

## Pressure Measurement

Remote seals for pressure transmitters  
SITRANS P320/P420

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

#### Overview



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



Process connection, open measuring flange

#### Technical specifications

##### Diaphragm seal, screwed gland with inside diaphragm



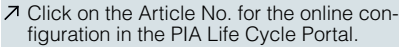
Process connection	Nominal pressure
<ul style="list-style-type: none"> <li>Open flange EN1092-1               <ul style="list-style-type: none"> <li>- DN 15</li> <li>- DN 20</li> <li>- DN 25</li> </ul> </li> <li>Open flange ASME B16.5               <ul style="list-style-type: none"> <li>- ½ inch, ¾ inch, 1 inch</li> </ul> </li> <li>Thread to EN 837-1               <ul style="list-style-type: none"> <li>- G¼"B, G½"B, G¾"B, G1"B</li> </ul> </li> <li>Thread ASME B1.20.1               <ul style="list-style-type: none"> <li>- ¼" NPT-M, ¼" NPT-F</li> <li>- ½" NPT-M, ½" NPT-F</li> <li>- ¾" NPT-M, ¾" NPT-F</li> <li>- 1" NPT-M, 1" NPT-F</li> </ul> </li> </ul>	PN 10/16/25/40/63/100/160/250 PN 10/16/25/40 PN 10/16/25/40/63/100/160/250  Class 150/300/600/1500  PN 100/250  Class 1500/3675 Class 1500/3675 Class 1500/3675 Class 1500/3675
Sealing surface for open measurement flange	
<ul style="list-style-type: none"> <li>For stainless steel, mat. no. 1.4404/316L</li> </ul>	To EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA
Materials	
<ul style="list-style-type: none"> <li>Lower section (in the case of process connection thread)</li> <li>Diaphragm</li> </ul>	Stainless steel, Mat. no. 1.4404/316L Stainless steel, Mat. no. 1.4404/316L <ul style="list-style-type: none"> <li>No coating</li> <li>With PTFE coating</li> </ul> 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 µm
<ul style="list-style-type: none"> <li>Top section (process connection in the case of an open measurement flange)</li> <li>Capillary</li> </ul>	Stainless steel, mat. no. 1.4404/316L  Stainless steel 1.4404/316L

<ul style="list-style-type: none"> <li>Sealing material on the process connection</li> <li>Sealing material between top and bottom section</li> </ul>	Viton or copper (in the case of vacuum-free version) Viton (FKM) (standard) Teflon (PTFE) metal spring ring (silver-coated)
Capillary	
<ul style="list-style-type: none"> <li>Length</li> <li>Internal diameter</li> <li>Minimum bending radius</li> <li>Sheath</li> </ul>	Max. 10 m (32.8 ft) 2 mm (0.079 inch) 150 mm (5.9 inch) Stainless steel protective tube, mat. No. 1.4301/304
Filling liquid	<ul style="list-style-type: none"> <li>Silicone oil M5</li> <li>Silicone oil M50</li> <li>High-temperature oil</li> <li>Halocarbon oil (for measuring O<sub>2</sub>)</li> <li>Food oil (FDA listed)</li> </ul>
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)
<b>Certificates and approvals</b>	
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.	Order code	Selection and Ordering data		Article No.	Order code
<b>Diaphragm seal threaded design</b>				<b>Diaphragm seal threaded design</b>			
With inside diaphragm, directly connected or connected via flexible capillary tube to a				With inside diaphragm, directly connected or connected via 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		<b>7MF0840 -</b>		• 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		<b>7MF0840 -</b>	
• SITRANS P320/P420 transmitter for differential pressure and flow, 7MF03../7MF04.. order separately Scope of delivery: 2 off		<b>7MF0842 -</b>		• SITRANS P320/P420 transmitter for differential pressure and flow, 7MF03../7MF04.. order separately Scope of delivery: 2 off		<b>7MF0842 -</b>	
							
							
<b>Nominal diameter</b>	<b>Nominal pressure</b>			<b>Transmitter connection</b>			
Open flange, connecting standard EN 1092-1				Without capillary tube, direct mount straight connection (for gauge pressure)	<b>00</b>		
DN 15	PN 10/16/25/40	<b>0AD</b>		Connection via capillary tube			
	PN 63/100	<b>0AF</b>		Length of capillary			
	PN 160	<b>0AG</b>		1 m	<b>10</b>		
	PN 250	<b>0AH</b>		1,6 m	<b>11</b>		
DN 20	PN 10/16/25/40	<b>0AM</b>		2 m	<b>12</b>		
DN 25	PN 10/16/25/40	<b>0BD</b>		2,5 m	<b>13</b>		
	PN 63/100	<b>0BF</b>		3 m	<b>14</b>		
	PN 160	<b>0BG</b>		4 m	<b>15</b>		
	PN 250	<b>0BH</b>		5 m	<b>16</b>		
Open flange, connecting standard ASME B16.5				6 m	<b>17</b>		
½ inch	class 150	<b>1KA</b>		7 m	<b>18</b>		
	class 300	<b>1KB</b>		8 m	<b>20</b>		
	class 600	<b>1KC</b>		9 m	<b>21</b>		
	class 1500	<b>1KD</b>		10 m	<b>22</b>		
¾ inch	class 150	<b>1KF</b>		Other version	<b>98</b>		<b>L1Y</b>
	class 300	<b>1KG</b>		Add Order code and plain text			
	class 600	<b>1KH</b>		<b>Filling liquid</b>			
	class 1500	<b>1KJ</b>		Silicone oil M5	<b>A</b>		
1 inch	class 150	<b>1KL</b>		Silicone oil M50	<b>B</b>		
	class 300	<b>1KM</b>		High-temperature oil	<b>C</b>		
	class 600	<b>1KN</b>		Halocarbon oil	<b>D</b>		
	class 1500	<b>1KP</b>		Food-grade oil (FDA listed)	<b>E</b>		
Process connection thread EN 837-1				Other version	<b>Z</b>		<b>P1Y</b>
G¼"B	PN 100	<b>3SB</b>		Add Order code and plain text			
G¼"B	PN 250	<b>3SC</b>		<b>Wetted parts materials</b>			
G½"B	PN 100	<b>3SF</b>		Stainless steel 316L without coating	<b>A</b>		
G½"B	PN 250	<b>3SG</b>		Stainless steel 316L with PTFE-coating	<b>E</b>		
G¾"B	PN 100	<b>3SK</b>		Monel 400, 2.4360	<b>G</b>		
G¾"B	PN 250	<b>3SL</b>		Hastelloy C276, 2.4819	<b>J</b>		
G1"B	PN 100	<b>3SP</b>		Tantalum	<b>K</b>		
G1"B	PN 250	<b>3SQ</b>		Stainless steel 316L with gold coating	<b>S</b>		
Process connection thread ASME B1.20.1				Hastelloy C4, 2.4610	<b>U</b>		
¼"-NPT-M	Class 1500	<b>5TA</b>		Other version	<b>Z</b>		<b>Q1Y</b>
¼"-NPT-M	Class 3675	<b>5TB</b>		Add Order code and plain text			
¼"-NPT-F	Class 1500	<b>5TC</b>					
¼"-NPT-F	Class 3675	<b>5TD</b>					
½"-NPT-M	Class 1500	<b>5TE</b>					
½"-NPT-M	Class 3675	<b>5TF</b>					
½"-NPT-F	Class 1500	<b>5TG</b>					
½"-NPT-F	Class 3675	<b>5TH</b>					
¾"-NPT-M	Class 1500	<b>5TJ</b>					
¾"-NPT-M	Class 3675	<b>5TK</b>					
¾"-NPT-F	Class 1500	<b>5TL</b>					
¾"-NPT-F	Class 3675	<b>5TM</b>					
1"-NPT-M	Class 1500	<b>5TN</b>					
1"-NPT-M	Class 3675	<b>5TP</b>					
1"-NPT-F	Class 1500	<b>5TQ</b>					
1"-NPT-F	Class 3675	<b>5TR</b>					
Other version		<b>9AA</b>					
Add Order code and plain text			<b>H1Y</b>				

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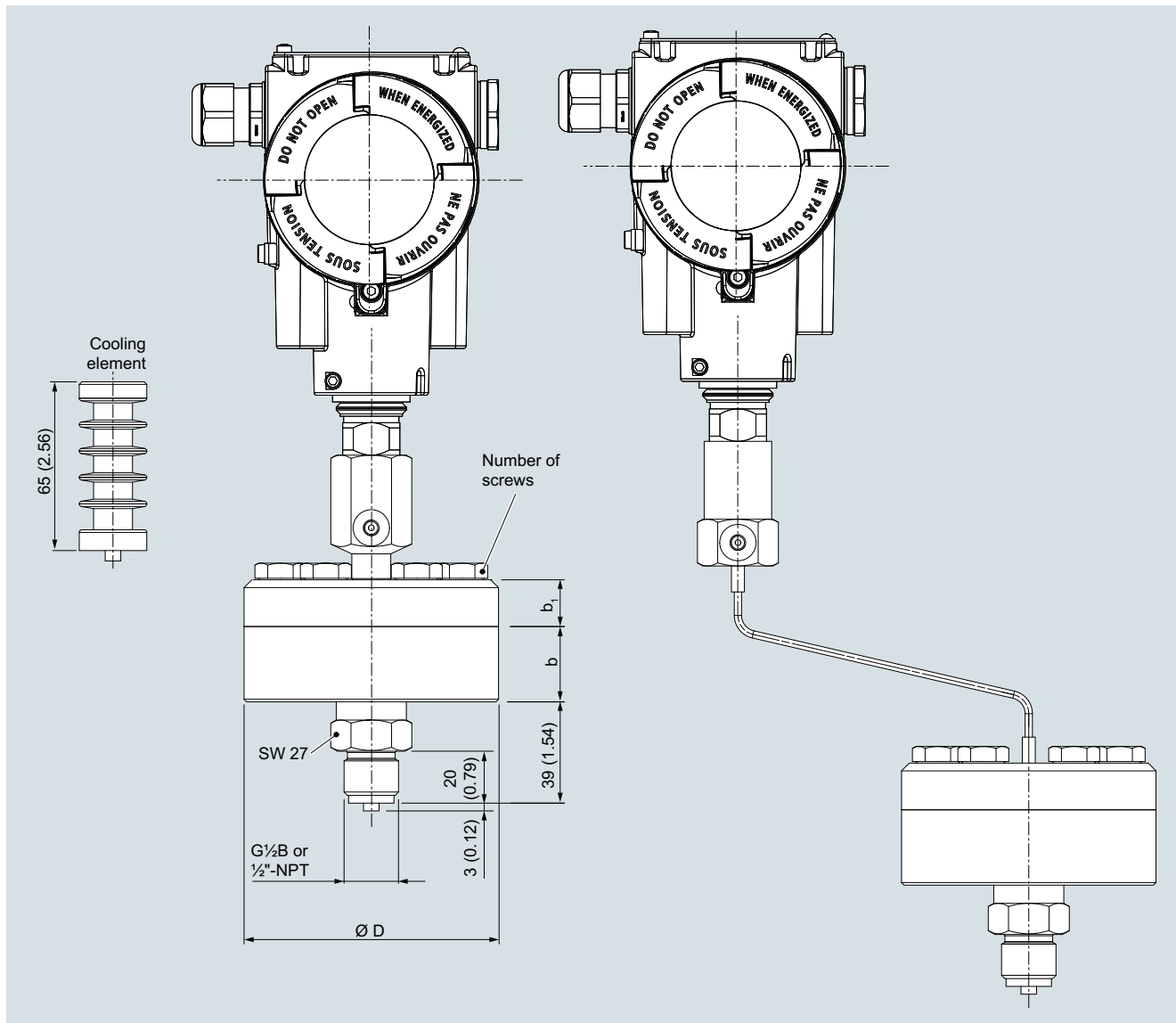
Selection and Ordering data	Order code	Selection and Ordering data	Order code
<b>Further designs</b>		<b>Further designs</b>	
Add "-Z" to Article No. and specify Order code.		Add "-Z" to Article No. and specify Order code.	
<b>Factory certificates</b>		<b>Capillary coating</b>	
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	<b>C11</b>	<u>PE protective tube</u>	
Inspection certificate to EN 10204-3.1 - material of body and wetted parts	<b>C12</b>	1 m	<b>S10</b>
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)	<b>C13</b>	1,6 m	<b>S11</b>
Inspection certificate (EN 10204-3.1) - PMI test of pressure containing and wetted parts	<b>C15</b>	2 m	<b>S12</b>
Certificate of FDA-approved fill oil (to EN10204-2.2)	<b>C17</b>	2,5 m	<b>S13</b>
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (Includes SIL conformity declaration)	<b>C20</b>	3 m	<b>S14</b>
		4 m	<b>S15</b>
		5 m	<b>S16</b>
		6 m	<b>S17</b>
		7 m	<b>S18</b>
		8 m	<b>S19</b>
		9 m	<b>S20</b>
		10 m	<b>S21</b>
		<u>PTFE protective tube</u>	
		1 m	<b>S40</b>
		1,6 m	<b>S41</b>
		2 m	<b>S42</b>
		2,5 m	<b>S43</b>
		3 m	<b>S44</b>
		4 m	<b>S45</b>
		5 m	<b>S46</b>
		6 m	<b>S47</b>
		7 m	<b>S48</b>
		8 m	<b>S49</b>
		9 m	<b>S50</b>
		10 m	<b>S51</b>
		<u>PVC protective tube</u>	
		1 m	<b>S70</b>
		1,6 m	<b>S71</b>
		2 m	<b>S72</b>
		2,5 m	<b>S73</b>
		3 m	<b>S74</b>
		4 m	<b>S75</b>
		5 m	<b>S76</b>
		6 m	<b>S77</b>
		7 m	<b>S78</b>
		8 m	<b>S79</b>
		9 m	<b>S80</b>
		10 m	<b>S81</b>
<b>Negative pressure services</b>		<b>Customer-specific tube length</b>	
Negative pressure service (for gauge and absolute pressure transmitters)	<b>D81</b>	Customer-specific tube length (specify in plain text)	<b>Y44</b>
Negative pressure service (for differential pressure transmitters)	<b>D83</b>	<b>Specification of process conditions<sup>1)</sup></b>	
Extended negative pressure service (for gauge and absolute pressure transmitters)	<b>D85</b>	Ambient temperature range	
Extended negative pressure service (for differential pressure transmitters)	<b>D88</b>	• -10 ... +50 °C (14 ... +122 °F) preset	<b>D66</b>
		• -40 ... +50 °C (-40 ... +122 °F)	<b>D67</b>
		• -10 ... +85 °C (14 ... +185 °F)	<b>D68</b>
		Process temperature min. ... °C/(°F)/max. ... °C/(°F)	<b>Y50</b>
<b>General product approvals without explosion proof approvals</b>			
Oil-and grease-free cleaned version (for O <sub>2</sub> -appl. including certificate EN10204-2.2 (only with fill fluid Halocarbon oil max. temperature 60 °C and max. pressure 50 bar)	<b>E80</b>		
Oil-and grease-free cleaned version (not for O <sub>2</sub> -appl. including certificate EN10204-2.2 (only with fill fluid Halocarbon oil)	<b>E87</b>		
<b>Capillary connection (only for 7MF0840)</b>			
Single-side mounted at differential pressure transmitters at high-side	<b>S03</b>		
Single-side mounted at differential pressure transmitters at low-side	<b>S04</b>		
Cooling element	<b>S08</b>		

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

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### 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)

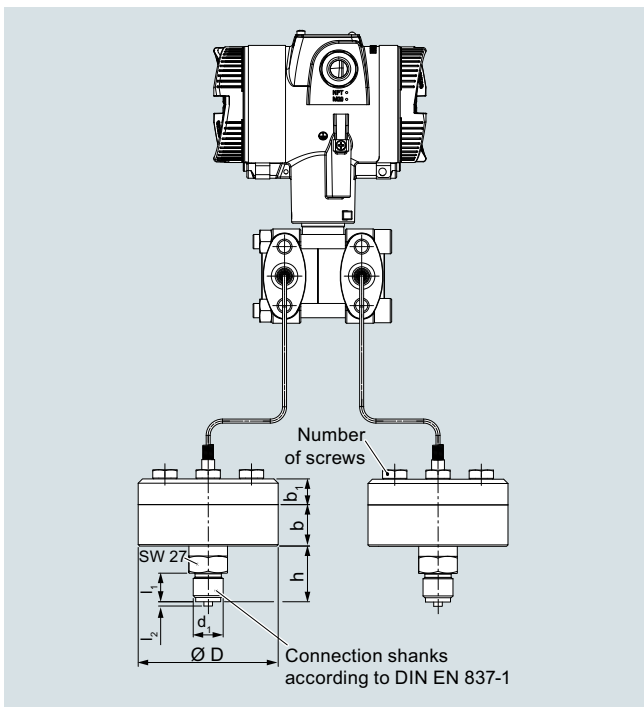
Range	D mm	b mm	b <sub>1</sub> mm	Number of screws
up to 100 bar	98	14	16	6
up to 250 bar	98	14	20	12

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



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 <sub>4</sub> mm	k mm	M	Number of holes	b mm	b <sub>1</sub> mm	f mm
DN 25	PN 10/16/25/40	115	68	85	M12	4	26	12	2
1 inch	150 lb/sq.in	110	50.8	79.4	M12	4	32	12	2
1 inch	300 lb/sq.in	125	50.8	88.9	M16	4	32	12	2