
4.0 m (13.12 ft)	**N25**
5.0 m (16.40 ft)	**N26**
6.0 m (19.69 ft)	**N27**
7.0 m (22.97 ft)	**N28**
8.0 m (26.25 ft)	**N29**
9.0 m (29.53 ft)	**N30**
10.0 m (32.81 ft)	**N31**
only for 7MF4903-...	
11.0 m (36.09 ft)	**N32**
12.0 m (39.37 ft)	**N33**
13.0 m (42.65 ft)	**N34**
14.0 m (45.93 ft)	**N35**
15.0 m (49.21 ft)	**N36**
PTFE protective tube over the spiral protective tube of the capillaries (color: transparent)	
1.0 m (3.28 ft)	**N40**
1.6 m (5.25 ft)	**N41**
2.0 m (6.56 ft)	**N42**
2.5 m (8.20 ft)	**N43**
3.0 m (9.84 ft)	**N44**
4.0 m (13.12 ft)	**N45**
5.0 m (16.40 ft)	**N46**
6.0 m (19.69 ft)	**N47**
7.0 m (22.97 ft)	**N48**
8.0 m (26.25 ft)	**N49**
9.0 m (29.53 ft)	**N50**
10.0 m (32.81 ft)	**N51**
only for 7MF4903-...	
11.0 m (36.09 ft)	**N52**
12.0 m (39.37 ft)	**N53**
13.0 m (42.65 ft)	**N54**
14.0 m (45.93 ft)	**N55**
15.0 m (49.21 ft)	**N56**

Diaphragm seals of sandwich design with flexible capillary

Selection and Ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code.	
PVC protective tube	
over the spiral protective tube of the capillaries (color: black)	
1.0 m (3.28 ft)	**N60**
1.6 m (5.25 ft)	**N61**
2.0 m (6.56 ft)	**N62**
2.5 m (8.20 ft)	**N63**
3.0 m (9.84 ft)	**N64**
4.0 m (13.12 ft)	**N65**
5.0 m (16.40 ft)	**N66**
6.0 m (19.69 ft)	**N67**
7.0 m (22.97 ft)	**N68**
8.0 m (26.25 ft)	**N69**
9.0 m (29.53 ft)	**N70**
10.0 m (32.81 ft)	**N71**
only for 7MF4903-...	
11.0 m (36.09 ft)	**N72**
12.0 m (39.37 ft)	**N73**
13.0 m (42.65 ft)	**N74**
14.0 m (45.93 ft)	**N75**
15.0 m (49.21 ft)	**N76**
Negative pressure service	
for use in low-pressure range for transmitters for	
• gauge and absolute pressure from the pressure series	**V01**
• differential pressure	**V03**
Extended negative pressure service	
for use in low-pressure range for transmitters for	
• gauge and absolute pressure from the pressure series	**V51**
• differential pressure	**V53**

Dimensional drawings



Diaphragm seals of sandwich design with flexible capillary for connection to SITRANS P pressure transmitters for pressure, dimensions in mm (inch)

Connection to EN 1092-1

Nom. diam.	Nom. press.	b	D	d_5	d_M	l
		mm	mm	mm	mm	mm
DN 50	PN 16 ... PN 400	20	102	48.3	45[1]	100
DN 80		20	138	76	72[2]	100
DN 100		20	158	94	89	100
DN 125		22	188	125	124	100

Connection to ASME B16.5

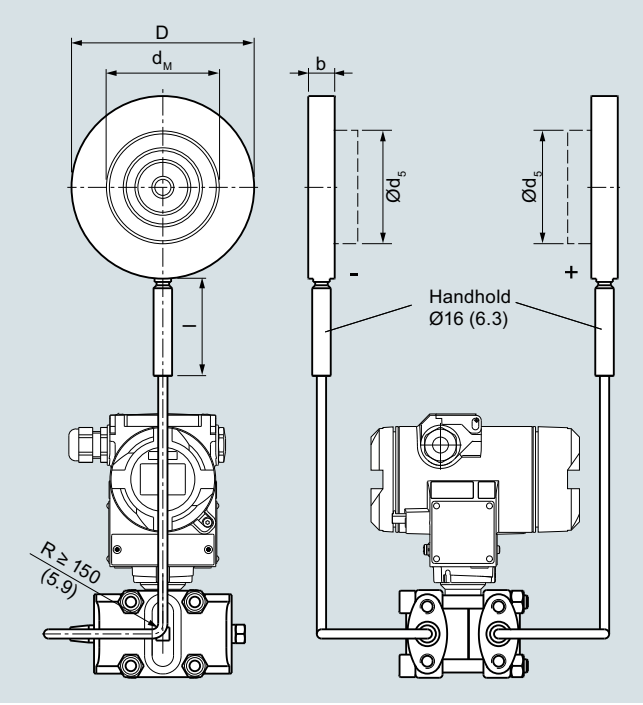
Nom. diam.	Nom. press.	b	D	d_5	d_M	l
	lb/sq.in.	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
2 inch	150 2500	20	100	48.3	45[1]	100
		(0.79)	(3.94)	(1.9)	(1.77)	(3.94)
3 inch		20	134	72	72[2]	100
		(0.79)	(5.28)	3	(2.83)	(3.94)
4 inch		20	158	94	89	100
		(0.79)	(6.22)	(3.69)	(2.32)	(3.94)
5 inch		22	186	125	124	100
		(0.87)	(7.32)	(4.92)	(4.88)	(3.94)

d: Inside diameter of gasket according to EN 1092-1/ASME B16.5

d_M: Effective diaphragm diameter

[1] 59 mm = 2.32 inch with tube length L = 0

[2] 89 mm = 3½ inch with tube length L = 0



Diaphragm seals of sandwich design (without flange) with flexible capillary for connection to SITRANS P pressure transmitters for absolute pressure or differential pressure and flow, dimensions in mm (inch)

Connection to EN 1092-1

Nom. diam.	Nom. press.	b	D	d_5	d_M	l
		mm	mm	mm	mm	mm
DN 50	PN 16 ... PN 400	20	102	48.3	45[1]	100
DN 80		20	138	76	72[2]	100
DN 100		20	158	94	89	100
DN 125		22	188	125	124	100

Connection to ASME B16.5

Nom. diam.	Nom. press.	b	D	d_5	d_M	l
	lb/sq.in.	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
2 inch	150 ... 2500	20	100	48.3	45[1]	100
		(0.79)	(3.94)	(1.9)	(1.77)	(3.94)
3 inch		20	134	72	72[2]	100
		(0.79)	(5.28)	3	(2.83)	(3.94)
4 inch		20	158	94	89	100
		(0.79)	(6.22)	(3.69)	(2.32)	(3.94)
5 inch		22	186	125	124	100
		(0.87)	(7.32)	(4.92)	(4.88)	(3.94)

d: Inside diameter of gasket according to EN 1092-1/ASME B16.5

d_M: Effective diaphragm diameter

[1] 59 mm = 2.32 inch with tube length L = 0

[2] 89 mm = 3½ inch with tube length L = 0