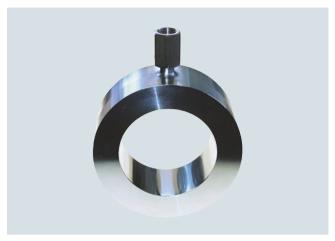
Remote seals for pressure transmitters SITRANS P320/P420

Inline seals in sandwich design

Overview



Inline seals for flange-mounting

The inline seal is completely integrated in the process line. It is particularly suitable for flowing and highly viscous media.

The inline remote seal consists of a cylindrical jacket into which a thin-walled pipe is welded. It is clamped directly between two flanges in the pipeline.

Design

- Inline seals for flange-mounting (flange design) to EN/ASME for SITRANS P pressure transmitters
 - For pressure: P300, DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus
 - For differential pressure and flow: DS III with HART, DS III with PROFIBUS PA, DS III with FOUNDATION Fieldbus and P500
- Sealing surface to EN 1092-1 or ASME B16.5
- Connection to the transmitter directly or by means of a flexible capillary (max. 10 m long)
- · See Technical data for details of materials used for the wetted
- Material used for the capillary, the guard sleeve, the seal's main body and the measuring cell: Stainless steel, mat.-No. 1.4571
- Filling liquid: Silicone oil, high-temperature oil, halocarbon oil, food oil (FDA listed) or glycerin/water (not suitable for uses in low-pressure range)

Function

The measured pressure is transferred from the diaphragm to the filling liquid and passes either directly or through the capillary to the measuring chamber of the pressure transmitter. The interior of the diaphragm seal and of the capillary, as well as the measuring chamber of the pressure transmitter, are filled gas-free by the filling liquid.

Note:

When operating in the low-pressure range, also during commissioning, it is recommended to use a vacuum-proof remote seal (see Selection and Ordering data).

Technical specifications

Inline seals for flange-mounting

Nominal diameter

Connecting standard EN 1092-1

• DN 25/40/50/65/80/100/125

Connecting standard ASME B16.5

• 1, 11/2, 2, 21/2, 3, 4, 5 inch Process connection

Sealing surface

Nominal pressure

PN 6 ... PN 100

Class 150 ... class 2500

Flange to EN 1092-1 or **ASME B 16.5**

- for stainless steel mat, no. 1.4404/316L according to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA
- · for all other materials according to EN 1092-1, form B2 or ASME B16.5 RFSF

Materials

- Main body
- Diaphragm
- Wetted parts

Stainless steel 1.4404/316L

Stainless steel 1.4404/316L

Stainless steel 1.4404/316L

- Without 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

Tantalum

Stainless steel, mat. No. 1.4404/316L

Spiral protective tube made of stainless steel, mat. No.

1.4301/316

Capillary

Capillary

Sheath

- Length
- Internal diameter
- Minimum bending radius

Filling liquid

Max. 10 m (32.8 ft)

2 mm (0.079 inch)

150 mm (5.9 inch)

Silicone oil M5 Silicone oil M50

High-temperature oil

Halocarbon oil

Food oil (FDA listed)

See pressure transmitters, see filling liquid

Approx. 4 kg (8.82 lb)

Weight

Certificates and approvals

Classification according to pressure equipment directive (DGRL 2014/68/EU)

Permissible ambient temperature

For gases of fluid group 1 and liquids of fluid group 1; complies with the requirements of article 4, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H by the TÜV Nord

Remote seals for pressure transmitters SITRANS P320/P420

Inline seals in sandwich design

Selection and Order	ring data	Article No.	Order code	Selection and Ordering data		Order code
Inline-diaphragm se	eal			Inline-diaphragm seal		
Sandwich type design connected with flexible	n, directly connected or e capillary tube to a			Sandwich type design, directly connected or connected with flexible capillary tube to a		
SITRANS P320/P420 transmitter for gauge pressure or absolute pressure (only together with negative pressure service), 7MF03/7MF04 order separately Scope of delivery: 1 off		7MF0900	-	SITRANS P320/P420 transmitter for gauge pressure or absolute pressure (only together with negative pressure ser- vice), 7MF03/7MF04 order separately Scope of delivery: 1 off	7MF0900-	
SITRANS P320/P420 transmitter for differ- ential pressure and flow, 7MF03/7MF04 order separately, Scope of delivery: 2 off		7 M F 0 9 0 2	-	 SITRANS P320/P420 transmitter for differential pressure and flow, 7MF03/7MF04 order separately, Scope of delivery: 2 off 	7MF0902-	
		- 0	0		- 0 - 0	
	e No. for the online con- IA Life Cycle Portal.			Filling liquid Silicone oil M5	A	
Nominal diameter	Nominal pressure			Silicone oil M50	В	
Connecting standard	I EN 1092-1			High-temperature oil	С	
DN 25	PN 6 100	0 B P		Halocarbon oil	D	
DN 40	PN 6 100	0 D P		Food-grade oil (FDA listed)	E	
DN 50	PN 6 100	0 E P		Other version	Z	P 1 Y
DN 65	PN 6 100	0 F P		Add Order code and plain text		
DN 80	PN 6 100	0 G P		Wetted parts materials		
DN 100	PN 6 100	0 H P		•		
DN 125	PN 6 100	0 J P		Stainless steel 316L		
				Without coating	A	
Connecting standard		4 1/ 1/		With PFA coating	D	
1 inch	class 150 2500	1 K X		With ECTFFE coating Account Account Account Account	F	
1½ inch	class 150 2500	1 L X		Monel 400, 2.4360	G	
2 inch	class 150 2500	1 M X		Hastelloy C276, 2.4819	J	
2½ inch	class 150 2500	1 N X		Tantalum	K	
3 inch	class 150 2500	1 P X		Hastelloy C4, 2.4610	U	
4 inch	class 150 2500	1QX		Other version	Z	Q 1 Y
5 inch	class 150 2500	1 R X		Add Order code and plain text		
Other version Add Order code and	plain text	9 A A	H 1 Y			
Transmitter connec	tion					
connection (for gaug Without capillary tube tion via 90°-bow (for Connection via capill Length of capillary	e, direct mount connec- gauge pressure)	0 0 0 1	П			
1 m		1 0				
1,6 m		11				
2 m		1 2				
2,5 m		1 3				
3 m		1 4				
4 m		1 5				
5 m		1 6				
6 m		17				
7 m		1 8				
8 m		2 0				
9 m		2 1				
10 m		2 2				
11 m (only for 7MF09		2 3				
12 m (only for 7MF09	900)	2 4				
13 m (only for 7MF09		2 5				
14 m (only for 7MF09	,	2 6				
15 m (only for 7MF09	900)	2 7				
Other version		9 8	L 1 Y			
Add Order code and						

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Inline seals in sandwich design

Selection and Ordering data Further designs Add '-Z' to Article No. and specify Order code. Factory certificates Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 Inspection certificate to EN 10204-3.1 - material of body and wetted parts Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel) Inspection certificate (EN 10204-3.1) - PMI test of pressure containing and wetted parts Certificate of FDA-approved fill oil (to EN10204-2.2) Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (Includes SIL conformity declaration) Accessories Spark arrestor (for gauge and absolute pressure transmitters) Low-temperature version (for Silicon Oil M50 only) Negative pressure services (for gauge and absolute pressure service (for gauge and absolute pressure transmitters) Negative pressure service (for differential pressure transmitters) Extended negative pressure service (for gauge and absolute pressure transmitters) Ceneral product approvals without explosion proof approvals Oil-and grease-free cleaned version (for O ₂ -appl. including certificate EN 10204-2.2 Central graph of the decarbon oil max. temperature 60 'C and max. pressure S0 bar) Oil-and grease-free cleaned version (not for O ₂ -appl. including certificate EN 10204-2.2 Conly with fill fluid Halocarbon oil max. temperature 60 'C and max. pressure S0 bar) Oil-and grease-free cleaned version (not for O ₂ -appl. including certificate EN 10204-2.2 Conly with fill fluid Halocarbon oil max. temperature 60 'C and max. pressure S0 bar) Oil-and grease-free cleaned version (not for O ₂ -appl. including certificate EN 10204-2.2 E887 Sealing surface with tongue to EN 1092-1, form C (wetted parts 316L only) Pon 25 Dn N 50 Dn N 50 DN 125 Sealing surface with spigot to EN 1092-1, form E (wetted parts 316L only) DN 125 DN 100 D	illille seals ill salluwich design	
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absolute pressure transmitters) Extended negative pressure service (for differential pressure transmitters) 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) Oil-and grease-free cleaned version (not for O ₂ -appl. including certificate EN10204-2.2 (only with fill fluid Halocarbon oil) Sealing surface EN10204-2.2 (only with fill fluid Halocarbon oil) Sealing surface smooth, form B2/EN1092-1 resp. RFSF/ANSI B16.5 (wetted parts 316L only) Sealing surface groove to EN1092-1, form D (instead of sealing surface B1, wetted parts 316L only) Sealing surface RJF (groove) to ASME B16.5 (instead of sealing surface RF 125250AA, wetted parts 316L only) Sealing surface with tongue to EN1092-1, form C (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80 • DN 100 M76 • DN 50 • DN 40 • DN 50 • DN 80	transmitters)	200
Extended negative pressure service (for differential pressure transmitters) 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) Oil-and grease-free cleaned version (not for O ₂ -appl. including certificate EN10204-2.2 (only with fill fluid Halocarbon oil) Sealing surface EN10204-2.2 (only with fill fluid Halocarbon oil) Sealing surface smooth, form B2/EN1092-1 resp. RFSF/ANSI B16.5 (wetted parts 316L only) Sealing surface groove to EN1092-1, form D (instead of sealing surface B1, wetted parts 316L only) Sealing surface RJF (groove) to ASME B16.5 (instead of sealing surface RF 125250AA, wetted parts 316L only) Sealing surface with tongue to EN1092-1, form C (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80 • DN 100 • DN 125 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80		D85
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60 °C and max. pressure 50 bar) Oil-and grease-free cleaned version (not for O ₂ -appl. including certificate EN10204-2.2 (only with fill fluid Halocarbon oil) Sealing surface Sealing surface smooth, form B2/EN1092-1 resp. RFSF/ANSI B16.5 (wetted parts 316L only) Sealing surface groove to EN1092-1, form D (instead of sealing surface B1, wetted parts 316L only) Sealing surface RJF (groove) to ASME B16.5 (instead of sealing surface RF 125250AA, wetted parts 316L only) Sealing surface with tongue to EN1092-1, form C (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80 • DN 100 • DN 125 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 40 • DN 50 • DN 80 • DN 50 • DN 80	including certificate EN10204-2.2	
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Sealing surface smooth, form B2/EN1092-1 resp. RFSF/ANSI B16.5 (wetted parts 316L only) Sealing surface groove to EN1092-1, form D (instead of sealing surface B1, wetted parts 316L only) Sealing surface RJF (groove) to ASME B16.5 (instead of sealing surface RF 125250AA, wetted parts 316L only) Sealing surface with tongue to EN1092-1, form C (wetted parts 316L only) • DN 25 • DN 80 • DN 100 • DN 25 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) • DN 25 • DN 40 • DN 25 • DN 40 • DN 50 • DN 40 • DN 50 • DN 80		
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(instead of sealing surface B1, wetted parts 316L only) Sealing surface RJF (groove) to ASME B16.5 (instead of sealing surface RF 125250AA, wetted parts 316L only) Sealing surface with tongue to EN1092-1, form C (wetted parts 316L only) • DN 25 • DN 80 • DN 100 • DN 125 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) • DN 25 • DN 40 • DN 25 • DN 40 • DN 50 • DN 40 • DN 50 • DN 80		IVISO
Sealing surface RJF (groove) to ASME B16.5 (instead of sealing surface RF 125250AA, wetted parts 316L only) Sealing surface with tongue to EN1092-1, form C (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80 • DN 100 • DN 125 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) • DN 25 • DN 40 • DN 125 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80 • DN 80 • DN 80 • DN 80 • DN 100 M64 M70 M70 M71 M72 M73 M74 M75 M75 M76 M77 M77 M78 M78 M79 M80		M54
parts 316L only) Sealing surface with tongue to EN1092-1, form C (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80 • DN 100 • DN 125 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) • DN 25 • DN 40 • DN 25 • DN 40 • DN 50 • DN 80 • DN 100	Sealing surface RJF (groove) to ASME B16.5	M64
(wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80 • DN 100 • DN 125 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 50 • DN 80 • DN 50 • DN 80 • DN 100 M78 • DN 100		
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 DN 80 DN 100 DN 125 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) DN 25 DN 40 DN 50 DN 80 DN 80 DN 100 M73 M74 M75 M76 M77 M78 M79 M80 M80 		
 DN 100 DN 125 Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) DN 25 DN 40 DN 50 DN 80 DN 80 DN 100 M74 M75 M76 M77 M78 M79 M79 M80 M80 		
Sealing surface with spigot to EN1092-1, form E (wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80 • DN 100 M78 M79 M80		
(wetted parts 316L only) • DN 25 • DN 40 • DN 50 • DN 80 • DN 100 M76 M77 M78 M78 M79 M80	• DN 125	M75
 DN 25 DN 40 DN 50 DN 80 DN 100 M78 M79 M80 M80 		
 DN 50 DN 80 DN 100 M79 M80 M80 		M76
• DN 80 • DN 100 M80		
• DN 100 M80		
• DN 125		
	• DN 125	M81

Selection and Ordering data	Order code
Further designs	
Add "-Z" to Article No. and specify Order code.	
Sealing surface with recess to EN1092-1, form F (wetted parts 316L only)	
• DN 25	M82
• DN 40 • DN 50	M83 M84
• DN 80	M85
• DN 100	M86
• DN 125	M87
Capillary connection	
For 7MF0900	
Single-side mounted at differential pressure transmitters at high-side	S03
Single-side mounted at differential pressure transmitters at low-side	S04
cooling element	S08
Capillary coating	
PE protective tube 1 m	S10
1,6 m	S11
2 m	S12
2,5 m	S13
3 m	S14
4 m 5 m	S15 S16
6 m	S17
7 m	S18
8 m	S19
9 m	S20
10 m 11 m (only for 7MF0902)	S21 S22
12 m (only for 7MF0902)	S23
13 m (only for 7MF0902)	S24
14 m (only for 7MF0902)	S25
15 m (only for 7MF0902)	S26
PTFE protective tube	040
1 m 1,6 m	S40 S41
2 m	S42
2,5 m	S43
3 m	S44
4 m	S45
5 m 6 m	S46 S47
7 m	S48
8 m	S49
9 m	S50
10 m	S51
11 m (only for 7MF0902) 12 m (only for 7MF0902)	S52 S53
13 m (only for 7MF0902)	S54
14 m (only for 7MF0902)	S55
15 m (only for 7MF0902)	S56

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Remote seals for pressure transmitters SITRANS P320/P420

Inline seals in sandwich design

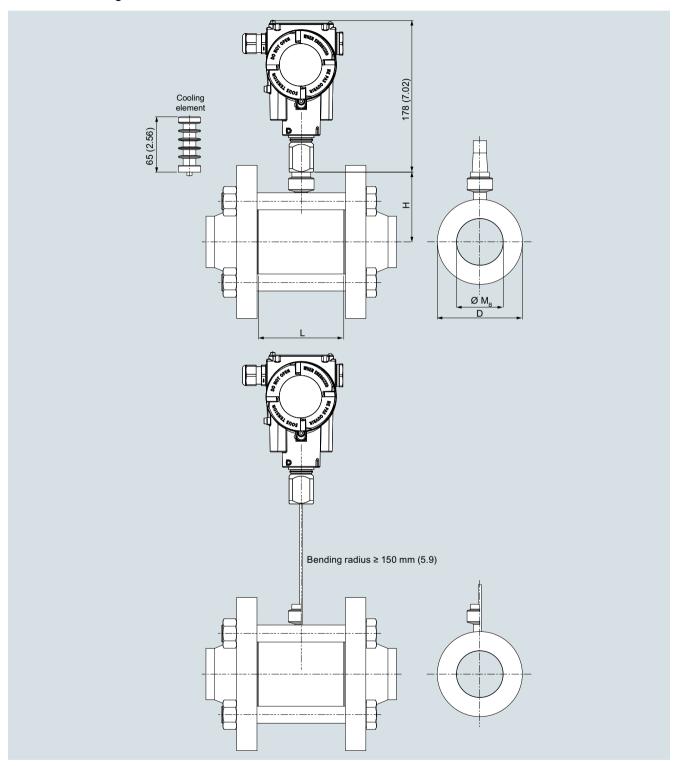
Selection and Ordering data	Order code
Further designs	
Add "-Z" to Article No. and specify Order code.	
PVC protective tube	
1 m	S70
1,6 m	S71
2 m	S72
2,5 m	S73
3 m	S74
4 m	S75
5 m	S76
6 m	S77
7 m	S78
8 m	S79
9 m	S80
10 m	S81
11 m (only for 7MF0902)	S82
12 m (only for 7MF0902)	S83
13 m (only for 7MF0902)	S84
14 m (only for 7MF0902)	S85
15 m (only for 7MF0902)	S86
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

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

Remote seals for pressure transmitters SITRANS P320/P420

Inline seals in sandwich design

Dimensional drawings



Inline seal for flange-mounting, connected to SITRANS P pressure transmitter, dimensions in mm (inch)

Remote seals for pressure transmitters SITRANS P320/P420

Inline seals in sandwich design

Connection to EN 1092-1

DN	PN	D	Mb	L	Н
mm	bar	mm	mm	mm	mm
25	6 100	68	28.5	60	81
40	_	88	43.1	60	91
50	_	100	54.5	60	93
65	_	120	70.3	60	107
80	-	138	82.5	60	116
100	_	160	107.1	60	127
125	-	188	127	60	141

Connection to ASME B16.5

DN	Class	D	Mb	L	Н
(inch)		mm (inch)	mm (inch)	mm (inch)	mm (inch)
1	150 2500	50 (1.97)	28.5 (1.12)	60 (2.36)	72 (2.83)
1½	150 2500	73.5 (2.89)	43.1 (1.70)	60 (2.36)	84 (3.31)
2	150 2500	91.9 (3.62)	54.5 (2.15)	60 (2.36)	93 (3.66)
21/2	150 2500	104.6 (4.12)	70.3 (2.77)	60 (2.36)	99 (3.9)
3	150 2500	127 (5)	82.5 (3.25)	60 (2.36)	110 (4.33)
4	150 2500	157.2 (6.19)	107.1 (4.22)	60 (2.36)	125 (4.92)
5	150 2500	188 (7.4)	127 (5)	60 (2.36)	141 (5.55)