

Pressure Measurement

Remote seals for pressure transmitters
SITRANS P300, P DS III, P410, P500

Diaphragm seal, screwed design, mounted directly or/and with capillary

1

Overview



Diaphragm seal, screwed gland design with inside diaphragm for gauge, absolute and differential pressure for direct mounting



Process connection: open measurement flange

Technical specifications

Diaphragm seal, screwed gland with inside diaphragm

Process connection	Nominal pressure
• Male thread G $\frac{1}{2}$ B to EN 837-1	PN 100, PN 250
• External thread $\frac{1}{2}$ -14" NPT-M	PN 100, PN 250
• open measurement flange	
- DN 25	PN 10 ... PN 40
- 1 inch	Class 150, class 300
Sealing surface for open measurement flange	
• For stainless steel, mat. no. 1.4404/316L	To EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA
Materials	
• Lower section (in the case of process connection thread)	Stainless steel, Mat. no. 1.4404/316L
• Diaphragm	Stainless steel, Mat. no. 1.4404/316L
	• No coating
	• With PTFE coating
	Monel 400, mat. no. 2.4360
	Hastelloy C276, mat. no. 2.4819
	Hastelloy C4, mat. no. 2.4602
	Tantal
	Stainless steel 316L, gold plated, thickness approx. 25 μ m
• Top section (process connection in the case of an open measurement flange)	Stainless steel, mat. no. 1.4404/316L
• Capillary	Stainless steel, mat. no. 1.4404/316L
• Sealing material on the process connection	Viton or copper (in the case of vacuum-free version)
• Sealing material between top and bottom section	Viton (FKM) (standard) Teflon (PTFE) metal spring ring (silver-coated)

Capillary	
• Length	Max. 10 m (32.8 ft)
• Internal diameter	2 mm (0.079 inch)
• Minimum bending radius	150 mm (5.9 inch)
• Sheath	Stainless steel protective tube, mat. No. 1.4301/304
Filling liquid	<ul style="list-style-type: none"> • Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil (for measuring O₂) • 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 specifications of the pressure transmitters and in the section "Technical data of filling liquid" in the introduction to the remote seals
Weight	Approx. 1.5 kg (3.3 lb)

Certificates and approvals

Classification according to pressure equipment directive (PED 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)
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Selection and Ordering data	Article No.	Ord.	Code	Selection and Ordering data	Article No.	Ord.	Code																																																								
Remote seal, screwed gland with inside diaphragm				Remote seal, screwed gland with inside diaphragm																																																											
Mounted on SITRANS P pressure transmitter for	7 MF 4 9 3 0 -			Mounted on SITRANS P pressure transmitter for	7 MF 4 9 3 0 -																																																										
<ul style="list-style-type: none"> gauge pressure 7MF2033-...; 7MF403-... and SITRANS P300, 7MF802-... absolute pressure 7MF423-... and SITRANS P300, 7MF802-... In conjunction with Order code "V01" (vacuum-proof design) 				<ul style="list-style-type: none"> gauge pressure 7MF2033-...; 7MF403-... and SITRANS P300, 7MF802-... absolute pressure 7MF423-... and SITRANS P300, 7MF802-... In conjunction with Order code "V01" (vacuum-proof design) 																																																											
Mounted on either side of SITRANS P pressure transmitter for	7 MF 4 9 3 3 -			Mounted on either side of SITRANS P pressure transmitter for	7 MF 4 9 3 3 -																																																										
<ul style="list-style-type: none"> differential pressure 7MF243-...; 7MF443-... and 7MF54-... 				<ul style="list-style-type: none"> differential pressure 7MF243-...; 7MF443-... and 7MF54-... 																																																											
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.																																																															
Type				Sealing material between top and bottom section																																																											
<ul style="list-style-type: none"> no flushing hole with flushing hole 1x 1/8 NPT unsealed (only with process connection 316L) 	1			FKM (standard with diaphragm and 316L process connection)	1																																																										
Other version, add Order code and plain text: Version: ...	2			PTFE (standard with custom material with max. 260 °C (500 °F))	2																																																										
	9		H 1 Y	Metal C- circlip, silver coated for > 260 °C (500 °F) incl. high temperature-resistant screwed gland	3																																																										
Process connection version				Filling liquid																																																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Lower flange material</th> <th>Process connection</th> <th>Nominal diameter and pressure level</th> <th></th> </tr> </thead> <tbody> <tr><td>316L/1.4404</td><td>Thread</td><td>G½B/PN100</td><td>B</td></tr> <tr><td>316L/1.4404</td><td>Thread</td><td>G½B/PN250</td><td>C</td></tr> <tr><td>316L/1.4404</td><td>Thread</td><td>½NPT-M/PN100</td><td>E</td></tr> <tr><td>316L/1.4404</td><td>Thread</td><td>½NPT-M/PN250</td><td>F</td></tr> <tr><td>316L/1.4404</td><td>Thread</td><td>½NPT-F/PN100</td><td>H</td></tr> <tr><td>316L/1.4404</td><td>Thread</td><td>½NPT-F/PN250</td><td>J</td></tr> <tr><td>316L/1.4404</td><td>open measurement flange</td><td>DN 25/ PN 10 ... 40</td><td>N</td></tr> <tr><td>316L/1.4404</td><td>open measurement flange</td><td>1"/Class 150</td><td>P</td></tr> <tr><td>316L/1.4404</td><td>open measurement flange</td><td>1"/Class 300</td><td>Q</td></tr> <tr><td>PTFE¹⁾</td><td>Thread</td><td>G½B/PN100</td><td>T</td></tr> <tr><td>PTFE¹⁾</td><td>open measurement flange</td><td>DN 25/ PN 10 ... 40</td><td>U</td></tr> <tr><td>PTFE¹⁾</td><td>open measurement flange</td><td>1"/Class 150</td><td>V</td></tr> <tr><td>PTFE¹⁾</td><td>open measurement flange</td><td>1"/Class 300</td><td>W</td></tr> </tbody> </table>	Lower flange material	Process connection	Nominal diameter and pressure level		316L/1.4404	Thread	G½B/PN100	B	316L/1.4404	Thread	G½B/PN250	C	316L/1.4404	Thread	½NPT-M/PN100	E	316L/1.4404	Thread	½NPT-M/PN250	F	316L/1.4404	Thread	½NPT-F/PN100	H	316L/1.4404	Thread	½NPT-F/PN250	J	316L/1.4404	open measurement flange	DN 25/ PN 10 ... 40	N	316L/1.4404	open measurement flange	1"/Class 150	P	316L/1.4404	open measurement flange	1"/Class 300	Q	PTFE ¹⁾	Thread	G½B/PN100	T	PTFE ¹⁾	open measurement flange	DN 25/ PN 10 ... 40	U	PTFE ¹⁾	open measurement flange	1"/Class 150	V	PTFE ¹⁾	open measurement flange	1"/Class 300	W				<ul style="list-style-type: none"> Silicone oil M5 Silicone oil M50 High-temperature oil Halocarbon oil (for measuring O₂)²⁾ Food oil (FDA-listed) 	1		
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Other version, add Order code and plain text: Lower flange material: ...; Process connection: ...; Nominal diameter/pressure level: ...				Other version, add Order code and plain text: filling liquid: ...	9		M 1 Y																																																								
Diaphragm material				Capillary length³⁾																																																											
Stainless steel 316L			A	<ul style="list-style-type: none"> none, direct mounting none, direct mounting with cooling element (not in conjunction with transmitter for differential pressure) 	0																																																										
316L stainless steel with PTFE film			E	<ul style="list-style-type: none"> 1.0 m (3.28 ft) 1.6 m (5.25 ft) 2.5 m (8.20 ft) 4.0 m (13.1 ft) 6.0 m (19.7 ft) 8.0 m (26.25 ft) 10.0 m (32.8 ft) 	1																																																										
Monel 400			G	Special lengths for capillaries																																																											
Hastelloy C276			J	<ul style="list-style-type: none"> 2.0 m (6.56 ft) 3.0 m (9.84 ft) 5.0 m (16.40 ft) 7.0 m (23.97 ft) 9.0 m (29.53 ft) 	2																																																										
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Tantalum			K		9	N 1 E																																																									
Stainless steel 316L, gold plated, thickness approx. 25 µm			S		9	N 1 G																																																									
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			Z		9	N 1 L																																																									

1) Not in combination with flushing holes. Not together with the options for negative pressure service (V01 and V03) and extended negative pressure service (V51 and V53).
2) 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.
3) Max. capillary length, see section "Technical description".

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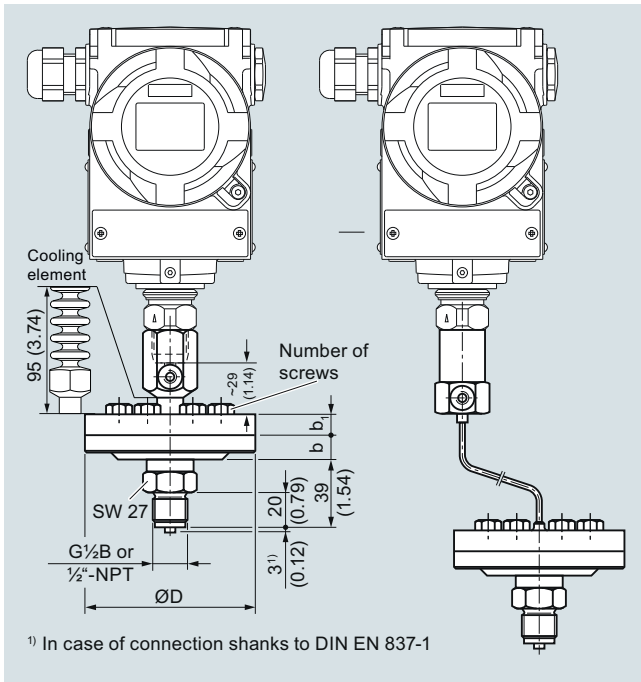
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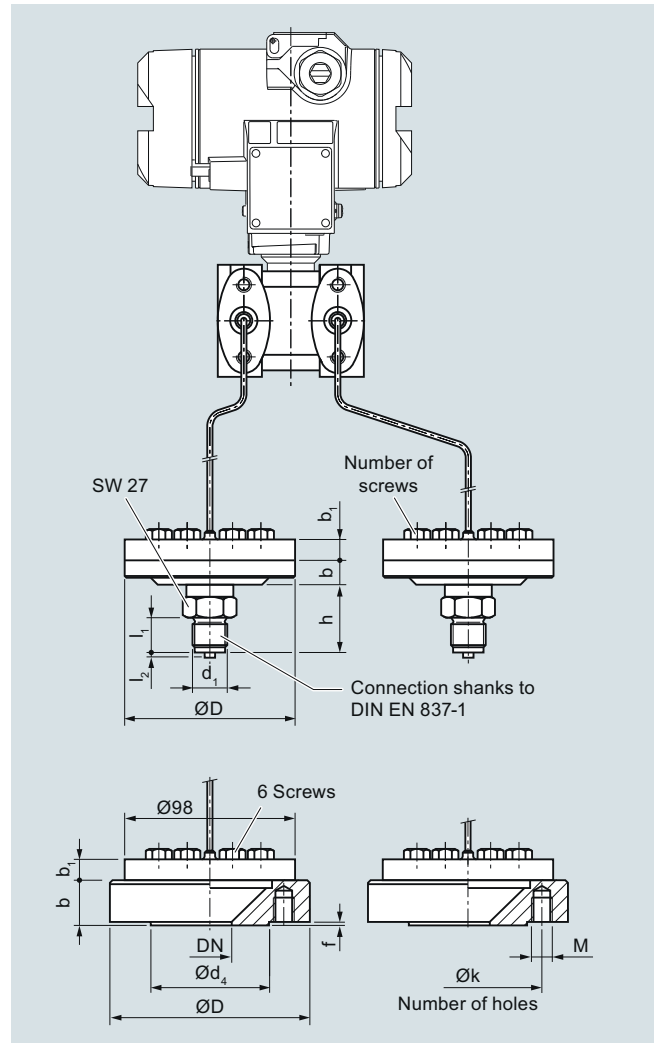
Selection and Ordering data	Order code	Selection and Ordering data	Order code
Further designs		Further designs	
Add "-Z" to Article No. and specify Order code.		Add "-Z" to Article No. and specify Order code.	
Remote seal nameplate	B20	PE protective tube	
Attached out of stainless steel, contains MLFB and order number of the remote seal		over the spiral protective tube of the capillaries (color: white)	
Oil- and grease-free cleaned version	C10	1.0 m (3.28 ft)	N20
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		1.6 m (5.25 ft)	N21
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2	C11	2.0 m (6.56 ft)	N22
Inspection certificate	C12	2.5 m (8.20 ft)	N23
to EN 10204, section 3.1		3.0 m (9.84 ft)	N24
2.2 Certificate of FDA approval of fill oil	C17	4.0 m (13.12 ft)	N25
Only in conjunction with "Food-grade oil" fill liquid (FDA listed)"		5.0 m (16.40 ft)	N26
Functional safety certificate ("SIL 2") to IEC 61508	C20	6.0 m (19.69 ft)	N27
(Only in conjunction with the Order code "C20" in the case of SITRANS P DSIII transmitter)		7.0 m (22.97 ft)	N28
Functional safety certificate ("SIL 2/3") to IEC 61508	C23	8.0 m (26.25 ft)	N29
(Only in conjunction with the Order code "C23" in the case of SITRANS P DSIII transmitter)		9.0 m (29.53 ft)	N30
Certification acc. to NACE MR-0175	D07	10.0 m (32.81 ft)	N31
Includes acceptance test certificate 3.1 according to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)		PTFE protective tube	
Certification acc. to NACE MR-0103	D08	over the spiral protective tube of the capillaries (color: transparent)	
Includes acceptance test certificate 3.1 according to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)		1.0 m (3.28 ft)	N40
Oil- and grease-free cleaned version	E10	1.6 m (5.25 ft)	N41
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		2.0 m (6.56 ft)	N42
Epoxy painting	E15	2.5 m (8.20 ft)	N43
Not possible with negative pressure service.		3.0 m (9.84 ft)	N44
Color: transparent, coverage: front and rear of the remote seal, capillary(ies) or connecting tube, process connection of the transmitter.		4.0 m (13.12 ft)	N45
With transmitters 7MF40.. and 7MF42..., only possible with process connection G½B according to EN 837-1.		5.0 m (16.40 ft)	N46
One-sided mounting on differential pressure transmitters	H10	6.0 m (19.69 ft)	N47
(only for 7MF4930-...)	H11	7.0 m (22.97 ft)	N48
on high-pressure side		8.0 m (26.25 ft)	N49
on low-pressure side		9.0 m (29.53 ft)	N50
Sealing surface groove, EN 1092-1, form D	J14	10.0 m (32.81 ft)	N51
instead of sealing surface B1 (only for wetted parts made of stainless steel 316L)		PVC protective tube	
Sealing surface RJF (groove, previously RTJ) ASME B16.5	J24	over the spiral protective tube of the capillaries (color: black)	
instead of sealing surface		1.0 m (3.28 ft)	N60
ASME B16.5 RF 125 ... 250 AA (only for wetted parts made of stainless steel 316L)		1.6 m (5.25 ft)	N61
Sealing surface with spring according to EN 1092-1, form C, (previously DIN 2512, form F) in stainless steel 316L	J30	2.0 m (6.56 ft)	N62
DN 25	J31	2.5 m (8.20 ft)	N63
DN 40		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
		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 seal, screwed gland with inside diaphragm, for gauge and absolute pressure, direct and attached directly to the transmitter with with capillaries, dimensions in mm (inch)

Range	D mm	b mm	b ₁ mm	Number of screws
up to 100 bar	98	14	16	6
up to 250 bar	98	14	20	12



Diaphragm seal, screwed gland with inside diaphragm, for differential pressure, direct and attached directly to the transmitter with with capillaries, dimensions in mm (inch)

Nominal diameter	Nominal pressure	D mm	d ₄ mm	k mm	M	Number of holes	b mm	b ₁ mm	f mm
DN 25	PN 10/16/25/40	115	68	85	M12	4	26	12	2
1 inch	150 lb/sq.in	108	50.8	79.2	M12	4	22	12	1.6
1 inch	300 lb/sq.in	124	50.8	88.9	M16	4	22	12	1.6