Overview

SITRANS P320/P420 pressure transmitters are digital pressure transmitters featuring extensive user-friendliness and high accuracy. The parameter assignment is performed using input buttons or the HART interface.

The comprehensive functionality makes for precise adjustment of the pressure transmitter to the requirements of the plant. Operation is very user-friendly in spite of the numerous setting options.

Due to their advanced diagnostic functionalities according to NAMUR NE107, the SITRANS P320/P420 pressure transmitters are very suitable for use in chemical plants. Thanks to the advanced diagnostic functions and the process value storage, the SITRANS P420 is "Ready for Digitalization".

The "Remote Safety Handling" function saves customers significant amounts of time and money, because the SIL function can be switched on and validated remotely via SIMATIC PDM. This eliminates travel times and on-site operation via the local display or keyboard.

Parameter assignment using the HART protocol is very easy and quick thanks to the innovative EDD with integrated Quick Start wizard.

The transmitters can be equipped with various types of remote seals for special applications such as the measurement of highly viscous substances.

SITRANS P320/P420 pressure transmitters are available in various versions for measuring:

- Gauge pressure
- Absolute pressure
- Differential pressure
- Level
- Volume flow
- Mass flow

Benefits

- Diagnostic functions in accordance with NAMUR recommendation NE107
- SIL devices developed according to IEC 61508
- SIL validation on the device or remotely with SIMATIC PDM
- Reduction of internal inductance for Ex applications to LI = 0
- Step response time for pressure type T63 = 105 ms and for differential pressure type 135 ms.
- Minimal conformity error
- Very low temperature influence
- Very good long-term stability
- High quality and service life
- High reliability even under extreme chemical and mechanical loads
- For corrosive and non-corrosive gases, vapors and liquids
- Extensive diagnostics and simulation functions
- Separate replacement of measuring cell and electronics without recalibration
- Wetted parts made of high-grade materials (e.g., stainless steel, alloy, gold, Monel, tantalum)
- Infinitely adjustable spans from 0.01 bar to 700 bar (0.15 psi to 10153 psi)
- Convenient parameterization over 4 input buttons and HART interface

Application

SITRANS P320/P420 pressure transmitters can be used in industrial areas with extreme chemical and mechanical loads.

The pressure transmitters can be used in zone 1 or zone 0 with the corresponding Ex approval.

The pressure transmitters can be equipped with various designs of remote seals for special applications such as the measurement of highly viscous substances.

The pressure transmitter can be operated locally over 4 input buttons or programmed externally over HART interface.

Pressure transmitters for gauge pressure

Measured variable:

- Gauge pressure of corrosive and non-corrosive gases, vapors and liquids.

Measuring span (infinitely adjustable)

- For SITRANS P320/P420 with HART: 0.01 bar to 700 bar (0.15 psi to 10153 psi)

There are two series:

- Gauge pressure series
- Differential pressure series

Pressure transmitters for absolute pressure

Measured variable:

- Absolute pressure of corrosive and non-corrosive gases, vapors and liquids.

Measuring span (infinitely adjustable)

- For SITRANS P320/P420 with HART: 8.3 mbar a to 160 bar a (0.12 to 2 321 psi a)

There are two series:

- Gauge pressure series
- Differential pressure series

Pressure transmitters for differential pressure and flow

Measured variables:

- Differential pressure
- Small positive or negative overpressure
- Flow $q \sim \sqrt{\Delta p}$ (together with a primary differential pressure transducer (see section "Flowmeters"))

Measuring span (infinitely adjustable)

- For SITRANS P320/P420 with HART: 1 mbar to 160 bar (0.0145 to 2 321 psi)

Pressure transmitters for level

Measured variable:

- Level of corrosive and non-corrosive liquids in open and closed vessels.

Measuring span (infinitely adjustable)

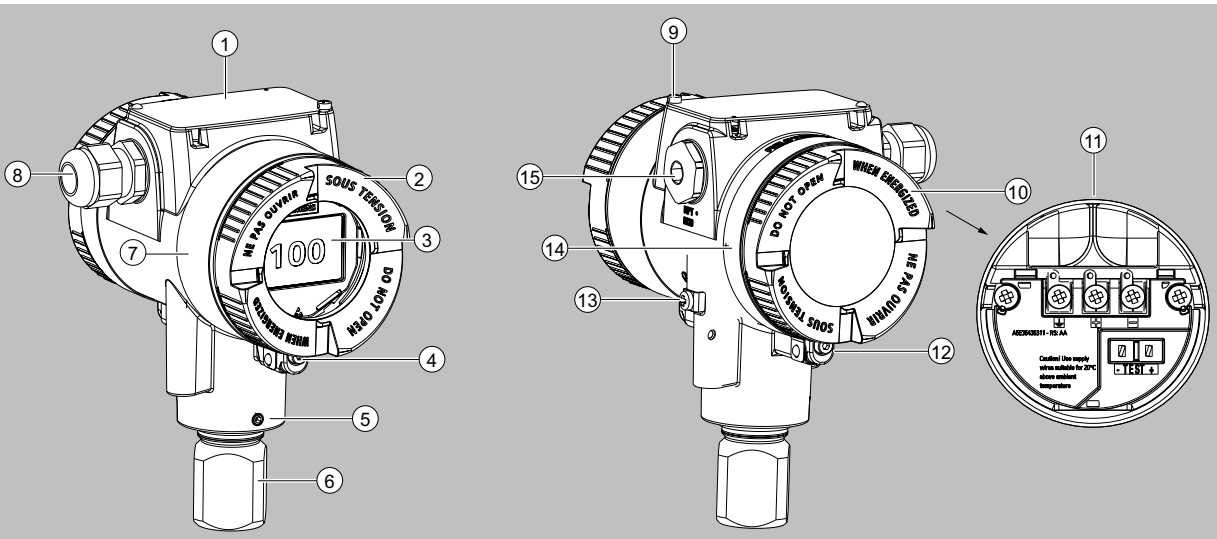
- For SITRANS P320/P420 with HART:
  25 mbar to 5 bar (0.363 to 72.5 psi)

Type of the mounting flange:

- EN 1092-1 flanges
- ASME B16.5 flanges
- J.I.S. flanges
- Diverse range of sealing surface forms available

Design

Depending on the customer-specific order, the device comprises different parts.



1. Cover over buttons and nameplate with general information
2. Cover (front) with glass pane (optional)
3. Display (optional)
4. Safety catch (front)
5. Locking screw for locking the enclosure
6. Process connection
7. Approval label with approval information
8. Cable inlet, optionally with cable gland
9. Locking screw for the cover over the buttons
10. Cover (rear) for electrical terminal compartment
11. Electrical terminal compartment
12. Safety catch (back)
13. Ground terminal
14. Nameplate with information on the remote seal
15. Blanking plug

Device front view

- The electronics enclosure is made of die cast aluminum or precision cast stainless steel.
- The enclosure has a removable cover at the front and the back.
- Depending on the device design, the front cover (2) may be designed with a glass pane.
- The cable inlet (8) to the electrical terminal compartment is at the side; either the left or right-hand one can be used. The unused opening is closed with a blanking plug (15).
- The ground terminal (13) is located on the side.
- The electrical terminal compartment (11) for the auxiliary power and shield is accessible when you remove the back cover (10).
- The measuring cell with process connection (6) is located in the bottom part of the enclosure.

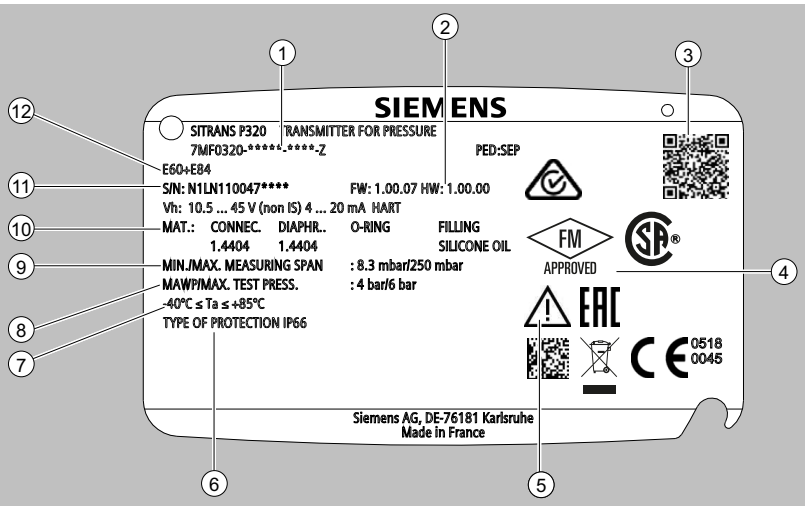
  The measuring cell is prevented from rotating by a locking screw (5).
- Thanks to the modular design of the pressure transmitter, the measuring cell and application electronics or terminal compartment can be replaced if required.
- The button cover (1) is located on the upper face of the enclosure. The nameplate with general information is located on the cover over the buttons.

Nameplates

Nameplate

The nameplate with the article no. and other important information, such as design details and technical data, is located on the cover over the buttons.

Design (continued)

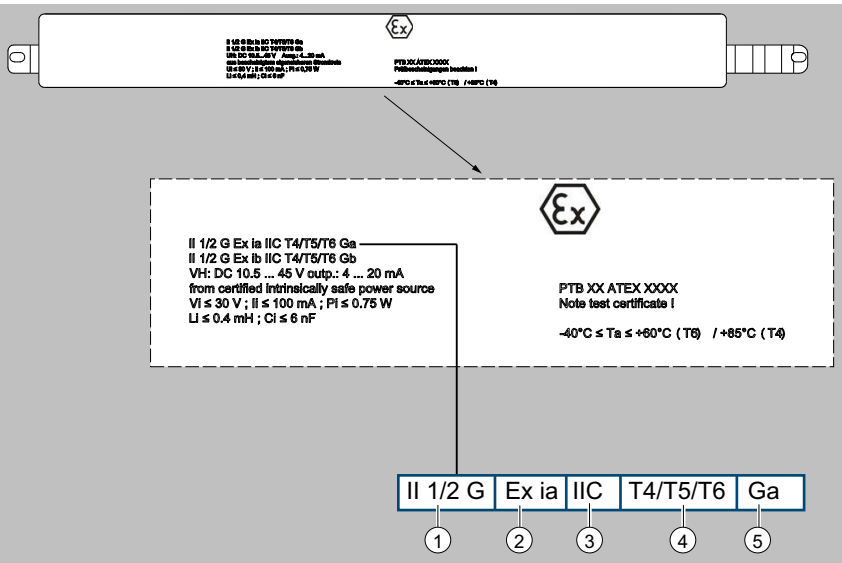


1. Article number
2. Firmware and hardware identification
3. QR code to the mobile website with device-specific information
4. Conformity with country-specific directives
5. Note operating instructions, certificates and approvals
6. Protection class
7. Permitted ambient temperature for the hazardous area of the corresponding temperature class
8. Maximum allowable operating pressure / maximum allowable test pressure
9. Minimum/maximum measuring span
10. Material: connection, diaphragm, O-ring, oil
11. Serial number
12. Order supplement (options, order code)

Certification label with approval information

The certification label with approval information is located on the front of the enclosure.

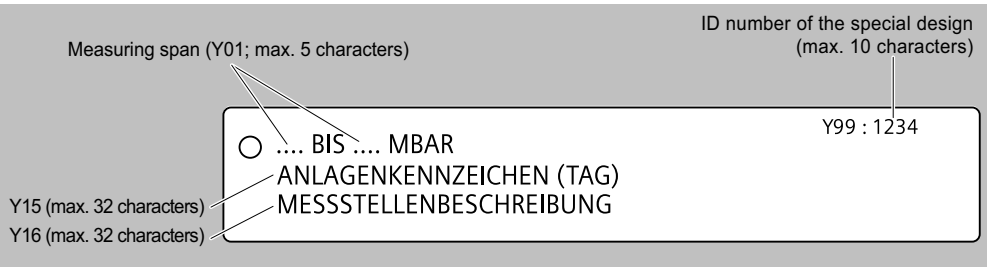
Design (continued)



1. Characteristics of the hazardous area
2. Type of protection
3. Group (gas, dust)
4. Maximum surface temperature (temperature class)
5. Device protection level

Tag plate

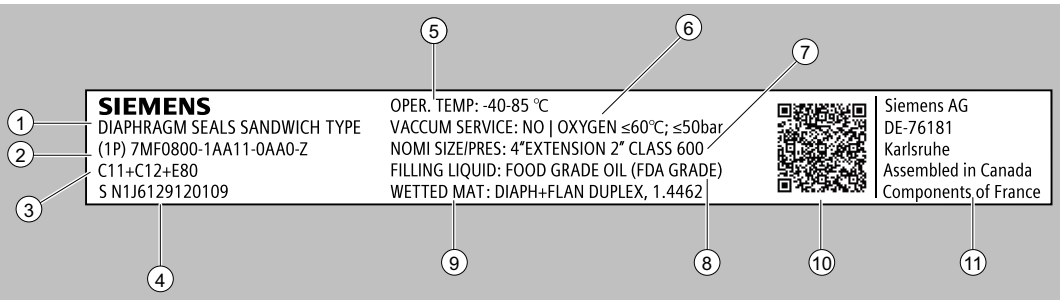
The tag plate is fastened with a wire under the front cover.



Nameplate with information on the remote seals

The nameplate with information on the remote seals is located on the back of the enclosure.

Design (continued)



1. Diaphragm seals of sandwich type
2. Article number
3. Order supplement (options, order code)
4. Serial number
5. Operating temperature
6. Vacuum pressure service: No, oxygen ≤ 60 °C; ≤ 50 bar
7. Nominal diameter/pressure: 4 inch, 50 mm tube length, CLASS 600
8. Filling liquid: Food grade oil (FDA-compliant)
9. Wetted materials: Diaphragm duplex, 1.4462
10. QR code to mobile website with device-specific information
11. Assembly and manufacturing location

Function

Adjustable parameters and diagnostics

SITRANS P320/P420 with HART communication

Parameters	Input buttons	SITRANS P320	SITRANS P420
Application, measurement type	x	x	x
Adjusting lower range value/upper range value	x	x	x
Setting lower range value/upper range value	x	x	x
Electrical damping	x	x	x
Zero adjustment	x	x	x
Fault current	x	x	x
Saturation limits	x	x	x
Scaling of the display	x	x	x
Characteristic curve selection	x	x	x
Temperature unit	x	x	x
Button lock	x	x	x
Change user PIN	x	x	x
Functional safety	x	x	x
Loop test	x	x	x
Start view	x	x	x
Pressure reference	x	x	x
Reset	x	x	x
Diagnostics and trend log			
Min/max pointer	–	x	x
Limit monitoring	–	2	2
Event counter (overrun/undershoot)	–	2	2
Maintenance and service timer	–	x	x
Trend log	–	–	2, max. 1 500 values
Diagnostic log	–	x	x
Parameters change log	–	–	x

Available physical units of display for SITRANS P320/P420

Physical variable	Physical units
Pressure (can also be preset in the factory)	Pa, MPa, kPa, hPa, bar, mbar, psi, g/cm², kg/cm², kgf/cm², inH_2O, inH_2O (4 °C), ftH_2O, mmH_2O, mmH_2O (4 °C), mH_2O (4 °C), mmHg, inHg, atm, torr
Level (height data)	m, cm, mm, ft, in
Volumes (fill level)	m³, l, hl, in³, ft³, yd³, gal, gal (UK), bu, bbl, bbl (US), SCF, Nm³, Nl
Volume (flow)	m³/sec, m³/h, m³/d, l/sec, l/min, l/h, Ml/d, ft³/sec, ft³/h, ft³/d, SCF/min, SCF/h, Nl/h, Nm³/hgal/sec, gal/min, gal/h, gal/d, Mgal/d, gal (UK))/sec, gal (UK)/min, gal (UK)/h, gal (UK)/d, bbl/sec, bbl/min, bbl/h, bbl/d,
Mass (flow)	Kg/sec, kg/min, kg/h, kg/d, g/sec, g/min, g/h, t/min, t/h, t/d, lb/sec, lb/min, lb/h, lb/d, ton/min, ton/h, ton/d, ton (UK)/h, ton (UK)/d
Temperature	°C, °F
Other	%, mA, free text max. 12 characters

For more device information and technical specifications, refer to the individual device versions.

Selection and ordering data

Pressure transmitters for gauge pressure (pressure series)	Article No.												
SITRANS P320	7MF030	●	-	●	●	●	●	●	-	●	●	●	●
SITRANS P420	7MF040	●	-	●	●	●	●	●	-	●	●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.													
Communication													
HART, 4 ... 20 mA		0											
PROFIBUS PA		1											
FOUNDATION Fieldbus (FF)		2											
Measuring cell filling													
Silicone oil				1									
Inert liquid				3									
Neobee oil				4									
Maximum measuring span													
250 mbar (3.6 psi)					F								
1 000 mbar (14.5 psi)					J								
4 000 mbar (58 psi)					N								
16 bar (232 psi)					Q								
63 bar (914 psi)					T								
160 bar (2 321 psi)					V								
400 bar (5 802 psi)					W								
700 bar (10 153 psi)					X								
Process connection													
External thread M20 × 1.5						B							
External thread G½ (EN 837-1)						D							
Internal thread ½-14 NPT						E							
External thread ½-14 NPT						F							
Oval flange, fastening thread: $^{7}/_{16}$-20 UNF (IEC 61518)						G							
Oval flange, fastening thread: M10 (DIN 19213)						H							
Oval flange, fastening thread: M12 (DIN 19213)						J							
Version for diaphragm seal pressure						U							
Material of wetted parts: Process connection, seal diaphragm													
Stainless steel 316L/1.4404, stainless steel 316L/1.4404							0						
Stainless steel 316L/1.4404, alloy C276/2.4819							1						
Alloy C22/2.4602, alloy C276/2.4819							2						
Stainless steel 316L/1.4404, stainless steel 316L/1.4404 gold-plated							7						
Material of non-wetted parts													
Die-cast aluminum								1					
Stainless steel precision casting CF3M/1.4409 similar to 316L								2					
Enclosure													
Dual chamber device										5			
Type of protection													
Without Ex											A		
Intrinsic safety											B		
Flameproof enclosure											C		
Flameproof enclosure, intrinsic safety											D		
Dust protection by enclosure Zone 21/22 (DIP), increased safety Zone 2											L		
Intrinsic safety, dust protection by enclosure Zone 20/21/22 (DIP), increased safety Zone 2											M		
Combination of options B, C and L (Zone model)											S		
Combination of options B, C and L (Zone model, Class Division)											T		
Electrical connections/cable entries													
Thread for cable gland: Cable gland must be ordered separately as option (Axx)													
• 2 × M20 × 1.5												F	
• 2 × ½-14 NPT												M	
Local operation/display													
Without local display (lid closed)													0
With local display (lid closed)													1
With local display (lid with glass pane)													2

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Cable glands included	
Plastic	**A00**
Metal	**A01**
Stainless steel	**A02**
Stainless steel 316L/1.4404	**A03**
CMP, for XP devices	**A10**
CAPRI ADE 4F, CuZn, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A11**
CAPRI ADE 4F, stainless steel, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A12**
Sealing plug included, plastic	**A20**
Sealing plug included, metal	**A21**
Sealing plug included, stainless steel	**A22**
Sealing plug included, stainless steel 316L/1.4404	**A23**
Device plug Han mounted left	
Device plug Han 7D (plastic, straight)	**A30**
Device plug Han 7D (plastic, angled)	**A31**
Device plug Han 7D (metal, straight)	**A32**
Device plug Han 7D (metal, angled)	**A33**
Device plug Han 8D (plastic, straight)	**A34**
Device plug Han 8D (plastic, angled)	**A35**
Device plug Han 8D (metal, straight)	**A36**
Device plug Han 8D (metal, angled)	**A37**
Cable socket included	
Plastic, for device plug Han 7D and Han 8D	**A40**
Metal, for device plug Han 7D and Han 8D	**A41**
Device plug M12 mounted left	
Stainless steel, without cable socket	**A62**
Stainless steel, with cable socket	**A63**
Cable entry/device plug mounting	
2 × sealing plugs M20 × 1.5, IP66/68 installed on both sides	**A90**
2 × sealing plugs ½-14 NPT, IP66/68 installed on both sides	**A91**
Cable gland/device plug mounted left	**A97**
Cable gland/device plug mounted right	**A99**
Nameplate labeling (standard labeling: English, unit bar)	
German (bar)	**B11**
French (bar)	**B12**
Spanish (bar)	**B13**
Italian (bar)	**B14**
Chinese (bar)	**B15**
Russian (bar)	**B16**
English (psi)	**B20**
English (Pa)	**B30**
Chinese (Pa)	**B35**
Certificates	
Quality inspection certificate, 5-point factory calibration (IEC 62828-2)	**C11**
Inspection certificate (EN 10204-3.1) - Material of pressurized and wetted parts	**C12**
Factory certificate - NACE (MR 0103-2012 and MR 0175-2009)	**C13**
Factory certificate (EN 10204-2.2) - Wetted parts	**C14**
Inspection certificate (EN 10204-3.1) - PMI test of pressurized and wetted parts	**C15**
Certificates for functional safety	
Functional Safety (IEC 61508) - SIL2/3	**C20**
Device options	
PDF file with device settings	**D10**
Double layer coating (epoxy resin and polyurethane) 120 µm of enclosure and lid	**D20**
FVMQ enclosure sealing	**D21**
Degree of protection IP66/IP68 (not for device plug M12 and Han)	**D30**
Unlabeled TAG plate	**D40**
Without labeling of the measuring range on the TAG plate	**D41**
Stainless steel Ex plate 1.4404/316L	**D42**
Overvoltage protection up to 6 kV (internal)	**D70**
Overvoltage protection up to 6 kV (external)	**D71**
Labels on transport packaging (provided by customer)	**D90**
General approval without Ex approval	
Worldwide (CE, UKCA, RCM) except EAC, FM, CSA, KCC	**E00**
Worldwide (CE, UKCA, RCM, EAC, FM, CSA, KCC)	**E01**
CSA (USA and Canada)	**E06**
EAC	**E07**
FM	**E08**
KCC	**E09**
Explosion protection approvals	
ATEX (Europe)	**E20**
CSA (USA and Canada)[1)]	**E21**
FM (USA and Canada)[1)]	**E22**
IECEx (Worldwide)	**E23**
EACEx (GOST-R, -K, -B)	**E24**
INMETRO (Brazil)	**E25**
KCs (Korea)	**E26**
NEPSI (China)	**E27**
PESO (India)	**E28**
CSA (Japan)	**E29**
UKR Sepro (Ukraine)	**E30**
UKEX (United Kingdom)	**E33**
ATEX (Europe), IECEx (Worldwide) and UKEX (UK)	**E47**
CSA (Canada) and FM (USA)[1)]	**E48**
ATEX (Europe) and IECEx (Worldwide) + CSA (Canada) and FM (USA)[1)]	**E49**
Marine approvals	
DNV-GL (Det Norske Veritas/Germanischer Lloyd)	**E50**
LR (Lloyds Register)	**E51**
BV (Bureau Veritas)	**E52**
ABS (American Bureau of Shipping)	**E53**
RMR (Russian Maritime Register)	**E55**
KR (Korean Register of Shipping)	**E56**
RINA (Registro Italiano Navale)	**E57**
CCS (China Classification Society)	**E58**

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Country-specific approvals	
CRN approval Canada (Canadian Registration Number)	**E60**
Special approvals	
Oxygen application (with inert liquid, max. 160 bar (2 320 psi) at 100 °C (212 °F))	**E80**
Dual Seal	**E81**
WRC/WRAS (drinking water); only with process flange O-rings made of EPDM	**E83**
NSF61 (drinking water)	**E84**
ACS (drinking water)	**E85**
Mounting bracket	
Steel, zinc-plated	**H01**
Stainless steel 1.4301/304	**H02**
Stainless steel 1.4404/316L	**H03**
Flange connections with flange EN 1092-1	
With flange adapter G½ Form B1	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J80**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J81**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J82**
With water trap G½ form B1	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J83**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J84**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J85**
• DN 25 PN 100, stainless steel 1.4571/316Ti	**J86**
Process flanges, gaskets (instead of standard gaskets FKM (FPM))	
Gasket (EN 837-1) material Fe (soft iron)	**K60**
Gasket (EN 837-1) material 1.4571	**K61**
Gasket (EN 837-1) material Cu	**K62**
Process connection	
Process connection external thread G½, bore hole 11 mm	**K80**

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Shut-off valves, valve manifolds	
With mounted valve manifold 7MF9011-4EA, process connection at transmitter G½ shank, PTFE sealing ring and pressure test certified in factory certificate (EN 10204-2.2)	**T02**
With mounted valve manifold 7MF9011-4FA, process connection at transmitter internal thread ½-14 NPT, sealing tape. With PTFE sealing ring and pressure test certified in factory certificate (EN 10204-2.2)	**T03**
With mounted valve manifold 7MF9411-5AA, process connection at transmitter oval flange with PTFE sealing ring, steel fixing screws, pressure test certified in factory certificate (EN 10204-2.2)	**T05**
With mounted valve manifold 7MF9411-5AA, process connection at transmitter oval flange with PTFE sealing ring, stainless steel fixing screws, pressure test certified in factory certificate (EN 10204-2.2)	**T06**
Device settings	
Measuring span: Lower range value (max. 5 characters), upper range value (max. 5 characters), unit [mbar, bar, kPa, MPa, psi, ...], example: -0.5 ... 10.5 psi	**Y01**
TAG (on stainless steel plate and device parameters, max. 32 characters)	**Y15**
Measuring point description (on stainless steel plate and device parameters, max. 32 characters)	**Y16**
TAG short (device parameters, max. 8 characters)	**Y17**
Local display: [Pressure, Percent], reference [None, Absolute, Gauge], example: Pressure gauge	**Y21**
Local display: Scaling with standard units [m^3/s, l/s, m, inch, ...]; example 1 ... 5 m	**Y22**
Local display: Scaling with user-specific units (max. 12 characters), example 1 ... 5 m	**Y23**
Set PROFIBUS PA device address (1 ... 126)	**Y25**
Saturation limits instead of 3.8 ... 20.5 mA, example: 3.8 ... 22.0 mA	**Y30**
Fault current instead of 3.6 mA [22.5 mA, 22.8 mA]	**Y31**
Damping in seconds instead of 2 s (0.0 ... 100.0 s)	**Y32**
ID number of special design	**Y99**

[1] Explosion protection acc. to FM/CSA: suitable for installation according to NEC 500/505.

Technical specifications

SITRANS P320/SITRANS P420 for gauge pressure (pressure series)			
Input			
Measured variable	Gauge pressure		
Measuring span (continuously adjustable) or measuring range, max. permissible operating pressure (in accordance with Pressure Equipment Directive 2014/68/EU) and max. permissible test pressure (pursuant to DIN 16086) (for oxygen measurement, max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/medium temperature)	Measuring span	Max. permissible operating pressure MAWP (PS)	Maximum permissible test pressure
	8.3 ... 250 mbar 0.83 ... 25 kPa 0.12 ... 3.6 psi	4 bar 0.4 MPa 58 psi	6 bar 0.6 MPa 87 psi
	0.01 ... 1 bar 1 ... 100 kPa 0.15 ... 14.5 psi	6 bar 0.6 MPa 87 psi	9 bar 0.9 MPa 130 psi
	0.04 ... 4 bar 4 ... 400 kPa 0.58 ... 58 psi	20 bar 2 MPa 290 psi	30 bar 3 MPa 435 psi
	0.16 ... 16 bar 0.016 ... 1.6 MPa 2.3 ... 232 psi	45 bar 4.5 MPa 652 psi	70 bar 7 MPa 1015 psi
	0.63 ... 63 bar 0.063 ... 6.3 MPa 9.1 ... 914 psi	80 bar 8 MPa 1160 psi	120 bar 12 MPa 1740 psi
	1.6 ... 160 bar 0.16 ... 16 MPa 23 ... 2321 psi	240 bar 24 MPa 3481 psi	360 bar 36 MPa 5221 psi
	4 ... 400 bar 0.4 ... 40 MPa 58 ... 5802 psi	400 bar 40 MPa 5802 psi	600 bar 60 MPa 8702 psi
	7 ... 700 bar 0.7 ... 70 MPa 102 ... 10153 psi	800 bar 80 MPa 11603 psi	800 bar 80 MPa 11603 psi
Measuring limits			
• Lower measuring limit	For 250 mbar/25 kPa/3.6 psi measuring cells, the lower measuring limit is 750 mbar a/75 kPa a/10.8 psi a. The measuring cell is vacuum-resistant up to 30 mbar a/3 kPa a/0.44 psi a.		
- Measuring cell with silicone oil filling	30 mbar a/3 kPa a/0.44 psi a		
- Measuring cell with inert oil	30 mbar a/3 kPa a/0.44 psi a		
- Measuring cell with FDA-compliant oil	100 mbar a/10 kPa a/1.45 psi a		
• Upper measuring limit	100% of the max. measuring span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/medium temperature)		
• Lower range value	Between the measuring limits (continuously adjustable)		
Output	**HART**		
Output signal	4 ... 20 mA		
• Lower saturation limit (continuously adjustable)	3.55 mA, factory set to 3.8 mA		
• Upper saturation limit (continuously adjustable)	22.8 mA, factory-set to 20.5 mA or optionally 22.0 mA		
• Ripple (without HART communication)	$I_{pp} \leq 0.5\%$ of max. output current		
Adjustable damping	0 ... 100 s, continuously adjustable over remote operation 0 ... 100 s, in increments of 0.1 s, adjustable over display		
• Current simulator	3.55 ... 22.8 mA		
• Failure signal	3.55 ... 22.8 mA (factory set to 3.55 mA)		
Load	Resistance R [Ω]		
• Without HART communication	$R = (U_H - 10.5\ V) / 22.8\ mA$, U_H: Auxiliary power in V		
• With HART communication	R = 230 ... 1100 Ω		
Characteristic curve	• Linearly increasing or linearly decreasing • Linear increase or decrease or according to the square root (only for differential pressure and flow)		
Physical bus	-		
Polarity-independent	-		

Technical specifications (continued)

SITRANS P320/SITRANS P420 for gauge pressure (pressure series)		
Measuring accuracy		
Reference conditions	• According to IEC 62828-1 • Rising characteristic curve • Lower range value 0 bar/kPa/psi • Seal diaphragm stainless steel • Measuring cell with silicone oil filling • Room temperature 25 °C (77 °F)	
Conformity error at limit point setting, including hysteresis and repeatability		
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span and nominal measuring range	
• Linear characteristic curve		
- 250 mbar/25 kPa/3.6 psi	r ≤ 1.25:	≤ 0.075% (SITRANS P320) ≤ 0.065% (SITRANS P420)
	1.25 < r ≤ 30:	≤ (0.008 · r +0.065)%
- 1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi 160 bar/16 MPa/2321 psi	r ≤ 5:	≤ 0.065% (SITRANS P320) ≤ 0.04% (SITRANS P420)
	5 < r ≤ 100:	≤ (0.004 · r +0.045)%
- 400 bar/40 MPa/5802 psi 700 bar/70 MPa/10152 psi	r ≤ 5: 5 < r ≤ 100:	≤ 0.075% (SITRANS P320) ≤ (0.005 · r + 0.05)% (SITRANS P320)
	r ≤ 5: 5 < r ≤ 100:	≤ 0.075% (SITRANS P420) ≤ (0.005 · r + 0.05)% (SITRANS P420)
Influence of ambient temperature in % per 28 °C (50 °F))		
• 250 mbar/25 kPa/3.6 psi	≤ (0.16 · r +0.1)%	
• 1 bar/100 kPa/14.5 psi	≤ (0.05 · r +0.1)%	
• 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi 160 bar/16 MPa/2321 psi 400 bar/40 MPa/5802 psi	≤ (0.025 · r +0.125)%	
• 700 bar/70 MPa/10152 psi	≤ (0.08 · r +0.16)%	
Long-term stability at ±30 °C (± 54 °F)		
• 250 mbar/25 kPa/3.6 psi	≤ (0.25 · r)% per year	
• 1 bar/100 kPa/14.5 psi	In 5 years ≤ (0.25 · r)% In 10 years ≤ (0.35 · r)%	
• 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi 160 bar/16 MPa/2321 psi 400 bar/40 MPa/5802 psi	In 5 years ≤ (0.125 · r)% In 10 years ≤ (0.15 · r)%	
• 700 bar/70 MPa/10152 psi	In 5 years ≤ (0.25 · r)% In 10 years ≤ (0.35 · r)%	
Step response time T_{63} (without electrical damping)	≤ 0.105 s	
Effect of mounting position (in pressure per change of angle)	≤ 0.05 mbar/0.005 kPa/0.000725 psi per 10° incline (zero offset is possible with position error compensation)	
Effect of auxiliary power (in % per voltage change)	0.005% per 1 V	
Operating conditions		
Medium temperature		
• Measuring cell with silicone oil filling	-40 ... +100 °C (-40 ... +212 °F)	
• Measuring cell with inert oil		
- 1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi	-40 ... +100 °C (-40 ... +212 °F)	
- 160 bar/16 MPa/2321 psi 400 bar/40 MPa/5802 psi 700 bar/70 MPa/10152 psi	-20 ... +100 °C (-4 ... +212 °F)	

Technical specifications (continued)

SITRANS P320/SITRANS P420 for gauge pressure (pressure series)	
• Measuring cell with FDA-compliant oil	-10 ... +100 °C (14 ... +212 °F)
Ambient conditions	
• Ambient temperature/enclosure	Observe the temperature class in hazardous areas.
- Measuring cell with silicone oil filling	-40 ... +85 °C (-40 ... +185 °F)
- Measuring cell with inert oil for gauge pressure measuring cells: 1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi	-40 ... +85 °C (-40 ... +185 °F)
- Measuring cell with inert oil	-40 ... +85 °C (-40 ... +185 °F)
- Measuring cell with FDA-compliant oil	-10 ... +85 °C (14 ... +185 °F)
- Display	-20 ... +80 °C (-4 ... +176 °F)
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F) (with FDA-compliant oil: -20 ... +85 °C (-4 ... +185 °F))
• Climatic class in accordance with IEC 60721-3-4	4K4H
• Degree of protection	
- According to IEC 60529	IP66, IP68
- According to NEMA 250	Type 4X
• Electromagnetic compatibility	
- Emitted interference and interference immunity	According to IEC 61326 and NAMUR NE 21
Structural design	
Weight	• Aluminum enclosure: Approx. 1.8 kg (3.9 lbs) • Stainless steel enclosure: Approx. 3.8 kg (8.3 lbs)
Material	
• Material of wetted parts	
- Process connection	Stainless steel, material no. 1.4404/316L or Alloy C22, material no. 2.4602
- Oval flange	Stainless steel, mat. no. 1.4404/316L
- Seal diaphragm	Stainless steel, material no. 1.4404/316L or Alloy C276, material no. 2.4819
• Material of non-wetted parts	
- Electronics enclosure	• Low-copper die-cast aluminum GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4409/ CF-3M • Standard: Powder coating with polyurethane Option: 2 coats: Coat 1: Epoxy-based; coat 2: Polyurethane • Coating: The layer structure and thickness correspond to EN ISO 12944 Corrosion Class C3-M (for standard transmitter) and C5-H (for transmitter with double layer coating) • Stainless steel nameplate (1.4404/316L)
- Mounting bracket	Zinc-plated steel or stainless steel
Process connection	• Connection shank G1/2A according to EN 837-1 • Female thread ½-14 NPT • Oval flange (PN 160 (MWP 2320 psi g)) with fastening thread: - 7/16-20 UNF according to EN 61518 - M10 according to DIN 19213 • Oval flange (PN 420 (MWP 2320 psi g)) with fastening thread: - 7/16-20 UNF according to EN 61518 - M12 according to DIN 19213 • Male thread M20 × 1.5 and ½-14 NPT
Electrical connection	Cable entry via the following screw glands: • M20 × 1.5 • ½-14 NPT • Device plug Han 7D/Han 8D[1)] • Device plug M12
Displays and controls	
Buttons	4 buttons for operation directly on the device
Display	• With or without integrated display (optional) • Lid with inspection window (optional)

Technical specifications (continued)

SITRANS P320/SITRANS P420 for gauge pressure (pressure series)	
Auxiliary power U_H	
Terminal voltage on pressure transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically safe mode
Ripple	$U_{SS} \leq 0.2$ V (47 ... 125 Hz)
Noise	$U_{eff} \leq 1.2$ mV (0.5 ... 10 kHz)
Auxiliary power	–
Separate supply voltage	–
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)
Drinking water	
• WRAS (England)	No.: 1903094 (option E83)
• ACS (France)	No.: 18 ACC LY 277 (option E85)
• NSF (USA)	No.: 20180920-MH61350 (option E84)
CRN (Canada)	No.: 0F9863.5C (option E60)
Explosion protection acc. to NEPSI (China)	No.: GYJ19.1058X (option E27)
Explosion protection acc. to INMETRO (Brazil)	No.: BRA-18-GE-0035X (option E25)
Explosion protection	
• Intrinsic safety "i"	
- Marking	II 1/2 G Ex ia/ib IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +55 °C (-40 ... +131 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To certified intrinsically safe circuits with peak values: $U_i = 30$ V, $I_i = 101$ mA, $P_i = 760$ mW $U_i = 29$ V, $I_i = 110$ mA, $P_i = 800$ mW
- Effective internal inductance/capacitance	$L_i = 0.24$ µH/$C_i = 3.29$ nF
• Flameproof enclosure "d"	
- Marking	Ex II 1/2 G Ex ia/db IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To a circuit with the operating values: $U_n = 10.5$ ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 21, 22	
- Marking	Ex II 2D Ex tb IIIC T120 °C Db Ex II 3D Ex tc IIIC T120 °C Dc
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Max. surface temperature	120 °C (248 °F)
- Connection	To a circuit with the operating values: $U_n = 10.5$ ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 20, 21, 22	
- Marking	Ex II 1D Ex ia IIIC T120 °C Da Ex II 2D Ex ib IIIC T120 °C Db
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Connection	To certified intrinsically safe circuits with peak values: $U_i = 30$ V, $I_i = 101$ mA, $P_i = 760$ mW $U_i = 29$ V, $I_i = 110$ mA, $P_i = 800$ mW
- Effective internal inductance/capacitance	$L_i = 0.24$ µH/$C_i = 3.29$ nF
• Type of protection for Zone 2	
- Marking	Ex II 3G Ex ec IIC T4/T6 Gc
- Permissible ambient temperature "ec"	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +40 °C (-40 ... +104 °F) temperature class T6

Technical specifications (continued)

SITRANS P320/SITRANS P420 for gauge pressure (pressure series)	
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- "ec" connection	To a circuit with the operating values: U_n = 10.5 ... 30 V, 4 ... 20 mA
• Explosion protection acc. to FM	Available soon
- Marking (XP/DIP) or IS; NI; S	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
• Explosion protection according to CSA	Available soon
- Marking (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
NAMUR recommendations	
• NE 06	Standardized Electrical Signals and Questions Relating to Engineering Technology
• NE 21	Electromagnetic Compatibility (EMC) of Industrial Process and Laboratory Control Equipment
• NE 23	Extra Low Voltage Circuits with Safe Separation
• NE 43	Standardization of the Signal Level for the Failure Information of Digital Transmitters
• NE 53	Software and Hardware of Field Devices and Signal Processing Devices with Digital Electronics
• NE 80	The Application of the Pressure Equipment Directive to Process Control Devices
• NE 105	Specifications for Integrating Fieldbus Devices in Engineering Tools for Field Devices
• NE 107	Self-Monitoring and Diagnosis of Field Devices
• NE 131	NAMUR Standard Device - Field Devices for Standard Applications

1) Han 8D is identical to Han 8U.

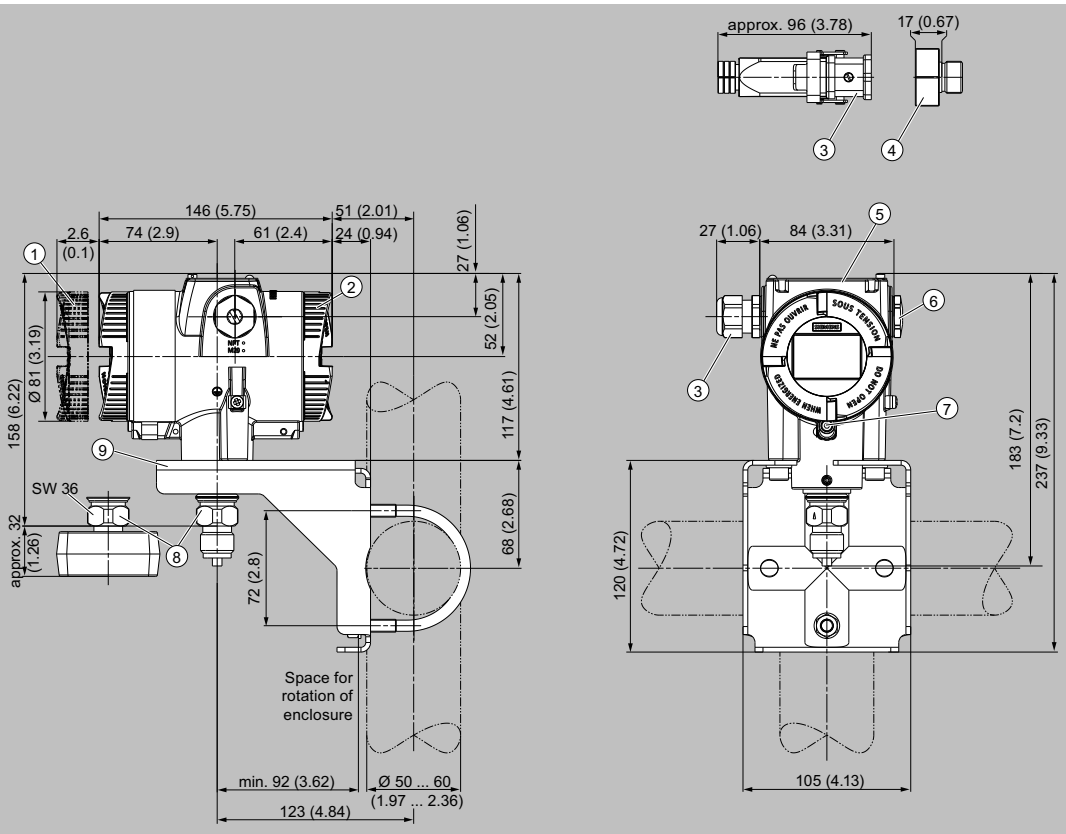
Communication	
HART	
HART	230 ... 1 100 Ω
Protocol	HART 7
Software for computer	SIMATIC PDM
PROFIBUS PA	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (default setting address 126)
Cyclic data usage	
• Output byte	≤ 35 (7 measured values)
• Input byte	0, 1, or 2 (register operation mode and reset function for dosing)
Internal preprocessing	
Device profile	PROFIBUS PA Profile Version 4.01 Class B. Cyclic data usage compatible with version 3.XX
Number of function blocks	7
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
• Physical block	1
Transducer blocks	1
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes

Communication	
- Specification of a vessel characteristic curve with	Max. 30 nodes
- Square-rooted characteristic curve for flow measurement	Yes
- Tank characteristic curve for volume measurement	Yes
- Low flow cut-off and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or by means of parameterizable ramp function
FOUNDATION Fieldbus	
Device profile	FF ITK 6
Function blocks	3 function blocks analog input, 1 function block PID
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
- Square-rooted characteristic curve for flow measurement	Yes
• PID	Standard FOUNDATION Fieldbus function block
• Physical block	1 resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes

Technical specifications (continued)

Communication	
- Monitoring of sensor limits	Yes
- Simulation function: pressure measurement, sensor temperature and electronics temperature	Constant value or by means of parameterizable ramp function

Dimensional drawings



1. Electronics side, local display (longer overall length for cover with glass pane)[1)]
2. Connection side
3. Electrical connection:
   - M20 x 1.5[3)] screw gland
   - ½-14 NPT screw gland
   - Han 7D/Han 8D[2) 3)] device plug
   - M12 device plug[2) 3)]
4. Harting adapter
5. Cover over buttons and nameplate with general information
6. Blanking plug
7. Safety catch (only for "flameproof enclosure" type of protection)
8. Process connection: G½B connection pin or oval flange
9. Mounting bracket (optional)

1) In addition, allow approx. 22 mm (0.87 inch) for the thread length when removing the covers
2) Not with "flameproof enclosure" type of protection
3) Not with type of protection "FM + CSA [is + XP]"

SITRANS P320/P420 pressure transmitter for gauge pressure (pressure series), dimensions in mm (inch)

Selection and ordering data

Pressure transmitters for gauge pressure (differential pressure series)	Article No.																					
SITRANS P320	**7MF031**							●	-	●	●	●	●	●	-	●	●	●	●			
SITRANS P420	**7MF041**							●	-	●	●	●	●	●	-	●	●	●	●			
Click the article number for online configuration in the PIA Life Cycle Portal.																						
Communication																						
HART, 4 ... 20 mA								0														
PROFIBUS PA								1														
FOUNDATION Fieldbus (FF)								2														
Measuring cell filling																						
Silicone oil										1												
Inert filling liquid										3												
Maximum measuring span																						
20 mbar (8.037 inH_2O)											B											
60 mbar (24.11 inH_2O)											D											
250 mbar (1005 inH_2O)											G											
600 mbar (241.1 inH_2O)											H											
1 600 mbar (643 inH_2O)											M											
5 000 mbar (2009 inH_2O)											P											
30 bar (435 psi)											R											
160 bar (2 320 psi)											Y											
Process connection																						
Oval flange, fastening thread: $^7/_{16}$-20 UNF (IEC 61518)												L										
Oval flange, fastening thread: M10 (PN 160), (DIN 19213)												M										
Oval flange, fastening thread: $^7/_{16}$-20 UNF (IEC 61518) with lateral ventilation												N										
Oval flange, fastening thread: M10 (PN 160) (DIN 19213) with lateral ventilation												P										
Material of wetted parts: Process connection, seal diaphragm																						
Stainless steel 316L/1.4404, stainless steel 316L/1.4404, process flange stainless steel 316/1.4408													0									
Stainless steel 316L/1.4404, alloy C276/2.4819, process flange stainless steel 316/1.4408													1									
Alloy C22/2.4602, alloy C276/2.4819, process flange stainless steel 316/1.4408													2									
Tantalum/tantalum, process flange stainless steel 316/1.4408 (not in combination with maximum measuring span 20 mbar (0.29 psi) and 60 mbar (0.87 psi))													4									
Monel 400/2.4360, Monel 400/2.4360, process flange stainless steel 316/1.4408 (not in combination with maximum measuring span 20 mbar (0.29 psi) and 60 mbar (0.87 psi))													6									
Stainless steel 316L/1.4404 gold-plated, process flange stainless steel 316/1.4408 (not in combination with maximum measuring span 20 mbar (0.29 psi) and 60 mbar (0.87 psi))													8									
Material of non-wetted parts																						
Die-cast aluminum														1								
Stainless steel precision casting CF3M/1.4409 similar to 316L														2								
Enclosure																						
Dual chamber device																5						
Type of protection																						
Without Ex																	A					
Intrinsic safety																	B					
Flameproof enclosure																	C					
Flameproof enclosure, intrinsic safety																	D					
Dust protection by enclosure Zone 21/22 (DIP), increased safety Zone 2																	L					
Intrinsic safety, dust protection by enclosure Zone 20/21/22 (DIP), increased safety Zone 2																	M					
Combination of options B, C and L (Zone model)																	S					
Combination of options B, C and L (Zone model, Class Division)																	T					
Electrical connections/cable entries																						
Thread for cable gland: Cable gland must be ordered separately as option (Axx)																						
• 2 × M20 × 1.5																		F				
• 2 × ½-14 NPT																		M				
Local operation/display																						
Without local display (lid closed)																						0
With local display (lid closed)																						1
With local display (lid with glass pane)																						2

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Cable glands included	
Plastic	**A00**
Metal	**A01**
Stainless steel	**A02**
Stainless steel 316L/1.4404	**A03**
CMP, for XP devices	**A10**
CAPRI ADE 4F, CuZn, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A11**
CAPRI ADE 4F, stainless steel, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A12**
Sealing plug included, plastic	**A20**
Sealing plug included, metal	**A21**
Sealing plug included, stainless steel	**A22**
Sealing plug included, stainless steel 316L/1.4404	**A23**
Device plug Han mounted left	
Device plug Han 7D (plastic, straight)	**A30**
Device plug Han 7D (plastic, angled)	**A31**
Device plug Han 7D (metal, straight)	**A32**
Device plug Han 7D (metal, angled)	**A33**
Device plug Han 8D (plastic, straight)	**A34**
Device plug Han 8D (plastic, angled)	**A35**
Device plug Han 8D (metal, straight)	**A36**
Device plug Han 8D (metal, angled)	**A37**
Cable socket included	
Plastic, for device plug Han 7D and Han 8D	**A40**
Metal, for device plug Han 7D and Han 8D	**A41**
Device plug M12 mounted left	
Stainless steel, without cable socket	**A62**
Stainless steel, with cable socket	**A63**
Cable entry/device plug mounting	
2 × sealing plugs M20 × 1.5, IP66/68 installed on both sides	**A90**
2 × sealing plugs ½-14 NPT, IP66/68 installed on both sides	**A91**
Cable gland/device plug mounted left	**A97**
Cable gland/device plug mounted right	**A99**
Nameplate labeling (standard labeling: English, unit bar)	
German (bar)	**B11**
French (bar)	**B12**
Spanish (bar)	**B13**
Italian (bar)	**B14**
Chinese (bar)	**B15**
Russian (bar)	**B16**
English (psi)	**B20**
English (Pa)	**B30**
Chinese (Pa)	**B35**
Certificates	
Quality inspection certificate - 5-point factory calibration (IEC 62828-2)	**C11**
Inspection certificate (EN 10204-3.1) - Material of pressurized and wetted parts	**C12**

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Factory certificate - NACE (MR 0103-2012 and MR 0175-2009)	**C13**
Factory certificate (EN 10204-2.2) - Wetted parts	**C14**
Inspection certificate (EN 10204-3.1) - PMI test of pressurized and wetted parts	**C15**
Certificates for functional safety	
Functional Safety (IEC 61508) - SIL2/3	**C20**
Device options	
PDF file with device settings	**D10**
Double layer coating (epoxy resin and polyurethane) 120 µm of enclosure and lid	**D20**
FVMQ enclosure sealing	**D21**
Degree of protection IP66/IP68 (not for device plug M12 and Han)	**D30**
Unlabeled TAG plate	**D40**
Without labeling of the measuring range on the TAG plate	**D41**
Stainless steel Ex plate 1.4404/316L	**D42**
Extension of the medium temperature to -40 °C for measuring cell filling with inert filling liquid Please note step response time T63: 5.5 s (20 and 60 mbar); 1.4 s (250 and 600 mbar); 0.3 s (1.6 and 5 bar)	**D52**
Overvoltage protection up to 6 kV (internal)	**D70**
Overvoltage protection up to 6 kV (external)	**D71**
Labels on transport packaging (provided by customer)	**D90**
General approval without Ex approval	
Worldwide (CE, UKCA, RCM) except EAC, FM, CSA, KCC	**E00**
Worldwide (CE, UKCA, RCM, EAC, FM, CSA, KCC)	**E01**
CSA (USA and Canada)	**E06**
EAC	**E07**
FM	**E08**
KCC	**E09**
Explosion protection approvals	
ATEX (Europe)	**E20**
CSA (USA and Canada)[1)]	**E21**
FM (USA and Canada)[1)]	**E22**
IECEx (Worldwide)	**E23**
EACEx (GOST-R, -K, -B)	**E24**
INMETRO (Brazil)	**E25**
KCs (Korea)	**E26**
NEPSI (China)	**E27**
PESO (India)	**E28**
CSA (Japan)	**E29**
UKR Sepro (Ukraine)	**E30**
UKEX (United Kingdom)	**E33**
ATEX (Europe), IECEx (Worldwide) and UKEX (UK)	**E47**
CSA (Canada) and FM (USA)[1)]	**E48**
ATEX (Europe) and IECEx (Worldwide) + CSA (Canada) and FM (USA)[1)]	**E49**
Marine approvals	
DNV-GL (Det Norske Veritas/Germanischer Lloyd)	**E50**
LR (Lloyds Register)	**E51**
BV (Bureau Veritas)	**E52**
ABS (American Bureau of Shipping)	**E53**
RMR (Russian Maritime Register)	**E55**

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
KR (Korean Register of Shipping)	**E56**
RINA (Registro Italiano Navale)	**E57**
CCS (China Classification Society)	**E58**
Country-specific approvals	
CRN approval Canada (Canadian Registration Number)	**E60**
Special approvals	
Oxygen application (with inert liquid, max. 160 bar (2 320 psi) at 100 °C (212 °F))	**E80**
Dual Seal	**E81**
WRC/WRAS (drinking water); only with process flange O-rings made of EPDM	**E83**
NSF61 (drinking water)	**E84**
ACS (drinking water)	**E85**
Mounting bracket	
Steel, zinc-plated	**H01**
Stainless steel 1.4301/304	**H02**
Stainless steel 1.4404/316L	**H03**
Process flanges; screw plug with vent valve	
Welded in on right	**J08**
Welded in on left	**J09**
Glued in on right	**J10**
Glued in on left	**J11**
Flange connections with flange EN 1092-1	
Form B1	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J70**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J71**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J72**
• DN 15 PN 40, stainless steel 1.4571/316Ti	**J78**
Form C	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J73**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J74**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J75**
Flange connection options	
Flange connection and temperature extension	**J76**
Flange connection with epoxy resin coating	**J77**
Process flanges; special materials	
Reserved for 7MF7: without process flanges, without screws, without gaskets	**K00**
Process flange material alloy C22/2.4602	**K01**
Process flange material Monel 400/2.4360	**K02**
Process connection material PVDF, on the side ½-14 NPT	**K05**
Process flanges/process connection material PVDF, flange on the side EN 1092-1 Form B1 DN 25 PN 40, MAWP 4 bar	**K06**
Process flanges/process connection material PVDF, flange on the side EN 1092-1 Form B1 DN 40 PN 40, MAWP 4 bar	**K07**
Process flanges; process connection option	
Process flange with process connection G½ welded on	**K20**
Process connection NAM (ASTAVA)	**K21**
Process flanges chambered with gaskets	
1 × chambered, graphite	**K40**
1 × chambered, PTFE (FDA-compliant), recommended for gas measurements	**K41**

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Process flanges, gaskets (instead of standard gaskets FKM (FPM))	
O-ring, process flanges, PTFE	**K50**
O-ring, process flanges, FEP (with silicone core, approved for food)	**K51**
O-ring, process flanges, FFKM (FFPM)	**K52**
O-ring, process flanges, NBR	**K53**
O-ring, process flanges, EPDM	**K54**
Process flange options	
Process flanges for vertical differential pressure lines (half process flange)	**K81**
Process flanges (+) - side front	**K82**
Process flange screws, process flange nuts, material Monel 400/2.4360	**K83**
Valve ¼-18 NPT, material same as process flanges	**K84**
Valve mounted on the side, measured medium: Gas	**K85**
Oval flange attached, PTFE seal + fixing screws	**K86**
Valve manifolds	
With mounted valve manifold (3-way) 7MF9411-5BA, PTFE sealing rings, chrome-plated steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U01**
With mounted valve manifold (3-way) 7MF9411-5BA, PTFE sealing rings, stainless steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U02**
With mounted valve manifold (5-way) 7MF9411-5CA, PTFE sealing rings, chrome-plated steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U03**
With mounted valve manifold (5-way) 7MF9411-5CA, PTFE sealing rings, stainless steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U04**
Device settings	
Measuring span: Lower range value (max. 5 characters), upper range value (max. 5 characters), unit [mbar, bar, kPa, MPa, psi, ...], example: -0.5 ... 10.5 psi	**Y01**
TAG (on stainless steel plate and device parameters, max. 32 characters)	**Y15**
Measuring point description (on stainless steel plate and device parameters, max. 32 characters)	**Y16**
TAG short (device parameters, max. 8 characters)	**Y17**
Local display: [Pressure, Percent], reference [None, Absolute, Gauge], example: Pressure gauge	**Y21**
Local display: Scaling with standard units [m^3/s, l/s, m, inch, ...]; example 1 ... 5 m	**Y22**
Local display: Scaling with user-specific units (max. 12 characters), example 1 ... 5 m	**Y23**
Set PROFIBUS PA device address (1 ... 126)	**Y25**
Saturation limits instead of 3.8 ... 20.5 mA, example: 3.8 ... 22.0 mA	**Y30**
Fault current instead of 3.6 mA [22.5 mA, 22.8 mA]	**Y31**
Damping in seconds instead of 2 s (0.0 ... 100.0 s)	**Y32**
ID number of special design	**Y99**

[1] Explosion protection acc. to FM/CSA: suitable for installation according to NEC 500/505.

Technical specifications

SITRANS P320 / SITRANS P420 for gauge pressure (differential pressure series)			
Input			
Measured variable	Gauge pressure		
Measuring span (continuously adjustable) or measuring range and max. permissible operating pressure (pursuant to Pressure Equipment Directive 2014/68/EU)	Measuring span	Max. permissible operating pressure MAWP (PS)	Maximum permissible test pressure
	1 ... 20 mbar 0.1 ... 2 kPa 0.4019 ... 8.037 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	1 ... 60 mbar 0.1 ... 6 kPa 0.4019 ... 24.11 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	2.5 ... 250 mbar 0.2 ... 25 kPa 1.005 ... 100.5 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	6 ... 600 mbar 0.6 ... 60 kPa 2.41 ... 241.1 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	16 ... 1 600 mbar 1.6 ... 160 kPa 6.43 ... 643 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	50 ... 5 000 mbar 5 ... 500 kPa 20.09 ... 2 009 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	0.3 ... 30 bar 0.03 ... 3 MPa 4.35 ... 435 psi	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	8 ... 160 bar 0.8 ... 16 MPa 116 ... 2 320 psi	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
Measuring limits			
• Lower measuring limit			
- Measuring cell with silicone oil filling	30 mbar a/3 kPa a/0.44 psi a		
- Measuring cell with inert oil	30 mbar a/3 kPa a/0.44 psi a		
- Measuring cell with FDA-compliant oil	100 mbar a/10 kPa a/1.45 psi a		
• Upper measuring limit	100% of the max. measuring span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/medium temperature)		
• Lower range value	Between the measuring limits (continuously adjustable)		
Output	**HART**		
Output signal	4 ... 20 mA		
• Lower saturation limit (continuously adjustable)	3.55 mA, factory set to 3.8 mA		
• Upper saturation limit (continuously adjustable)	22.8 mA, factory-set to 20.5 mA or optionally 22.0 mA		
• Ripple (without HART communication)	$I_{pp} \leq 0.5\%$ of max. output current		
Adjustable damping	0 ... 100 s, continuously adjustable over remote operation 0 ... 100 s, in increments of 0.1 s, adjustable over display		
• Current simulator	3.55 ... 22.8 mA		
• Failure signal	3.55 ... 22.8 mA		
Load	Resistance R [Ω]		
• Without HART communication	R = (U_H - 10.5 V) /22.8 mA, U_H: Auxiliary power in V		
• With HART communication	R = 230 ... 1100 Ω		
Characteristic curve	• Linearly increasing or linearly decreasing • Linear increase or decrease or according to the square root (only for differential pressure and flow)		
Physical bus	-		
Polarity-independent	-		

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for gauge pressure (differential pressure series)		
Measuring accuracy		
Reference conditions	• According to IEC 62828-1 • Rising characteristic curve • Lower range value 0 bar/kPa/psi • Seal diaphragm stainless steel • Measuring cell with silicone oil filling • Room temperature 25 °C (77 °F)	
Conformity error at limit point setting, including hysteresis and repeatability		
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span and nominal measuring range	
• Linear characteristic curve		
- 20 mbar/2 kPa/8.031 inH_2O	r ≤ 5:	≤ 0.075%
	5 < r ≤ 20:	≤ (0.005 · r +0.05)%
- 60 mbar/6 kPa/24.09 inH_2O	r ≤ 5:	≤ 0.075%
	5 < r ≤ 60:	≤ (0.005 · r +0.05)%
- 250 mbar/25 kPa/3.6 psi 600 mbar/60 kPa/240.9 inH_2O 1 600 mbar/160 kPa/642.4 inH_2O 5 000 mbar/500 kPa/2008 inH_2O 30 bar/3 MPa/435 psi	r ≤ 5:	≤ 0.065% (SITRANS P320) ≤ 0.04% (SITRANS P420)
	5 < r ≤ 100:	≤ (0.004 · r +0.045)%
- 160 bar/16 MPa/2 320 psi	r ≤ 5:	≤ 0.065% (SITRANS P320) ≤ 0.04% (SITRANS P420)
	5 < r ≤ 20:	≤ (0.004 · r +0.045)%
Influence of ambient temperature in % per 28 °C (50 °F)		
• 20 mbar/2 kPa/8.031 inH_2O	≤ (0.15 · r +0.1)%	
• 60 mbar/6 kPa/24.09 inH_2O	≤ (0.075 · r +0.1)%	
• 250 mbar/25 kPa/3.6 psi 600 mbar/60 kPa/240.9 inH_2O 1 600 mbar/160 kPa/642.4 inH_2O 5 000 mbar/500 kPa/2008 inH_2O 30 bar/3 MPa/435 psi 160 bar/16 MPa/2 320 psi	≤ (0.025 · r + 0.125)% (SITRANS P320)	
• 250 mbar/25 kPa/3.6 psi 5 000 mbar/500 kPa/2008 inH_2O	≤ (0.025 · r + 0.0625)% (SITRANS P420)	
• 600 mbar/60 kPa/240.9 inH_2O 1 600 mbar/160 kPa/642.4 inH_2O 30 bar/3 MPa/435 psi 160 bar/16 MPa/2 320 psi	≤ (0.0125 · r + 0.0625)% (SITRANS P420)	
Long-term stability at ±30 °C (± 54 °F)		
• 20 mbar/2 kPa/8.031 inH_2O	≤ (0.2 · r)% per year	
• 60 mbar/6 kPa/24.09 inH_2O	In 5 years ≤ (0.25 · r)%	
• 250 mbar/25 kPa/3.6 psi 600 mbar/60 kPa/240.9 inH_2O 1 600 mbar/160 kPa/642.4 inH_2O 5 000 mbar/500 kPa/2008 inH_2O 30 bar/3 MPa/435 psi 160 bar/16 MPa/2 320 psi	In 5 years ≤ (0.125 · r)% In 10 years ≤ (0.15 · r)%	
Step response time T_{63} (without electrical damping)		
• 20 mbar/2 kPa/8.031 inH_2O	Approx. 0.160 s	
• 60 mbar/6 kPa/24.09 inH_2O	Approx. 0.150 s	
• 250 mbar/25 kPa/3.6 psi 600 mbar/60 kPa/240.9 inH_2O 1 600 mbar/160 kPa/642.4 inH_2O 5 000 mbar/500 kPa/2008 inH_2O 30 bar/3 MPa/435 psi 160 bar/16 MPa/2 320 psi	Approx. 0.135 s	
Effect of mounting position (in pressure per change of angle)	≤ 0.7 mbar/0.07 kPa/0.010 psi per 10° incline (zero offset is possible with position error compensation)	
Effect of auxiliary power (in % per voltage change)	0.005% per 1 V	

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for gauge pressure (differential pressure series)	
Operating conditions	
Medium temperature	
• Measuring cell with silicone oil filling	-40 ... +100 °C (-40 ... +212 °F)
- Measuring cell 30 bar (435 psi)	-20 ... +100 °C (-4 ... +212 °F)
- Measuring cell 160 bar (2 320 psi)	-20 ... +100 °C (-4 ... +212 °F)
• Measuring cell with inert oil	-20 ... +100 °C (-4 ... +212 °F)
Ambient conditions	
• Ambient temperature/enclosure	Observe the temperature class in hazardous areas.
- Measuring cell with silicone oil filling	-40 ... +85 °C (-40 ... +185 °F)
- Measuring cell with inert oil	-40 ... +85 °C (-40 ... +185 °F)
- Display	-20 ... +80 °C (-4 ... +176 °F)
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F)
• Climatic class in accordance with IEC 60721-3-4	4K4H
• Degree of protection	
- According to IEC 60529	IP66, IP68
- According to NEMA 250	Type 4X
• Electromagnetic compatibility	
- Emitted interference and interference immunity	According to IEC 61326 and NAMUR NE 21
Structural design	
Weight	• Aluminum enclosure: Approx. 3.9 kg (8.5 lbs) • Stainless steel enclosure: Approx. 5.9 kg (13 lbs)
Material	
• Material of wetted parts	
- Seal diaphragm	Stainless steel, mat. no. 1.4404/316L, Alloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold
- Process flanges	Stainless steel, mat. no. 1.4408 to PN 160, mat. no. 1.4571/316Ti for PN 420, Alloy C22, 2.4602 or Monel, mat. no. 2.4360
- Sealing plug	1.4404 or as option alloy C22; 2.4602 or Monel mat. no. 2.4360
- O-ring	FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR
• Material of non-wetted parts	
- Electronics enclosure	• Low-copper die-cast aluminum GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4409/ CF-3M • Standard: Powder coating with polyurethane Option: 2 coats: Coat 1: epoxy-based; coat 2: Polyurethane • Stainless steel nameplate (1.4404/316L)
- Process flange screws	Stainless steel ISO 3506-1 A4-70
- Mounting bracket	Steel, zinc-plated steel, or stainless steel
Process connection	¼-18 NPT female thread and flange connection with 7/16-20 UNF fastening thread according to EN 61518 or M10 according to DIN 19213 (M12 for PN 420 (MWP 6092 psi))
Electrical connection	Screw terminals Cable entry via the following screw glands: • M20 × 1.5 • ½-14 NPT • Device plug Han 7D/Han 8D[1)] • Device plug M12
Displays and controls	
Buttons	4 buttons for operation directly on the device
Display	• With or without integrated display (optional) • Lid with inspection window (optional)
Auxiliary power U_H	
Terminal voltage on pressure transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically safe mode
Ripple	$U_{SS} \leq 0.2$ V (47 ... 125 Hz)

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for gauge pressure (differential pressure series)	
Noise	$U_{eff} \leq 1.2$ mV (0.5 ... 10 kHz)
Auxiliary power	–
Separate supply voltage	–
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)
Drinking water	
• WRAS (England)	No.: 1903094 (option E83)
• ACS (France)	No.: 18 ACC LY 277 (option E85)
• NSF (USA)	No.: 20180920-MH61350 (option E84)
CRN (Canada)	No.: 0F9863.5C (option E60)
Explosion protection acc. to NEPSI (China)	No.: GYJ19.1058X (option E27)
Explosion protection acc. to INMETRO (Brazil)	No.: BRA-18-GE-0035X (option E25)
Explosion protection	
• Intrinsic safety "i"	
- Marking	II 1/2 G Ex ia/ib IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Flameproof enclosure "d"	
- Marking	Ex II 1/2 G Ex ia/db IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 21, 22	
- Marking	Ex II 2D Ex tb IIIC T120 °C Db Ex II 3D Ex tc IIIC T120 °C Dc
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Max. surface temperature	120 °C (248 °F)
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 20, 21, 22	
- Marking	Ex II 1D Ex ia IIIC T120 °C Da Ex II 2D Ex ib IIIC T120 °C Db
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Type of protection for Zone 2	
- Marking	Ex II 3G Ex ec IIC T4/T6 Gc
- Permissible ambient temperature "ec"	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +40 °C (-40 ... +104 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- "ec" connection	To a circuit with the operating values: U_n = 10.5 ... 30 V, 4 ... 20 mA
• Explosion protection acc. to FM	Available soon

Technical specifications (continued)

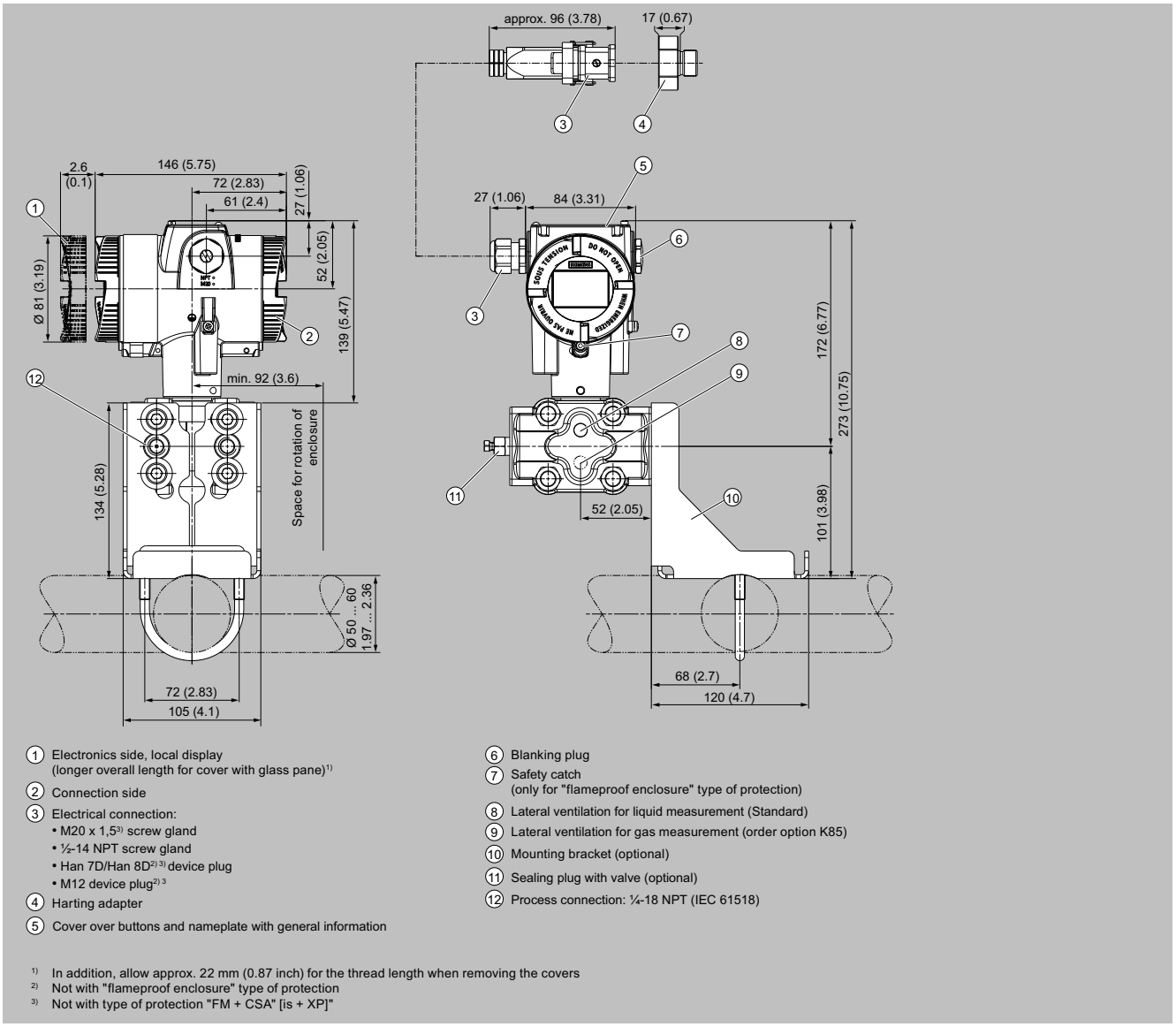
SITRANS P320 / SITRANS P420 for gauge pressure (differential pressure series)	
- Marking (XP/DIP) or IS; NI; S	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
• Explosion protection according to CSA	Available soon
- Marking (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
NAMUR recommendations	
• NE 06	Standardized Electrical Signals and Questions Relating to Engineering Technology
• NE 21	Electromagnetic Compatibility (EMC) of Industrial Process and Laboratory Control Equipment
• NE 23	Extra Low Voltage Circuits with Safe Separation
• NE 43	Standardization of the Signal Level for the Failure Information of Digital Transmitters
• NE 53	Software and Hardware of Field Devices and Signal Processing Devices with Digital Electronics
• NE 80	The Application of the Pressure Equipment Directive to Process Control Devices
• NE 105	Specifications for Integrating Fieldbus Devices in Engineering Tools for Field Devices
• NE 107	Self-Monitoring and Diagnosis of Field Devices
• NE 131	NAMUR Standard Device - Field Devices for Standard Applications

[1] Han 8D is identical to Han 8U.

Communication	
HART	
HART	230 ... 1 100 Ω
Protocol	HART 7
Software for computer	SIMATIC PDM
PROFIBUS PA	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (default setting address 126)
Cyclic data usage	
• Output byte	≤ 35 (7 measured values)
• Input byte	0, 1, or 2 (register operation mode and reset function for dosing)
Internal preprocessing	
Device profile	PROFIBUS PA Profile Version 4.01 Class B. Cyclic data usage compatible with version 3.XX
Number of function blocks	7
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
• Physical block	1
Transducer blocks	1
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes

Communication	
- Specification of a vessel characteristic curve with	Max. 30 nodes
- Square-rooted characteristic curve for flow measurement	Yes
- Tank characteristic curve for volume measurement	Yes
- Low flow cut-off and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or by means of parameterizable ramp function
FOUNDATION Fieldbus	
Device profile	FF ITK 6
Function blocks	3 function blocks analog input, 1 function block PID
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
- Square-rooted characteristic curve for flow measurement	Yes
• PID	Standard FOUNDATION Fieldbus function block
• Physical block	1 resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Simulation function: pressure measurement, sensor temperature and electronics temperature	Constant value or by means of parameterizable ramp function

Dimensional drawings



1. Electronics side, local display (longer overall length for cover with glass pane)[1]
2. Connection side
3. Electrical connection:
   - M20 x 1,5[2] screw gland
   - ½-14 NPT screw gland
   - Han 7D/Han 8D[2][3] device plug
   - M12 device plug[2][3]
4. Harting adapter
5. Cover over buttons and nameplate with general information
6. Blanking plug
7. Safety catch (only for "flameproof enclosure" type of protection)
8. Lateral ventilation for liquid measurement (Standard)
9. Lateral ventilation for gas measurement (order option K85)
10. Mounting bracket (optional)
11. Sealing plug with valve (optional)
12. Process connection: ¼-18 NPT (IEC 61518)

[1] In addition, allow approx. 22 mm (0.87 inch) for the thread length when removing the covers
[2] Not with "flameproof enclosure" type of protection
[3] Not with type of protection "FM + CSA" [is + XP]"

SITRANS P320/P420 pressure transmitter for gauge pressure (differential pressure series), dimensions in mm (inch)

Selection and ordering data

Pressure transmitters for gauge and absolute pressure, with flush-mounted diaphragm	Article No.																
SITRANS P320 for gauge pressure	7MF030	●	-	●	●	●	●	●	-	●	●	●	●				
SITRANS P420 for gauge pressure	7MF040	●	-	●	●	●	●	●	-	●	●	●	●				
SITRANS P320 for absolute pressure	7MF032	●	-	●	●	●	●	●	-	●	●	●	●				
SITRANS P420 for absolute pressure	7MF042	●	-	●	●	●	●	●	-	●	●	●	●				
Click the article number for online configuration in the PIA Life Cycle Portal.																	
Communication																	
HART, 4 ... 20 mA		0															
PROFIBUS PA		1															
FOUNDATION Fieldbus (FF)		2															
Measuring cell filling																	
Silicone oil				1													
Inert filling liquid				3													
Neobee oil				4													
Maximum measuring span																	
1 000 mbar (14.5 psi)					J												
4 000 mbar (58 psi)					N												
16 bar (232 psi)					Q												
63 bar (914 psi)					T												
1 300 mbar a (18.9 psi a)					L												
5 000 mbar a (72.5 psi a)					P												
30 bar a (435 psi a)					R												
Process connection																	
Flush-mounted diaphragm						K											
Material of wetted parts: Process connection, seal diaphragm																	
Stainless steel 316L/1.4404, stainless steel 316L/1.4404							0										
Stainless steel 316L/1.4404, alloy C276/2.4819							1										
Alloy C22/2.4602, alloy C276/2.4819							2										
Material of non-wetted parts																	
Die-cast aluminum								1									
Stainless steel precision casting CF3M/1.4409 similar to 316L								2									
Enclosure																	
Dual chamber device												5					
Type of protection																	
Without Ex													A				
Intrinsic safety													B				
Flameproof enclosure													C				
Flameproof enclosure, intrinsic safety													D				
Dust protection by enclosure Zone 21/22 (DIP), increased safety Zone 2													L				
Intrinsic safety, dust protection by enclosure Zone 20/21/22 (DIP), increased safety Zone 2													M				
Combination of options B, C and L (Zone model)													S				
Combination of options B, C and L (Zone model, Class Division)													T				
Electrical connections/cable entries																	
Thread for cable gland: Cable gland must be ordered separately as option (Axx)																	
• 2 × M20 × 1.5															F		
• 2 × ½-14 NPT															M		
Local operation/display																	
Without local display (lid closed)																	0
With local display (lid closed)																	1
With local display (lid with glass pane)																	2

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Cable glands included	
Plastic	**A00**
Metal	**A01**

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Stainless steel	**A02**
Stainless steel 316L/1.4404	**A03**
CMP, for XP devices	**A10**

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
CAPRI ADE 4F, CuZn, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A11**
CAPRI ADE 4F, stainless steel, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A12**
Sealing plug included, plastic	**A20**
Sealing plug included, metal	**A21**
Sealing plug included, stainless steel	**A22**
Sealing plug included, stainless steel 316L/1.4404	**A23**
Device plug Han mounted left	
Device plug Han 7D (plastic, straight)	**A30**
Device plug Han 7D (plastic, angled)	**A31**
Device plug Han 7D (metal, straight)	**A32**
Device plug Han 7D (metal, angled)	**A33**
Device plug Han 8D (plastic, straight)	**A34**
Device plug Han 8D (plastic, angled)	**A35**
Device plug Han 8D (metal, straight)	**A36**
Device plug Han 8D (metal, angled)	**A37**
Cable socket included	
Plastic, for device plug Han 7D and Han 8D	**A40**
Metal, for device plug Han 7D and Han 8D	**A41**
Device plug M12 mounted left	
Stainless steel, without cable socket	**A62**
Stainless steel, with cable socket	**A63**
Cable entry/device plug mounting	
2× sealing plugs M20 × 1.5, IP66/68 installed on both sides	**A90**
2× sealing plugs ½-14 NPT, IP66/68 installed on both sides	**A91**
Cable gland/device plug mounted left	**A97**
Cable gland/device plug mounted right	**A99**
Nameplate labeling (standard labeling: English, unit bar)	
German (bar)	**B11**
French (bar)	**B12**
Spanish (bar)	**B13**
Italian (bar)	**B14**
Chinese (bar)	**B15**
Russian (bar)	**B16**
English (psi)	**B20**
English (Pa)	**B30**
Chinese (Pa)	**B35**
Certificates	
Quality inspection certificate, 5-point factory calibration (IEC 62828-2)	**C11**
Inspection certificate (EN 10204-3.1) - Material of pressurized and wetted parts	**C12**
Factory certificate - NACE (MR 0103-2012 and MR 0175-2009)	**C13**
Factory certificate (EN 10204-2.2) - Wetted parts	**C14**
Inspection certificate (EN 10204-3.1) - PMI test of pressurized and wetted parts	**C15**
Certificates for functional safety	
Functional Safety (IEC 61508) - SIL2/3	**C20**

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Device options	
PDF file with device settings	**D10**
Double layer coating (epoxy resin and polyurethane) 120 µm of enclosure and lid	**D20**
FVMQ enclosure sealing	**D21**
Degree of protection IP66/IP68 (not for device plug M12 and Han)	**D30**
Unlabeled TAG plate	**D40**
Without labeling of the measuring range on the TAG plate	**D41**
Stainless steel Ex plate 1.4404/316L	**D42**
Overvoltage protection up to 6 kV (internal)	**D70**
Overvoltage protection up to 6 kV (external)	**D71**
Labels on transport packaging (provided by customer)	**D90**
General approval without Ex approval	
Worldwide (CE, UKCA, RCM) except EAC, FM, CSA, KCC	**E00**
Worldwide (CE, UKCA, RCM, EAC, FM, CSA, KCC)	**E01**
CSA (USA and Canada)	**E06**
EAC	**E07**
FM	**E08**
KCC	**E09**
Explosion protection approvals	
ATEX (Europe)	**E20**
CSA (USA and Canada)[1)]	**E21**
FM (USA and Canada)[1)]	**E22**
IECEx (Worldwide)	**E23**
EACEx (GOST-R, -K, -B)	**E24**
INMETRO (Brazil)	**E25**
KCs (Korea)	**E26**
NEPSI (China)	**E27**
PESO (India)	**E28**
CSA (Japan)	**E29**
UKR Sepro (Ukraine)	**E30**
UKEX (United Kingdom)	**E33**
ATEX (Europe), IECEx (Worldwide) and UKEX (UK)	**E47**
CSA (Canada) and FM (USA)[1)]	**E48**
ATEX (Europe) and IECEx (Worldwide) + CSA (Canada) and FM (USA)[1)]	**E49**
Marine approvals	
DNV-GL (Det Norske Veritas/Germanischer Lloyd)	**E50**
LR (Lloyds Register)	**E51**
BV (Bureau Veritas)	**E52**
ABS (American Bureau of Shipping)	**E53**
RMR (Russian Maritime Register)	**E55**
KR (Korean Register of Shipping)	**E56**
RINA (Registro Italiano Navale)	**E57**
CCS (China Classification Society)	**E58**
Country-specific approvals	
CRN approval Canada (Canadian Registration Number)	**E60**
Special approvals	
Oxygen application (with inert liquid, max. 160 bar (2 320 psi) at 100 °C (212 °F))	**E80**
Dual Seal	**E81**

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
WRC/WRAS (drinking water); only with process flange O-rings made of EPDM	**E83**
NSF61 (drinking water)	**E84**
ACS (drinking water)	**E85**
3A (hygiene)	**E86**
EHEDG (hygiene)	**E87**
Process flanges, gaskets (instead of standard gaskets FKM (FPM))	
Gasket (EN 837-1) material Fe (soft iron)	**K60**
Gasket (EN 837-1) material 1.4571	**K61**
Gasket (EN 837-1) material Cu	**K62**
Process connection	
Process connection external thread G½, bore hole 11 mm	**K80**
Flanges according to EN 1092-1 Form B1 and ASME standard B16.5	
EN 1092-1 Form B1	
• DN 50 PN 16	**M03**
• DN 80 PN 16	**M05**
• DN 25 PN 40	**M10**
• DN 40 PN 40	**M12**
• DN 50 PN 40	**M13**
• DN 80 PN 40	**M15**
• DN 40 PN 100	**M22**
ASME B16.5	
• 1" Class 150 RF	**M30**
• 1 ½" Class 150 RF	**M31**
• 2" Class 150 RF	**M32**
• 3" Class 150 RF	**M33**
• 4" Class 150 RF	**M34**
• 1 ½" Class 300 RF	**M36**
• 2" Class 300 RF	**M37**
• 3" Class 300 RF	**M38**
• 4" Class 300 RF	**M39**
Sanitary connections in accordance with the standard	
Sanitary flange DIN 11851	
• With slotted union nut DN 50 PN 25	**N03**
• With slotted union nut DN 80 PN 25	**N05**
Tri-Clamp	
• DIN 32676 DN 50 PN 16	**N14**
• DIN 32676 DN 65 PN 10	**N15**
• ISO 2852 2" PN 40	**N22**
• ISO 2852 3" PN 40	**N23**
Aseptic screwed connector	
• DIN 11864-1 Form A DN 50 PN 25	**N33**
• DIN 11864-1 Form A DN 65 PN 25	**N34**
• DIN 11864-1 Form A DN 80 PN 25	**N35**
• DIN 11864-1 Form A DN100 PN 25	**N36**
Aseptic flange with notch	
• DIN 11864-2 Form A DN 50 PN 16	**N43**
• DIN 11864-2 Form A DN 65 PN 16	**N44**
• DIN 11864-2 Form A DN 80 PN 16	**N45**
• DIN 11864-2 Form A DN100 PN 16	**N46**
Aseptic clamp with groove	
• DIN 11864-3 Form A DN 50 PN 25	**N53**
• DIN 11864-3 Form A DN 65 PN 25	**N54**
• DIN 11864-3 Form A DN 80 PN 16	**N55**
• DIN 11864-3 Form A DN100 PN 16	**N56**
Sanitary connections manufacturer-specific	
Varivent type N for pipes DN 40 ... DN 125 PN 40	**P06**
Sanitary connections special design	
Tank connection	
• TG 52/50 PN 40 with gasket	**Q00**
• TG 52/150 PN 40 with gasket	**Q01**
DRD flange D = 65 mm DN 50 PN 40	**Q15**
SMS socket	
• With thread 2" PN 25	**Q28**
• With thread 2 ½" PN 25	**Q29**
• With thread 3" PN 25	**Q30**
Weldable sockets for tank connection	
Weldable piece for TG52/50	**Q90**
Weldable piece for TG52/150	**Q91**
Connections for the paper industry	
Process connection PMC Style Standard	**R00**
Process connection PMC Style Minibolt	**R01**
Weldable sockets for PMC Style Standard	**R02**
Weldable sockets for PMC Style Minibolt	**R03**
Threaded connection	
External thread G¾-A DIN 3852-2 Form A	**R11**
External thread G1-A DIN 3852-2 Form A	**R12**
External thread G2-A DIN 3852-2 Form A	**R14**
Special options front-flush	
Temperature decoupler (media temperature up to 200 °C)	**R85**
Mating connector including gasket	**R90**
Device settings	
Measuring span: Lower range value (max. 5 characters), upper range value (max. 5 characters), unit [mbar, bar, kPa, MPa, psi, ...], example: -0.5 ... 10.5 psi	**Y01**
TAG (on stainless steel plate and device parameters, max. 32 characters)	**Y15**
Measuring point description (on stainless steel plate and device parameters, max. 32 characters)	**Y16**
TAG short (device parameters, max. 8 characters)	**Y17**
Local display: [Pressure, Percent], reference [None, Absolute, Gauge], example: Pressure gauge	**Y21**
Local display: Scaling with standard units [m^3/s, l/s, m, inch, ...]; example 1 ... 5 m	**Y22**
Local display: Scaling with user-specific units (max. 12 characters), example 1 ... 5 m	**Y23**
Set PROFIBUS PA device address (1 ... 126)	**Y25**

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Saturation limits instead of 3.8 ... 20.5 mA, example: 3.8 ... 22.0 mA	**Y30**
Fault current instead of 3.6 mA [22.5 mA, 22.8 mA]	**Y31**
Damping in seconds instead of 2 s (0.0 ... 100.0 s)	**Y32**
ID number of special design	**Y99**

[1] Explosion protection acc. to FM/CSA: suitable for installation according to NEC 500/505.

Technical specifications

SITRANS P320 / SITRANS P420 for gauge and absolute pressure, with flush-mounted diaphragm			
Input of gauge pressure with front-flush diaphragm			
Measured variable	Gauge pressure		
Measuring span (continuously adjustable) or measuring range, max. permissible operating pressure and max. permissible test pressure	Measuring span	Max. permissible operating pressure MAWP (PS)	Maximum permissible test pressure
	0.01 ... 1 bar 1 ... 100 kPa 0.15 ... 14.5 psi	Refer to the information on the nameplate of the pressure transmitter and the data on the mounting flange[1)]	
	0.04 ... 4 bar 4 ... 400 kPa 0.58 ... 58 psi		
	0.16 ... 16 bar 0.016 ... 1.6 MPa 2.3 ... 232 psi		
	0.6 ... 63 bar 0.063 ... 6.3 MPa 9.1 ... 914 psi		
Measuring limits			
• Lower measuring limit			
- Measuring cell with silicone oil filling	100 mbar a/10 kPa a/1.45 psi a		
- Measuring cell with inert oil	100 mbar a/10 kPa a/1.45 psi a		
- Measuring cell with FDA-compliant oil	100 mbar a/10 kPa a/1.45 psi a		
• Upper measuring limit	100% of max. measuring span		
Input of absolute pressure, with flush-mounted diaphragm			
Measured variable	Absolute pressure		
Measuring span (continuously adjustable) or measuring range, max. permissible operating pressure and max. permissible test pressure	Measuring span	Max. permissible operating pressure MAWP (PS)	Maximum permissible test pressure
	43 ... 1300 mbar a 4.3 ... 130 kPa a 17 ... 525 inH_2O a	Refer to the information on the nameplate of the pressure transmitter and the data on the mounting flange[1)]	
	166 ... 5 000 mbar a 16.6 ... 500 kPa a 2.41 ... 72.5 psi a		
	1 ... 30 bar a 0.1 ... 3 MPa a 14.5 ... 435 psi a		
	Depending on the process connection, the measuring span may differ from these values.		
Measuring limits			
• Lower measuring limit			
- Measuring cell with silicone oil filling	0 bar a/0 kPa a/0 psi a		
• Upper measuring limit	100% of max. measuring span		
Lower range value	Between the measuring limits (continuously adjustable)		
Output	**HART**		
Output signal	4 ... 20 mA		
• Lower saturation limit (continuously adjustable)	3.55 mA, factory set to 3.8 mA		
• Upper saturation limit (continuously adjustable)	22.8 mA, factory-set to 20.5 mA or optionally 22.0 mA		
• Ripple (without HART communication)	$I_{pp} \leq 0.5\%$ of max. output current		
Adjustable damping	0 ... 100 s, continuously adjustable over remote operation 0 ... 100 s, in increments of 0.1 s, adjustable over local display		
• Current simulator	3.55 ... 22.8 mA		
• Failure signal	3.55 ... 22.8 mA		
Load	Resistance R [Ω]		

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for gauge and absolute pressure, with flush-mounted diaphragm		
• Without HART communication	$R = (U_H - 10.5\ V) / 22.8\ mA$, U_H: Auxiliary power in V	
• With HART communication	R = 230 ... 1100 Ω	
Characteristic curve	• Linearly increasing or linearly decreasing • Linear increase or decrease or according to the square root (only for differential pressure and flow)	
Physical bus	-	
Polarity-independent	-	
Gauge pressure measuring accuracy, with front-flush diaphragm		
Reference conditions	• According to IEC 62828-1 • Rising characteristic curve • Lower range value 0 bar/kPa/psi • Seal diaphragm stainless steel • Measuring cell with silicone oil filling • Room temperature 25 °C (77 °F)	
Characteristic curve deviation at limit point setting, including hysteresis and repeatability		
Measuring span ratio r (spread, Turn-Down)	r = maximum measuring span/set measuring span or nominal measuring range	
• Linear characteristic curve		
- 1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi	r ≤ 5: 5 < r ≤ 100:	≤ 0.075% ≤ (0.005 · r +0.05)%
Influence of ambient temperature in % per 28 °C (50 °F)		
• 1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi	≤ (0.08 · r +0.16)%	
Influence of the medium temperature (in pressure per temperature unit)		
• Temperature difference between medium temperature and ambient temperature	3 mbar/0.3 kPa/0.04 psi per 10 K	
Long-term stability at ±30 °C (± 54 °F)		
• 1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi	In 5 years ≤ (0.25 · r)%	
• 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi	In 5 years ≤ (0.125 · r)%	
Step response time T_{63} (without electrical damping)	≤ 0.105 s	
Effect of mounting position (in pressure per change of angle)	0.4 mbar/0.04 kPa/0.006 per 10° incline (zero offset is possible with position error compensation)	
Effect of auxiliary power (in % per voltage change)	0.005% per 1 V	
Absolute pressure measuring accuracy with flush diaphragm		
Reference conditions	• According to IEC 62828-1 • Rising characteristic curve • Lower range value 0 bar/kPa/psi • Seal diaphragm stainless steel • Measuring cell with silicone oil filling • Room temperature 25 °C (77 °F)	
Characteristic curve deviation at limit point setting, including hysteresis and repeatability		
Measuring span ratio r (spread, Turn-Down)	r = maximum measuring span/set measuring span or nominal measuring range	
• Linear characteristic curve		
	r ≤ 10:	≤ 0.2%

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for gauge and absolute pressure, with flush-mounted diaphragm		
- All measuring cells	10 < r ≤ 30:	≤ 0.4%
Influence of ambient temperature in % per 28 °C (50 °F))		
• All measuring cells	≤ (0.16 · r +0.24)%	
Influence of the medium temperature (in pressure per temperature unit)		
• Temperature difference between medium temperature and ambient temperature	3 mbar/0.3 kPa/0.04 psi per 10 K	
Long-term stability at ±30 °C (± 54 °F)		
• All measuring cells	In 5 years ≤ (0.25 · r)%	
Step response time T_{63} (without electrical damping)	≤ 0.105 s	
Effect of mounting position (in pressure per change of angle)	0.4 mbar/0.04 kPa/0.006 per 10° incline (zero offset is possible with position error compensation)	
Effect of auxiliary power (in % per voltage change)	0.005% per 1 V	
Operating conditions		
Medium temperature[2)]		
• Measuring cell with silicone oil filling	-40 ... +150 °C (-40 ... +302 °F) -40 ... +200 °C (-40 ... +392 °F) with temperature decoupler	
• Measuring cell with inert oil	-20 ... +100 °C (-4 ... +212 °F)	
• Measuring cell with FDA-compliant oil	-10 ... +150 °C (14 ... 302 °F)	
Ambient conditions		
• Ambient temperature/enclosure	Observe the temperature class in hazardous areas.	
- Measuring cell with silicone oil filling	-40 ... +85 °C (-40 ... +185 °F)	
- Measuring cell with inert fill oil (different pressure classes)	1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi	-40 ... +85 °C (-40 ... +185 °F)
- Measuring cell with FDA-compliant oil	-10 ... +85 °C (14 ... +185 °F)	
- Local display	-20 ... +80 °C (-4 ... +176 °F)	
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F) (with FDA-compliant oil: -20 ... +85 °C (-4 ... +185 °F))	
• Climatic class in accordance with IEC 60721-3-4	4K4H	
• Type of protection		
- According to IEC 60529	IP66, IP68	
- According to NEMA 250	Type 4X	
• Electromagnetic compatibility		
- Emitted interference and interference immunity	According to IEC 61326 and NAMUR NE 21	
Structural design		
Weight	Pressure transmitter without mounting flange • Aluminum enclosure: Approx. 1.8 kg (3.9 lb) • Stainless steel enclosure: Approx. 3.8 kg (8.3 lb)	
Material		
• Material of wetted parts		
- Process connection	Stainless steel, mat. no. 1.4404/316L	
- Seal diaphragm	Stainless steel, material no. 1.4404/316L or Alloy C276, material no. 2.4819	
• Material of non-wetted parts		
- Electronics enclosure	• Low-copper die-cast aluminum GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4409/ CF-3M • Standard: Powder coating with polyurethane Option: 2 coats: Coat 1: Epoxy-based; coat 2: Polyurethane • Stainless steel nameplate (1.4404/316L)	
- Mounting bracket	Steel, zinc-plated steel, or stainless steel	

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for gauge and absolute pressure, with flush-mounted diaphragm	
Process connection	• Flanges according to EN and ASME • F&B and pharmaceutical flanges • BioConnect/BioControl • PMC style
Electrical connection	Cable entry via the following screw glands: • M20 × 1.5 • ½-14 NPT • Device plug Han 7D/Han 8D[3)] • Device plug M12
Displays and controls	
Buttons	4 buttons for operation directly on the device
Local display	• With or without integrated local display (optional) • Lid with inspection window (optional)
Auxiliary power U_H	
Terminal voltage on pressure transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically safe mode
Ripple	$U_{SS} \leq 0.2$ V (47 ... 125 Hz)
Noise	$U_{eff} \leq 1.2$ mV (0.5 ... 10 kHz)
Auxiliary power	–
Separate supply voltage	–
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)
Drinking water	
• WRAS (England)	No.: 1903094 (option E83)
• ACS (France)	No.: 18 ACC LY 277 (option E85)
• NSF (USA)	No.: 20180920-MH61350 (option E84)
CRN (Canada)	No.: 0F9863.5C (option E60)
Explosion protection acc. to NEPSI (China)	No.: GYJ19.1058X (option E27)
Explosion protection acc. to INMETRO (Brazil)	No.: BRA-18-GE-0035X (option E25)
Explosion protection	
• Intrinsic safety "i"	
- Marking	II 1/2 G Ex ia/ib IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Flameproof enclosure "d"	
- Marking	Ex II 1/2 G Ex ia/db IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 21, 22	
- Marking	Ex II 2D Ex tb IIIC T120 °C Db Ex II 3D Ex tc IIIC T120 °C Dc
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Max. surface temperature	120 °C (248 °F)
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for gauge and absolute pressure, with flush-mounted diaphragm	
• Dust explosion protection for Zones 20, 21, 22	
- Marking	Ex II 1D Ex ia IIIC T120 °C Da Ex II 2D Ex ib IIIC T120 °C Db
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Type of protection (Ex) for zone 2	
- Marking	Ex II 3G Ex ec IIC T4/T6 Gc
- Permissible ambient temperature "ec"	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +40 °C (-40 ... +104 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- "ec" connection	To a circuit with the operating values: U_n = 10.5 ... 30 V, 4 ... 20 mA
• Explosion protection acc. to FM	Available soon
- Marking (XP/DIP) or IS; NI; S	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
• Explosion protection according to CSA	Available soon
- Marking (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
NAMUR recommendations	
• NE 06	Standardized Electrical Signals and Questions Relating to Engineering Technology
• NE 21	Electromagnetic Compatibility (EMC) of Industrial Process and Laboratory Control Equipment
• NE 23	Extra Low Voltage Circuits with Safe Separation
• NE 43	Standardization of the Signal Level for the Failure Information of Digital Transmitters with analog output signal
• NE 53	Software and Hardware of Field Devices and Signal Processing Devices with Digital Electronics
• NE 80	The Application of the Pressure Equipment Directive to Process Control Devices
• NE 105	Specifications for Integrating Fieldbus Devices in Engineering Tools for Field Devices
• NE 107	Self-Monitoring and Diagnosis of Field Devices
• NE 131	NAMUR Standard Device - Field Devices for Standard Applications

1) The MAWP value of the pressure transmitter can be lower than the PN value of the mounting flange and vice versa.
To determine the maximum permissible operating pressure and the maximum permissible test pressure, use the lowest value as reference.
2) Observe the temperature limits in the process connection standards (e.g. DIN 32676 and DIN 11851) for the maximum medium temperature for flush-mounted process connections.
3) Han 8D is identical to Han 8U.

Communication	
HART	
HART	230 ... 1 100 Ω
Protocol	HART 7
Software for computer	SIMATIC PDM
PROFIBUS PA	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (default setting address 126)
Cyclic data usage	
• Output byte	≤ 35 (7 measured values)
• Input byte	0, 1, or 2 (register operation mode and reset function for dosing)

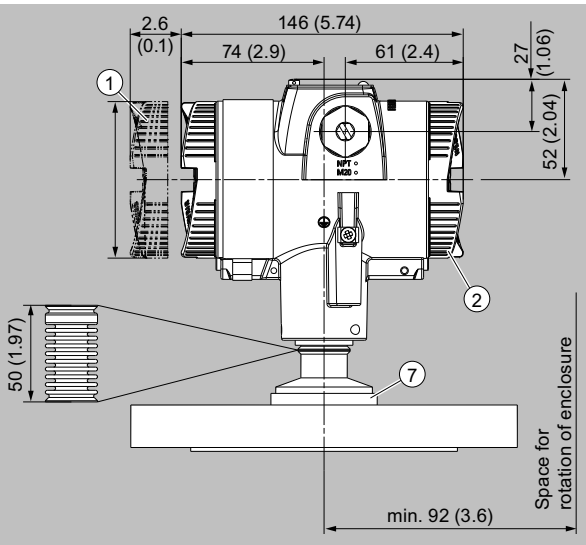
Communication	
Internal preprocessing	
Device profile	PROFIBUS PA Profile Version 4.01 Class B. Cyclic data usage compatible with version 3.XX
Number of function blocks	7
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output

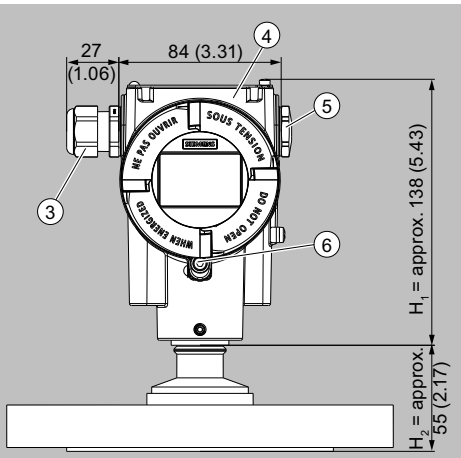
Technical specifications (continued)

Communication	
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
• Physical block	1
Transducer blocks	1
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Specification of a vessel characteristic curve with	Max. 30 nodes
- Square-rooted characteristic curve for flow measurement	Yes
- Tank characteristic curve for volume measurement	Yes
- Low flow cut-off and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or by means of parameterizable ramp function
FOUNDATION Fieldbus	
Device profile	FF ITK 6
Function blocks	3 function blocks analog input, 1 function block PID

Communication	
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
- Square-rooted characteristic curve for flow measurement	Yes
• PID	Standard FOUNDATION Fieldbus function block
• Physical block	1 resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Simulation function: pressure measurement, sensor temperature and electronics temperature	Constant value or by means of parameterizable ramp function

Dimensional drawings





1. Electronics side, local display (longer overall length for cover with glass pane)[1]
2. Connection side
3. Electrical connection:
   - M20 x 1,5[3] screw gland
   - ½-14 NPT screw gland
   - Han 7D/Han 8D[2][3] device plug
   - M12 device plug[2][3]
4. Cover over buttons and nameplate with general information
5. Blanking plug
6. Safety catch (only for "flameproof enclosure" type of protection)
7. Process connection

1) In addition, allow approx. 22 mm (0.87 inch) for the thread length when removing the covers
2) Not with "flameproof enclosure" type of protection
3) Not with type of protection "FM + CSA" [is + XP]"

SITRANS P320/P420 pressure transmitter, with flush-mounted diaphragm, dimensions in mm (inch)

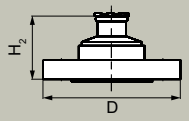
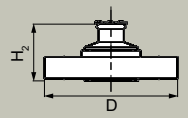
This figure consists of a SITRANS P320/P420 with an example flange. In this figure, the height is divided into H_1 and H_2.

H_1 = Height of the SITRANS P320/P420 up to a defined cross-section

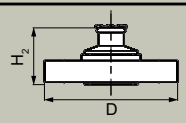
H_2 = Height of the flange up to this defined cross-section

Only the height H_2 is indicated in the dimensions of the flanges.

Flanges according to EN and ASME

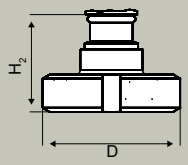
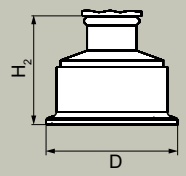
Flange	Order code	DN	PN	ØD	H_2
EN 1092-1					
	M03	50	16	165 mm (6.5 inches)	Approx. 52 mm (2 inches)
	M05	80	16	200 mm (7.9 inches)	
	M10	25	40	115 mm (4.5 inches)	
	M12	40	40	150 mm (5.9 inches)	
	M13	50	40	165 mm (6.5 inches)	
	M15	80	40	200 mm (7.9 inches)	
	M22	40	100	170 mm (6.7 inches)	
ASME B16.5					
	M30	1 inch	150	110 mm (4.3 inches)	Approx. 52 mm (2 inches)
	M31	1½ inches	150	125 mm (4.9 inches)	
	M32	2 inches	150	150 mm (5.9 inches)	
	M33	3 inches	150	190 mm (7.5 inches)	
	M34	4 inches	150	230 mm (9.1 inches)	
	M36	1½ inches	300	155 mm (6.1 inches)	
	M37	2 inches	300	165 mm (6.5 inches)	

Dimensional drawings (continued)

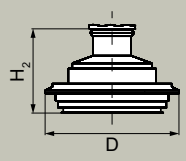
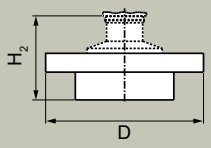
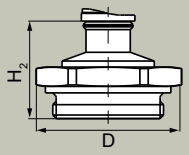
Flange	Order code	DN	PN	ØD	H_2
	M38	3 inches	300	210 mm (8.1 inches)	Approx. 52 mm (2 inches)
	M39	4 inches	300	255 mm (10.0 inches)	

NuG and pharmaceutical connections

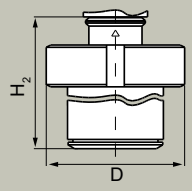
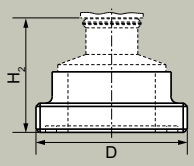
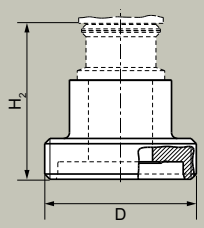
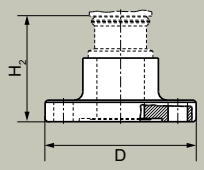
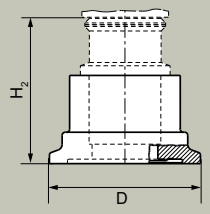
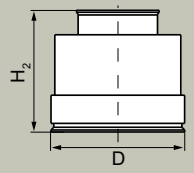
Connections according to DIN

Connection	Order code	DN	PN	ØD	H_2
DIN 11851 (dairy connection with slotted union nut)					
	N03	50	25	92 mm (3.6 inches)	Approx. 52 mm (2 inches)
	N05	80	25	127 mm (5.0 inches)	
Tri-Clamp acc. to DIN 32676					
	N14	50	16	64 mm (2.5 inches)	Approx. 52 mm (2 inches)
	N15	65	16	91 mm (3.6 inches)	
	N22	2 inches	16	64 mm (2.5 inches)	
	N23	3 inches	10	91 mm (3.6 inches)	

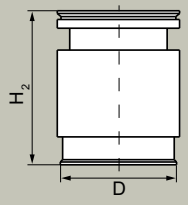
Other connections

Connection	Order code	DN	PN	ØD	H_2
Varivent connection					
	P06	40 ... 125	40	84 mm (3.3 inches)	Approx. 52 mm (2 inches)
Sanitary process connection according to DRD					
	Q15	65	40	105 mm (4.1 inches)	Approx. 52 mm (2 inches)
Threaded connection G¾", G1" and G2" according to DIN 3852-2 form A					
	R11	¾ inch	60	37 mm (1.5 inches)	Approx. 45 mm (1.8 inches)
	R12	1 inch	60	48 mm (1.9 inches)	Approx. 47 mm (1.9 inches)
	R14	2 inches	60	78 mm (3.1 inches)	Approx. 52 mm (2 inches)

Dimensional drawings (continued)

Connection	Order code	DN	PN	ØD	H_2
Tank connection TG 52/50 and TG52/150 	Q00	25	40	63 mm (2.5 inches)	Approx. 63 mm (2.5 inches)
	Q01	25	40	63 mm (2.5 inches)	Approx. 170 mm (6.7 inches)
SMS screwed connector 	Q28	2 inches	25	70 x 1/6 mm	Approx. 52 mm (2.1 inches)
	Q29	2½ inches	25	85 x 1/6 mm	
	Q30	3 inches	25	98 x 1/6 mm	
Aseptic screwed connector according to DIN 11864-1 Form A 	N33	50	25	78 x 1/6 inch	Approx. 52 mm (2.1 inches)
	N34	65	25	95 x 1/6 inch	
	N35	80	25	110 x ¼ inch	
	N36	100	25	130 x ¼ inch	
Aseptic flange with notch according to DIN 11864-2 Form A 	N43	50	16	94 (3.7 inches)	Approx. 52 mm (2.1 inches)
	N44	65	16	113 (4.4 inches)	
	N45	80	16	133 (5.2 inches)	
	N46	100	16	159 (6.3 inches)	
Aseptic clamp with groove according to DIN 11864-3 Form A 	N53	50	25	77.5 (3.1 inch)	Approx. 52 mm (2.1 inches)
	N54	65	25	91 (3.6 inch)	
	N55	80	16	106 (4.2 inches)	
	N56	100	16	130 (5.1 inches)	
Process connection PMC Style Standard 	R00	-	-	40.9 mm (1.6 inches)	Approx. 36.8 mm (1.4 inches)

Dimensional drawings (continued)

Connection	Order code	DN	PN	ØD	H_2
Process connection PMC Style Minibolt 	R01	-	-	26.3 mm (1.0 inch)	Approx. 33.1 mm (1.3 inches)

Selection and ordering data

Pressure transmitters for absolute pressure (pressure series)	Article No.												
SITRANS P320	**7MF032**	●	-	●	●	●	●	●	-	●	●	●	●
SITRANS P420	**7MF042**	●	-	●	●	●	●	●	-	●	●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.													
Communication													
HART, 4 ... 20 mA		0											
PROFIBUS PA		1											
FOUNDATION Fieldbus (FF)		2											
Measuring cell filling													
Silicone oil				1									
Inert filling liquid				3									
Maximum measuring span													
250 mbar a (100.5 inH$_2$O a)					F								
1 300 mbar a (522 inH$_2$O a)					L								
5 000 mbar a (72.5 psi a)					P								
30 bar a (435 psi a)					R								
160 bar a (2 321 psi a)					V								
400 bar a (5 802 psi a)					W								
700 bar a (10 153 psi a)					X								
Process connection													
External thread M20 × 1.5						B							
External thread G½ (EN 837-1)						D							
Internal thread ½-14 NPT						E							
External thread ½-14 NPT						F							
Oval flange, fastening thread: $^7/_{16}$-20 UNF (IEC 61518)						G							
Oval flange, fastening thread: M10 (DIN 19213)						H							
Oval flange, fastening thread: M12 (DIN 19213)						J							
Version for diaphragm seal pressure						U							
Material of wetted parts: Process connection, seal diaphragm													
Stainless steel 316L/1.4404, stainless steel 316L/1.4404							0						
Stainless steel 16L/1.4404, alloy C276/2.4819							1						
Alloy C22/2.4602, alloy C276/2.4819							2						
Stainless steel 316L/1.4404, stainless steel 316L/1.4404 gold-plated							7						
Material of non-wetted parts													
Die-cast aluminum								1					
Stainless steel precision casting CF3M/1.4409 similar to 316L								2					
Enclosure													
Dual chamber device										5			
Type of protection													
Without Ex											A		
Intrinsic safety											B		
Flameproof enclosure											C		
Flameproof enclosure, intrinsic safety											D		
Dust protection by enclosure Zone 21/22 (DIP), increased safety Zone 2											L		
Intrinsic safety, dust protection by enclosure Zone 20/21/22 (DIP), increased safety Zone 2											M		
Combination of options B, C and L (Zone model)											S		
Combination of options B, C and L (Zone model, Class Division)											T		
Electrical connections/cable entries													
Thread for cable gland: Cable gland must be ordered separately as option (Axx)													
• 2 × M20 × 1.5												F	
• 2 × ½-14 NPT												M	
Local operation/display													
Without local display (lid closed)													0
With local display (lid closed)													1
With local display (lid with glass pane)													2

Selection and ordering data (continued)

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Cable glands included	
Plastic	**A00**
Metal	**A01**
Stainless steel	**A02**
Stainless steel 316L/1.4404	**A03**
CMP, for XP devices	**A10**
CAPRI ADE 4F, CuZn, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A11**
CAPRI ADE 4F, stainless steel, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A12**
Sealing plug included, plastic	**A20**
Sealing plug included, metal	**A21**
Sealing plug included, stainless steel	**A22**
Sealing plug included, stainless steel 316L/1.4404	**A23**
Device plug Han mounted left	
Device plug Han 7D (plastic, straight)	**A30**
Device plug Han 7D (plastic, angled)	**A31**
Device plug Han 7D (metal, straight)	**A32**
Device plug Han 7D (metal, angled)	**A33**
Device plug Han 8D (plastic, straight)	**A34**
Device plug Han 8D (plastic, angled)	**A35**
Device plug Han 8D (metal, straight)	**A36**
Device plug Han 8D (metal, angled)	**A37**
Cable socket included	
Plastic, for device plug Han 7D and Han 8D	**A40**
Metal, for device plug Han 7D and Han 8D	**A41**
Device plug M12 mounted left	
Stainless steel, without cable socket	**A62**
Stainless steel, with cable socket	**A63**
Cable entry/device plug mounting	
2× sealing plugs M20 × 1.5, IP66/68 installed on both sides	**A90**
2× sealing plugs ½-14 NPT, IP66/68 installed on both sides	**A91**
Cable gland/device plug mounted left	**A97**
Cable gland/device plug mounted right	**A99**
Nameplate labeling (standard labeling: English, unit bar)	
German (bar)	**B11**
French (bar)	**B12**
Spanish (bar)	**B13**
Italian (bar)	**B14**
Chinese (bar)	**B15**
Russian (bar)	**B16**
English (psi)	**B20**
English (Pa)	**B30**
Chinese (Pa)	**B35**
Certificates	
Quality inspection certificate, 5-point factory calibration (IEC 62828-2)	**C11**
Inspection certificate (EN 10204-3.1) - Material of pressurized and wetted parts	**C12**

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Factory certificate - NACE (MR 0103-2012 and MR 0175-2009)	**C13**
Factory certificate (EN 10204-2.2) - Wetted parts	**C14**
Inspection certificate (EN 10204-3.1) - PMI test of pressurized and wetted parts	**C15**
Certificates for functional safety	
Functional Safety (IEC 61508) - SIL2/3	**C20**
Device options	
PDF file with device settings	**D10**
Double layer coating (epoxy resin and polyurethane) 120 µm of enclosure and lid	**D20**
FVMQ enclosure sealing	**D21**
Degree of protection IP66/IP68 (not for device plug M12 and Han)	**D30**
Unlabeled TAG plate	**D40**
Without labeling of the measuring range on the TAG plate	**D41**
Stainless steel Ex plate 1.4404/316L	**D42**
Overvoltage protection up to 6 kV (internal)	**D70**
Overvoltage protection up to 6 kV (external)	**D71**
Labels on transport packaging (provided by customer)	**D90**
General approval without Ex approval	
Worldwide (CE, UKCA, RCM) except EAC, FM, CSA, KCC	**E00**
Worldwide (CE, UKCA, RCM, EAC, FM, CSA, KCC)	**E01**
CSA (USA and Canada)	**E06**
EAC	**E07**
FM	**E08**
KCC	**E09**
Explosion protection approvals	
ATEX (Europe)	**E20**
CSA (USA and Canada)[1)]	**E21**
FM (USA and Canada)[1)]	**E22**
IECEx (Worldwide)	**E23**
EACEx (GOST-R, -K, -B)	**E24**
INMETRO (Brazil)	**E25**
KCs (Korea)	**E26**
NEPSI (China)	**E27**
PESO (India)	**E28**
CSA (Japan)	**E29**
UKR Sepro (Ukraine)	**E30**
UKEX (United Kingdom)	**E33**
ATEX (Europe), IECEx (Worldwide) and UKEX (UK)	**E47**
CSA (Canada) and FM (USA)[1)]	**E48**
ATEX (Europe) and IECEx (Worldwide) + CSA (Canada) and FM (USA)[1)]	**E49**
Marine approvals	
DNV-GL (Det Norske Veritas/Germanischer Lloyd)	**E50**
LR (Lloyds Register)	**E51**
BV (Bureau Veritas)	**E52**
ABS (American Bureau of Shipping)	**E53**
RMR (Russian Maritime Register)	**E55**
KR (Korean Register of Shipping)	**E56**
RINA (Registro Italiano Navale)	**E57**
CCS (China Classification Society)	**E58**

Selection and ordering data (continued)

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Country-specific approvals	
CRN approval Canada (Canadian Registration Number)	**E60**
Special approvals	
Oxygen application (with inert liquid, max. 160 bar (2 320 psi) at 100 °C (212 °F))	**E80**
Dual Seal	**E81**
WRC/WRAS (drinking water); only with process flange O-rings made of EPDM	**E83**
NSF61 (drinking water)	**E84**
ACS (drinking water)	**E85**
Mounting bracket	
Steel, zinc-plated	**H01**
Stainless steel 1.4301/304	**H02**
Stainless steel 1.4404/316L	**H03**
Flange connections with flange EN 1092-1	
With flange adapter G½ Form B1	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J80**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J81**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J82**
With water trap G½ form B1	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J83**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J84**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J85**
• DN 25 PN 100, stainless steel 1.4571/316Ti	**J86**
Process flanges, gaskets (instead of standard gaskets FKM (FPM))	
Gasket (EN 837-1) material Fe (soft iron)	**K60**
Gasket (EN 837-1) material 1.4571	**K61**
Gasket (EN 837-1) material Cu	**K62**
Process connection	
Process connection external thread G½, bore hole 11 mm	**K80**

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Shut-off valves, valve manifolds	
With mounted valve manifold 7MF9011-4EA, process connection at transmitter G½ shank, PTFE sealing ring and pressure test certified in factory certificate (EN 10204-2.2)	**T02**
With mounted valve manifold 7MF9011-4FA, process connection at transmitter internal thread ½-14 NPT, sealing tape. With PTFE sealing ring and pressure test certified in factory certificate (EN 10204-2.2)	**T03**
With mounted valve manifold 7MF9411-5AA, process connection at transmitter oval flange with PTFE sealing ring, steel fixing screws, pressure test certified in factory certificate (EN 10204-2.2)	**T05**
With mounted valve manifold 7MF9411-5AA, process connection at transmitter oval flange with PTFE sealing ring, stainless steel fixing screws, pressure test certified in factory certificate (EN 10204-2.2)	**T06**
Device settings	
Measuring span: Lower range value (max. 5 characters), upper range value (max. 5 characters), unit [mbar, bar, kPa, MPa, psi, ...], example: -0.5 ... 10.5 psi	**Y01**
TAG (on stainless steel plate and device parameters, max. 32 characters)	**Y15**
Measuring point description (on stainless steel plate and device parameters, max. 32 characters)	**Y16**
TAG short (device parameters, max. 8 characters)	**Y17**
Local display: [Pressure, Percent], reference [None, Absolute, Gauge], example: Pressure gauge	**Y21**
Local display: Scaling with standard units [m^3/s, l/s, m, inch, ...]; example 1 ... 5 m	**Y22**
Local display: Scaling with user-specific units (max. 12 characters), example 1 ... 5 m	**Y23**
Set PROFIBUS PA device address (1 ... 126)	**Y25**
Saturation limits instead of 3.8 ... 20.5 mA, example: 3.8 ... 22.0 mA	**Y30**
Fault current instead of 3.6 mA [22.5 mA, 22.8 mA]	**Y31**
Damping in seconds instead of 2 s (0.0 ... 100.0 s)	**Y32**
ID number of special design	**Y99**

[1] Explosion protection acc. to FM/CSA: suitable for installation according to NEC 500/505.

Technical specifications

SITRANS P320 / SITRANS P420 for absolute pressure (pressure series)			
Input			
Measured variable	Absolute pressure		
Measuring span (continuously adjustable) or measuring range, max. permissible operating pressure (in accordance with Pressure Equipment Directive 2014/68/EU) and max. test pressure (pursuant to DIN 16086)	Measuring span	Max. permissible operating pressure MAWP (PS)	Maximum permissible test pressure
	8.3 ... 250 mbar a 0.83 ... 25 kPa a 3.3 ... 100.5 inH_2O a	4 bar a 0.4 MPa a 58 psi a	6 bar a 0.6 MPa a 87 psi a
	43 ... 1300 mbar a 4.3 ... 130 kPa a 17.3 ... 522 inH_2O a	6.6 bar a 0.66 MPa a 95 psi a	10 bar a 1 MPa a 145 psi a
	166 ... 5 000 mbar a 16.6 ... 500 kPa a 2.41 ... 72.5 psi a	20 bar a 2 MPa a 290 psi a	30 bar a 3 MPa a 435 psi a
	1 ... 30 bar a 0.1 ... 3 MPa a 14.5 ... 435 psi a	65 bar a 6.5 MPa a 942 psi a	100 bar a 10 MPa a 1450 psi a
	5.3 ... 160 bar a 0.53 ... 16 MPa a 77 ... 2321 psi a	240 bar 24 MPa 3481 psi	380 bar a 38 MPa a 5511 psi a
	13.3 ... 400 bar a 1.3 ... 40 MPa a 192 ... 5802 psi a	400 bar a 40 MPa a 5802 psi a	600 bar a 60 MPa a 8702 psi a
	23.3 ... 700 bar a 2.3 ... 70 MPa a 337 ... 10153 psi a	800 bar a 80 MPa a 11603 psi a	800 bar a 80 MPa a 11603 psi a
Measuring limits			
• Lower measuring limit			
- Measuring cell with silicone oil filling	0 mbar a/kPa a/psi a		
- Measuring cell with inert oil	For medium temperature -20-°C < ϑ ≤ +60 °C (-4 °F < ϑ ≤ +140 °F)		30 mbar a/3 kPa a/0.44 psi a
	For medium temperature 60 °C < ϑ ≤ +100 °C (max. 85 °C for measuring cell 30 bar) (140 °F < ϑ ≤ +212 °F (max. 185 °F for measuring cell 435 psi))		30 mbar a + 20 mbar a · (ϑ -60 °C)/°C 3 kPa a + 2 kPa a · (ϑ -60 °C)/°C 0.44 psi a + 0.29 psi a · (ϑ - 140 °F)/°F
• Upper measuring limit	100% of the max. measuring span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/medium temperature)		
• Lower range value	Between the measuring limits (continuously adjustable)		
Output	**HART**		
Output signal	4 ... 20 mA		
• Lower saturation limit (continuously adjustable)	3.55 mA, factory set to 3.8 mA		
• Upper saturation limit (continuously adjustable)	22.8 mA, factory-set to 20.5 mA or optionally 22.0 mA		
• Ripple (without HART communication)	I_{pp} ≤ 0.5% of max. output current		
Adjustable damping	0 ... 100 s, continuously adjustable over remote operation 0 ... 100 s, in increments of 0.1 s, adjustable over display		
• Current simulator	3.55 ... 22.8 mA		
• Failure signal	3.55 ... 22.8 mA (factory set to 3.55 mA)		
Load	Resistance R [Ω]		
• Without HART communication	R = (U_H - 10.5 V) /22.8 mA, U_H: Auxiliary power in V		
• With HART communication	R = 230 ... 1100 Ω		
Characteristic curve	• Linearly increasing or linearly decreasing • Linear increase or decrease or according to the square root (only for differential pressure and flow)		
Physical bus	-		
Polarity-independent	-		

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for absolute pressure (pressure series)	
Measuring accuracy	
Reference conditions	• According to IEC 62828-1 • Rising characteristic curve • Lower range value 0 bar/kPa/psi • Seal diaphragm stainless steel • Measuring cell with silicone oil filling • Room temperature 25 °C (77 °F)
Conformity error at limit point setting, including hysteresis and repeatability	
Measuring span ratio r (spread, Turn-Down)	r = maximum measuring span/set measuring span or nominal measuring range
• Linear characteristic curve (all measuring cells)	
- $r \leq 10$	≤ 0.1%
- $10 < r \leq 30$	≤ 0.2%
Influence of ambient temperature (in % per 28 °C (50 °F))	
• 250 mbar a/25 kPa a/3.6 psi a	≤ (0.15 · r +0.1)%
• 1300 mbar a/130 kPa a/18.8 psi a 5 bar a/500 kPa a/72.5 psi a 30 bar a/3000 kPa a/435 psi a 160 bar a/16 MPa a/2321 psi a 400 bar a/40 MPa a/5802 psi a 700 bar a/70 MPa a/10153 psi a	≤ (0.08 · r +0.16)%
Long-term stability at ±30 °C (± 54 °F)	In 5 years ≤ (0.25 · r)%
Step response time T_{63} (without electrical damping)	Approx. 0.105 s
Effect of mounting position (in pressure per change of angle)	≤ 0.05 mbar/0.005 kPa/0.000725 psi per 10° incline (zero offset is possible with position error compensation)
Effect of auxiliary power (in % per voltage change)	0.005% per 1 V
Operating conditions	
Medium temperature	
• Measuring cell with silicone oil filling	-40 ... +100 °C (-40 ... +212 °F)
• Measuring cell with inert filling liquid	-20 ... +100 °C (-4 ... +212 °F)
Ambient conditions	
• Ambient temperature/enclosure	Observe the temperature class in hazardous areas.
- Measuring cell with silicone oil filling	-40 ... +85 °C (-40 ... +185 °F)
- Measuring cell with inert filling liquid	-40 ... +85 °C (-40 ... +185 °F)
- Display	-20 ... +80 °C (-4 ... +176 °F)
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F) (with FDA-compliant oil: -20 ... +85 °C (-4 ... +185 °F))
• Climatic class in accordance with IEC 60721-3-4	4K4H
• Degree of protection	
- According to IEC 60529	IP66, IP68
- According to NEMA 250	Type 4X
• Electromagnetic compatibility	
- Emitted interference and interference immunity	According to IEC 61326 and NAMUR NE 21
Structural design	
Weight	• Aluminum enclosure: Approx. 1.8 kg (3.9 lbs) • Stainless steel enclosure: Approx. 3.8 kg (8.3 lbs)
Material	
• Material of wetted parts	
- Process connection	Stainless steel, material no. 1.4404/316L or Alloy C22, material no. 2.4602
- Oval flange	Stainless steel, mat. no. 1.4404/316L

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for absolute pressure (pressure series)	
- Seal diaphragm	Stainless steel, material no. 1.4404/316L or Alloy C276, material no. 2.4819
• Material of non-wetted parts	
- Electronics enclosure	• Low-copper die-cast aluminum GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4409/ CF-3M • Standard: Powder coating with polyurethane Option: 2 coats: Coat 1: Epoxy-based; coat 2: Polyurethane • Stainless steel nameplate (1.4404/316L)
- Mounting bracket	Zinc-plated steel or stainless steel
Process connection	• Connection shank G1/2A according to EN 837-1 • Female thread ½-14 NPT • Oval flange (PN 160 (MWP 2320 psi g)) with fastening thread: - 7/16-20 UNF according to EN 61518 - M10 according to DIN 19213 • Oval flange (PN 420 (MWP 2320 psi g)) with fastening thread: - 7/16-20 UNF according to EN 61518 - M12 according to DIN 19213 • Male thread M20 × 1.5 and ½-14 NPT
Electrical connection	Cable entry via the following screw glands: • M20 × 1.5 • ½-14 NPT • Device plug Han 7D/Han 8D[1)] • Device plug M12
Displays and controls	
Buttons	4 buttons for operation directly on the device
Display	• With or without integrated display (optional) • Lid with inspection window (optional)
Auxiliary power U_H	
Terminal voltage on pressure transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically safe mode
Ripple	$U_{SS} \leq 0.2$ V (47 ... 125 Hz)
Noise	$U_{eff} \leq 1.2$ mV (0.5 ... 10 kHz)
Auxiliary power	–
Separate supply voltage	–
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)
Drinking water	
• WRAS (England)	No.: 1903094 (option E83)
• ACS (France)	No.: 18 ACC LY 277 (option E85)
• NSF (USA)	No.: 20180920-MH61350 (option E84)
CRN (Canada)	No.: 0F9863.5C (option E60)
Explosion protection acc. to NEPSI (China)	No.: GYJ19.1058X (option E27)
Explosion protection acc. to INMETRO (Brazil)	No.: BRA-18-GE-0035X (option E25)
Explosion protection	
• Intrinsic safety "i"	
- Marking	II 1/2 G Ex ia/ib IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To certified intrinsically safe circuits with peak values: $U_i = 30$ V, $I_i = 101$ mA, $P_i = 760$ mW $U_i = 29$ V, $I_i = 110$ mA, $P_i = 800$ mW
- Effective internal inductance/capacitance	$L_i = 0.24$ µH/$C_i = 3.29$ nF
• Flameproof enclosure "d"	
- Marking	Ex II 1/2 G Ex ia/db IIC T4/T6 Ga/Gb

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for absolute pressure (pressure series)	
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To circuit with the operating values U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 21, 22	
- Marking	Ex II 2D Ex tb IIIC T120 °C Db Ex II 3D Ex tc IIIC T120 °C Dc
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Max. surface temperature	120 °C (248 °F)
- Connection	To circuit with the operating values U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 20, 21, 22	
- Marking	Ex II 1D Ex ia IIIC T120 °C Da Ex II 2D Ex ib IIIC T120 °C Db
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Type of protection for Zone 2	
- Marking	Ex II 3G Ex ec IIC T4/T6 Gc
- Permissible ambient temperature "ec"	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +40 °C (-40 ... +104 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- "ec" connection	To circuit with the operating values U_n = 10.5 ... 30 V, 4 ... 20 mA
• Explosion protection acc. to FM	Available soon
- Marking (XP/DIP) or IS; NI; S	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
• Explosion protection according to CSA	Available soon
- Marking (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
NAMUR recommendations	
• NE 06	Standardized Electrical Signals and Questions Relating to Engineering Technology
• NE 21	Electromagnetic Compatibility (EMC) of Industrial Process and Laboratory Control Equipment
• NE 23	Extra Low Voltage Circuits with Safe Separation
• NE 43	Standardization of the Signal Level for the Failure Information of Digital Transmitters
• NE 53	Software and Hardware of Field Devices and Signal Processing Devices with Digital Electronics
• NE 80	The Application of the Pressure Equipment Directive to Process Control Devices
• NE 105	Specifications for Integrating Fieldbus Devices in Engineering Tools for Field Devices
• NE 107	Self-Monitoring and Diagnosis of Field Devices
• NE 131	NAMUR Standard Device - Field Devices for Standard Applications

1) Han 8D is identical to Han 8U.

Communication	
HART	
HART	230 ... 1 100 Ω
Protocol	HART 7
Software for computer	SIMATIC PDM

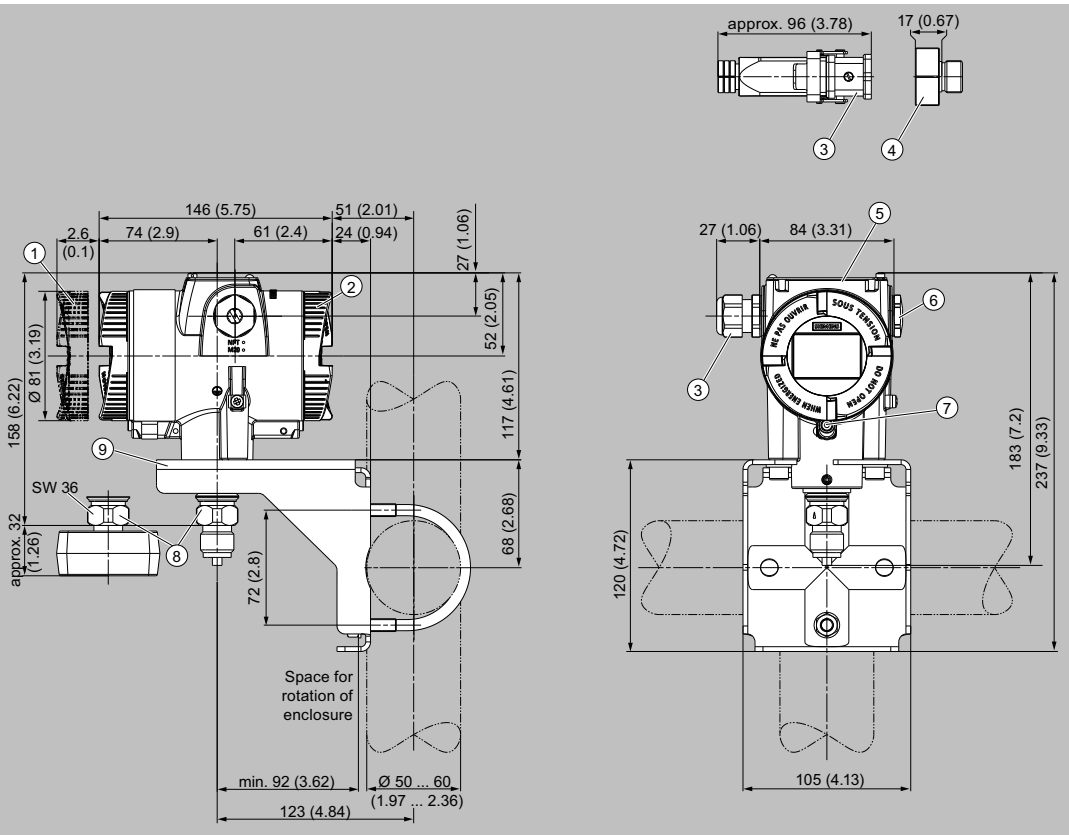
Communication	
PROFIBUS PA	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (default setting address 126)

Technical specifications (continued)

Communication	
Cyclic data usage	
• Output byte	≤ 35 (7 measured values)
• Input byte	0, 1, or 2 (register operation mode and reset function for dosing)
Internal preprocessing	
Device profile	PROFIBUS PA Profile Version 4.01 Class B. Cyclic data usage compatible with version 3.XX
Number of function blocks	7
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
• Physical block	1
Transducer blocks	1
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Specification of a vessel characteristic curve with	Max. 30 nodes
- Square-rooted characteristic curve for flow measurement	Yes
- Tank characteristic curve for volume measurement	Yes

Communication	
- Low flow cut-off and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or by means of parameterizable ramp function
FOUNDATION Fieldbus	
Device profile	FF ITK 6
Function blocks	3 function blocks analog input, 1 function block PID
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
- Square-rooted characteristic curve for flow measurement	Yes
• PID	Standard FOUNDATION Fieldbus function block
• Physical block	1 resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Simulation function: pressure measurement, sensor temperature and electronics temperature	Constant value or by means of parameterizable ramp function

Dimensional drawings



1. Electronics side, local display (longer overall length for cover with glass pane)[1]
2. Connection side
3. Electrical connection:
   - M20 x 1.5[3] screw gland
   - ½-14 NPT screw gland
   - Han 7D/Han 8D[2][3] device plug
   - M12 device plug[2][3]
4. Harting adapter
5. Cover over buttons and nameplate with general information
6. Blanking plug
7. Safety catch (only for "flameproof enclosure" type of protection)
8. Process connection: G½B connection pin or oval flange
9. Mounting bracket (optional)

[1] In addition, allow approx. 22 mm (0.87 inch) for the thread length when removing the covers
[2] Not with "flameproof enclosure" type of protection
[3] Not with type of protection "FM + CSA" [is + XP]"

SITRANS P320/P420 pressure transmitter for absolute pressure (pressure series), dimensions in mm (inch)

Selection and ordering data

	Article No.												
Pressure transmitters for absolute pressure (differential pressure series)													
SITRANS P320	7MF033	●	-	●	●	●	●	●	-	●	●	●	●
SITRANS P420	7MF043	●	-	●	●	●	●	●	-	●	●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.													
Communication													
HART, 4 ... 20 mA		0											
PROFIBUS PA		1											
FOUNDATION Fieldbus (FF)		2											
Measuring cell filling													
Silicone oil				1									
Inert filling liquid				3									
Maximum measuring span													
250 mbar a (100.5 inH$_2$O a)					G								
1300 mbar a (522 inH$_2$O a)					L								
5000 mbar a (72.5 psi a)					P								
30 bar a (435 psi a)					R								
160 bar (2 320 psi)					Y								
Process connection													
Oval flange, fastening thread: $^7/_{16}$-20 UNF (IEC 61518)						Q							
Oval flange, fastening thread: M10 (DIN 19213)						R							
Oval flange, fastening thread: $^7/_{16}$-20 UNF (IEC 61518) with lateral ventilation						S							
Oval flange, fastening thread: M10 (DIN 19213) with lateral ventilation						T							
Version for diaphragm seal with fastening thread $^7/_{16}$-20 UNF (IEC 61518)						V							
Version for diaphragm seal with fastening thread M10 (DIN 19213)						W							
Material of wetted parts: Process connection, seal diaphragm													
Stainless steel 316L/1.4404, stainless steel 316L/1.4404, process flange stainless steel 316/1.4408							0						
Stainless steel 316L/1.4404, alloy C276/2.4819, process flange stainless steel 316/1.4408							1						
Alloy C22/2.4602, alloy C276/2.4819, process flange stainless steel 316/1.4408							2						
Tantalum/tantalum, process flange stainless steel 316/1.4408							4						
Monel 400/2.4360, Monel 400/2.4360, process flange stainless steel 316/1.4408							6						
Stainless steel 316L/1.4404 gold-plated, process flange stainless steel 316/1.4408							8						
Material of non-wetted parts													
Die-cast aluminum								1					
Stainless steel precision casting CF3M/1.4409 similar to 316L								2					
Enclosure													
Dual chamber device										5			
Type of protection													
Without Ex											A		
Intrinsic safety											B		
Flameproof enclosure											C		
Flameproof enclosure, intrinsic safety											D		
Dust protection by enclosure Zone 21/22 (DIP), increased safety Zone 2											L		
Intrinsic safety, dust protection by enclosure Zone 20/21/22 (DIP), increased safety Zone 2											M		
Combination of options B, C and L (Zone model)											S		
Combination of options B, C and L (Zone model, Class Division)											T		
Electrical connections/cable entries													
Thread for cable gland: Cable gland must be ordered separately as option (Axx)													
• 2 × M20 × 1.5												F	
• 2 × ½-14 NPT												M	
Local operation/display													
Without local display (lid closed)													0
With local display (lid closed)													1
With local display (lid with glass pane)													2

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Cable glands included	
Plastic	**A00**
Metal	**A01**
Stainless steel	**A02**
Stainless steel 316L/1.4404	**A03**
CMP, for XP devices	**A10**
CAPRI ADE 4F, CuZn, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A11**
CAPRI ADE 4F, stainless steel, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A12**
Sealing plug included, plastic	**A20**
Sealing plug included, metal	**A21**
Sealing plug included, stainless steel	**A22**
Sealing plug included, stainless steel 316L/1.4404	**A23**
Device plug Han mounted left	
Device plug Han 7D (plastic, straight)	**A30**
Device plug Han 7D (plastic, angled)	**A31**
Device plug Han 7D (metal, straight)	**A32**
Device plug Han 7D (metal, angled)	**A33**
Device plug Han 8D (plastic, straight)	**A34**
Device plug Han 8D (plastic, angled)	**A35**
Device plug Han 8D (metal, straight)	**A36**
Device plug Han 8D (metal, angled)	**A37**
Cable socket included	
Plastic, for device plug Han 7D and Han 8D	**A40**
Metal, for device plug Han 7D and Han 8D	**A41**
Device plug M12 mounted left	
Stainless steel, without cable socket	**A62**
Stainless steel, with cable socket	**A63**
Cable entry/device plug mounting	
2× sealing plugs M20 × 1.5, IP66/68 installed on both sides	**A90**
2× sealing plugs ½-14 NPT, IP66/68 installed on both sides	**A91**
Cable gland/device plug mounted left	**A97**
Cable gland/device plug mounted right	**A99**
Nameplate labeling (standard labeling: English, unit bar)	
German (bar)	**B11**
French (bar)	**B12**
Spanish (bar)	**B13**
Italian (bar)	**B14**
Chinese (bar)	**B15**
Russian (bar)	**B16**
English (psi)	**B20**
English (Pa)	**B30**
Chinese (Pa)	**B35**
Certificates	
Quality inspection certificate - 5-point factory calibration (IEC 62828-2)	**C11**
Inspection certificate (EN 10204-3.1) - Material of pressurized and wetted parts	**C12**
Factory certificate - NACE (MR 0103-2012 and MR 0175-2009)	**C13**
Factory certificate (EN 10204-2.2) - wetted parts	**C14**
Inspection certificate (EN 10204-3.1) - PMI test of pressurized and wetted parts	**C15**
Certificates for functional safety	
Functional Safety (IEC 61508) - SIL2/3	**C20**
Device options	
PDF file with device settings	**D10**
Double layer coating (epoxy resin and polyurethane) 120 µm of enclosure and lid	**D20**
FVMQ enclosure sealing	**D21**
Degree of protection IP66/IP68 (not for device plug M12 and Han)	**D30**
Unlabeled TAG plate	**D40**
Without labeling of the measuring range on the TAG plate	**D41**
Stainless steel Ex plate 1.4404/316L	**D42**
Overvoltage protection up to 6 kV (internal)	**D70**
Overvoltage protection up to 6 kV (external)	**D71**
Labels on transport packaging (provided by customer)	**D90**
General approval without Ex approval	
Worldwide (CE, UKCA, RCM) except EAC, FM, CSA, KCC	**E00**
Worldwide (CE, UKCA, RCM, EAC, FM, CSA, KCC)	**E01**
CSA (USA and Canada)	**E06**
EAC	**E07**
FM	**E08**
KCC	**E09**
Explosion protection approvals	
ATEX (Europe)	**E20**
CSA (USA and Canada)[1)]	**E21**
FM (USA and Canada)[1)]	**E22**
IECEx (Worldwide)	**E23**
EACEx (GOST-R, -K, -B)	**E24**
INMETRO (Brazil)	**E25**
KCs (Korea)	**E26**
NEPSI (China)	**E27**
PESO (India)	**E28**
CSA (Japan)	**E29**
UKR Sepro (Ukraine)	**E30**
UKEX (United Kingdom)	**E33**
ATEX (Europe), IECEx (Worldwide) and UKEX (UK)	**E47**
CSA (Canada) and FM (USA)[1)]	**E48**
ATEX (Europe) and IECEx (Worldwide) + CSA (Canada) and FM (USA)[1)]	**E49**
Marine approvals	
DNV-GL (Det Norske Veritas/Germanischer Lloyd)	**E50**
LR (Lloyds Register)	**E51**
BV (Bureau Veritas)	**E52**
ABS (American Bureau of Shipping)	**E53**
RMR (Russian Maritime Register)	**E55**
KR (Korean Register of Shipping)	**E56**
RINA (Registro Italiano Navale)	**E57**
CCS (China Classification Society)	**E58**

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Country-specific approvals	
CRN approval Canada (Canadian Registration Number)	**E60**
Special approvals	
Oxygen application (with inert liquid, max. 160 bar (2 320 psi) at 100 °C (212 °F))	**E80**
Dual Seal	**E81**
WRC/WRAS (drinking water); only with process flange O-rings made of EPDM	**E83**
NSF61 (drinking water)	**E84**
ACS (drinking water)	**E85**
Mounting bracket	
Steel, zinc-plated	**H01**
Stainless steel 1.4301/304	**H02**
Stainless steel 1.4404/316L	**H03**
Process flanges; screw plug with vent valve	
Welded in on right	**J08**
Welded in on left	**J09**
Glued in on right	**J10**
Glued in on left	**J11**
Flange connections with flange EN 1092-1	
Form B1	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J70**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J71**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J72**
• DN 15 PN 40, stainless steel 1.4571/316Ti	**J78**
Form C	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J73**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J74**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J75**
Flange connection options	
Flange connection and temperature extension	**J76**
Flange connection with epoxy resin coating	**J77**
Process flanges; special materials	
Reserved for 7MF7: without process flanges, without screws, without gaskets	**K00**
Process flange material alloy C22/2.4602	**K01**
Process flange material Monel 400/2.4360	**K02**
Process connection material PVDF, on the side ½-14 NPT	**K05**
Process flanges/process connection material PVDF, flange on the side EN 1092-1 Form B1 DN 25 PN 40, MAWP 4 bar	**K06**
Process flanges/process connection material PVDF, flange on the side EN 1092-1 Form B1 DN 40 PN 40, MAWP 4 bar	**K07**
Process flanges; process connection option	
Process flange with process connection G½ welded on	**K20**
Process connection NAM (ASTAVA)	**K21**
Process flanges chambered with gaskets	
1 × chambered, graphite	**K40**
1 × chambered, PTFE (FDA-compliant), recommended for gas measurements	**K41**

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Process flanges, gaskets (instead of standard gaskets FKM (FPM))	
O-ring, process flanges, PTFE	**K50**
O-ring, process flanges, FEP (with silicone core, approved for food)	**K51**
O-ring, process flanges, FFKM (FFPM)	**K52**
O-ring, process flanges, NBR	**K53**
O-ring, process flanges, EPDM	**K54**
Process flange options	
Process flanges for vertical differential pressure lines (half process flange)	**K81**
Process flanges (+) - side front	**K82**
Process flange screws, process flange nuts, material Monel 400/2.4360	**K83**
Valve ¼-18 NPT, material same as process flanges	**K84**
Valve mounted on the side, measured medium: Gas	**K85**
Oval flange attached, PTFE seal + fixing screws	**K86**
Valve manifolds	
With mounted valve manifold (3-way) 7MF9411-5BA, PTFE sealing rings, chrome-plated steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U01**
With mounted valve manifold (3-way) 7MF9411-5BA, PTFE sealing rings, stainless steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U02**
With mounted valve manifold (5-way) 7MF9411-5CA, PTFE sealing rings, chrome-plated steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U03**
With mounted valve manifold (5-way) 7MF9411-5CA, PTFE sealing rings, stainless steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U04**
Device settings	
Measuring span: Lower range value (max. 5 characters), upper range value (max. 5 characters), unit [mbar, bar, kPa, MPa, psi, ...], example: -0.5 ... 10.5 psi	**Y01**
TAG (on stainless steel plate and device parameters, max. 32 characters)	**Y15**
Measuring point description (on stainless steel plate and device parameters, max. 32 characters)	**Y16**
TAG short (device parameters, max. 8 characters)	**Y17**
Local display: [Pressure, Percent], reference [None, Absolute, Gauge], example: Pressure gauge	**Y21**
Local display: Scaling with standard units [m^3/s, l/s, m, inch, ...]; example 1 ... 5 m	**Y22**
Local display: Scaling with user-specific units (max. 12 characters), example 1 ... 5 m	**Y23**
Set PROFIBUS PA device address (1 ... 126)	**Y25**
Saturation limits instead of 3.8 ... 20.5 mA, example: 3.8 ... 22.0 mA	**Y30**
Fault current instead of 3.6 mA [22.5 mA, 22.8 mA]	**Y31**
Damping in seconds instead of 2 s (0.0 ... 100.0 s)	**Y32**
ID number of special design	**Y99**

[1] Explosion protection acc. to FM/CSA: suitable for installation according to NEC 500/505.

Technical specifications

SITRANS P320 / SITRANS P420 for absolute pressure (differential pressure series)			
Input			
Measured variable	Absolute pressure		
Measuring span (continuously adjustable) or measuring range and max. permissible operating pressure (pursuant to Pressure Equipment Directive 2014/68/EU)	Measuring span	Max. permissible operating pressure MAWP (PS)	Maximum permissible test pressure
	8.3 ... 250 mbar a 0.83 ... 25 kPa a 3.3 ... 100.5 inH_2O a	160 bar a 16 MPa a 2 320 psi a	240 bar a 24 MPa a 3 481 psi a
	43 ... 1300 mbar a 4.3 ... 130 kPa a 17.3 ... 522 inH_2O a	160 bar a 16 MPa a 2 320 psi a	240 bar a 24 MPa a 3 481 psi a
	166 ... 5 000 mbar a 16.6 ... 500 kPa a 2.41 ... 72.5 psi a	160 bar a 16 MPa a 2 320 psi a	240 bar a 24 MPa a 3 481 psi a
	1 ... 30 bar a 0.1 ... 3 MPa a 14.5 ... 435 psi a	160 bar a 16 MPa a 2 320 psi a	240 bar a 24 MPa a 3 481 psi a
	8 ... 160 bar 0.8 ... 16 MPa 116 ... 2 320 psi	160 bar a 16 MPa a 2 320 psi a	240 bar a 24 MPa a 3 481 psi a
Measuring limits			
• Lower measuring limit			
- Measuring cell with silicone oil filling	0 mbar a/kPa a/psi a		
- Measuring cell with inert liquid	For medium temperature -20-°C < ϑ ≤ +60 °C (-4 °F < ϑ ≤ +140 °F)		30 mbar a/3 kPa a/0.44 psi a
	For medium temperature 60 °C < ϑ ≤ +100 °C (max. 85 °C for measuring cell 30 bar) (140 °F < ϑ ≤ +212 °F (max. 185 °F for measuring cell 435 psi))		30 mbar a + 20 mbar a · (ϑ -60 °C)/°C 3 kPa a + 2 kPa a · (ϑ -60 °C)/°C 0.44 psi a + 0.29 psi a · (ϑ - 140 °F)/°F
• Upper measuring limit	100% of the max. measuring span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/medium temperature)		
• Lower range value	Between the measuring limits (continuously adjustable)		
Output	**HART**		
Output signal	4 ... 20 mA		
• Lower saturation limit (continuously adjustable)	3.55 mA, factory set to 3.8 mA		
• Upper saturation limit (continuously adjustable)	22.8 mA, factory-set to 20.5 mA or optionally 22.0 mA		
• Ripple (without HART communication)	I_{pp} ≤ 0.5% of max. output current		
Adjustable damping	0 ... 100 s, continuously adjustable over remote operation 0 ... 100 s, in increments of 0.1 s, adjustable over display		
• Current simulator	3.55 ... 22.8 mA		
• Failure signal	3.55 ... 22.8 mA		
Load	Resistance R [Ω]		
• Without HART communication	R = (U_H - 10.5 V) /22.8 mA, U_H: Auxiliary power in V		
• With HART communication	R = 230 ... 1100 Ω		
Characteristic curve	• Linearly increasing or linearly decreasing • Linear increase or decrease or according to the square root (only for differential pressure and flow)		
Physical bus	-		
Polarity-independent	-		
Measuring accuracy			
Reference conditions	• According to IEC 62828-1 • Rising characteristic curve • Lower range value 0 bar/kPa/psi • Seal diaphragm stainless steel • Measuring cell with silicone oil filling • Room temperature 25 °C (77 °F)		
Conformity error at limit point setting, including hysteresis and repeatability			

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for absolute pressure (differential pressure series)		
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span and nominal measuring range	
• Linear characteristic curve		
- 250 mbar/25 kPa/3.63 psi	r ≤ 5:	≤ 0.075%
	5 < r ≤ 30:	≤ (0.02 · r +0.05)%
- 1300 mbar a/130 kPa a/18.8 psi a 5 bar a/500 kPa a/72.5 psi a 30 bar a/3000 kPa a/435 psi a	r ≤ 5:	≤ 0.075%
	5 < r ≤ 30:	≤ (0.005 · r +0.05)%
- 160 bar/16 MPa/2 320 psi	r ≤ 5:	≤ 0.075%
	5 < r ≤ 20:	≤ (0.005 · r +0.05)%
Influence of ambient temperature (in % per 28 °C (50 °F))		
• 250 mbar a/25 kPa a/3.6 psi a	≤ (0.1 · r +0.1)%	
• 1300 mbar a/130 kPa a/18.8 psi a 5 bar a/500 kPa a/72.5 psi a 30 bar a/3000 kPa a/435 psi a 160 bar a/16 MPa a/2 320 psi a	≤ (0.0025 · r +0.125)%	
Long-term stability at ±30 °C (± 54 °F)		
• 250 mbar a/25 kPa a/3.6 psi a	In 5 years ≤ (0.2 · r)%	
• 1300 mbar a/130 kPa a/18.8 psi a 5 bar a/500 kPa a/72.5 psi a 30 bar a/3000 kPa a/435 psi a 160 bar a/16 MPa a/2 320 psi a	In 5 years ≤ (0.1 · r)% In 10 years ≤ (0.15 · r)%	
Step response time T_{63} (without electrical damping)		
• 250 mbar a/25 kPa a/3.6 psi a 1300 mbar a/130 kPa a/18.8 psi a 5 bar a/500 kPa a/72.5 psi a 30 bar a/3000 kPa a/435 psi a 160 bar a/16 MPa a/2 320 psi a	Every 0.135 s	
Effect of mounting position (in pressure per change of angle)	≤ 0.7 mbar/0.07 kPa/0.010 psi per 10° incline (zero offset is possible with position error compensation)	
Effect of auxiliary power (in % per voltage change)	0.005% per 1 V	
Operating conditions		
Medium temperature		
• Measuring cell with silicone oil filling	-40 ... +100 °C (-40 ... +212 °F)	
- Measuring cell 30 bar (435 psi)	-20 ... +100 °C (-4 ... +212 °F)	
- Measuring cell 160 bar (2 320 psi)	-20 ... +100 °C (-4 ... +212 °F)	
• Measuring cell with inert oil	-20 ... +100 °C (-4 ... +212 °F)	
Ambient conditions		
• Ambient temperature/enclosure	Observe the temperature class in hazardous areas.	
- Measuring cell with silicone oil filling	-40 ... +85 °C (-40 ... +185 °F)	
- Measuring cell with inert oil	-40 ... +85 °C (-40 ... +185 °F)	
- Display	-20 ... +80 °C (-4 ... +176 °F)	
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F) (with FDA-compliant oil: -20 ... +85 °C (-4 ... +185 °F))	
• Climatic class in accordance with IEC 60721-3-4	4K4H	
• Degree of protection		
- According to IEC 60529	IP66, IP68	
- According to NEMA 250	Type 4X	
• Electromagnetic compatibility		
- Emitted interference and interference immunity	According to IEC 61326 and NAMUR NE 21	
Structural design		
Weight	• Aluminum enclosure: Approx. 3.9 kg (8.5 lbs) • Stainless steel enclosure: Approx. 5.9 kg (13 lbs)	
Material		

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for absolute pressure (differential pressure series)	
• Material of wetted parts	
- Seal diaphragm	Stainless steel, mat. no. 1.4404/316L, Alloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold
- Process flanges	Stainless steel, mat. no. 1.4408 to PN 160, mat. no. 1.4571/316Ti for PN 420, Alloy C22, 2.4602 or Monel, mat. no. 2.4360
- Sealing plug	1.4404 or as option alloy C22; 2.4602 or Monel mat. no. 2.4360
- O-ring	FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR
• Material of non-wetted parts	
- Electronics enclosure	• Low-copper die-cast aluminum GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4409/ CF-3M • Standard: Powder coating with polyurethane Option: 2 coats: Coat 1: Epoxy-based; coat 2: Polyurethane • Stainless steel nameplate (1.4404/316L)
- Process flange screws	Stainless steel ISO 3506-1 A4-70
- Mounting bracket	Steel, zinc-plated steel, or stainless steel
Process connection	¼-18 NPT female thread and flange connection with 7/16-20 UNF fastening thread according to EN 61518 or M10 according to DIN 19213 (M12 for PN 420 (MWP 6092 psi))
Electrical connection	Screw terminals Cable entry via the following screw glands: • M20 × 1.5 • ½-14 NPT • Device plug Han 7D/Han 8D[1)] • Device plug M12
Displays and controls	
Buttons	4 buttons for operation directly on the device
Display	• With or without integrated display (optional) • Lid with inspection window (optional)
Auxiliary power U_H	
Terminal voltage on pressure transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically safe mode
Ripple	$U_{SS} \leq 0.2$ V (47 ... 125 Hz)
Noise	$U_{eff} \leq 1.2$ mV (0.5 ... 10 kHz)
Auxiliary power	–
Separate supply voltage	–
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)
Drinking water	
• WRAS (England)	No.: 1903094 (option E83)
• ACS (France)	No.: 18 ACC LY 277 (option E85)
• NSF (USA)	No.: 20180920-MH61350 (option E84)
CRN (Canada)	No.: 0F9863.5C (option E60)
Explosion protection acc. to NEPSI (China)	No.: GYJ19.1058X (option E27)
Explosion protection acc. to INMETRO (Brazil)	No.: BRA-18-GE-0035X (option E25)
Explosion protection	
• Intrinsic safety "i"	
- Marking	II 1/2 G Ex ia/ib IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To certified intrinsically safe circuits with peak values: $U_i = 30$ V, $I_i = 101$ mA, $P_i = 760$ mW $U_i = 29$ V, $I_i = 110$ mA, $P_i = 800$ mW
- Effective internal inductance/capacitance	$L_i = 0.24$ µH/$C_i = 3.29$ nF
• Flameproof enclosure "d"	
- Marking	Ex II 1/2 G Ex ia/db IIC T4/T6 Ga/Gb

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for absolute pressure (differential pressure series)	
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for zones 21, 22	
- Marking	Ex II 2D Ex tb IIIC T120 °C Db Ex II 3D Ex tc IIIC T120 °C Dc
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Max. surface temperature	120 °C (248 °F)
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 20, 21, 22	
- Marking	Ex II 1D Ex ia IIIC T120 °C Da Ex II 2D Ex ib IIIC T120 °C Db
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Type of protection for Zone 2	
- Marking	Ex II 3G Ex ec IIC T4/T6 Gc
- Permissible ambient temperature "ec"	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +40 °C (-40 ... +104 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- "ec" connection	To a circuit with the operating values: U_n = 10.5 ... 30 V, 4 ... 20 mA
• Explosion protection acc. to FM	Available soon
- Marking (XP/DIP) or IS; NI; S	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
• Explosion protection according to CSA	Available soon
- Marking (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
NAMUR recommendations	
• NE 06	Standardized Electrical Signals and Questions Relating to Engineering Technology
• NE 21	Electromagnetic Compatibility (EMC) of Industrial Process and Laboratory Control Equipment
• NE 23	Extra Low Voltage Circuits with Safe Separation
• NE 43	Standardization of the Signal Level for the Failure Information of Digital Transmitters
• NE 53	Software and Hardware of Field Devices and Signal Processing Devices with Digital Electronics
• NE 80	The Application of the Pressure Equipment Directive to Process Control Devices
• NE 105	Specifications for Integrating Fieldbus Devices in Engineering Tools for Field Devices
• NE 107	Self-Monitoring and Diagnosis of Field Devices
• NE 131	NAMUR Standard Device - Field Devices for Standard Applications

1) Han 8D is identical to Han 8U.

Communication	
HART	
HART	230 ... 1 100 Ω
Protocol	HART 7
Software for computer	SIMATIC PDM

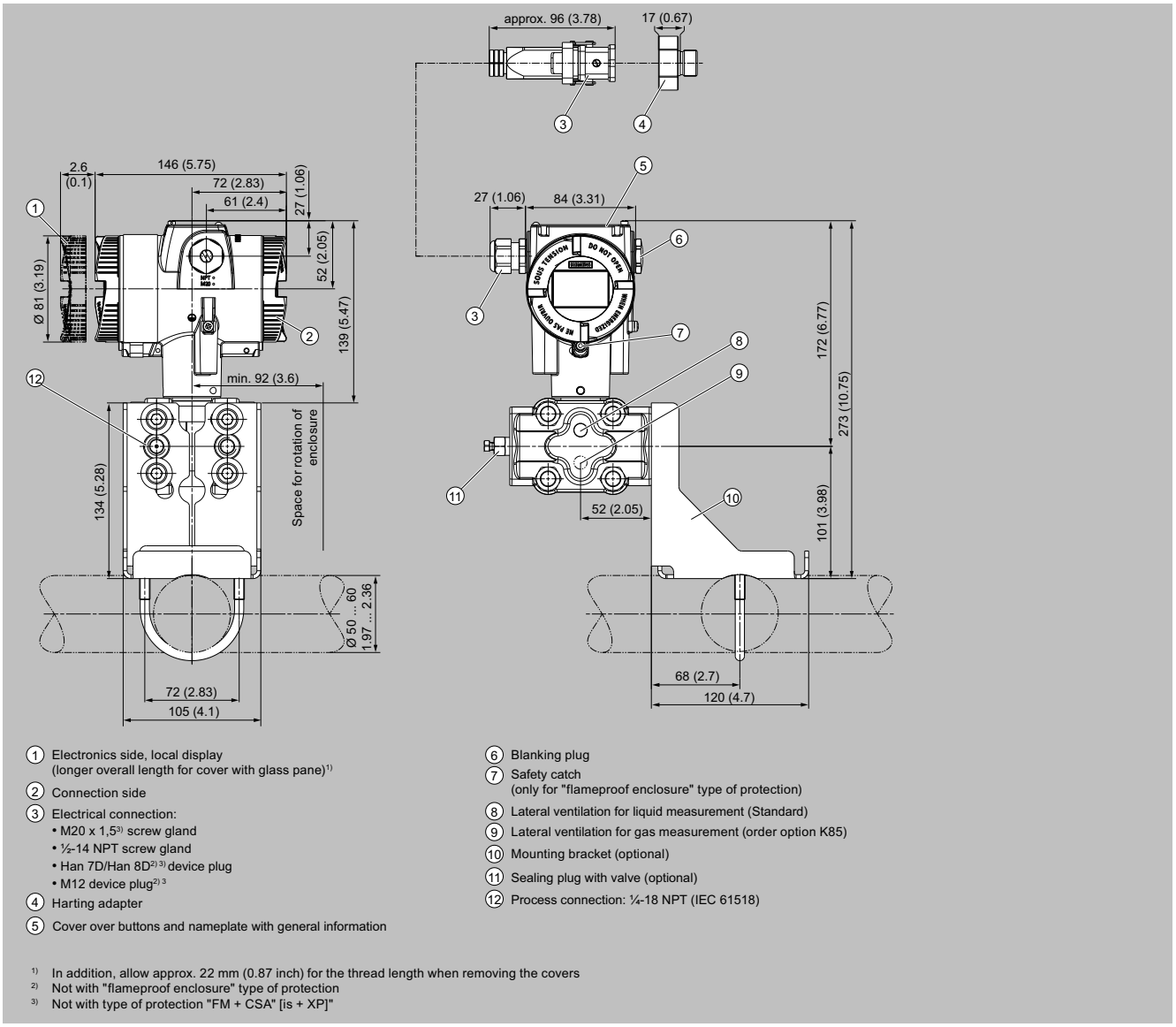
Communication	
PROFIBUS PA	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (default setting address 126)

Technical specifications (continued)

Communication	
Cyclic data usage	
• Output byte	≤ 35 (7 measured values)
• Input byte	0, 1, or 2 (register operation mode and reset function for dosing)
Internal preprocessing	
Device profile	PROFIBUS PA Profile Version 4.01 Class B. Cyclic data usage compatible with version 3.XX
Number of function blocks	7
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
• Physical block	1
Transducer blocks	1
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Specification of a vessel characteristic curve with	Max. 30 nodes
- Square-rooted characteristic curve for flow measurement	Yes
- Tank characteristic curve for volume measurement	Yes

Communication	
- Low flow cut-off and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or by means of parameterizable ramp function
FOUNDATION Fieldbus	
Device profile	FF ITK 6
Function blocks	3 function blocks analog input, 1 function block PID
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
- Square-rooted characteristic curve for flow measurement	Yes
• PID	Standard FOUNDATION Fieldbus function block
• Physical block	1 resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Simulation function: pressure measurement, sensor temperature and electronics temperature	Constant value or by means of parameterizable ramp function

Dimensional drawings



1. Electronics side, local display (longer overall length for cover with glass pane)[1]
2. Connection side
3. Electrical connection:
   - M20 x 1,5[2] screw gland
   - ½-14 NPT screw gland
   - Han 7D/Han 8D[2][3] device plug
   - M12 device plug[2][3]
4. Harting adapter
5. Cover over buttons and nameplate with general information
6. Blanking plug
7. Safety catch (only for "flameproof enclosure" type of protection)
8. Lateral ventilation for liquid measurement (Standard)
9. Lateral ventilation for gas measurement (order option K85)
10. Mounting bracket (optional)
11. Sealing plug with valve (optional)
12. Process connection: ¼-18 NPT (IEC 61518)

[1] In addition, allow approx. 22 mm (0.87 inch) for the thread length when removing the covers
[2] Not with "flameproof enclosure" type of protection
[3] Not with type of protection "FM + CSA" [is + XP]"

SITRANS P320/P420 pressure transmitter for absolute pressure (differential pressure series), dimensions in mm (inch)

Selection and ordering data

Pressure transmitters for differential pressure and flow, PN 160 (MAWP 2320 psi)	Article No.										
SITRANS P320	7MF034●-●●●●●-●●●●	●	●	●	●	●	●	●	●	●	●
SITRANS P420	7MF044●-●●●●●-●●●●	●	●	●	●	●	●	●	●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.											
Communication											
HART, 4 ... 20 mA		0									
PROFIBUS PA		1									
FOUNDATION Fieldbus (FF)		2									
Measuring cell filling											
Silicone oil			1								
Inert liquid			3								
Neobee oil			4								
Maximum measuring span											
20 mbar (8.037 inH_2O)				B							
60 mbar (24.11 inH_2O)				D							
250 mbar (100.5 inH_2O)				G							
600 mbar (241.1 inH_2O)				H							
1 600 mbar (643 inH_2O)				M							
5 000 mbar (2009 inH_2O)				P							
30 bar (435 psi)				R							
160 bar (2 320 psi)				Y							
Process connection											
Oval flange, fastening thread: $^7/_{16}$-20 UNF (IEC 61518)					L						
Oval flange, fastening thread: M10 (PN 160) (DIN 19213)					M						
Oval flange, fastening thread: $^7/_{16}$-20 UNF (IEC 61518) with lateral ventilation					N						
Oval flange, fastening thread: M10 (PN 160) (DIN 19213) with lateral ventilation					P						
Version for diaphragm seal with fastening thread $^7/_{16}$-20 UNF (IEC 61518)					V						
Version for diaphragm seal with fastening thread M10 (PN 160) (DIN 19213)					W						
Version for diaphragm seal (one side mounted directly; other side with capillary line) with fastening thread $^7/_{16}$-20 UNF (IEC 61518)					X						
Material of wetted parts: Process connection, seal diaphragm											
Stainless steel 316L/1.4404, stainless steel 316L/1.4404, process flange stainless steel 316/1.4408						0					
Stainless steel 316L/1.4404, alloy C276/2.4819, process flange stainless steel 316/1.4408						1					
Alloy C22/2.4602, alloy C276/2.4819, process flange stainless steel 316/1.4408						2					
Tantalum/tantalum, process flange stainless steel 316/1.4408 (not in combination with maximum measuring span 20 mbar (0.29 psi) and 60 mbar (0.87 psi))						4					
Monel 400/2.4360, Monel 400/2.4360, process flange stainless steel 316/1.4408 (not in combination with maximum measuring span 20 mbar (0.29 psi) and 60 mbar (0.87 psi))						6					
Stainless steel 316L/1.4404 gold-plated, process flange stainless steel 316/1.4408 (not in combination with maximum measuring span 20 mbar (0.29 psi) and 60 mbar (0.87 psi))						8					
Material of non-wetted parts											
Die-cast aluminum							1				
Stainless steel precision casting CF3M/1.4409 similar to 316L							2				
Enclosure											
Dual chamber device								5			
Type of protection											
Without Ex									A		
Intrinsic safety									B		
Flameproof enclosure									C		
Flameproof enclosure, intrinsic safety									D		
Dust protection by enclosure Zone 21/22 (DIP), increased safety Zone 2									L		
Intrinsic safety, dust protection by enclosure Zone 20/21/22 (DIP), increased safety Zone 2									M		
Combination of options B, C and L (Zone model)									S		
Combination of options B, C and L (Zone model, Class Division)									T		
Electrical connections/cable entries											
Thread for cable gland: Cable gland must be ordered separately as option (Axx)											
• 2 × M20 × 1.5										F	
• 2 × ½-14 NPT										M	
Local operation/display											
Without local display (lid closed)											0
With local display (lid closed)											1

Selection and ordering data (continued)

Pressure transmitters for differential pressure and flow, PN 160 (MAWP 2320 psi)	Article No.															
SITRANS P320	7MF034	●	-	●	●	●	●	●	-	●	●	●	●			
SITRANS P420	7MF044	●	-	●	●	●	●	●	-	●	●	●	●			
With local display (lid with glass pane)																2

Pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi)	Article No.															
SITRANS P320	7MF035	●	-	●	●	●	●	●	-	●	●	●	●			
SITRANS P420	7MF045	●	-	●	●	●	●	●	-	●	●	●	●			
Click the article number for online configuration in the PIA Life Cycle Portal.																
Communication																
HART, 4 ... 20 mA								0								
PROFIBUS PA								1								
FOUNDATION Fieldbus (FF)								2								
Measuring cell filling																
Silicone oil									1							
Inert liquid									3							
Neobee oil									4							
Maximum measuring span																
250 mbar (100.5 inH_2O)										G						
600 mbar (241.1 inH_2O)										H						
1600 mbar (643 inH_2O)										M						
5000 mbar (2009 inH_2O)										P						
30 bar (435 psi)										R						
Process connection																
Oval flange, fastening thread: $^7/_{16}$-20 UNF (IEC 61518)											L					
Oval flange, fastening thread: M12 (PN 420) (DIN 19213)											M					
Oval flange, fastening thread: $^7/_{16}$-20 UNF (IEC 61518) with lateral ventilation											N					
Oval flange, fastening thread: M12 (PN 420) (DIN 19213) with lateral ventilation											P					
Version for diaphragm seal with fastening thread $^7/_{16}$-20 UNF (IEC 61518)											V					
Version for diaphragm seal with fastening thread M10 (DIN 19213)											W					
Version for diaphragm seal (one side mounted directly; other side with capillary line) with fastening thread $^7/_{16}$-20 UNF (IEC 61518)											X					
Material of wetted parts: Process connection, seal diaphragm																
Stainless steel 316L/1.4404, stainless steel 316L/1.4404, process flange stainless steel 316/1.4408												0				
Stainless steel 316L/1.4404, alloy C276/2.4819, process flange stainless steel 316/1.4408												1				
Stainless steel 316L/1.4404 gold-plated, process flange stainless steel 316/1.4408												8				
Material of non-wetted parts																
Die-cast aluminum													1			
Stainless steel precision casting CF3M/1.4409 similar to 316L													2			
Enclosure																
Dual chamber device														5		
Type of protection																
Without Ex															A	
Intrinsic safety															B	
Flameproof enclosure															C	
Flameproof enclosure, intrinsic safety															D	
Dust protection by enclosure Zone 21/22 (DIP), increased safety Zone 2															L	
Dust protection by enclosure Zone 20/21/22 (DIP), increased safety Zone 2															M	
Combination of options B, C and L (Zone model)															S	
Combination of options B, C and L (Zone model, Class Division)															T	
Electrical connections/cable entries																
Thread for cable gland: Cable gland must be ordered separately as option (Axx)																
• 2 × M20 × 1.5																F
• 2 × ½-14 NPT																M
Local operation/display																
Without local display (lid closed)																0
With local display (lid closed)																1

Selection and ordering data (continued)

	Article No.	
Pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi)		
SITRANS P320	**7MF035**	● - ● ● ● ● ● - ● ● ● ●
SITRANS P420	**7MF045**	● - ● ● ● ● ● - ● ● ● ●
With local display (lid with glass pane)		2

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Cable glands included	
Plastic	**A00**
Metal	**A01**
Stainless steel	**A02**
Stainless steel 316L/1.4404	**A03**
CMP, for XP devices	**A10**
CAPRI ADE 4F, CuZn, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A11**
CAPRI ADE 4F, stainless steel, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A12**
Sealing plug included, plastic	**A20**
Sealing plug included, metal	**A21**
Sealing plug included, stainless steel	**A22**
Sealing plug included, stainless steel 316L/1.4404	**A23**
Device plug Han mounted left	
Device plug Han 7D (plastic, straight)	**A30**
Device plug Han 7D (plastic, angled)	**A31**
Device plug Han 7D (metal, straight)	**A32**
Device plug Han 7D (metal, angled)	**A33**
Device plug Han 8D (plastic, straight)	**A34**
Device plug Han 8D (plastic, angled)	**A35**
Device plug Han 8D (metal, straight)	**A36**
Device plug Han 8D (metal, angled)	**A37**
Cable socket included	
Plastic, for device plug Han 7D and Han 8D	**A40**
Metal, for device plug Han 7D and Han 8D	**A41**
Device plug M12 mounted left	
Stainless steel, without cable socket	**A62**
Stainless steel, with cable socket	**A63**
Cable entry/device plug mounting	
2 × sealing plugs M20 × 1.5, IP66/68 installed on both sides	**A90**
2 × sealing plugs ½-14 NPT, IP66/68 installed on both sides	**A91**
Cable gland/device plug mounted left	**A97**
Cable gland/device plug mounted right	**A99**
Nameplate labeling (standard labeling: English, unit bar)	
German (bar)	**B11**
French (bar)	**B12**
Spanish (bar)	**B13**
Italian (bar)	**B14**
Chinese (bar)	**B15**
Russian (bar)	**B16**
English (psi)	**B20**
English (Pa)	**B30**
Chinese (Pa)	**B35**

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Certificates	
Quality inspection certificate, 5-point factory calibration (IEC 62828-2)	**C11**
Inspection certificate (EN 10204-3.1) - Material of pressurized and wetted parts	**C12**
Factory certificate - NACE (MR 0103-2012 and MR 0175-2009)	**C13**
Factory certificate (EN 10204-2.2) - Wetted parts	**C14**
Inspection certificate (EN 10204-3.1) - PMI test of pressurized and wetted parts	**C15**
Certificates for functional safety	
Functional Safety (IEC 61508) - SIL2/3	**C20**
Device options	
PDF file with device settings	**D10**
Double layer coating (epoxy resin and polyurethane) 120 µm of enclosure and lid	**D20**
FVMQ enclosure sealing	**D21**
Degree of protection IP66/IP68 (not for device plug M12 and Han)	**D30**
Unlabeled TAG plate	**D40**
Without labeling of the measuring range on the TAG plate	**D41**
Stainless steel Ex plate 1.4404/316L	**D42**
Increase of pressure rating from PN 420 to PN 500 (Tested according to IEC 61010. Only permissible for process media of fluid group 2 acc. to DGRL. Not suitable for use with hazardous process media.)	**D50**
Extension of the medium temperature to -40 °C for measuring cell filling with inert filling liquid Please note step response time T63: 5.5 s (20 and 60 mbar); 1.4 s (250 and 600 mbar); 0.3 s (1.6 and 5 bar)	**D52**
Overvoltage protection up to 6 kV (internal)	**D70**
Overvoltage protection up to 6 kV (external)	**D71**
Labels on transport packaging (provided by customer)	**D90**
General approval without Ex approval	
Worldwide (CE, UKCA, RCM) except EAC, FM, CSA, KCC	**E00**
Worldwide (CE, UKCA, RCM, EAC, FM, CSA, KCC)	**E01**
CSA (USA and Canada)	**E06**
EAC	**E07**
FM	**E08**
KCC	**E09**
Explosion protection approvals	
ATEX (Europe)	**E20**
CSA (USA and Canada)[1)]	**E21**
FM (USA and Canada)[1)]	**E22**
IECEx (Worldwide)	**E23**
EACEx (GOST-R, -K, -B)	**E24**
INMETRO (Brazil)	**E25**
KCs (Korea)	**E26**
NEPSI (China)	**E27**

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
PESO (India)	**E28**
CSA (Japan)	**E29**
UKR Sepro (Ukraine)	**E30**
UKEX (United Kingdom)	**E33**
ATEX (Europe), IECEx (Worldwide) and UKEX (UK)	**E47**
CSA (Canada) and FM (USA)[1)]	**E48**
ATEX (Europe) and IECEx (Worldwide) + CSA (Canada) and FM (USA)[1)]	**E49**
Marine approvals	
DNV-GL (Det Norske Veritas/Germanischer Lloyd)	**E50**
LR (Lloyds Register)	**E51**
BV (Bureau Veritas)	**E52**
ABS (American Bureau of Shipping)	**E53**
RMR (Russian Maritime Register)	**E55**
KR (Korean Register of Shipping)	**E56**
RINA (Registro Italiano Navale)	**E57**
CCS (China Classification Society)	**E58**
Country-specific approvals	
CRN approval Canada (Canadian Registration Number)	**E60**
Special approvals	
Oxygen application (with inert liquid, max. 160 bar (2 320 psi) at 100 °C (212 °F))	**E80**
Dual Seal	**E81**
WRC/WRAS (drinking water); only with process flange O-rings made of EPDM	**E83**
NSF61 (drinking water)	**E84**
ACS (drinking water)	**E85**
Mounting bracket	
Steel, zinc-plated	**H01**
Stainless steel 1.4301/304	**H02**
Stainless steel 1.4404/316L	**H03**
Process flanges; screw plug with vent valve	
Welded in on right	**J08**
Welded in on left	**J09**
Glued in on right	**J10**
Glued in on left	**J11**
Flange connections with flange EN 1092-1	
Form B1	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J70**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J71**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J72**
• DN 15 PN 40, stainless steel 1.4571/316Ti	**J78**
Form C	
• DN 25 PN 40, stainless steel 1.4571/316Ti	**J73**
• DN 50 PN 40, stainless steel 1.4571/316Ti	**J74**
• DN 80 PN 40, stainless steel 1.4571/316Ti	**J75**
Flange connection options	
Flange connection and temperature extension	**J76**
Flange connection with epoxy resin coating	**J77**

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Process flanges; special materials	
Reserved for 7MF7: without process flanges, without screws, without gaskets	**K00**
Process flange material alloy C22/2.4602	**K01**
Process flange material Monel 400/2.4360	**K02**
Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. medium temperature 90 °C (194 °F) Process connection ½-14 NPT, on the side in the middle of the process flanges, no vent valves possible	**K05**
Process flanges; process connection option	
Process connection NAM (ASTAVA)	**K21**
Process flanges chambered with gaskets	
1 × chambered, graphite	**K40**
1 × chambered, PTFE (FDA-compliant), recommended for gas measurements	**K41**
Process flanges, gaskets (instead of standard gaskets FKM (FPM))	
O-ring, process flanges, PTFE	**K50**
O-ring, process flanges, FEP (with silicone core, approved for food)	**K51**
O-ring, process flanges, FFKM (FFPM)	**K52**
O-ring, process flanges, NBR	**K53**
O-ring, process flanges, EPDM	**K54**
Process flange options	
Process flanges for vertical differential pressure lines (half process flange)	**K81**
Process flanges (+) - side front	**K82**
Process flange screws, process flange nuts, material Monel 400/2.4360	**K83**
Valve ¼-18 NPT, material same as process flanges	**K84**
Valve mounted on the side, measured medium: Gas	**K85**
Oval flange attached, PTFE seal + fixing screws	**K86**
Valve manifolds	
With mounted valve manifold (3-way) 7MF9411-5BA, PTFE sealing rings, chrome-plated steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U01**
With mounted valve manifold (3-way) 7MF9411-5BA, PTFE sealing rings, stainless steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U02**
With mounted valve manifold (5-way) 7MF9411-5CA, PTFE sealing rings, chrome-plated steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U03**
With mounted valve manifold (5-way) 7MF9411-5CA, PTFE sealing rings, stainless steel screws and pressure test certified in factory certificate (EN 10204-2.2)	**U04**
Device settings	
Measuring span: Lower range value (max. 5 characters), upper range value (max. 5 characters), unit [mbar, bar, kPa, MPa, psi, ...], example: -0.5 ... 10.5 psi	**Y01**
Square-rooted characteristic curve [VSLN2, MSLN2]; example: VSLN2	**Y02**
TAG (on stainless steel plate and device parameters, max. 32 characters)	**Y15**
Measuring point description (on stainless steel plate and device parameters, max. 32 characters)	**Y16**
TAG short (device parameters, max. 8 characters)	**Y17**

Selection and ordering data (continued)

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Local display: [Pressure, Percent], reference [None, Absolute, Gauge], example: Pressure gauge	**Y21**
Local display: Scaling with standard units [m^3/s, l/s, m, inch, ...], example 1 ... . 5 m^3/s	**Y22**
Local display: Scaling with user-specific units (max. 12 characters), example 1 ... 5 m	**Y23**

Options Add "-Z" to article no., add order code and plain text or entry from drop-down list.	Order code
Set PROFIBUS PA device address (1 ... 126)	**Y25**
Saturation limits instead of 3.8 ... 20.5 mA, example: 3.8 ... 22.0 mA	**Y30**
Fault current instead of 3.6 mA [22.5 mA, 22.8 mA]	**Y31**
Damping in seconds instead of 2 s (0.0 ... 100.0 s)	**Y32**
ID number of special design	**Y99**

[1] Explosion protection acc. to FM/CSA: suitable for installation according to NEC 500/505.

Technical specifications

SITRANS P320 / SITRANS P420 for differential pressure and flow			
Input			
Measured variable	Differential pressure and flow		
Measuring span (continuously adjustable) or measuring range and max. permissible operating pressure (pursuant to Pressure Equipment Directive 2014/68/EU)	Measuring span	Max. permissible operating pressure MAWP (PS)	Maximum permissible test pressure
	1 ... 20 mbar 0.1 ... 2 kPa 0.4019 ... 8.037 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	1 ... 60 mbar 0.1 ... 6 kPa 0.4019 ... 24.11 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	2.5 ... 250 mbar 0.2 ... 25 kPa 1.005 ... 100.5 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	6 ... 600 mbar 0.6 ... 60 kPa 2.41 ... 241.1 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	16 ... 1600 mbar 1.6 ... 160 kPa 6.43 ... 643 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	50 ... 5 000 mbar 5 ... 500 kPa 20.09 ... 2009 inH_2O	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	8 ... 160 bar 0.8 ... 16 MPa 116 ... 2 320 psi	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	0.3 ... 30 bar 0.03 ... 3 MPa 4.35 ... 435 psi	160 bar 16 MPa 2 320 psi	240 bar 24 MPa 3 481 psi
	2.5 ... 250 mbar 0.25 ... 25 kPa 1.005 ... 100.5 inH_2O	420 bar 42 MPa 6 092 psi	630 bar 63 MPa 9 137 psi
	6 ... 600 mbar 0.6 ... 60 kPa 2.41 ... 241.1 inH_2O	420 bar 42 MPa 6 092 psi	630 bar 63 MPa 9 137 psi
	16 ... 1600 mbar 1.6 ... 160 kPa 6.43 ... 643 inH_2O	420 bar 42 MPa 6 092 psi	630 bar 63 MPa 9 137 psi
	50 ... 5 000 mbar 5 ... 500 kPa 20.09 ... 2009 inH_2O	420 bar 42 MPa 6 092 psi	630 bar 63 MPa 9 137 psi
	0.3 ... 30 bar 0.03 ... 3 MPa 4.35 ... 435 psi	420 bar 42 MPa 6 092 psi	630 bar 63 MPa 9 137 psi
Measuring limits			
• Lower measuring limit			
- Measuring cell with silicone oil filling	All measuring cells: • -100% of max. measuring range or 30 mbar a /3 kPa a /0.44 psi a Measuring cell 160 bar/16 MPa/2 320 psi: • -25% of maximum measuring range or 30 mbar a /3 kPa a /0.44 psi a		
- Measuring cell with inert liquid	For medium temperature -20 °C < ϑ ≤ +60 °C (-4 °F < ϑ ≤ +140 °F)		-100% of maximum measuring range or 30 mbar a /3 kPa a /0.44 psi a
	For medium temperature 60 °C < ϑ ≤ +100 °C (max. 85 °C for measuring cell 30 bar with PN 420) (140 °F < ϑ ≤ +212 °F (max. 185 °F for measuring cell 435 psi))		-100% of maximum measuring range or 30 mbar a /3 kPa a /0.44 psi a 30 mbar a + 20 mbar a · (ϑ -60 °C)/°C 3 kPa a + 2 kPa a · (ϑ -60 °C)/°C0.44 psi a + 0.29 psi a · (ϑ - 140 °F)/°F
- Measuring cell with FDA-compliant oil	For medium temperature -10 °C < ϑ ≤ +100 °C (-14 °F < ϑ ≤ +212 °F)		-100% of maximum measuring range or 100 mbar a /10 kPa a /14.5 psi a
• Upper measuring limit	100% of the max. measuring span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/medium temperature)		

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for differential pressure and flow		
• Lower range value	Between the measuring limits (continuously adjustable)	
Output	**HART**	
Output signal	4 ... 20 mA	
• Lower saturation limit (continuously adjustable)	3.55 mA, factory set to 3.8 mA	
• Upper saturation limit (continuously adjustable)	22.8 mA, factory-set to 20.5 mA or optionally 22.0 mA	
• Ripple (without HART communication)	$I_{pp} \leq 0.5\%$ of max. output current	
Adjustable damping	0 ... 100 s, continuously adjustable over remote operation 0 ... 100 s, in increments of 0.1 s, adjustable over local display	
• Current simulator	3.55 ... 22.8 mA	
• Failure signal	3.55 ... 22.8 mA	
Load	Resistance R [Ω]	
• Without HART communication	$R = (U_H - 10.5\ V) / 22.8\ mA$, U_H: Auxiliary power in V	
• With HART communication	R = 230 ... 1100 Ω	
Characteristic curve	• Linearly increasing or linearly decreasing • Linear increase or decrease or according to the square root (only for differential pressure and flow)	
Physical bus	-	
Polarity-independent	-	
Measuring accuracy		
Reference conditions	• According to IEC 62828-1 • Rising characteristic curve • Lower range value 0 bar/kPa/psi • Seal diaphragm stainless steel • Measuring cell with silicone oil filling • Room temperature 25 °C (77 °F)	
Characteristic curve deviation at limit point setting, including hysteresis and repeatability		
Measuring span ratio r (spread, Turn-Down)	r = maximum measuring span/set measuring span or nominal measuring range	
• Linear characteristic curve		
- 20 mbar/2 kPa/0.29 psi	r ≤ 5:	≤ 0.075%
	5 < r ≤ 20:	≤ (0.005 · r +0.05)%
- 60 mbar/6 kPa/0.87 psi	r ≤ 5:	≤ 0.075%
	5 < r ≤ 60:	≤ (0.005 · r +0.05)%
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi	r ≤ 5:	≤ 0.065% (SITRANS P320)
	5 < r ≤ 100:	≤ (0.004 · r + 0.045)% (SITRANS P320)
- 160 bar/16 MPa/2 320 psi	r ≤ 5:	≤ 0.065% (SITRANS P320)
	5 < r ≤ 20:	≤ (0.004 · r + 0.045)% (SITRANS P320)
- 250 mbar/25 kPa/3.63 psi (PN 160) 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi	r ≤ 5:	≤ 0.04% (SITRANS P420)
	5 < r ≤ 100:	≤ (0.004 · r + 0.045)% (SITRANS P420)
- 160 bar/16 MPa/2 320 psi	r ≤ 5:	≤ 0.04% (SITRANS P420)
	5 < r ≤ 20:	≤ (0.004 · r + 0.045)% (SITRANS P420)
- 250 mbar/25 kPa/3.63 psi (PN 420)	r ≤ 5:	≤ 0.065% (SITRANS P420)
• Square-rooted characteristic curve (flow > 50%)		
- 20 mbar/2 kPa/0.29 psi	r ≤ 5:	≤ 0.075%
	5 < r ≤ 20:	≤ (0.005 · r +0.05)%
- 60 mbar/6 kPa/0.87 psi	r ≤ 5:	≤ 0.075%
	5 < r ≤ 60:	≤ (0.005 · r +0.05)%
- 250 mbar/25 kPa/3.63 psi	r ≤ 5:	≤ 0.065% (SITRANS P320) ≤ 0.04% (SITRANS P420)

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for differential pressure and flow		
600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi	5 < r ≤ 100:	≤ (0.004 · r +0.045)%
- 160 bar/16 MPa/2 320 psi	r ≤ 5:	≤ 0.065% (SITRANS P320) ≤ 0.04% (SITRANS P420)
	5 < r ≤ 20:	≤ (0.004 · r +0.045)%
• Square-rooted characteristic curve (flow 25 ... 50%)		
- 20 mbar/2 kPa/0.29 psi	r ≤ 5:	≤ 0.15%
	5 < r ≤ 20:	≤ (0.01 · r +0.1)%
- 60 mbar/6 kPa/0.87 psi	r ≤ 5:	≤ 0.15%
	5 < r ≤ 60:	≤ (0.01 · r +0.1)%
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi	r ≤ 5:	≤ 0.13% (SITRANS P320) ≤ 0.08% (SITRANS P420)
	5 < r ≤ 100:	≤ (0.008 · r +0.09)%
- 160 bar/16 MPa/2 320 psi	r ≤ 5:	≤ 0.13% (SITRANS P320) ≤ 0.08% (SITRANS P420)
	5 < r ≤ 20:	≤ (0.008 · r +0.09)%
Influence of ambient temperature (in % per 28 °C (50 °F))		
- 20 mbar/2 kPa/0.29 psi	≤ (0.15 · r +0.1)%	
- 60 mbar/6 kPa/0.87 psi	≤ (0.075 · r +0.1)%	
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi 160 bar/16 MPa/2 320 psi	≤ (0.025 · r + 0.125)% (SITRANS P320)	
- 250 mbar/25 kPa/3.63 psi 5 bar/500 kPa/72.5 psi	≤ (0.025 · r + 0.0625)% (SITRANS P420)	
- 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 30 bar/3 MPa/435 psi 160 bar/16 MPa/2 320 psi	≤ (0.0125 · r + 0.0625)% (SITRANS P420)	
Effect of static pressure		
• At the lower range value	Zero offset is possible with position error compensation	
- 20 mbar/2 kPa/0.29 psi	≤ (0.3 · r)% per 70 bar (SITRANS P320) ≤ (0.2 · r)% per 70 bar (SITRANS P420)	
- 60 mbar/6 kPa/0.87 psi 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 30 bar/3 MPa/435 psi 160 bar/16 MPa/2 320 psi	≤ (0.1 · r)% per 70 bar	
- 5 bar/500 kPa/72.5 psi	≤ (0.15 · r)% per 70 bar	
• On the measuring span		
- 20 mbar/2 kPa/0.29 psi	≤ 0.2% per 70 bar	
- 60 mbar/6 kPa/0.87 psi 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi 160 bar/16 MPa/2 320 psi	≤ 0.1% per 70 bar	
Long-term stability at ±30 °C (± 54 °F)	Static pressure max. 70 bar/7 MPa/1015 psi	

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for differential pressure and flow	
• 20 mbar/2 kPa/0.29 psi	≤ (0.2 · r)% per year
• 60 mbar/6 kPa/0.87 psi	In 5 years ≤ (0.25 · r)%
• 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 160 bar/16 MPa/2 320 psi	In 5 years ≤ (0.125 · r)% In 10 years ≤ (0.15 · r)%
• 30 bar/3 MPa/435 psi	In 5 years ≤ (0.25 · r)% In 10 years ≤ (0.35 · r)%
Step response time T_{63} (without electrical damping for pressure rating PN 160)	
• 20 mbar/2 kPa/0.29 psi	Approx. 0.160 s
• 60 mbar/6 kPa/0.87 psi	Approx. 0.150 s
• 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi 160 bar/16 MPa/2 320 psi	Approx. 0.135 s
Effect of mounting position (in pressure per change of angle)	≤ 0.7 mbar/0.07 kPa/0.028 inH_2O per 10° incline (zero offset is possible with position error compensation)
Effect of auxiliary power (in % per voltage change)	0.005% per 1 V
Operating conditions	
Medium temperature	
• Measuring cell with silicone oil filling	-40 ... +100 °C (-40 ... +212 °F)
- Measuring cell 30 bar (435 psi)	-20 ... +100 °C (-4 ... +212 °F)
- Measuring cell 160 bar (2 320 psi)	-20 ... +100 °C (-4 ... +212 °F)
• Measuring cell with inert oil	-20 ... +100 °C (-4 ... +212 °F)
• Measuring cell with FDA-compliant oil	-10 ... +100 °C (14 ... +212 °F)
Ambient conditions	
• Ambient temperature/enclosure	Observe the temperature class in hazardous areas.
- Measuring cell with silicone oil filling	-40 ... +85 °C (-40 ... +185 °F)
- Measuring cell with inert oil	-40 ... +85 °C (-40 ... +185 °F)
- Measuring cell with FDA-compliant oil	-10 ... +85 °C (14 ... +185 °F)
- Local display	-20 ... +80 °C (-4 ... +176 °F)
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F) (with FDA-compliant oil: -20 ... +85 °C (-4 ... +185 °F))
• Climatic class in accordance with IEC 60721-3-4	4K4H
• Degree of protection	
- According to IEC 60529	IP66, IP68
- According to NEMA 250	Type 4X
• Electromagnetic compatibility	
- Emitted interference and interference immunity	According to IEC 61326 and NAMUR NE 21
Structural design	
Weight	• Aluminum enclosure: Approx. 3.9 kg (8.5 lbs) • Stainless steel enclosure: Approx. 5.9 kg (13 lbs)
Material	
• Material of wetted parts	
- Seal diaphragm	Stainless steel, mat. no. 1.4404/316L, Alloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold
- Process flanges	Stainless steel, mat. no. 1.4408 to PN 160, mat. no. 1.4571/316Ti for PN 420, Alloy C22, 2.4602 or Monel, mat. no. 2.4360
- Sealing plug	1.4404 or as option alloy C22; 2.4602 or Monel mat. no. 2.4360
- O-ring	FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR
• Material of non-wetted parts	

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for differential pressure and flow	
- Electronics enclosure	• Low-copper die-cast aluminum GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4409/ CF-3M • Standard: Powder coating with polyurethane Option: 2 coats: Coat 1: Epoxy-based; coat 2: Polyurethane • Stainless steel nameplate (1.4404/316L)
- Process flange screws	Stainless steel ISO 3506-1 A4-70
- Mounting bracket	Steel, zinc-plated steel, or stainless steel
Process connection	¼-18 NPT internal thread and flange connection with 7/16-20 UNF fastening thread according to EN 61518 or M10 according to DIN 19213 (M12 for PN 420 (MWP 6 092 psi))
Electrical connection	Screw terminals Cable entry via the following screw glands: • M20 × 1.5 • ½-14 NPT • Device plug Han 7D/Han 8D[1)] • Device plug M12
Displays and controls	
Buttons	4 buttons for operation directly on the device
Local display	• With or without integrated local display (optional) • Lid with inspection window (optional)
Auxiliary power U_H	
Terminal voltage on pressure transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically safe mode
Ripple	$U_{SS} \leq 0.2$ V (47 ... 125 Hz)
Noise	$U_{eff} \leq 1.2$ mV (0.5 ... 10 kHz)
Auxiliary power	–
Separate supply voltage	–
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) **For flow only** For gases of fluid group 1 and liquids of fluid group 1; fulfills the basic safety requirements as per article 3, paragraph 1 (appendix 1); classified as category III, module H conformity evaluation by TÜV Nord
Drinking water	
• WRAS (England)	No.: 1903094 (option E83)
• ACS (France)	No.: 18 ACC LY 277 (option E85)
• NSF (USA)	No.: 20180920-MH61350 (option E84)
CRN (Canada)	No.: 0F9863.5C (option E60)
Explosion protection acc. to NEPSI (China)	No.: GYJ19.1058X (option E27)
Explosion protection acc. to INMETRO (Brazil)	No.: BRA-18-GE-0035X (option E25)
Explosion protection	
• Intrinsic safety "i"	
- Marking	II 1/2 G Ex ia/ib IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Flameproof enclosure "d"	
- Marking	Ex II 1/2 G Ex ia/db IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for differential pressure and flow	
• Dust explosion protection for Zones 21, 22	
- Marking	Ex II 2D Ex tb IIIC T120 °C Db Ex II 3D Ex tc IIIC T120 °C Dc
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Max. surface temperature	120 °C (248 °F)
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 20, 21, 22	
- Marking	Ex II 1D Ex ia IIIC T120 °C Da Ex II 2D Ex ib IIIC T120 °C Db
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Type of protection for Zone 2	
- Marking	Ex II 3G Ex ec IIC T4/T6 Gc
- Permissible ambient temperature "ec"	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +40 °C (-40 ... +104 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- "ec" connection	To a circuit with the operating values: U_n = 10.5 ... 30 V, 4 ... 20 mA
• Explosion protection acc. to FM	Available soon
- Marking (XP/DIP) or IS; NI; S	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
• Explosion protection according to CSA	Available soon
- Marking (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
NAMUR recommendations	
• NE 06	Standardized Electrical Signals and Questions Relating to Engineering Technology
• NE 21	Electromagnetic Compatibility (EMC) of Industrial Process and Laboratory Control Equipment
• NE 23	Extra Low Voltage Circuits with Safe Separation
• NE 43	Standardization of the signal level for the failure information of digital transmitters with analog output signal
• NE 53	Software and Hardware of Field Devices and Signal Processing Devices with Digital Electronics
• NE 80	The Application of the Pressure Equipment Directive to Process Control Devices
• NE 105	Specifications for Integrating Fieldbus Devices in Engineering Tools for Field Devices
• NE 107	Self-Monitoring and Diagnosis of Field Devices
• NE 131	NAMUR Standard Device - Field Devices for Standard Applications

Communication	
HART	
HART	230 ... 1 100 Ω
Protocol	HART 7
Software for computer	SIMATIC PDM
PROFIBUS PA	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (default setting address 126)
Cyclic data usage	
• Output byte	≤ 35 (7 measured values)
• Input byte	0, 1, or 2 (register operation mode and reset function for dosing)

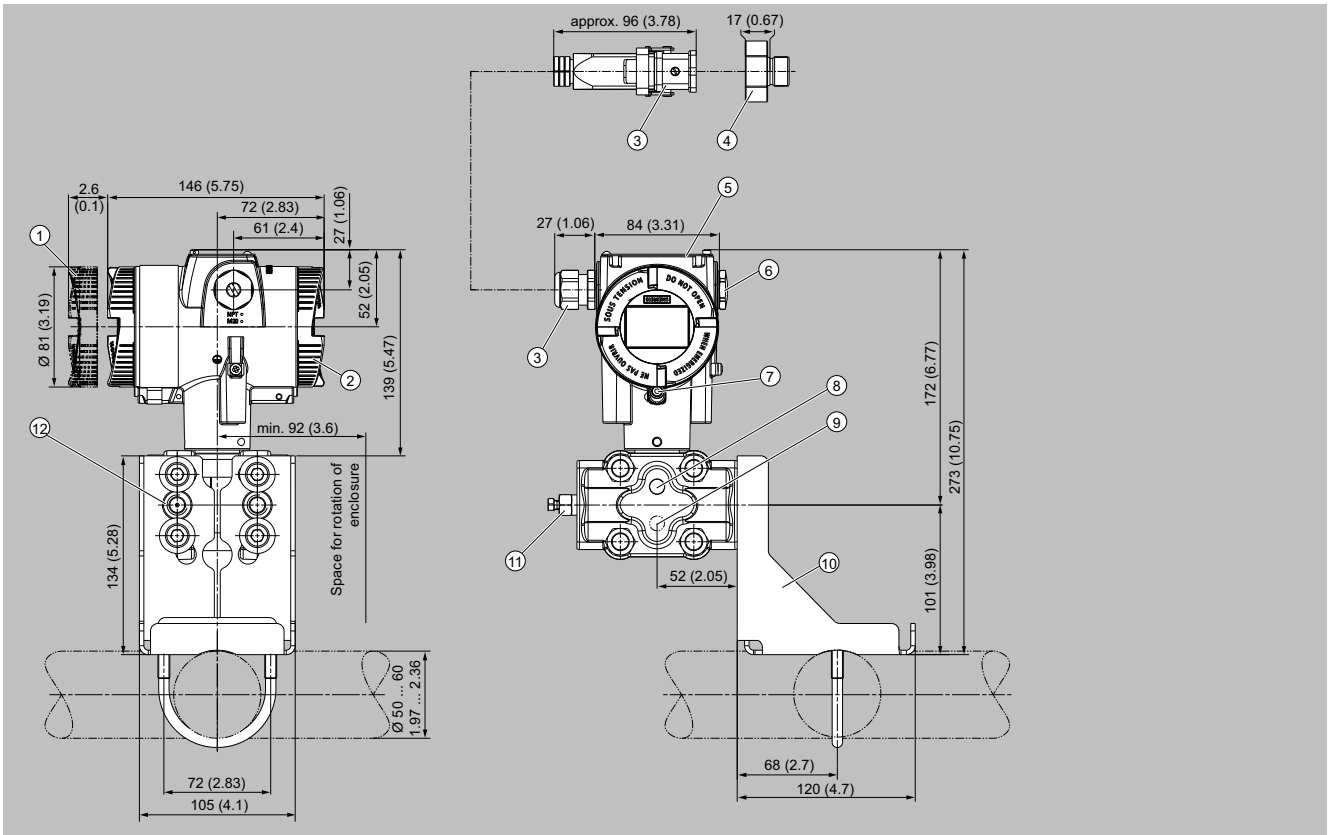
Communication	
Internal preprocessing	
Device profile	PROFIBUS PA Profile Version 4.01 Class B. Cyclic data usage compatible with version 3.XX
Number of function blocks	7
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s

Technical specifications (continued)

Communication	
- Simulation function	Output/input
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
• Physical block	1
Transducer blocks	1
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Specification of a vessel characteristic curve with	Max. 30 nodes
- Square-rooted characteristic curve for flow measurement	Yes
- Tank characteristic curve for volume measurement	Yes
- Low flow cut-off and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or by means of parameterizable ramp function
FOUNDATION Fieldbus	
Device profile	FF ITK 6
Function blocks	3 function blocks analog input, 1 function block PID

Communication	
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
- Square-rooted characteristic curve for flow measurement	Yes
• PID	Standard FOUNDATION Fieldbus function block
• Physical block	1 resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Simulation function: pressure measurement, sensor temperature and electronics temperature	Constant value or by means of parameterizable ramp function

Dimensional drawings

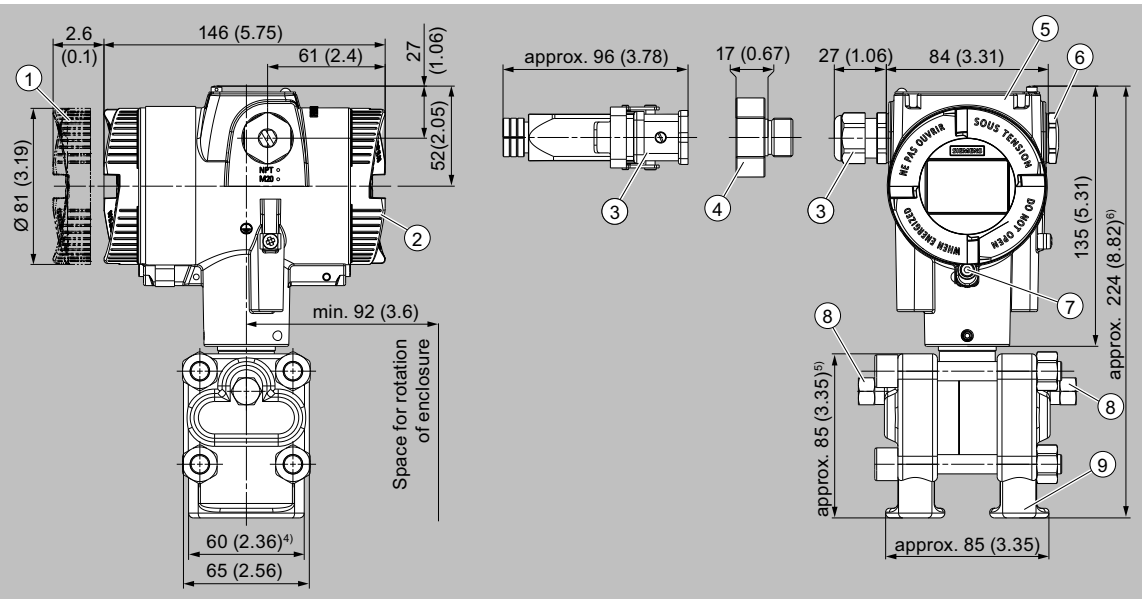


1. Electronics side, local display (longer overall length for cover with glass pane)[1]
2. Connection side
3. Electrical connection:
   - M20 x 1,5[2] screw gland
   - ½-14 NPT screw gland
   - Han 7D/Han 8D[2][3] device plug
   - M12 device plug[2][3]
4. Harting adapter
5. Cover over buttons and nameplate with general information
6. Blanking plug
7. Safety catch (only for "flameproof enclosure" type of protection)
8. Lateral ventilation for liquid measurement (Standard)
9. Lateral ventilation for gas measurement (order option K85)
10. Mounting bracket (optional)
11. Sealing plug with valve (optional)
12. Process connection: ¼-18 NPT (IEC 61518)

[1] In addition, allow approx. 22 mm (0.87 inch) for the thread length when removing the covers
[2] Not with "flameproof enclosure" type of protection
[3] Not with type of protection "FM + CSA" [is + XP]"

SITRANS P320/P420 pressure transmitter for differential pressure and flow, dimensions in mm (inch)

Dimensional drawings (continued)



1. Electronics side, local display (longer overall length for cover with inspection window)[1)]
2. Connection side
3. Electrical connection:
   - M20 x 1.5[3)] screw gland
   - ½-14 NPT screw gland
   - Han 7D/Han 8D[2) 3)] device plug
   - M12 device plug[2) 3]
4. Harting adapter
5. Cover over buttons and nameplate with general information
6. Blanking plug
7. Safety catch (only for "flameproof enclosure" type of protection)
8. Sealing plug with valve (option)
9. Process connection: ¼-18 NPT (IEC 61518)

1) In addition, allow approx. 22 mm (0.87 inch) for the thread length when removing the covers
2) Not with "flameproof enclosure" type of protection
3) Not with type of protection "FM + CSA" [is + XP]"
4) 74 mm (2.9 inches) for PN ≥ 420 (MAWP ≥ 6092 psi)
5) 91 mm (3.6 inches) for PN ≥ 420 (MAWP ≥ 6092 psi)
6) 226 mm (8.9 inches) for PN ≥ 420 (MAWP ≥ 6092 psi)

SITRANS P320/P420 pressure transmitter for differential pressure and flow with process covers for vertical differential pressure lines (option "K81"), dimensions in mm (inch)

Selection and ordering data

Pressure transmitters for level	Article No.																				
SITRANS P320	7MF036	●	-	●	●	●	●	●	-	●	●	●	●								
SITRANS P420	7MF046	●	-	●	●	●	●	●	-	●	●	●	●								
Click the article number for online configuration in the PIA Life Cycle Portal.																					
Communication																					
HART, 4 ... 20 mA		0																			
PROFIBUS PA		1																			
FOUNDATION Fieldbus (FF)		2																			
Measuring cell filling																					
Silicone oil				1																	
Maximum measuring span																					
60 mbar (24.11 inH_2O)					D																
250 mbar (100.5 inH_2O)					G																
600 mbar (241 inH_2O)					H																
1600 mbar (643 inH_2O)					M																
5000 mbar (72.5 psi)					P																
30 bar (435 psi)					R																
160 bar (2321 psi)					Y																
Process connection																					
Version for diaphragm seal with fastening thread $^7/_{16}$-20 UNF (IEC 61518): Remote seal 7MF0814 must be ordered separately.						V															
Material of wetted parts: Process connection, seal diaphragm																					
Stainless steel 316L/1.4404, stainless steel 316L/1.4404, process flange stainless steel 316/1.4408							0														
Stainless steel 316L/1.4404; alloy C276/2.4819, process flange stainless steel 316/1.4408							1														
Sensor pressure: Alloy C22/2.4602, alloy C276/2.4819 Sensor differential pressure: Alloy C276/2.4819, alloy C276/2.4819; process flange stainless steel 316/1.4408							2														
Tantalum, tantalum, process flange stainless steel 316/1.4408							4														
Monel 400/2.4360, Monel 400/2.4360; process flange: Stainless steel 316/1.4408							6														
Stainless steel 316L/1.4404, gold-plated; process flange stainless steel 316/1.4408							8														
Material of non-wetted parts																					
Die-cast aluminum								1													
Stainless steel precision casting CF3M/1.4409 similar to 316L								2													
Enclosure																					
Dual chamber device													5								
Type of protection																					
Without Ex														A							
Intrinsic safety														B							
Flameproof enclosure														C							
Flameproof enclosure, intrinsic safety														D							
Dust protection by enclosure Zone 21/22 (DIP), increased safety Zone 2														L							
Intrinsic safety, dust protection by enclosure Zone 20/21/22 (DIP), increased safety Zone 2														M							
Combination of options B, C and L (Zone model)														S							
Combination of options B, C and L (Zone model, Class Division)														T							
Electrical connections/cable entries																					
Thread for cable gland: Cable gland must be ordered separately as option (Axx)																					
• 2 × M20 × 1.5																	F				
• 2 × ½-14 NPT																	M				
Local operation/display																					
Without local display (lid closed)																				0	
With local display (lid closed)																				1	
With local display (lid with glass pane)																				2	

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Cable glands included	
Plastic	**A00**
Metal	**A01**

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Stainless steel	**A02**
Stainless steel 316L/1.4404	**A03**
CMP, for XP devices	**A10**

Selection and ordering data (continued)

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
CAPRI ADE 4F, CuZn, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A11**
CAPRI ADE 4F, stainless steel, cable inner diameter 7 ... 12 mm, cable outer diameter 10 ... 16 mm	**A12**
Sealing plug included, plastic	**A20**
Sealing plug included, metal	**A21**
Sealing plug included, stainless steel	**A22**
Sealing plug included, stainless steel 316L/1.4404	**A23**
Device plug Han mounted left	
Device plug Han 7D (plastic, straight)	**A30**
Device plug Han 7D (plastic, angled)	**A31**
Device plug Han 7D (metal, straight)	**A32**
Device plug Han 7D (metal, angled)	**A33**
Device plug Han 8D (plastic, straight)	**A34**
Device plug Han 8D (plastic, angled)	**A35**
Device plug Han 8D (metal, straight)	**A36**
Device plug Han 8D (metal, angled)	**A37**
Cable socket included	
Plastic, for device plug Han 7D and Han 8D	**A40**
Metal, for device plug Han 7D and Han 8D	**A41**
Device plug M12 mounted left	
Stainless steel, without cable socket	**A62**
Stainless steel, with cable socket	**A63**
Cable entry/device plug mounting	
2× sealing plugs M20 × 1.5, IP66/68 installed on both sides	**A90**
2× sealing plugs ½-14 NPT, IP66/68 installed on both sides	**A91**
Cable gland/device plug mounted left	**A97**
Cable gland/device plug mounted right	**A99**
Nameplate labeling (standard labeling: English, unit bar)	
German (bar)	**B11**
French (bar)	**B12**
Spanish (bar)	**B13**
Italian (bar)	**B14**
Chinese (bar)	**B15**
Russian (bar)	**B16**
English (psi)	**B20**
English (Pa)	**B30**
Chinese (Pa)	**B35**
Certificates	
Quality inspection certificate, 5-point factory calibration (IEC 62828-2)	**C11**
Inspection certificate (EN 10204-3.1) - Material of pressurized and wetted parts	**C12**
Factory certificate - NACE (MR 0103-2012 and MR 0175-2009)	**C13**
Factory certificate (EN 10204-2.2) - Wetted parts	**C14**
Inspection certificate (EN 10204-3.1) - PMI test of pressurized and wetted parts	**C15**
Certificates for functional safety	
Functional Safety (IEC 61508) - SIL2/3	**C20**

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Device options	
PDF file with device settings	**D10**
Double layer coating (epoxy resin and polyurethane) 120 µm of enclosure and lid	**D20**
FVMQ enclosure sealing	**D21**
Degree of protection IP66/IP68 (not for device plug M12 and Han)	**D30**
Unlabeled TAG plate	**D40**
Without labeling of the measuring range on the TAG plate	**D41**
Stainless steel Ex plate 1.4404/316L	**D42**
Overvoltage protection up to 6 kV (internal)	**D70**
Overvoltage protection up to 6 kV (external)	**D71**
Labels on transport packaging (provided by customer)	**D90**
General approval without Ex approval	
Worldwide (CE, UKCA, RCM) except EAC, FM, CSA, KCC	**E00**
Worldwide (CE, UKCA, RCM, EAC, FM, CSA, KCC)	**E01**
CSA (USA and Canada)	**E06**
EAC	**E07**
FM	**E08**
KCC	**E09**
Explosion protection approvals	
ATEX (Europe)	**E20**
CSA (USA and Canada)[1)]	**E21**
FM (USA and Canada)[1)]	**E22**
IECEx (Worldwide)	**E23**
EACEx (GOST-R, -K, -B)	**E24**
INMETRO (Brazil)	**E25**
KCs (Korea)	**E26**
NEPSI (China)	**E27**
PESO (India)	**E28**
CSA (Japan)	**E29**
UKR Sepro (Ukraine)	**E30**
UKEX (United Kingdom)	**E33**
ATEX (Europe), IECEx (Worldwide) and UKEX (UK)	**E47**
CSA (Canada) and FM (USA)[1)]	**E48**
ATEX (Europe) and IECEx (Worldwide) + CSA (Canada) and FM (USA)[1)]	**E49**
Marine approvals	
DNV-GL (Det Norske Veritas/Germanischer Lloyd)	**E50**
LR (Lloyds Register)	**E51**
BV (Bureau Veritas)	**E52**
ABS (American Bureau of Shipping)	**E53**
RMR (Russian Maritime Register)	**E55**
KR (Korean Register of Shipping)	**E56**
RINA (Registro Italiano Navale)	**E57**
CCS (China Classification Society)	**E58**
Country-specific approvals	
CRN approval Canada (Canadian Registration Number)	**E60**
Special approvals	
Oxygen application (with inert liquid, max. 160 bar (2 320 psi) at 100 °C (212 °F))	**E80**
Dual Seal	**E81**

Selection and ordering data (continued)

Options **Add "-Z" to article number, specify order code and plain text or entry from drop-down list.**	Order code
WRC/WRAS (drinking water); only with process flange O-rings made of EPDM	**E83**
NSF61 (drinking water)	**E84**
ACS (drinking water)	**E85**
Process flanges	
Gasket process flange 1 × chambered, graphite	**K40**
Gasket process flange, 1 × chambered, PTFE	**K41**
Vent valve in the material of the process flange	**K84**
Device settings	
Measuring span: Lower range value (max. 5 characters), upper range value (max. 5 characters), unit [mbar, bar, kPa, MPa, psi, ...], example: -0.5 ... 10.5 psi	**Y01**
TAG (on stainless steel plate and device parameters, max. 32 characters)	**Y15**

Options **Add "-Z" to article number, specify order code and plain text or entry from drop-down list.**	Order code
Measuring point description (on stainless steel plate and device parameters, max. 32 characters)	**Y16**
TAG short (device parameters, max. 8 characters)	**Y17**
Local display: [Pressure, Percent], reference [None, Absolute, Gauge], example: Pressure gauge	**Y21**
Local display: Scaling with standard units [m^3/s, l/s, m, inch, ...]; example 1 ... 5 m	**Y22**
Local display: Scaling with user-specific units (max. 12 characters), example 1 ... 5 m	**Y23**
Set PROFIBUS PA device address (1 ... 126)	**Y25**
Saturation limits instead of 3.8 ... 20.5 mA, example: 3.8 ... 22.0 mA	**Y30**
Fault current instead of 3.6 mA [22.5 mA, 22.8 mA]	**Y31**
Damping in seconds instead of 2 s (0.0 ... 100.0 s)	**Y32**
ID number of special design	**Y99**

1) Explosion protection acc. to FM/CSA: suitable for installation according to NEC 500/505.

Diaphragm seal **In flange design, directly installed on a pressure transmitter for level SITRANS P320/P420** **7MF03../7MF04.. to be ordered separately, scope of delivery: 1 unit**		**Article No.** **7MF0814-** ● ● ● 0 3 - 0 ● ● ●	**Order code** ● ● ●
Click the article number for online configuration in the PIA Life Cycle Portal.			
Standard of process connection EN 1092-1			
Nominal diameter	**Nominal pressure**		
DN 25	PN 10/16/25/40	0 B D	
	PN 63/100	0 B F	
	PN 160	0 B G	
	PN 250	0 B H	
DN 40	PN 10/16/25/40	0 D D	
	PN 63/100	0 D F	
	PN 160	0 D G	
DN 50	PN 10/16/25/40	0 E D	
	PN 63/100	0 E E	
	PN 160	0 E F	
DN 80	PN 10/16/25/40	0 G D	
	PN 100	0 G F	
DN 100	PN 10/16	0 H B	
	PN 25/40	0 H D	
DN 125	PN 16	0 J B	
	PN 40	0 J D	
Process connection standard ASME B16.5			
Nominal diameter	**Nominal pressure**		
1 inch	Class 150	1 K L	
	Class 300	1 K M	
	Class 600	1 K N	
	Class 1500	1 K P	
1½ inches	Class 150	1 L A	
	Class 300	1 L B	
	Class 400/600	1 L D	
	Class 900/1500	1 L F	
2 inches	Class 150	1 M A	
	Class 300	1 M B	
	Class 400/600	1 M D	
	Class 900/1500	1 M F	
3 inches	Class 150	1 P A	

Selection and ordering data (continued)

Diaphragm seal In flange design, directly installed on a pressure transmitter for level SITRANS P320/P420 7MF03../7MF04.. to be ordered separately, scope of delivery: 1 unit		Article No. 7MF0814-									Order code			
		●	●	●	0	3	-	0	●	●	●	●	●	●
	Class 300	1	P	B										
	Class 600	1	P	D										
	Class 1500	1	P	F										
4 inches	Class 150	1	Q	A										
	Class 300	1	Q	B										
	Class 400	1	Q	D										
	Class 1500	1	Q	F										
5 inches	Class 150	1	R	A										
	Class 300	1	R	B										
	Class 400	1	R	C										
Process connection standard J.I.S.														
Nominal diameter	**Nominal pressure**													
DN 50	10K	2	E	S										
	20k	2	E	T										
	40K	2	E	U										
DN 80	10K	2	G	S										
	20k	2	G	T										
	40K	2	G	U										
DN 100	10K	2	H	S										
	20k	2	H	T										
	40K	2	H	U										
Other version, add order code and plain text		9	Z	A									H	1	Y
Filling liquid														
Silicone oil M50									B					
High-temperature oil									C					
Silicone oil M5									A					
Food oil (FDA-listed)									E					
Neobee M20 (FDA-listed)									R					
Halocarbon oil									D					
Other version, add order code and plain text									Z				P	1	Y
Material of wetted parts														
Stainless steel 316L														
• Without coating										A				
• With PFA coating										D				
• With PTFE coating										E	0			
• With ECTFE 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 and flange Duplex, 1.4462										R				
Stainless steel 316L, gold-plated										S	0			
Hastelloy C4, 2.4610										U	0			
Hastelloy C22, 2.4602										V	0			
Other version, add order code and plain text										Z			Q	1	Y
Tube length														
None											0			
50 mm (2 inches)											1			
100 mm (4 inches)											2			
150 mm (6 inches)											3			
200 mm (8 inches)											4			
250 mm (10 inches)											5			
Other version, add order code and plain text										Z	8		R	1	Y

Selection and ordering data (continued)

Diaphragm seal In flange design, directly installed on a pressure transmitter for level SITRANS P320/P420 7MF03../7MF04.. to be ordered separately, scope of delivery: 1 unit		Article No. 7MF0814-	Order code
		● ● ● 0 3 - 0 ● ● ●	● ● ●
Customer-specific tube length			
• Wetted parts: Stainless steel without coating			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		A 1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		A 2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		A 3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		A 4
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)		A 5
• Wetted parts: Stainless steel with ECTFE coating			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		F 1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		F 2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		F 3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		F 4
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)		F 5
• Wetted parts: Stainless steel with PFA coating			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		D 1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		D 2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		D 3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		D 4
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)		D 5
• Wetted parts: Monel 400			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		G 1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		G 2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		G 3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		G 4
• Wetted parts: Hastelloy C276			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		J 1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		J 2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		J 3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		J 4
• Wetted parts: Tantalum			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		K 1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		K 2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		K 3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		K 4

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) according to IEC 62828-2	**C11**
Inspection certificate according to EN 10204-3.1 for main body and diaphragm	**C12**

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Manufacturer code according to NACE (MR 0103-2012 and MR 0175-2009) (only in combination with wetted parts made of stainless steel 316 L and Hastelloy)	**C13**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Test report on the FDA listing of the oil according to EN 10204-2.2	**C17**
Factory certificate functional safety (SIL2/3), suitability of devices for use according to IEC 61508 and IEC 61511 (contains SIL Declaration of Conformity)	**C20**

Selection and ordering data (continued)

Options Add "-Z" to article number, specify order code and plain text or entry from drop-down list.	Order code
Accessories	
Epoxy resin coating Color: Transparent Scope: Front and rear of the remote seal, connecting pipe, process connection of the transmitter. Maximum medium temperature with epoxy resin coating: 140 °C	**D15**
Remote seal nameplate Attached, made of stainless steel, contains Article No. and order number of the remote seal	**D42**
Volume deflagration flame arrester (VDEF) for differential pressure transmitter	**D62**
Negative pressure service	
Negative pressure service for differential pressure transmitters	**D83**
Extended negative pressure service for differential pressure transmitters	**D88**
Approvals and certificates	
Country-specific approval CRN approval Canada (Canadian Registration Number)	**E60**
Note:	
If the order code E60 is selected, the option E60 must also be selected for the transmitter!	
Oil-free and grease-free cleaned version for oxygen application including EN 10204-2.2 certificates (only with filling liquid halocarbon oil and at max. temperature 60 °C and max. pressure 50 bar)	**E80**
Oil-free and grease-free cleaned version not for oxygen application, including EN 10204-2.2 certificates	**E87**
Sealing surface	
Sealing surface smooth, form B2/EN1092-1 or RFSF/ANSI 16.5 (only for wetted parts made of stainless steel 316L)	**M50**
Sealing surface groove according to EN 1092-1, form D (instead of sealing surface B1, only for wetted parts made of stainless steel 316L)	**M54**
Sealing surface RJF (groove) according to ASME B16.5 (instead of sealing surface RF 125 ... 250AA, only for wetted parts made of stainless steel 316L)	**M64**
Sealing surface with tongue to EN 1092-1, form C (for wetted parts made of stainless steel 316L only)	
• DN 40	**M71**
• DN 50	**M72**
• DN 80	**M73**
• DN 100	**M74**
• DN 125	**M75**
Sealing surface with spigot according to EN 1092-1, form E (for wetted parts made of stainless steel 316L only)	
• DN 40	**M77**
• DN 50	**M78**
• DN 80	**M79**
• DN 100	**M80**
• DN 125	**M81**
Sealing surface internal face according to EN 1092-1, form F (only for wetted parts made of stainless steel 316L)	
• DN 50	**M84**
• DN 80	**M85**
• DN 100	**M86**
• DN 125	**M87**
Remote seal connection	
Elongated pipe, 150 mm (5.9 inches) instead of 100 mm (3.9 inches)	**S05**
Elongated pipe, 200 mm (7.9 inches) instead of 100 mm (3.9 inches)	**S06**
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**
Special design	
Welded filling hole	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text in mm)	**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" below the "More information" section.

Technical specifications

SITRANS P320 / SITRANS P420 for level			
Input			
Measured variable	Level		
Measuring span (continuously adjustable) or measuring range and max. permissible operating pressure (pursuant to Pressure Equipment Directive 2014/68/EU)	Measuring span	Max. permissible operating pressure MAWP (PS)	Maximum permissible test pressure
	25 ... 250 mbar 2.5 ... 25 kPa 10 ... 100.5 inH_2O	See "Mounting flange"	
	25 ... 600 mbar 2.5 ... 60 kPa 10 ... 241 inH_2O		
	53 ... 1 600 mbar 5.3 ... 160 kPa 21 ... 643 inH_2O		
	166 ... 5 000 mbar 16.6 ... 500 kPa 2.41 ... 72.5 psi		
Measuring limits			
• Lower measuring limit			
- Measuring cell with silicone oil filling	-100% of max. measuring range or 30 mbar a/3 kPa a/0.44 psi a depending on the mounting flange		
- Measuring cell with inert oil	-100% of max. measuring range or 30 mbar a/3 kPa a/0.44 psi a depending on the mounting flange		
- Measuring cell with FDA-compliant oil	-100% of max. measuring range or 100 mbar a/10 kPa a/1.45 psi a		
• Upper measuring limit	100% of max. measuring span		
• Lower range value	Between the measuring limits (continuously adjustable)		
Output	**HART**		
Output signal	4 ... 20 mA		
• Lower saturation limit (continuously adjustable)	3.55 mA, factory set to 3.8 mA		
• Upper saturation limit (continuously adjustable)	22.8 mA, factory-set to 20.5 mA or optionally 22.0 mA		
• Ripple (without HART communication)	$I_{pp} \leq 0.5\%$ of max. output current		
Adjustable damping	0 ... 100 s, continuously adjustable over remote operation 0 ... 100 s, in increments of 0.1 s, adjustable over display		
• Current simulator	3.55 ... 22.8 mA		
• Failure signal	3.55 ... 22.8 mA		
Load	Resistance R [Ω]		
• Without HART communication	$R = (U_H - 10.5\ V) / 22.8\ mA$, U_H: Auxiliary power in V		
• With HART communication	R = 230 ... 1100 Ω		
Characteristic curve	• Linearly increasing or linearly decreasing • Linear increase or decrease or according to the square root (only for differential pressure and flow)		
Physical bus	-		
Polarity-independent	-		
Measuring accuracy			
Reference conditions	• According to IEC 62828-1 • Rising characteristic curve • Lower range value 0 bar/kPa/psi • Seal diaphragm stainless steel • Measuring cell with silicone oil filling • Room temperature 25 °C (77 °F)		
Conformity error at limit point setting, including hysteresis and repeatability			
Measuring span ratio r (spread, Turn-Down)	r = maximum measuring span/set measuring span or nominal measuring range		
• Linear characteristic curve			
	r ≤ 5:	≤ 0.125%	

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for level		
- 250 mbar/25 kPa/3.6 psi - 600 mbar/60 kPa/8.7 psi - 1600 mbar/160 kPa/23.21 psi - 5 bar/500 kPa/72.5 psi	5 < r ≤ 10:	≤ (0.007 · r +0.09)%
Influence of ambient temperature in % per 28 °C (50 °F)		
• SITRANS P320	≤ (0.025 · r +0.125)%	
- 250 mbar/25 kPa/3.6 psi - 600 mbar/60 kPa/8.7 psi - 1600 mbar/160 kPa/23.21 psi - 5 bar/500 kPa/72.5 psi		
• SITRANS P420	≤ (0.025 · r +0.0625)%	
- 250 mbar/25 kPa/3.6 psi - 5 bar/500 kPa/72.5 psi		
- 600 mbar/60 kPa/8.7 psi - 1600 mbar/160 kPa/23.21 psi	≤ (0.125 · r +0.0625)%	
Effect of static pressure		
• At the lower range value		
- 250 mbar/25 kPa/3.63 psi	≤ (0.3 · r)% per nominal pressure	
- 600 mbar/60 kPa/8.7 psi 1.6 bar/160 kPa/23.21 psi 5 bar/500 kPa/72.52 psi	≤ (0.15 · r)% per nominal pressure	
• On the measuring span	≤ (0.1 · r)% per nominal pressure	
Long-term stability at ±30 °C (± 54 °F)		
• All measuring cells	In 5 years ≤ (0.25 · r)% static pressure max. 70 bar/7 MPa/1015 psi	
Step response time T_{63} (without electrical damping)	Depends on the installed remote seal	
Influence of mounting position	Depends on the filling liquid in the mounting flange	
Effect of auxiliary power (in % per voltage change)	0.005% per 1 V	
Operating conditions		
Medium temperature		
Measuring cell with silicone oil filling	• High side: See "Mounting flange" • Low side: -40 ... +100 °C (-40 ... +212 °F)	
Ambient conditions		
• Ambient temperature/enclosure	Always consider the assignment of max. permissible operating temperature to max. permissible operating pressure of the respective flange connection.	
- Measuring cell with silicone oil filling	-40 ... +85 °C (-40 ... +185 °F)	
- Display	-20 ... +80 °C (-4 ... +176 °F)	
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F)	
• Climatic class in accordance with IEC 60721-3-4	4K4H	
• Degree of protection		
- According to IEC 60529	IP66, IP68	
- According to NEMA 250	Type 4X	
• Electromagnetic compatibility		
- Emitted interference and interference immunity	According to IEC 61326 and NAMUR NE 21	
Structural design		
Weight	Pressure transmitter with mounting flange, without tube	
• According to EN	• Aluminum enclosure: Approx. 11 ... 13 kg (24.2 ... 28.7 lbs) • Stainless steel enclosure: Approx. 13 ... 15 kg (28.7 ... 33 lbs)	
• According to ASME	• Aluminum enclosure: Approx. 11 ... 18 kg (24.2 ... 39.7 lbs) • Stainless steel enclosure: Approx. 13 ... 20 kg (28.7 ... 44 lbs)	
Material		
• Material of wetted parts		

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for level		
- High side	Seal diaphragm of mounting flange	Stainless steel, mat. no. 1.4404/316L, Monel 400, mat. no. 2.4360, Alloy B2, mat. no. 2.4617, Alloy C276, mat. no. 2.4819, Alloy C22, mat. no. 2.4602, tantalum, PTFE, PFA, ECTFE
	Sealing surface	Smooth according to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA for stainless steel 316L, EN 2092-1 form B2 or ASME B16.5 RFSF for the remaining materials
- Gasket material in the process flanges	For standard applications	Viton
	For negative pressure applications on the mounting flange	Copper
- Low side	Seal diaphragm	Stainless steel, mat. no. 1.4404/316L
	Process flanges	Stainless steel, mat. no. 1.4408/316
	Process flange screw	Stainless steel ISO 3506-1 A4-70
	O-ring	FPM (Viton)
• Material of non-wetted parts		
- Electronics enclosure	• Low-copper die-cast aluminum GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4409/ CF-3M • Standard: Powder coating with polyurethane Option: 2 coats: Coat 1: Epoxy-based; coat 2: Polyurethane • Stainless steel nameplate (1.4404/316L)	
Process flange screws	Stainless steel ISO 3506-1 A4-70	
Measuring cell filling	Silicone oil	
• Mounting flange filling liquid	Silicone oil or other material	
Process connection		
• High side	Flange according to EN and ASME	
• Low side	¼-18 NPT female thread and flange connection with M10 fastening thread according to DIN 19213 (M12 for PN 420 (MWP 6092 psi)) or 7/16-20 UNF according to EN 61518	
Electrical connection	Screw terminals Cable entry via the following screw glands: • M20 × 1.5 • ½-14 NPT • Device plug Han 7D/Han 8D[1)] • Device plug M12	
Displays and controls		
Buttons	4 buttons for operation directly on the device	
Display	• With or without integrated display (optional) • Lid with inspection window (optional)	
Auxiliary power U_H		
Terminal voltage on pressure transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically safe mode	
Ripple	$U_{SS} \leq 0.2$ V (47 ... 125 Hz)	
Noise	$U_{eff} \leq 1.2$ mV (0.5 ... 10 kHz)	
Auxiliary power	–	
Separate supply voltage	–	
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)	
Drinking water		
• WRAS (England)	No.: 1903094 (option E83)	
• ACS (France)	No.: 18 ACC LY 277 (option E85)	
• NSF (USA)	No.: 20180920-MH61350 (option E84)	
CRN (Canada)	No.: 0F9863.5C (option E60)	
Explosion protection acc. to NEPSI (China)	No.: GYJ19.1058X (option E27)	
Explosion protection acc. to INMETRO (Brazil)	No.: BRA-18-GE-0035X (option E25)	
Explosion protection		
• Intrinsic safety "i"		
- Marking	II 1/2 G Ex ia/ib IIC T4/T6 Ga/Gb	

Technical specifications (continued)

SITRANS P320 / SITRANS P420 for level	
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Flameproof enclosure "d"	
- Marking	Ex II 1/2 G Ex ia/db IIC T4/T6 Ga/Gb
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 20, 21, 22	
- Marking	Ex II 1D Ex tb IIIC T120 °C Da Ex II 2D Ex tb IIIC T120 °C Db Ex II 3D Ex tc IIIC T120 °C Dc
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Max. surface temperature	120 °C (248 °F)
- Connection	To a circuit with the operating values: U_n = 10.5 ... 45 V, 4 ... 20 mA
• Dust explosion protection for Zones 21, 22	
- Marking	Ex II 2D Ex ib IIIC T120 °C Db
- Permissible ambient temperature	-40 ... +80 °C (-40 ... +176 °F)
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F)
- Connection	To certified intrinsically safe circuits with peak values: U_i = 30 V, I_i = 101 mA, P_i = 760 mW U_i = 29 V, I_i = 110 mA, P_i = 800 mW
- Effective internal inductance/capacitance	L_i = 0.24 µH/C_i = 3.29 nF
• Type of protection for Zone 2	
- Marking	Ex II 3G Ex ec IIC T4/T6 Gc
- Permissible ambient temperature "ec"	-40 ... +80 °C (-40 ... +176 °F) temperature class T4 -40 ... +40 °C (-40 ... +104 °F) temperature class T6
- Permissible medium temperature	-40 ... +100 °C (-40 ... +212 °F) temperature class T4 -40 ... +70 °C (-40 ... +158 °F) temperature class T6
- "ec" connection	To a circuit with the operating values: U_n = 10.5 ... 30 V, 4 ... 20 mA
• Explosion protection acc. to FM	Available soon
- Marking (XP/DIP) or IS; NI; S	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
• Explosion protection according to CSA	Available soon
- Marking (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4 ... T6: CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
NAMUR recommendations	
• NE 06	Standardized Electrical Signals and Questions Relating to Engineering Technology
• NE 21	Electromagnetic Compatibility (EMC) of Industrial Process and Laboratory Control Equipment
• NE 23	Extra Low Voltage Circuits with Safe Separation
• NE 43	Standardization of the Signal Level for the Failure Information of Digital Transmitters
• NE 53	Software and Hardware of Field Devices and Signal Processing Devices with Digital Electronics
• NE 80	The Application of the Pressure Equipment Directive to Process Control Devices
• NE 105	Specifications for Integrating Fieldbus Devices in Engineering Tools for Field Devices
• NE 107	Self-Monitoring and Diagnosis of Field Devices
• NE 131	NAMUR Standard Device - Field Devices for Standard Applications

[1] Han 8D is identical to Han 8U.

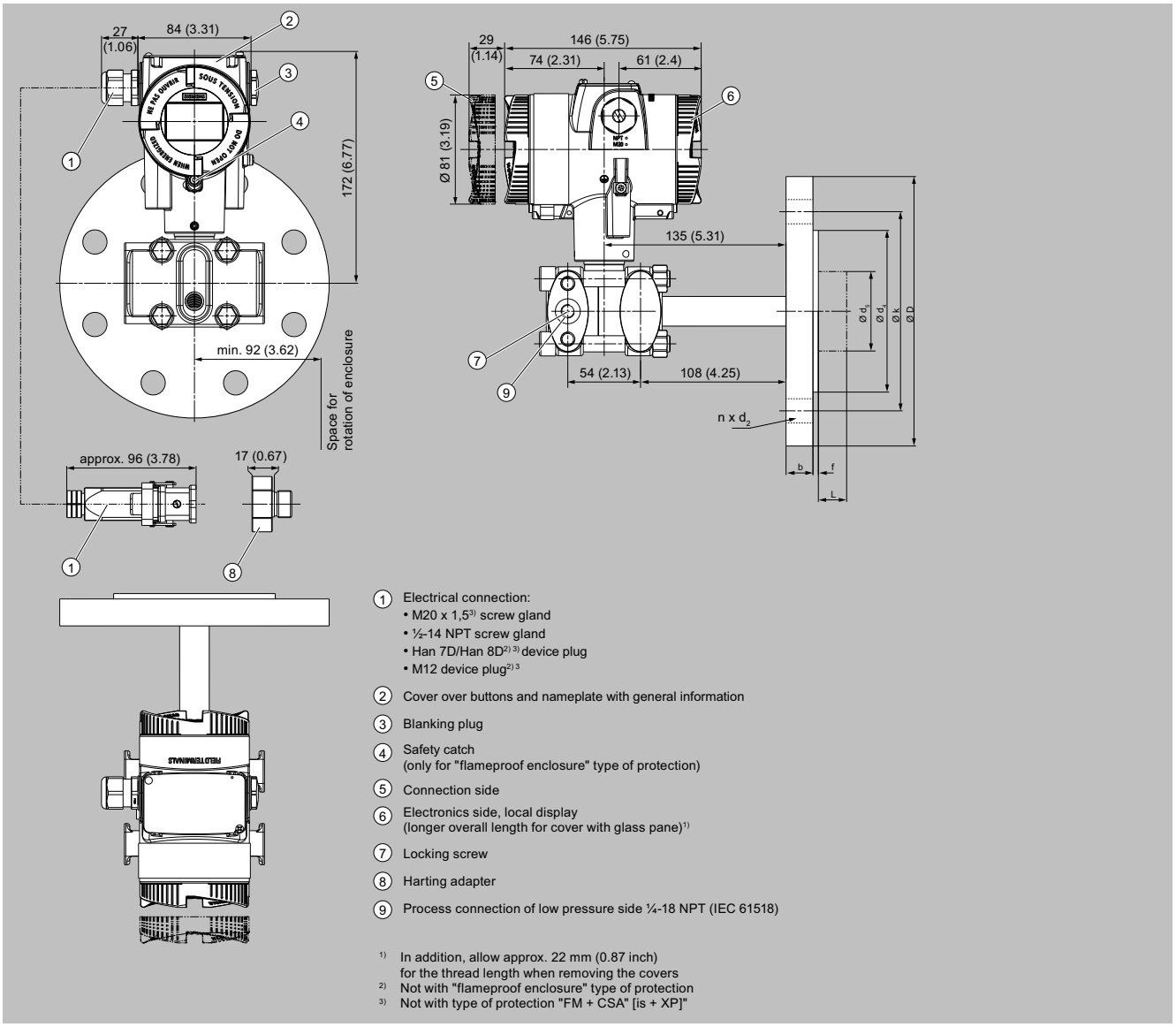
Technical specifications (continued)

Mounting flange	
Nominal diameter	Nominal pressure
• According to EN 1092-1	
- DN 80	PN 40
- DN100	PN 16, PN 40
• According to ASME B16.5	
- 3 inches	Class 150, Class 300
- 4 inches	Class 150, Class 300

Communication	
HART	
HART	230 ... 1 100 Ω
Protocol	HART 7
Software for computer	SIMATIC PDM
PROFIBUS PA	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (default setting address 126)
Cyclic data usage	
• Output byte	≤ 35 (7 measured values)
• Input byte	0, 1, or 2 (register operation mode and reset function for dosing)
Internal preprocessing	
Device profile	PROFIBUS PA Profile Version 4.01 Class B. Cyclic data usage compatible with version 3.XX
Number of function blocks	7
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
• Physical block	1
Transducer blocks	1

Communication	
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Specification of a vessel characteristic curve with	Max. 30 nodes
- Square-rooted characteristic curve for flow measurement	Yes
- Tank characteristic curve for volume measurement	Yes
- Low flow cut-off and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or by means of parameterizable ramp function
FOUNDATION Fieldbus	
Device profile	FF ITK 6
Function blocks	3 function blocks analog input, 1 function block PID
• Analog input	
- Adaptation to user-specific process variable	Yes, linearly rising or falling characteristic curve
- Electrical damping adjustable	0 ... 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
- Square-rooted characteristic curve for flow measurement	Yes
• PID	Standard FOUNDATION Fieldbus function block
• Physical block	1 resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Simulation function: pressure measurement, sensor temperature and electronics temperature	Constant value or by means of parameterizable ramp function

Dimensional drawings



SITRANS P320/P420 pressure transmitter for level, including mounting flange, dimensions in mm (inch)

Connection to EN 1092-1

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M Without tube	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 or 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	

Dimensional drawings (continued)

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M Without tube	f	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 100	PN 10/16	18	220	18	158	94	85	85	2	180	8	0, 50, 100, 150 or 200
	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 according to ASME B16.5

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M Without tube	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 inches	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 or 7.87 (0, 50, 100, 150 or 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 inches	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 inches	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 inches	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 inches	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	

Process connection according to J.I.S

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M Without tube	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	10 K	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 or 200 (0, 2, 3.94, 5.94 or 7.87)
	20 K	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	
	40 K	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	10 K	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	
	20 K	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	
	40 K	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	10 K	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	
	20 K	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	
	40 K	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: Inside diameter of gasket according to DIN 2690

d_M: Effective diaphragm diameter

More information

Specification of process conditions for selection and ordering data

Ambient temperature range

The standard remote seal systems are optimized for an ambient temperature range of -10 to +50 °C (14 to +122 °F). Therefore, in the ordering options, the **order code "D66" is** preset.

If the range of the ambient temperature deviates from this, you have the possibility to choose other ambient temperature ranges:

- With the **order code D67**, a range from -40 to +50 °C (-40 to +122 °F)
- With the **order code D68**, a range from -10 to +85 °C (14 to +185 °F)

In the case of a **special design**, which you can select with the **order option Y99** in the device settings, it is possible to enter the ambient temperature as a numerical value.

Process temperature

The standard optimization for the process temperature depends on the filling liquid used:

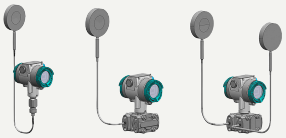
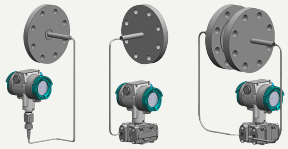
Filling liquid	Code	Optimized temperature range as standard
Silicone M50	B	-10 ... +200 °C (14 ... +392 °F)
High-temperature oil	C	-10 ... +300 °C (14 ... +572 °F)
Silicone oil M5	A	-40 ... +140 °C (-40 ... +284 °F)
Food oil (FDA-listed)	E	-10 ... +140 °C (14 ... +284 °F)
Halocarbon oil	D	-20 ... +60 °C (-4 ... +140 °F)
Neobee M20 (FDA-listed)	R	-10 ... +140 °C (14 ... +284 °F)

- **If the process temperatures** deviate from the temperature ranges mentioned in the table above, we ask you to send the process temperature with the **order code Y50** along with the order.
- If the remote seal has a small diameter (< DN 50/2") or a long capillary (> 4 m), we also ask you to provide the process data with the **following order code** when ordering.

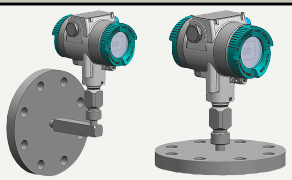
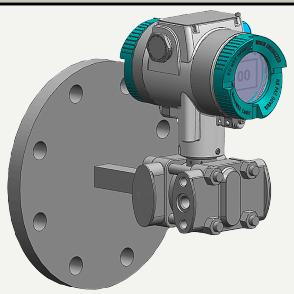
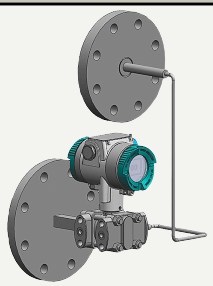
These entries are transmitted and ensure the correct functioning of the remote seal systems.

	Order code
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**

Overview

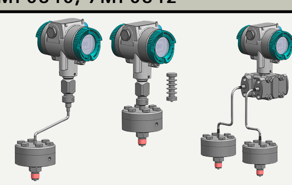
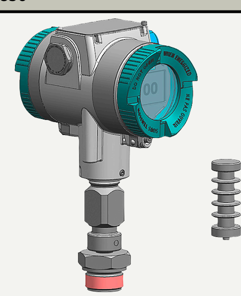
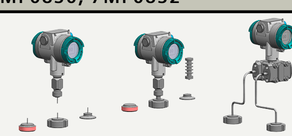
Type	7MF0800, 7MF0801, 7MF0802		7MF0810, 7MF0811, 7MF0812	
				
Description	Diaphragm seal		Diaphragm seal	
Application	For the process industry		For the process industry	
Version	Sandwich design		Flange design	
Type	Flexible with flexible capillary		Flexible with flexible capillary	
Article No.	7MF0800*, 7MF0801*, 7MF0802*		7MF0810*/7MF0811*/7MF0812*	
Process connection standard	**Nominal diameter**	**Nominal pressure**	**Nominal diameter**	**Nominal pressure**
• EN 1092-1	DN 25, DN 40, DN 50, DN 65, DN 80, DN 100, DN 125	PN 16 ... 400	DN 25	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100, PN 160, PN 250
			DN 40	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100, PN 160
			DN 50	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100
			DN 80	PN 10, PN 16, PN 25, PN 40, PN 100
			DN 100	PN 10, PN 16, PN 25, PN 40
			DN 125	PN 16, PN 40
• SME B16.5	1", 1½", 2", 2½", 3", 4", 5"	Class 150 ... 2500	1″	Class 150/300/600/1500
			1½″	Class 150/300/400/600/900/1500
			2″	Class 150/300/400/600/900/1500
			3″	Class 150/300/600/1500
			4″	Class 150/300/400/1500
			5″	Class 150/300/400
• J.I.S.	DN 25, DN 40, DN 50, DN 65, DN 80, DN 100, DN 125	10 ... 63K	DN 50, DN 80, DN 100	10K/20K/40K
Sealing surface	For **stainless steel** mat. no. 1.4404/316L According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA For the **other materials** according to EN 1092-1, form B2 or ASME B16.5 RFSF		For **stainless steel** mat. no. 1.4404/316L According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA For the **other materials** according to EN 1092-1, form B2 or ASME B16.5 RFSF	
Materials	• Basic body stainless steel mat. no. 1.4404/316L • Wetted parts • Stainless steel, mat. no. 1.4404/316L - No coating - PTFE coating - ECTFE coating - PFA coating • Monel 400, mat. no. 2.4360 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • 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, layer thickness approx. 25 µm		• Basic body stainless steel mat. no. 1.4404/316L • Wetted parts • Stainless steel, mat. no. 1.4404/316L - No coating - PTFE coating - ECTFE coating - PFA coating • Monel 400, mat. no. 2.4360 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • 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, layer thickness approx. 25 µm	
Capillary length	≤ 10 m (32.8 ft), longer lengths on request		≤ 10 m (32.8 ft), longer lengths on request	
Filling liquid	Silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil (for O2 measurements), food oil (FDA listed), Neobee M20 (FDA listed)		Silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil (for O2 measurements), food oil (FDA listed), Neobee M20 (FDA listed)	
Tube length	Without tube, 50 mm (1.97"), 100 mm (3.94"), 150 mm (5.91"), 200 mm (7.87"), 250 mm (9.84")		Without tube, 50 mm (1.97"), 100 mm (3.94"), 150 mm (5.91"), 200 mm (7.87"), 250 mm (9.84")	

Overview (continued)

Type	7MF0810		7MF0814		7MF0813	
						
Description	Diaphragm seal		Diaphragm seal		Diaphragm seal	
Application	For the process industry		For the process industry		For the process industry	
Version	Flange design		Flange design		Flange design	
Type	Mounted directly		Mounted directly		Mounting flange (with optional tube) Direct mounting at high side and with flexible capillary connected at low side	
Article No.	7MF0810*		7MF0814*		7MF0813*	
Process connection standard	**Nominal diameter**	**Nominal pressure**	**Nominal diameter**	**Nominal pressure**	**Nominal diameter**	**Nominal pressure**
• EN 1092-1	DN 25	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100, PN 160, PN 250	-	-	-	-
	DN 40	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100, PN 160	DN 40	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100, PN 160	DN 40	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100, PN 160
	DN 50	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100	DN 50	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100	DN 50	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100
	DN 80	PN 10, PN 16, PN 25, PN 40, PN 100	DN 80	PN 10, PN 16, PN 25, PN 40, PN 100	DN 80	PN 10, PN 16, PN 25, PN 40, PN 100
	DN 100	PN 10, PN 16, PN 25, PN 40	DN 100	PN 10, PN 16, PN 25, PN 40	DN 100	PN 10, PN 16, PN 25, PN 40
	DN 125	PN 16, PN 40	DN 125	PN 16, PN 40	DN 125	PN 16, PN 40
• SME B16.5	1″	Class 150/300/600/-1500	-	-	-	-
	1½″	Class 150/300/400/-600/900/1500	1½″	Class 150/300/400/-600/900/1500	1½″	Class 150/300/400/-600/900/1500
	2″	Class 150/300/400/-600/900/1500	2″	Class 150/300/400/-600/900/1500	2″	Class 150/300/400/-600/900/1500
	3″	Class 150/300/600/-1500	3″	Class 150/300/600/-1500	3″	Class 150/300/600/-1500
	4″	Class 150/300/400/-1500	4″	Class 150/300/400/-1500	4″	Class 150/300/400/-1500
	5″	Class 150/300/400	5″	Class 150/300/400	5″	Class 150/300/400
• J.I.S.	DN 50, DN 80, DN 100	10K/20K/40K	DN 50, DN 80, DN 100	10K/20K/40K	DN 50, DN 80, DN 100	10K/20K/40K
Sealing surface	For **stainless steel** mat. no. 1.4404/316L According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA For the **other materials** according to EN 1092-1, form B2 or ASME B16.5 RFSF		For **stainless steel** mat. no. 1.4404/316L According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA For the **other materials** according to EN 1092-1, form B2 or ASME B16.5 RFSF		For **stainless steel** mat. no. 1.4404/316L According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA For the **other materials** according to EN 1092-1, form B2 or ASME B16.5 RFSF	

Overview (continued)

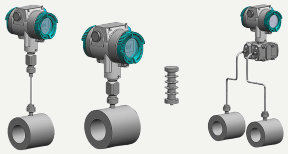
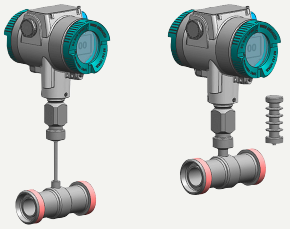
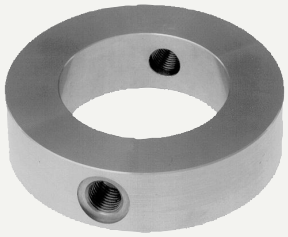
Type	7MF0810	7MF0814	7MF0813
Materials	• Basic body stainless steel mat. no. 1.4404/316L • Wetted parts • Stainless steel, mat. no. 1.4404/316L - No coating - PTFE coating - ECTFE coating - PFA coating • Monel 400, mat. no. 2.4360 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Hastelloy C22, mat. no. 2.4602 • Tantalum • Titanium, mat. no. 3.7035 • Nickel 201 • Duplex 2205, mat. no. 1.4462 • Stainless steel 316L, gold plated, layer thickness approx. 25 µm	• Basic body stainless steel mat. no. 1.4404/316L • Wetted parts • Stainless steel, mat. no. 1.4404/316L - No coating - PTFE coating - ECTFE coating - PFA coating • Monel 400, mat. no. 2.4360 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • 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, layer thickness approx. 25 µm	• Basic body stainless steel mat. no. 1.4404/316L • Wetted parts • Stainless steel, mat. no. 1.4404/316L - No coating - PTFE coating - ECTFE coating - PFA coating • Monel 400, mat. no. 2.4360 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • 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, layer thickness approx. 25 µm
Capillary length			≤ 10 m (32.8 ft), longer lengths on request
Filling liquid	Silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil (for O2 measurements), food oil (FDA listed), Neobee M20 (FDA listed)	Silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil (for O2 measurements), food oil (FDA listed), Neobee M20 (FDA listed)	Silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil (for O2 measurements), food oil (FDA listed), Neobee M20 (FDA listed)
Tube length	Without tube, 50 mm (1.97"), 100 mm (3.94"), 150 mm (5.91"), 200 mm (7.87"), 250 mm (9.84")	Without tube, 50 mm (1.97"), 100 mm (3.94"), 150 mm (5.91"), 200 mm (7.87"), 250 mm (9.84")	Without tube, 50 mm (1.97"), 100 mm (3.94"), 150 mm (5.91"), 200 mm (7.87"), 250 mm (9.84")

Type	7MF0840, 7MF0842		7MF0850		7MF0830, 7MF0832	
						
Description	Diaphragm seal		Diaphragm seal		Diaphragm seal	
Application	For the process industry		For the process industry		For the process industry	
Version	With inner membrane (nominal diameter 50/2"), process connection: open		Mounted directly		Flange design	
Type	Direct mounting or connected via flexible capillary		Remote seal, miniature type		With quick release, with flexible capillary or direct mounting	
Article No.	7MF0840*, 7MF0842*		7MF0850*		7MF0830*, 7MF0832*	
Process connection standard, nominal diameter and rated pressure	**Nominal diameter**	**Nominal pressure**	**Nominal diameter**	**Nominal pressure**	**Nominal diameter**	**Nominal pressure**
	Open flange according to EN 1092-1		***DIN 3852, form A***		***DIN 11851 with groove nut***	
	DN 15	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100, PN 160, PN 250	G 1"	PN 400	DN 25, DN 32, DN 40	PN 40

Overview (continued)

Type	7MF0840, 7MF0842		7MF0850		7MF0830, 7MF0832	
Process connection standard, nominal diameter and rated pressure	DN 20	PN 10, PN 16, PN 25, PN 40	G 1½"	PN 250	DN 50, DN 65, DN 80	PN 25
	DN 25	PN 10, PN 16, PN 25, PN 40, PN 63, PN 100, PN 160, PN 250	G 2"	PN 250	***DIN 11851 with thread***	
	Open flange per ASME B16.5		***ASME B1.20.1***		DN 25, DN 32, DN 40	PN 40
	½", ¾", 1"	Class 150/300/600/-1500	1" NPT-M	Class 3625	DN 50, DN 65, DN 80	PN 25
	Thread according to EN 837-1		1½" NPT-M	Class 1450	***Clamp ISO 2852***	
	G¼"B, G½"B, G¾"B, G1"B	PN 100, PN 250	2" NPT-M	Class 1450	DN 25, DN 38, DN 51	PN 16
	Thread per ASME B1.20.1				DN 63.5, DN 76.1	PN 10
	¼" NPT-M, ¼" NPT-F	Class 1500/3675			***Clamp DIN 32676, series C***	
	½" NPT-M, ½" NPT-F	Class 1500/3675			1", 1½"	PN 25
	¾" NPT-M, ¾" NPT-F	Class 1500/3675			2", 2½"	PN 16
	1" NPT-M, 1" NPT-F	Class 1500/3675			3"	PN 10
					Clamp DIN 32676, series A metric	
					DN 25, DN 32, DN 40	PN 25
					DN 50	PN 16
					DN 65	PN 10
					Varivent	
					DN 25, DN 32, DN 40, DN 50	PN 25
					DRD flange	
					DN 50	PN 40
Sealing surface	For **stainless steel** mat. no. 1.4404/316L According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA					
Materials	**Base**: • Stainless steel, mat. no. 1.4404/316L **Membrane**: • Stainless steel, mat. no. 1.4404/316L - No coating - PTFE coating • Monel 400, mat. no. 2.4360 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Hastelloy C22, mat. no. 2.4602 • Tantalum • Titanium, mat. no. 3.7035 • Nickel 201 • Stainless steel 316L, gold-plated, layer thickness approx. 25 µm		**Basic body**: • Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 **Membrane**: • Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819		**Basic body**: • Stainless steel, mat. no. 1.4404/316L **Wetted parts**: • Stainless steel, mat. no. 1.4404/316L **Capillary**: • Stainless steel	
Capillary length	≤ 10 m (32.8 ft), longer lengths on request				≤ 10 m (32.8 ft), longer lengths on request	
Filling liquid	Silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil (for O2 measurements), food oil (FDA listed), Neobee M20 (FDA listed)		Silicone oil M5, food oil (FDA listed), Neobee M20 (FDA listed)		Food oil (FDA-listed), Neobee M20 (FDA-listed)	

Overview (continued)

Type	7MF0900, 7MF0902	7MF0930	7MF4925
			
Description	Diaphragm seal	Diaphragm seal	Flushing ring
Application	For the process industry	For the process industry	For the process industry
Version	Inline seal	Inline seal	
Type	In sandwich design, direct mounting or with a flexible capillary	With quick release, flange type design, with flexible capillary or direct mounting	Flushing ring for diaphragm seals 7MF0800 to 7MF0814
Article No.	7MF0900*, 7MF0902*	7MF0930*	7MF4925*
Process connection standard, nominal diameter and rated pressure	***EN 1092-1***	***DIN 11851 with thread***	***EN 1092-1 1***
	DN 25, DN 40, DN 50, DN 65, DN 80, DN 100, DN 125 — PN 6 ... 100	DN 25, DN 32, DN 40 — PN 40	DN 50, DN 80, DN 100, DN 125 — PN 16 ... 100
	ASME B16.5	DN 50, DN 65, DN 80 — PN 25	***ASME B 16.5***
	1", 1½", 2", 2½", 3", 4", 5" — Class 150 ... 2500	***Clamp ISO 2852***	2", 3", 4", 5" — Class 150 ... 600
		DN 25, DN 38, DN 51 — PN 16	
		DN 63.5, DN 76.1, DN 51 — PN 10	
		Clamp DIN 32676, series C	
		1", 1½" — PN 25	
		2", 2½" — PN 16	
		3" — PN 10	
		Clamp DIN 32676, series A metric	
		DN 25, DN 32, DN 40 — PN 25	
		DN 50 — PN 16	
		DN 65 — PN 10	
Sealing surface	For **stainless steel** mat. no. 1.4404/316L According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA For the **other materials** Smooth according to EN 1092-1, form B2 or ASME B16.5 RFSF		***EN 1092-1*** Form B1 Form B2 Form D/Form D Form C/Form C Form D/Form C Form E Form F ***ASME B16.5*** RF 125 ... 250 AA RFSF RJF ring groove
Materials	***Main body*** Stainless steel, mat. no. 1.4404/316L ***Diaphragm*** Stainless steel, mat. no. 1.4404/316L ***Wetted parts*** Stainless steel, mat. no. 1.4404/316L, no coating ***Capillary*** Stainless steel	***Main body*** Stainless steel, mat. no. 1.4404/316L ***Diaphragm*** Stainless steel, mat. no. 1.4404/316L ***Capillary*** Stainless steel	Stainless steel 1.4404/316L

Overview (continued)

Type	7MF0900, 7MF0902	7MF0930	7MF4925
Capillary length	≤ 10 m (32.8 ft), longer lengths on request	≤ 10 m (32.8 ft), longer lengths on request	
Filling liquid	Silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil (for O2 measurements), food oil (FDA listed), Neobee M20 (FDA listed)	Silicone oil M5, food oil (FDA listed), Neobee M20 (FDA listed)	Food oil (FDA-listed), Neobee M20 (FDA-listed) Flushing holes (2 units), female thread: G¼, G½, ¼-18 NPT, ½-14 NPT

Overview

In many cases, the pressure transmitter and the measured medium have to be physically separated. It is then necessary to use a remote seal.

The remote seals can be used with the following SITRANS P320/420 pressure transmitter series:

- Gauge pressure
- Absolute pressure
- Differential pressure and flow

Note

When configuring your remote seal, be sure to read the information about transmission response, temperature error and response time to be found in the sections "Function" and "Technical specification". Only then will the remote seal work to optimum effect.

Benefits

- No direct contact between pressure transmitter and medium
- Individual configuration of the pressure transmitter for perfect adaptation to the operating conditions
- Available in many versions
- Specially designed for difficult operating conditions
- Quick-release versions available for the food industry

Application

Remote seal systems should be used when it is necessary or expedient to separate the medium and measuring instrument.

Some examples of such cases:

- The medium temperature is outside the limits specified for the pressure transmitter.
- The medium is corrosive and requires diaphragm materials that are not available for the pressure transmitter.
- The medium is highly viscous or has a high solids content and would block the sample chambers of the pressure transmitter.
- The medium could freeze in the sample chambers or the pulse cable.
- The medium is heterogeneous or fibrous.
- The medium has a tendency towards polymerization or crystallization.
- The process requires quick-release remote seals, as required in the food & beverages industry for fast cleaning, for example.
- The process requires cleaning of the measuring point, like in a batch process, for example.

Design

A remote seal system consists of the following components.

- Pressure transmitter
- One or two remote seals
- Filling liquid
- Connection between the pressure transmitter and remote seal (direct mounting or via a capillary)

The space for the medium is sealed off with a flat embedded elastic diaphragm. Between the diaphragm and the pressure transmitter is the filling liquid.

In many cases, a capillary must be connected between the remote seal and the pressure transmitter in order, for example, to reduce the temperature effects on the pressure transmitter when the measured medium is hot.

However, the capillary influences the response time and the temperature response of the overall remote seal system. When capillaries are used to connect a remote seal to a pressure transmitter for differential pressure, two capillaries of equal length must always be used.

Optionally, the remote seal with diaphragm extension (tube) can be ordered.

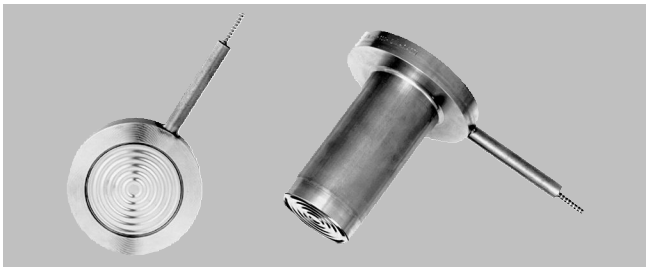
The remote seals in sandwich design are secured with a blank flange.

Designs

Diaphragm seal

With diaphragm seals, the pressure is sensed by a flat embedded diaphragm.

Diaphragm seals are differentiated as follows:



Diaphragm seal in sandwich design without (left) and with diaphragm extension (tube)

- Sandwich design
- Sandwich design with diaphragm extension (tube) according to EN or ASME and secured with a blank flange

Diaphragm seal in flange design without (left) and with diaphragm extension (tube)

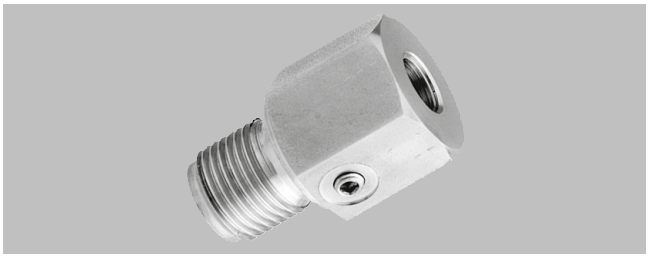
- Flange design

Design (continued)

- Flange design with diaphragm extension (tube) according to EN or ASME and secured using holes on the flange

Quick-release diaphragm seal

- Remote seal with quick release, e.g., according to DIN 11851, SMS Standard, IDF Standard, APV-RJF Standard, clamp connection, etc.
- Miniature remote seal with male thread for screwing into threaded holes
- Remote seal with customer-specific process connections

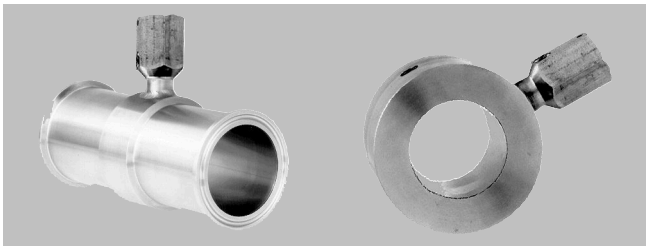


Miniature diaphragm seal with flush-mounted diaphragm

- Miniature diaphragm seal

Remote seals with quick release are used mainly in the food industry. Their design means that the medium cannot accumulate in dead volumes. The remote seal's quick release mechanism enables fast disassembly for cleaning.

Inline seal



Quick-release inline seal (left) and for flange mounting

With inline seals, the pressure is sensed using a cylindrical diaphragm inside the pipe and then transmitted with the filling liquid to the pressure transmitter.

Design (continued)

The inline seal is a special design for flowing media. It consists of a cylindrical pipe in which a cylindrical diaphragm is embedded. Because it is completely integrated in the process line, there are no turbulences, dead spaces or other obstacles in the flow direction. The inline seal is also piggable.

Inline seals are differentiated as follows:

- Quick-release inline seal, e.g., according to DIN 11851, SMS Standard, IDF Standard, APV/RJF Standard, clamp connection, etc. The remote seal's quick release mechanism enables fast disassembly for cleaning.
- Inline seal for flange mounting according to EN or ASME
- Inline seal with customer-specific process connections

Note:

The pressure information on the transmitter and the remote seal must be observed in accordance with the pressure-temperature relationship.

Function

The measured pressure is transferred to the filling liquid by the diaphragm and enters the measuring chamber of the pressure transmitter through the capillary. The filling liquid completely fills the inside of the diaphragm seal, the capillary and the measuring chamber of the pressure transmitter so that it is free of gas.

Transmission response

The transmission response of a remote seal is characterized by the following variables:

- Temperature error
- Adjustment time

Temperature error

Temperature errors are caused by changes in the volume of the filling liquid as a result of temperature fluctuations. To select the right remote seal, you must calculate the temperature error.

Below is an overview of the factors which affect the extent of the temperature error, and information on how to calculate the temperature error.

The temperature error depends on the following variables:

- Rigidity of the diaphragm used
- Filling liquid used
- Effect of the filling liquid underneath the process flanges or in the connection shank of the pressure transmitter
- Inside diameter of the capillary: The greater the inside diameter, the greater the temperature error
- Capillary length: The longer the capillary, the greater the temperature error

Diaphragm rigidity

The rigidity of the diaphragm is extremely important. The greater the diameter of the diaphragm, the softer the diaphragm and the more sensitive it is to temperature-induced changes in the volume of the filling liquid.

Large-diameter diaphragms are therefore always required for small measuring ranges.

Apart from diaphragm rigidity, the following factors are also important:

- Diaphragm thickness
- Diaphragm material
- Any coatings

Filling liquid

Temperature fluctuations cause volume changes in all filling liquids. Choosing the right filling liquid can minimize the temperature error; however, the filling liquid must be appropriate for the temperature limits and operating pressure. The filling liquid must also be harmless to health.

There is filling liquid underneath the diaphragm, in the capillary and under the process flange of the pressure transmitter (or in the connection shank). The temperature error must therefore be calculated separately for each combination.

Note:

A vacuum-resistant remote seal is recommended for continuous negative pressure operation at 500 mbar a or below, including during commissioning (see ordering data).

You can find an example of how to calculate the temperature error in "Technical specifications".

Adjustment time

The adjustment time depends on the following factors:

- Inside diameter of the capillary: The greater the inside diameter, the shorter the adjustment time.
- Filling liquid viscosity: The greater the viscosity, the longer the adjustment time.
- Capillary length: The longer the capillary, the longer the adjustment time.
- Pressure in the pressure measurement system: The higher the pressure, the shorter the adjustment time.

Recommendations

For the best possible pressure transmitter and remote seal combination, please note the following:

- Use a diameter as large as possible for the remote seal. This makes the effective diameter of the remote seal diaphragms larger and reduces the temperature error.
- Use a capillary as short as possible. This reduces the adjustment time and the temperature error.
- Use the filling liquid with the lowest viscosity and smallest coefficients of expansion. Make sure, however, that the filling liquid meets the high-pressure, low-pressure and temperature process requirements. The filling liquid and the medium must also be compatible.
- Please note the following points for operation in the negative pressure range:
  - The pressure transmitter must always be positioned below the lowest shank.
  - The operating range of some filling liquids may be extremely limited in terms of the permissible temperature of the medium.
  - A vacuum-resistant remote seal is required for continuous operation in the low-pressure range.
- You can find recommendations for the minimum measuring span in "Technical specifications".

Note

The remote seals listed here are merely a selection of the most common remote seals. As there is a wide range of process connections, this list may not include all remote seals available.

Other versions may include:

- Different process connections and standards
- Aseptic or sterile screw glands
- Different dimensions
- Different nominal pressures
- Special diaphragm materials and coatings
- Different sealing surfaces
- Different filling liquids
- Different capillary lengths
- Capillary sheathed in protective tubing
- Calibration at higher/lower temperatures, etc.

Please contact your local Siemens office for further information.

Negative pressure service

Filling liquids, such as silicone oils, inert or those suitable for food, are used in remote seal systems for transmission of the process pressure to the pressure transmitter.

Function (continued)

In each liquid, particles have the tendency to leave the liquid compound with increasing temperature (transition from liquid to gaseous aggregate state). This means the vapor pressure increases with increasing temperature and is dependent on the substance or mixture present.

The higher the temperature and the lower the associated process pressure in the liquid, the more difficult it is to guarantee the desired transmission properties of the remote seal's filling liquid and therefore the measuring arrangement.

In addition, the sealing elements at the transmitter must be designed so that a diffusion of molecules from the atmosphere into the remote seal system is prevented due to the constantly occurring negative pressure.

In addition to the influencing variables process pressure and process temperature, the vapor pressure curve of the filling liquid at the remote seal end and the stiffness of the remote seal membrane impact the functionality of the remote seal in the negative pressure range.

This means you have to pay special attention to the physical properties of filling liquids with applications in the negative pressure range.

There are three stages for the negative pressure resistance:

- **Standard version** of the remote seal without additional protective measures, suitable for the overpressure range and low negative pressure range. This design is identified with (1) in the diagrams below.
- **Negative pressure service** with suitable seals and treated filling liquid, identified with (2) in the diagrams below. Here you select the order codes D81 or D83, depending on the mounting type.
- **Extended negative pressure service** with more extended treatment of the filling liquid and the remote seals, identified in the diagrams below with (3). Here you select the order codes D85 or D88, depending on the mounting type.

There are two more areas in the charts. The area (4) identifies an area that has to be clarified with Technical Support prior to placing the order. The area (5) describes the area in which the remote seal filling liquid is permanently destroyed and the entire remote seal is therefore without function.

Technical specifications of the remote seal filling liquids

Filling liquid	Reference in the article no.	Density at 20 °C (68 °F) [kg/dm³]	Viscosity at 20 °C (68 °F) [mm²/s]	Suitable for negative pressure service	Suitable for extended negative pressure service
Silicone oil M5	A	0.914	4	x	-
Silicone oil M50	B	0.966	50	x	x
High-temperature oil	C	1.079	57	x	x
Halocarbon oil	D	1.968	14	x	-
Food oil (FDA-listed)	E	0.920	10	x	x
Neobee M20	R	0.921	10	x	x

The suitable negative pressure service is specified with the pressure/temperature curves of the respective liquids described below.

Note: For reasons of operational safety, the transmitter must not exceed the height of the remote seal - with differential pressure applications, the height of the bottom remote seal - for measurements in the negative pressure range. The associated mounting types B, C1, C2 or H are described at the end of this section under the topic "Measuring arrangements".

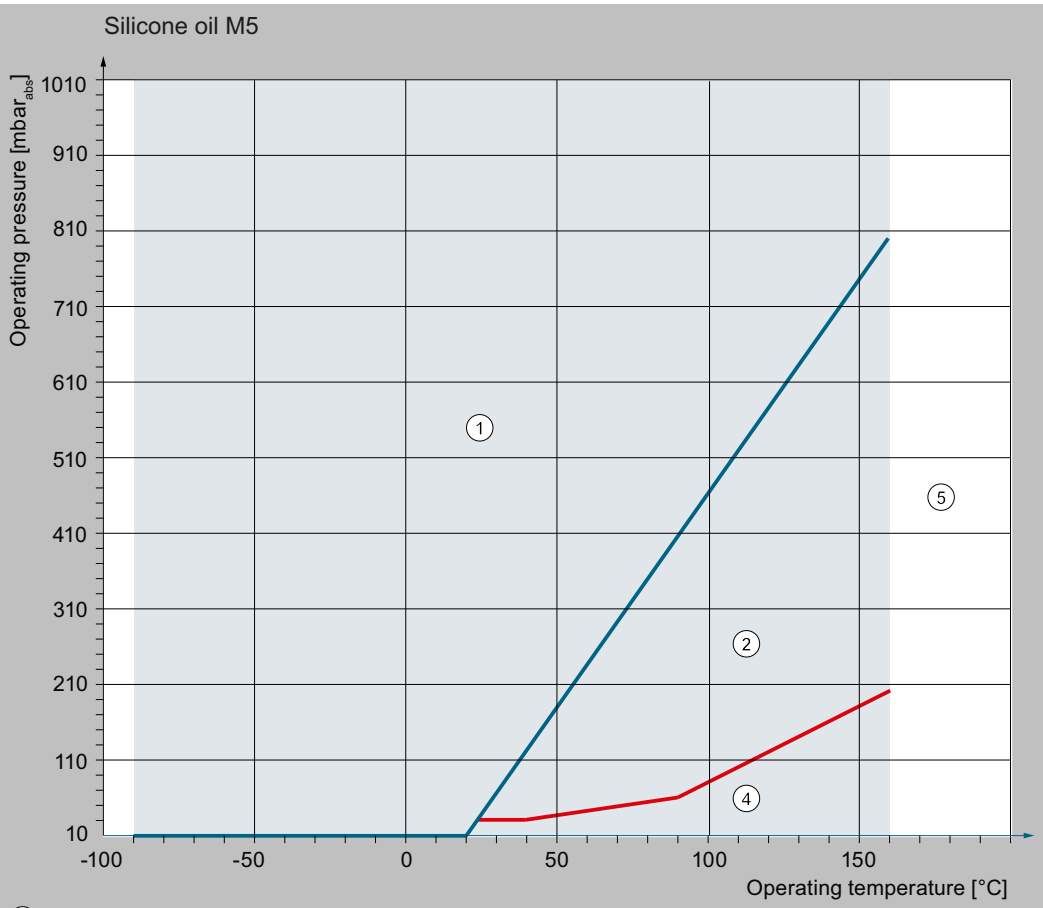
Selection of the required negative pressure service

The procedure for determining the required negative pressure service is described below using the silicone oil M5 as filling liquid. The minimum existing process pressure of a fictitious process is 200 $mbar_{abs}$ (2.9 psi) (at a maximum process temperature of 150 °C (302 °F). This intersection is identified by an "X" in the chart below. This means the negative pressure service D81 or D83 (depending on the application) is sufficient in this example.

The suitable negative pressure resistance is determined this way for all other filling liquids also.

Note:
Note the response times according to the table "Response times" (see Technical specifications).

Function (continued)



(1) Operating range of the standard remote seal design without special measures.

(2) Operating range for which the **negative pressure service D81 or D83** is required.
Note: An extended negative pressure service is **not** possible for this fill fluid.

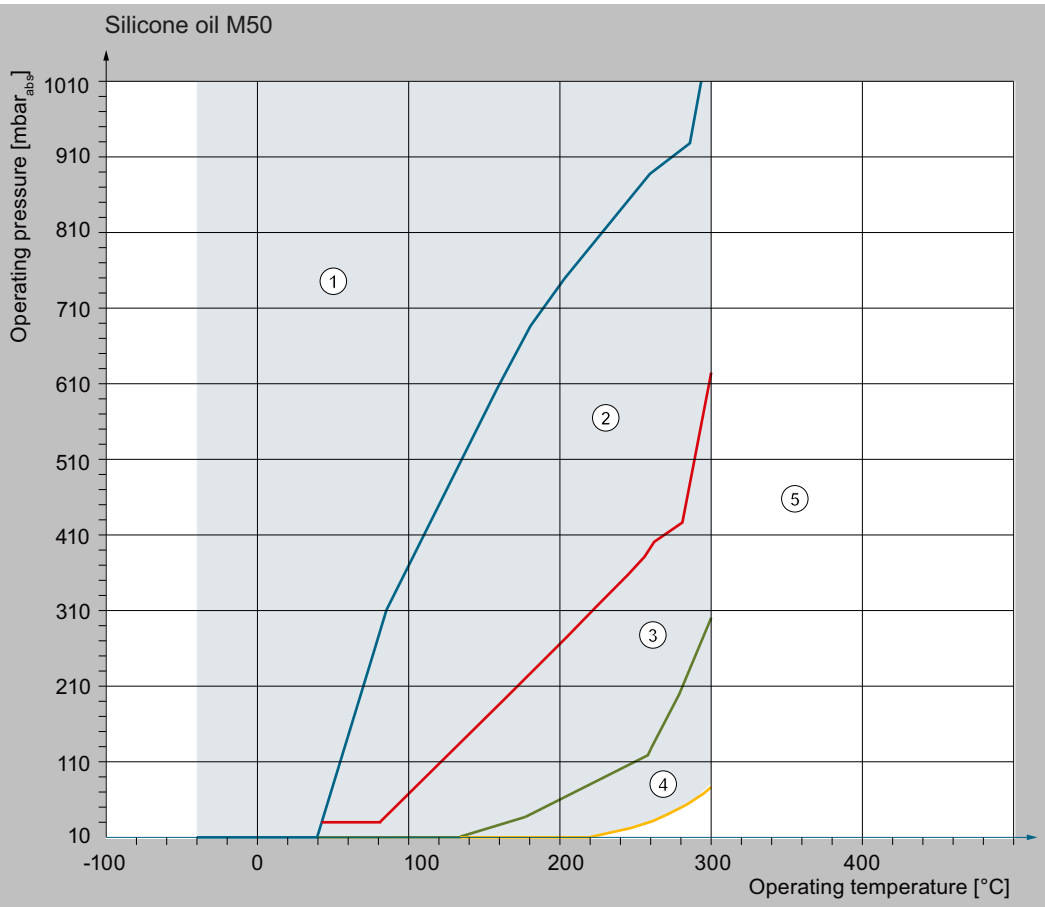
(4) Please contact Technical Support for applications in this area.
Detailed information regarding application, process and ambient data are necessary.

(5) Area in which you have to expect the destruction of the fill fluid.
A function of the remote seal is not specified here.

Permissible operating range:
Max. temperature limit: 160 °C
Min. temperature limit: -90 °C

Negative pressure applications with silicone oil M5

Function (continued)



(1) Operating range of the standard remote seal design without special measures.

(2) Operating range for which the **negative pressure service D81 or D83** is required.

(3) Operating range for which the **extended negative pressure service D85 or D88** is required

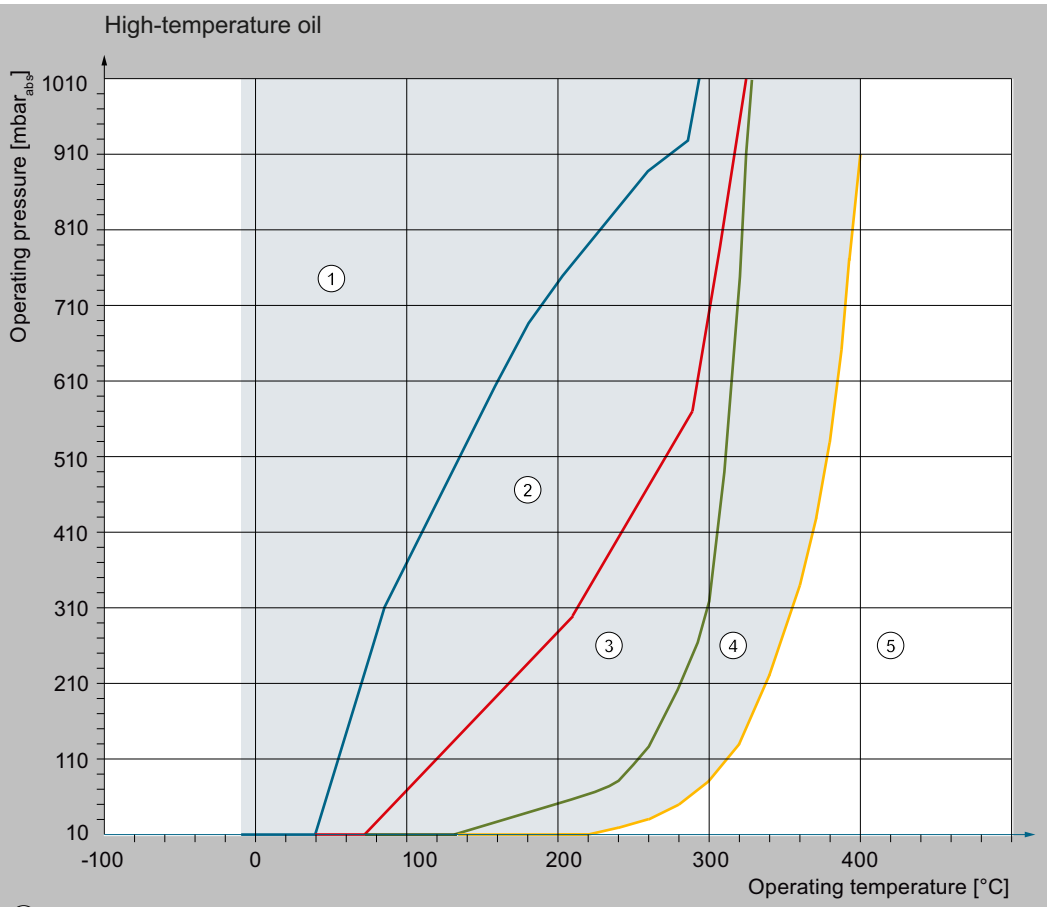
(4) Please contact Technical Support for applications in this area.
Detailed information regarding application, process and ambient data are necessary.

(5) Area in which you have to expect the destruction of the fill fluid.
A function of the remote seal is not specified here.

Permissible operating range:
Max. temperature limit: 300 °C
Min. temperature limit: -40 °C

Negative pressure applications with silicone oil M50

Function (continued)

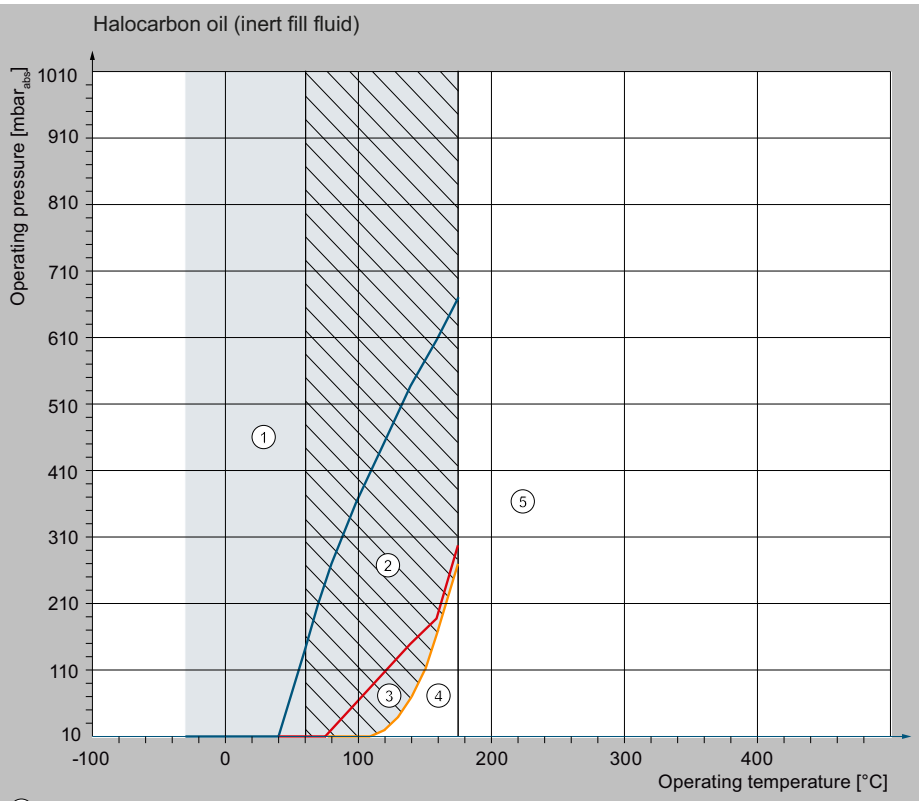


1. Operating range of the standard remote seal design without special measures.
2. Operating range for which the **negative pressure service D81 or D83** is required.
3. Operating range for which the **extended negative pressure service D85 or D88** is required
4. Please contact Technical Support for applications in this area.
   Detailed information regarding application, process and ambient data are necessary.
5. Area in which you have to expect the destruction of the fill fluid.
   A function of the remote seal is not specified here.

Permissible operating range:
Max. temperature limit: 400 °C
Min. temperature limit: -10 °C

Negative pressure applications with high-temperature oil

Function (continued)



1. Operating range of the standard remote seal design without special measures.
2. Operating range for which the **negative pressure service D81 or D83** is required.
3. Operating range for which the extended **negative pressure service D85 or D88** is required.
4. Please contact Technical Support for applications in this area.
   Detailed information regarding application, process and ambient data are necessary.
5. Area in which you have to expect the destruction of the fill fluid.
   A function of the remote seal is not specified here.

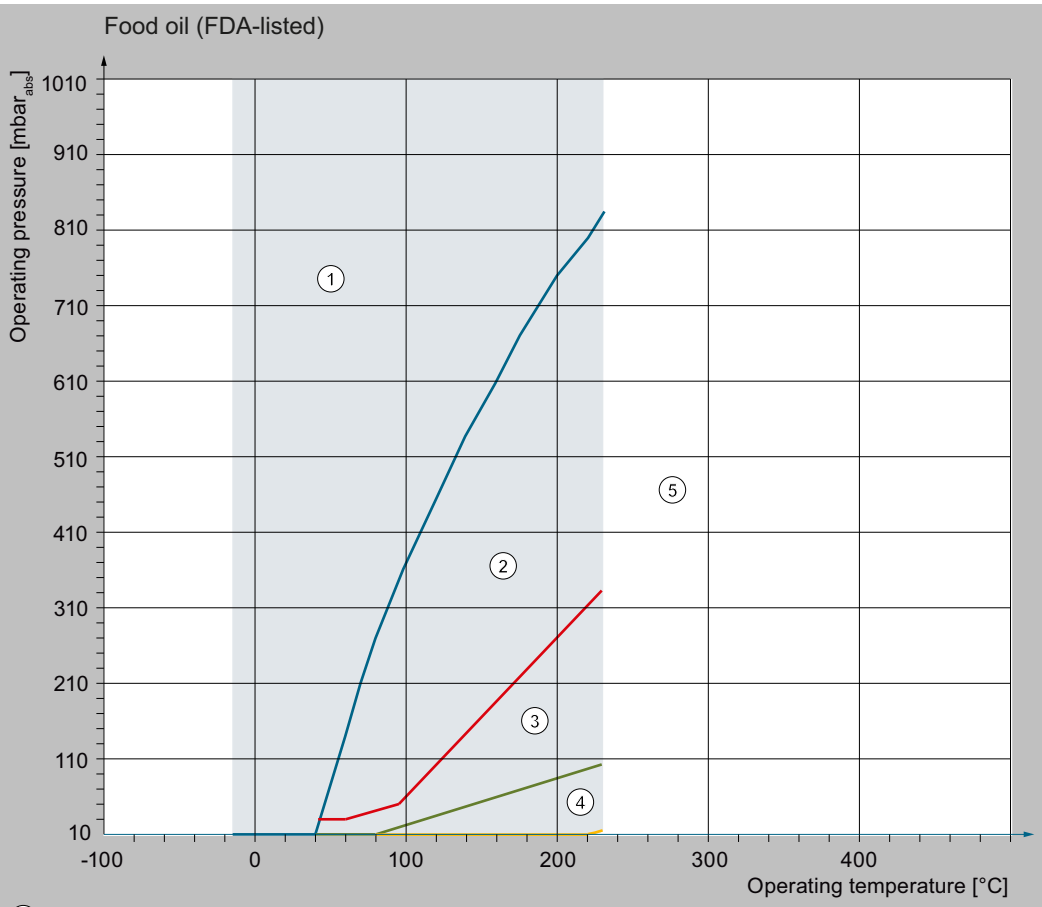
Permissible operating range:
Max. temperature limit: 175 °C
Min. temperature limit: -30 °C

Oxygen application for operating temperature between 60 and 175 °C
and also for operating pressure > 50 bar not permissible.

Negative pressure applications with halocarbon oil (inert filling liquid)

A BAM approval for process temperatures up to 60 °C (140 °F) and system pressures up to 50 bar (725 psi) is available for the oxygen application.

Function (continued)



(1) Operating range of the standard remote seal design without special measures.

(2) Operating range for which the **negative pressure service D81 or D83** is required.

(3) Operating range for which the **extended negative pressure service D85 or D88** is required

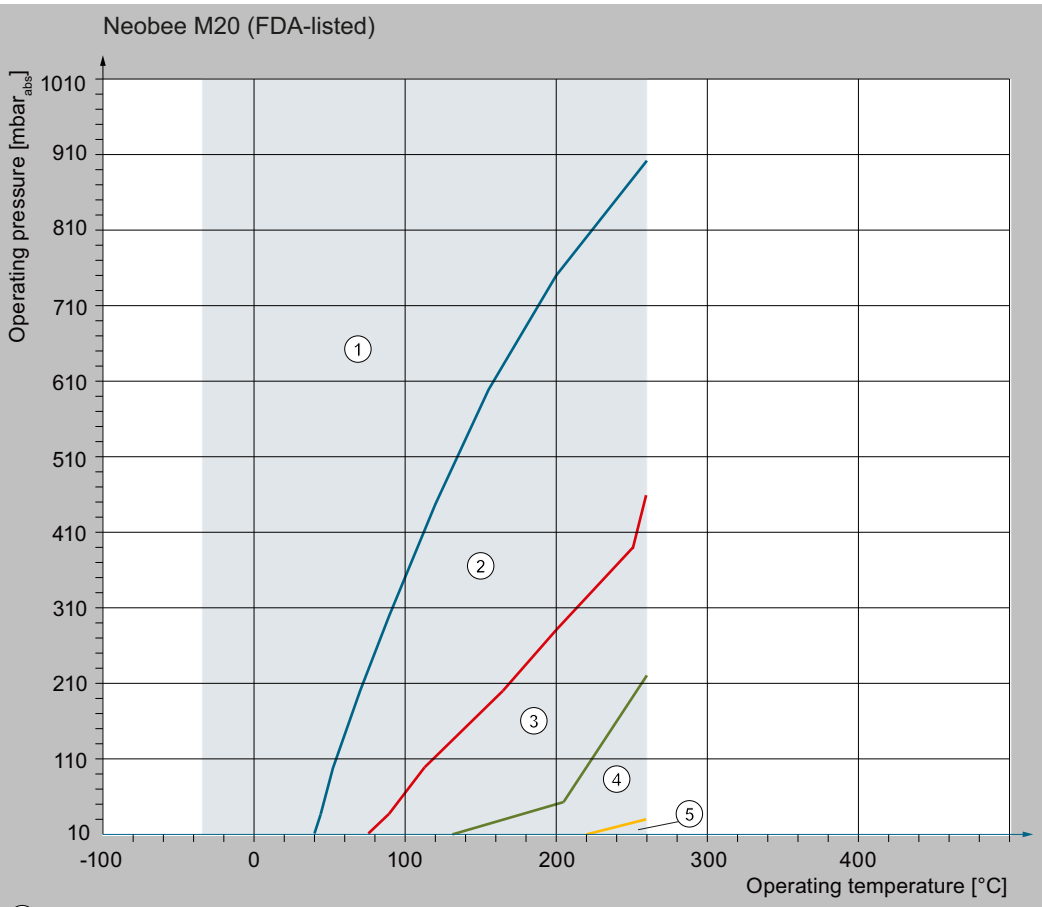
(4) Please contact Technical Support for applications in this area.
Detailed information regarding application, process and ambient data are necessary.

(5) Area in which you have to expect the destruction of the fill fluid.
A function of the remote seal is not specified here.

Permissible operating range:
Max. temperature limit: 230 °C
Min. temperature limit: -15 °C

Negative pressure applications with food oil (FDA-listed)

Function (continued)



1. Operating range of the standard remote seal design without special measures.
2. Operating range for which the **negative pressure service D81 or D83** is required.
3. Operating range for which the **extended negative pressure service D85 or D88** is required
4. Please contact Technical Support for applications in this area.
   Detailed information regarding application, process and ambient data are necessary.
5. Area in which you have to expect the destruction of the fill fluid.
   A function of the remote seal is not specified here.

Permissible operating range:
Max. temperature limit: 260 °C
Min. temperature limit: -35 °C

Negative pressure applications with Neobee M20 (FDA-listed)

Technical specifications

Diaphragm seal temperature error

Temperature errors of diaphragm seals when connected to pressure transmitters for gauge pressure, absolute pressure, differential pressure (single-sided) and level

Notes

Table values apply to:

- The filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed), Neobee M20
- Diaphragm material stainless steel

With selected order code W01:

- The values listed in the table for "High-temperature oil" filling liquid and for the wetted parts made of stainless steel 316L, mat no. 1.4404/1.4435, apply.
- For the other filling liquids, the following supplements must be applied to the determined table values for the temperature errors[1]:
  - For "FDA oil": 5%
  - For "Silicone oil M5": 35%
  - For "Silicone oil M50": 35%
  - For "Halocarbon oil": 20%
  - For "Neobee M20": 20%

[1] The specified surcharges for the various wetted parts are unaffected. They still need to be included in the calculation.

	Nominal diameter/design	Diaphragm diameter		Temperature error of remote seal f_{RS}		Temperature error of capillary f_{Cap}	
		mm	(inch)	mbar/10 K	(psi/10 K)	mbar/(10 K · m_{Cap})	(psi/(10 K · m_{Cap}))
Sandwich design or with flange according to EN 1092-1	DN 25 without tube	27	(1.06)	5	(0.073)	16	(0.232)
	DN 40 without tube	40	(1.57)	1.6	(0.023)	2.9	(0.042)
	DN 50 without tube	59	(2.32)	1.5	(0.022)	2	(0.029)
	DN 50 with tube	45	(1.89)	5	(0.073)	10	(0.145)
	DN 80 without tube	89	(3.50)	0.2	(0.003)	0.2	(0.003)
	DN 80 with tube	72	(2.83)	1	(0.015)	1	(1.015)
	DN 100 without tube	89	(3.50)	0.2	(0.003)	0.4	(0.006)
	DN 100 with tube	89	(3.50)	0.4	(0.006)	0.4	(0.006)
	DN 125 without tube	124	(4.88)	0.2	(0.003)	0.1	(0.002)
	DN 125 with tube	124	(4.88)	0.2	(0.003)	0.1	(0.002)
Sandwich design or with flange according to ASME B16.5	1 inch without tube	27	(1.06)	5	(0.073)	16	(0.232)
	1½ without tube	40	(1.57)	1.6	(0.023)	2.9	(0.042)
	2 inches without tube	59	(2.32)	1.5	(0.022)	2	(0.029)
	2 inches with tube	45	(1.89)	5	(0.073)	10	(0.145)
	3 inches without tube	89	(3.50)	0.2	(0.003)	0.2	(0.003)
	3 inches with tube	72	(2.83)	1	(0.015)	1	(1.015)
	4 inches without tube	89	(3.50)	0.2	(0.003)	0.4	(0.006)
	4 inches with tube	89	(3.50)	0.4	(0.006)	0.4	(0.006)
	5 inches without tube	124	(4.88)	0.2	(0.003)	0.1	(0.002)
	5 inches with tube	124	(4.88)	0.2	(0.003)	0.1	(0.002)
Remote seal with union nut according to DIN 11851	DN 25	25	(0.98)	20	(0.290)	60	(0.870)
	DN 32	32	(1.26)	8	(0.116)	25	(0.363)
	DN 40	40	(1.57)	4	(0.058)	10	(0.145)
	DN 50	52	(2.05)	4	(0.058)	5	(0.073)
	DN 65	59	(2.32)	3	(0.044)	4	(0.058)
	DN 80	72	(2.83)	1	(0.015)	1	(0.015)
Remote seal, screw gland design	DN 50	52	(2.05)	4	(0.058)	5	(0.073)
Remote seal with screwed connector according to DIN 11851	DN 25	25	(0.98)	20	(0.290)	60	(0.870)
	DN 32	32	(1.26)	8	(0.116)	25	(0.363)
	DN 40	40	(1.57)	4	(0.058)	10	(0.145)
	DN 50	52	(2.05)	4	(0.058)	5	(0.073)
	DN 65	59	(2.32)	3	(0.044)	4	(0.058)
	DN 80	72	(2.83)	1	(0.015)	1	(0.015)
Clamp connection	1½ inches	32	(1.26)	8	(0.116)	25	(0.363)
	2 inches	40	(1.57)	4	(0.058)	10	(0.145)
	2½ inches	59	(2.32)	3	(0.044)	5	(0.073)

Technical specifications (continued)

	Nominal diameter/design	Diaphragm diameter		Temperature error of remote seal f_{RS}		Temperature error of capillary f_{Cap}	
		mm	(inch)	mbar/10 K	(psi/10 K)	mbar/(10 K · m_{Cap})	(psi/(10 K · m_{Cap}))
	3 inches	72	(2.83)	1	(0.015)	1	(0.015)
Miniature diaphragm seal	G1B	25	(0.98)	20	(0.290)	60	(0.870)
	G1½B	40	(1.57)	4	(0.058)	10	(0.145)
	G2B	52	(2.05)	4	(0.058)	5	(0.073)

	Nominal diameter/design	Diaphragm diameter		Temperature error of process flange/connection shank f_{PF}		Recommended min. measuring spans (guidance values, note temperature error)	
		mm	(inch)	mbar/10 K	(psi/10 K)	mbar	(psi)
Sandwich design or with flange according to EN 1092-1	DN 25 without tube	27	(1.06)	23.6	(0.342)	4000	(58)
	DN 40 without tube	40	(1.57)	4.3	(0.062)	1000	(14.5)
	DN 50 without tube	59	(2.32)	2	(0.029)	200	(2.90)
	DN 50 with tube	45	(1.89)	10	(0.145)	500	(7.25)
	DN 80 without tube	89	(3.50)	0.2	(0.003)	100	(1.45)
	DN 80 with tube	72	(2.83)	1	(1.015)	250	(3.63)
	DN 100 without tube	89	(3.50)	0.4	(0.006)	100	(1.45)
	DN 100 with tube	89	(3.50)	0.4	(0.006)	100	(1.45)
	DN 125 without tube	124	(4.88)	0.1	(0.002)	20	(0.29)
	DN 125 with tube	124	(4.88)	0.1	(0.002)	20	(0.29)
Sandwich design or with flange according to ASME B16.5	1 inch without tube	27	(1.06)	23.6	(0.342)	4000	(58)
	1½ without tube	40	(1.57)	4.3	(0.062)	1000	(14.5)
	2 inches without tube	59	(2.32)	2	(0.029)	200	(2.90)
	2 inches with tube	45	(1.89)	10	(0.145)	500	(7.25)
	3 inches without tube	89	(3.50)	0.2	(0.003)	100	(1.45)
	3 inches with tube	72	(2.83)	1	(1.015)	250	(3.63)
	4 inches without tube	89	(3.50)	0.4	(0.006)	100	(1.45)
	4 inches with tube	89	(3.50)	0.4	(0.006)	100	(1.45)
	5 inches without tube	124	(4.88)	0.1	(0.002)	20	(0.29)
	5 inches with tube	124	(4.88)	0.1	(0.002)	20	(0.29)
Remote seal with union nut according to DIN 11851	DN 25	25	(0.98)	60	(0.870)	6000	(87)
	DN 32	32	(1.26)	25	(0.363)	4000	(58)
	DN 40	40	(1.57)	10	(0.145)	2000	(29)
	DN 50	52	(2.05)	5	(0.073)	500	(7.25)
	DN 65	59	(2.32)	4	(0.058)	500	(7.25)
	DN 80	72	(2.83)	1	(0.015)	250	(3.63)
Remote seal, screw gland design	DN 50	52	(2.05)	5	(0.073)	500	(7.25)
Remote seal with screwed connector according to DIN 11851	DN 25	25	(0.98)	60	(0.870)	6000	(87)
	DN 32	32	(1.26)	25	(0.363)	4000	(58)
	DN 40	40	(1.57)	10	(0.145)	2000	(29)
	DN 50	52	(2.05)	5	(0.073)	500	(7.25)
	DN 65	59	(2.32)	4	(0.058)	500	(7.25)
	DN 80	72	(2.83)	1	(0.015)	250	(3.63)
Clamp connection	1½ inches	32	(1.26)	25	(0.363)	4000	(58)
	2 inches	40	(1.57)	10	(0.145)	2000	(29)
	2½ inches	59	(2.32)	5	(0.073)	500	(7.25)
	3 inches	72	(2.83)	1	(0.015)	250	(3.63)
Miniature diaphragm seal	G1B	25	(0.98)	60	(0.870)	6000	(87)
	G1½B	40	(1.57)	10	(0.145)	2000	(29)
	G2B	52	(2.05)	5	(0.073)	500	(7.25)

Technical specifications (continued)

Temperature errors of diaphragm seals with connection to differential pressure transmitters (double-sided)

Notes

Table values apply to:

- The filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed), Neobee M20
- Diaphragm material stainless steel

With selected order code W01:

- The values listed in the table for "High-temperature oil" filling liquid and for the wetted parts made of stainless steel 316L, mat no. 1.4404/1.4435, apply.
- For the other filling liquids, the following supplements must be applied to the determined table values for the temperature errors[1]:
  - For "FDA oil": 5%
  - For "Silicone oil M5": 35%
  - For "Silicone oil M50": 35%
  - For "Halocarbon oil": 20%
  - For "Neobee M20": 20%

[1] The specified surcharges for the various wetted parts are unaffected. They still need to be included in the calculation.

	Nominal diameter/design	Diaphragm diameter		Temperature error of remote seal f_{RS}		Temperature error of capillary f_{Cap}	
		mm	(inch)	mbar/10 K	(psi/10 K)	mbar/(10 K · m_{Cap})	(psi/(10 K · m_{Cap}))
Sandwich design or with flange according to EN 1092-1	DN 40 without tube	40	(1.57)	0.2	(0.003)	0.4	(0.006)
	DN 50 without tube	59	(2.32)	0.3	(0.0043)	0.3	(0.0045)
	DN 50 with tube	45	(1.89)	1.26	(0.018)	1.7	(0.025)
	DN 80 without tube	89	(3.50)	0.05	(0.001)	0.05	(0.001)
	DN 80 with tube	72	(2.83)	0.24	(0.004)	0.17	(0.003)
	DN 100 without tube	89	(3.50)	0.05	(0.001)	0.07	(0.001)
	DN 100 with tube	89	(3.50)	0.1	(0.002)	0.07	(0.001)
	DN 125 without tube	124	(4.88)	0.05	(0.001)	0.03	(0.0004)
	DN 125 with tube	124	(4.88)	0.05	(0.001)	0.03	(0.0004)
Sandwich design with flange according to ASME B16.5	1½ without tube	40	(1.57)	0.2	(0.003)	0.4	(0.006)
	2 inches without tube	59	(2.32)	0.3	(0.0043)	0.3	(0.0043)
	2 inches with tube	45	(1.89)	1.26	(0.018)	1.7	(0.025)
	3 inches without tube	89	(3.50)	0.05	(0.001)	0.05	(0.0007)
	3 inches with tube	72	(2.83)	0.24	(0.004)	0.17	(0.003)
	4 inches without tube	89	(3.50)	0.05	(0.001)	0.07	(0.001)
	4 inches with tube	89	(3.50)	0.1	(0.002)	0.07	(0.001)
	5 inches without tube	124	(4.88)	0.05	(0.001)	0.03	(0.0004)
	5 inches with tube	124	(4.88)	0.05	(0.001)	0.03	(0.0004)
Remote seal, screw gland design	DN 50	52	(2.05)	1	(0.015)	0.83	(0.012)
Remote seal with union nut according to DIN 11851	DN 50	52	(2.05)	1	(0.015)	0.83	(0.012)
	DN 65	59	(2.32)	0.7	(0.010)	0.67	(0.010)
	DN 80	72	(2.83)	0.24	(0.004)	0.17	(0.003)
Remote seal with screwed connector according to DIN 11851	DN 50	52	(2.05)	1	(0.015)	0.83	(0.012)
	DN 65	59	(2.32)	0.7	(0.010)	0.67	(0.010)
	DN 80	72	(2.83)	0.24	(0.004)	0.17	(0.003)
Clamp connection	2 inches	40	(1.57)	1	(0.015)	2.5	(0.036)
	2½ inches	59	(2.32)	0.7	(0.010)	0.67	(0.010)
	3 inches	72	(2.83)	0.24	(0.004)	0.17	(0.003)

	Nominal diameter/design	Diaphragm diameter		Temperature error of process flange/connection shank f_{PF}		Recommended min. measuring spans (guidance values, note temperature error)	
		mm	(inch)	mbar/10 K	(psi/10 K)	mbar	(psi)
Sandwich design or with flange according to EN 1092-1	DN 40 without tube	40	(1.57)	0.4	(0.006)	1600	(23.2)
	DN 50 without tube	59	(2.32)	0.3	(0.0045)	250	(3.626)
	DN 50 with tube	45	(1.89)	1.7	(0.025)	250	(3.626)
	DN 80 without tube	89	(3.50)	0.05	(0.0007)	50	(0.725)
	DN 80 with tube	72	(2.83)	0.17	(0.003)	100	(1.45)
	DN 100 without tube	89	(3.50)	0.07	(0.001)	50	(0.725)
	DN 100 with tube	89	(3.50)	0.07	(0.001)	50	(0.725)
	DN 125 without tube	124	(4.88)	0.03	(0.0004)	20	(0.29)
	DN 125 with tube	124	(4.88)	0.03	(0.0004)	20	(0.29)

Technical specifications (continued)

	Nominal diameter/design	Diaphragm diameter		Temperature error of process flange/connection shank f_{PF}		Recommended min. measuring spans (guidance values, note temperature error)	
		mm	(inch)	mbar/10 K	(psi/10 K)	mbar	(psi)
Sandwich design with flange according to ASME B16.5	1½ without tube	40	(1.57)	0.4	(0.006)	1600	(23.2)
	2 inches without tube	59	(2.32)	0.3	(0.0045)	250	(3.626)
	2 inches with tube	45	(1.89)	1.7	(0.025)	250	(3.626)
	3 inches without tube	89	(3.50)	0.05	(0.0007)	50	(0.725)
	3 inches with tube	72	(2.83)	0.17	(0.003)	100	(1.45)
	4 inches without tube	89	(3.50)	0.07	(0.001)	50	(0.725)
	4 inches with tube	89	(3.50)	0.07	(0.001)	50	(0.725)
	5 inches without tube	124	(4.88)	0.03	(0.0004)	20	(0.29)
	5 inches with tube	124	(4.88)	0.03	(0.0004)	20	(0.29)
Remote seal, screw gland design	DN 50	52	(2.05)	0.83	(0.012)	250	(3.626)
Remote seal with union nut according to DIN 11851	DN 50	52	(2.05)	0.83	(0.012)	250	(3.626)
	DN 65	59	(2.32)	0.67	(0.010)	250	(3.626)
	DN 80	72	(2.83)	0.17	(0.003)	100	(1.450)
Remote seal with screwed connector according to DIN 11851	DN 50	52	(2.05)	0.83	(0.012)	250	(3.626)
	DN 65	59	(2.32)	0.67	(0.010)	250	(3.626)
	DN 80	72	(2.83)	0.17	(0.003)	100	(1.450)
Clamp connection	2 inches	40	(1.57)	2.5	(0.036)	2000	(29.01)
	2½ inches	59	(2.32)	0.67	(0.010)	250	(3.626)
	3 inches	72	(2.83)	0.17	(0.003)	100	(1.450)

Inline seal temperature errors

Notes

Table values apply to:

- The filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed), Neobee M20
- Diaphragm material stainless steel
- Half the values apply to glycerin/water mixture as filling liquid

Diaphragm thickness:

- 0.05 mm (0.002 inches) for DN 25/DN 40/DN 50
- 0.1 mm (0.004 inches) for DN 80/DN 100

Temperature errors of inline seals for flange-mounting 7MF0900 for one-sided mounting

Nominal diameter/design	Process error		Transmitter error		Remote line error		Minimum measuring span	
	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar	(psi)
DN 25 (1 inch)	8.0	(0.116)	12.0	(0.174)	Not possible	Not possible	3000	(43.5)
DN 40 (1½ inches)	10.0	(0.145)	9.5	(0.138)	8.0	(0.116)	3000	(43.5)
DN 50 (2 inches)	12.0	(0.174)	9.0	(0.131)	19.0	(0.276)	3000	(43.5)
DN 80 (3 inches)	9.5	(0.138)	5.0	(0.073)	10.5	(0.152)	2000	(29)
DN 100 (4 inches)	16.0	(0.232)	7.0	(0.102)	16.0	(0.232)	3000	(43.5)

Temperature errors of inline seals for flange-mounting 7MF0902 for two-sided mounting

Nominal diameter/design	Process error		Transmitter error		Remote line error		Minimum measuring span	
	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar	(psi)
DN 25 (1 inch)	Not possible	Not possible	Not possible	Not possible	Not possible	Not possible	Not possible	Not possible
DN 40 (1½ inches)	10.0	(0.145)	9.5	(0.138)	7.5	(0.109)	600	(8.7)
DN 50 (2 inches)	13.5	(0.196)	12.5	(0.181)	19.0	(0.276)	600	(8.7)
DN 80 (3 inches)	11.0	(0.160)	12.5	(0.181)	10.5	(0.152)	600	(8.7)
DN 100 (4 inches)	14.0	(0.203)	9.0	(0.131)	14.0	(0.203)	3000	(43.5)

Temperature errors of quick-release inline seals 7MF0930 for one-sided mounting

Nominal diameter/design	Process error		Transmitter error		Remote line error		Minimum measuring span	
	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar/10 K	(psi/10 K)	mbar	(psi)
DN 25 (1 inch)	30.0	(0.435)	23.0	(0.334)	13.0	(0.189)	6000	(87)
DN 32 (1¼ inches)	9.0	(0.131)	5.0	(0.073)	16.5	(0.239)	3000	(43.5)
DN 40 (1½ inches)	3.0	(0.044)	1.5	(0.022)	4.0	(0.058)	2000	(29)
DN 50 (2 inches)	4.0	(0.058)	1.0	(0.015)	3.0	(0.044)	2000	(29)
DN 65 (2½ inches)	5.5	(0.080)	2.0	(0.029)	6.0	(0.087)	2000	(29)

Technical specifications (continued)

Calculation of the temperature error

The following equation is used to calculate the temperature error:

$dp = (\vartheta_{RS} - \vartheta_{Cal}) \cdot f_{RS} + (\vartheta_{Cap} - \vartheta_{Cal}) \cdot l_{Cap} \cdot f_{Cap} + (\vartheta_{MU} - \vartheta_{Cal}) \cdot f_{PF}$

Legend:	
dp	Additional temperature error (mbar)
ϑ_{RS}	Temperature on remote seal diaphragm (generally corresponds to temperature of medium)
ϑ_{Cal}	Calibration/reference temperature (20 °C (68 °F))
f_{DM}	Temperature error of remote seal
ϑ_{Cap}	Ambient temperature on the capillaries
l_{Cap}	Capillary length
f_{Cap}	Temperature error of capillaries
ϑ_{TR}	Ambient temperature on pressure transmitter
f_{PF}	Temperature error of the oil filling in the process flanges of the pressure transmitter

Example of temperature error calculation

What are you looking for?

We are looking for an additional temperature error of the remote seals (**dp**).

Prevailing values:

SITRANS P pressure transmitter for differential pressure, 250 mbar, set to 0 ... 100 mbar, with DN 100 diaphragm seals without tube, diaphragm made of stainless steel, mat. no. 1.4404/316L	f_{DM} = 0.05 mbar/10 K (0.039 inH_2O/10 K)
Capillary length	l_{Cap} = 6 m (19.7 ft)
Capillaries fitted on both sides	f_{Cap} = 0.07 mbar/(10 K · m_{Cap}) 0.028 inH_2O/(10 K · m_{Cap})
Filling liquid silicone oil M5	f_{PF} = 0.07 mbar/10 K (0.028 inH_2O/10 K)
Medium temperature	***ϑ_{DM} = 100 °C (212 °F)***
Temperature on the capillaries	***ϑ_{Cap} = 50 °C (122 °F)***
Temperature on pressure transmitter	***ϑ_{MU} = 50 °C (122 °F)***
Calibration temperature	***ϑ_{Cal} = 20 °C (68 °F)***

Calculation in mbar:

dp = (100 °C – 20 °C) · 0.05 mbar/10 K + (50 °C – 20 °C) · 6 m · 0.07 mbar/(10 K · m) + (50 °C – 20 °C) · 0.07 mbar/10 K

Calculation in inH_2O:

dp = (212 °F – 68 °F) · 0.039 inH_2O/10 K + (112 °F – 68 °F) · 19.7 ft · 0.028 inH_2O/(10 K · 3.28 ft) + (112 °F – 68 °F) · (0.028 inH_2O/10 K)

dp = 0.16 inH_2O + 0.51 inH_2O + 0.08 inH_2O

Result:

dp = 1.87 mbar (0.75 inH_2O)

(corresponds to 2.27% of set measuring span)

Note:

The determined temperature error only applies to the error resulting from connection of the remote seal.

The transmission response of the respective pressure transmitter is not taken into account here!
The transmission response must be calculated separately, and the resulting measuring error added to the temperature error determined above from connection of the remote seal.

Dependence of temperature error on diaphragm material

The temperature errors listed in the previous table are based on the use of stainless steel as the diaphragm material. If other diaphragm materials are used, the temperature errors change as follows:

Diaphragm material	Change in temperature error of remote seal
	Increase in values by:
Stainless steel, duplex, ...	See previous tables
Hastelloy C4, mat. no. 2.4610	50%
Hastelloy C276, mat. no. 2.4819	50%
Monel 400, mat. no. 2.4360	60%
Tantalum	50%
Titanium	50%
PTFE coating on stainless steel diaphragm	80%
ECTFE coating or PFA coating on stainless steel diaphragm	100%
Gold coating on stainless steel diaphragm	40%
Inconel	50%
Incoloy	50%

Maximum medium temperature

Note

When taking into account the maximum medium temperature, the application limits of the filling liquids and gaskets used as well as the pressure/temperature limits of the respective process connections must also be taken into consideration.

The following maximum medium temperatures apply depending on the material of wetted parts.

Material	Max. medium temperature	Min./max. Pressure
Stainless steel, mat. no. 1.4404/316L	400 °C (752 °F)	No restrictions
PTFE coating	200 °C (392 °F)	< 0 bar (0 psi); gauge pressure
	260 °C (500 °F)	0 bar (0 psi) ... 25 bar (363 psi); gauge pressure
	150 °C (302 °F)	25 bar (363 psi) ... 40 bar (580 psi); gauge pressure
	50 °C (302 °F)	40 bar (580 psi) ... 60 bar (870 psi); gauge pressure
ECTFE coating	150 °C (302 °F)	For pressures < 1 bar (14.5 psi) on request
PFA coating	200 °C (392 °F)	< 0 bar (0 psi); gauge pressure
	260 °C (500 °F)	0 bar (0 psi) ... 25 bar (363 psi); gauge pressure
	150 °C (302 °F)	25 bar (363 psi) ... 40 bar (580 psi); gauge pressure
	50 °C (302 °F)	40 bar (580 psi) ... 100 bar (1450 psi); gauge pressure

Technical specifications (continued)

Material	Max. medium temperature	Min./max. Pressure
Hastelloy C4, mat. no. 2.4610	400 °C (752 °F)	No restrictions
Hastelloy C276, mat. no. 2.4819	400 °C (752 °F)	No restrictions
Hastelloy C22, mat. no. 2.4602	400 °C (752 °F)	No restrictions
Monel 400, mat. no. 2.4360	400 °C (752 °F)	No restrictions
Tantalum	300 °C (572 °F)	No restrictions
	150 °C (302 °F)	No restrictions
Duplex, mat. no. 1.4462	250 °C (482 °F)	No restrictions
Titanium	150 °C (302 °F)	No restrictions
Inconel	400 °C (752 °F)	No restrictions
Incoloy	400 °C (752 °F)	No restrictions
Gold coating	400 °C (752 °F)	No restrictions

Maximum length of the capillary for diaphragm seals (guidance values)

Nominal diameter DN		Max. length of the capillary							
		Diaphragm seal		Inline seal 7MF0900*		7MF0902*		7MF0930*	
		m	(ft)	m	(ft)	m	(ft)	m	(ft)
DN 25	(1")	2.5	(8.2)	Only direct mounting possible	Only direct mounting possible	Not possible	Not possible	1	(3.2)
DN 32	(1¼")	2.5	(8.2)	-	-	-	-	6	(19.7)
DN 40	(1½")	4	(13.1)	1.66	(5.5)	1	(3.2)	6	(19.7)
DN 50	(2")	6	(19.7)	4	(13.1)	4	(13.1)	6	(19.7)
DN 65	(2½")	8	(26.2)	-	-	-	-	6	(19.7)
DN 80	(3")	15	(49.1)	4	(13.1)	6	(19.7)	-	-
DN 100	(4")	15	(49.1)	4	(13.1)	4	(13.1)	-	-
DN 125	(5")	15	(49.1)	-	-	-	-	-	-

Response times

The response times specified in the following table (in seconds per meter length of the capillary) apply to a change in pressure which corresponds to the set measuring span.

The listed values must be multiplied by the respective length of the capillary, or with pressure transmitters for differential pressure and flow by the total length of both capillaries.

The response times are independent of the set measuring span within the range of the respective pressure transmitter. The response times are of insignificant importance for measuring spans above 10 bar (145 psi). The response times of the pressure transmitters are not considered in the table.

Filling liquid	Density		Temperature on capillary		Response time in s/m (s/ft) with max. measuring span of pressure transmitter					
	kg/dm³	(lb/in³)	°C	(°F)	250 mbar	(101 inH_2O)	600 mbar	(241 inH_2O)	1600 mbar	(643 inH_2O)
Silicone oil M5	0.914	(0.033)	+60	(140)	0.06	(0.018)	0.02	(0.006)	0.01	(0.003)
			+20	(68)	0.11	(0.034)	0.02	(0.006)	0.02	(0.006)
			-20	(-4)	0.3	(0.091)	0.12	(0.037)	0.05	(0.015)
Silicone oil M50	0.966	(0.035)	+60	(140)	0.6	(0.183)	0.25	(0.076)	0.09	(0.027)
			+20	(68)	0.61	(0.186)	0.26	(0.079)	0.1	(0.030)
			-20	(-4)	1.69	(0.515)	0.71	(0.216)	0.27	(0.082)
High-temperature oil	1.070	(0.039)	+60	(140)	0.14	(0.043)	0.06	(0.018)	0.02	(0.006)
			+20	(68)	0.65	(0.198)	0.27	(0.082)	0.1	(0.030)
			-10	(14)	3.96	(1.207)	1.65	(0.503)	0.62	(0.189)
Halocarbon oil	1.968	(0.071)	+60	(140)	0.07	(0.021)	0.03	(0.009)	0.01	(0.003)
			+20	(68)	0.29	(0.088)	0.12	(0.037)	0.05	(0.015)
			-20	(-4)	2.88	(0.878)	1.2	(0.366)	0.45	(0.137)
Food oil (FDA-listed)	0.920	(0.033)	+60	(140)	0.75	(0.229)	0.33	(0.101)	0.17	(0.052)
			+20	(68)	4	(1.220)	1.75	(0.534)	0.67	(0.204)
			-20	(-4)	20	(6 100)	8.5	(2.593)	3.25	(0.991)
Neobee M20	0.920	(0.033)	+60	(140)	0.69	(0.210)	0.29	(0.884)	0.11	(0.034)
			+20	(68)	1.81	(0.552)	0.76	(0.232)	0.29	(0.088)
			-20	(-4)	6.46	(1.969)	2.71	(0.826)	1.04	(0.317)

See charts under "Function" for permissible data of filling liquid for pressure and temperatures.

More information

Specification of process conditions for selection and ordering data

Ambient temperature range

The standard remote seal systems are optimized for an ambient temperature range of -10 to +50 °C (14 to +122 °F). Therefore, in the ordering options, the **order code "D66" is** preset.

If the range of the ambient temperature deviates from this, you have the possibility to choose other ambient temperature ranges:

- With the **order code D67**, a range from -40 to +50 °C (-40 to +122 °F)
- With the **order code D68**, a range from -10 to +85 °C (14 to +185 °F)

In the case of a **special design**, which you can select with the **order option Y99** in the device settings, it is possible to enter the ambient temperature as a numerical value.

Process temperature

The standard optimization for the process temperature depends on the filling liquid used:

Filling liquid	Code	Optimized temperature range as standard
Silicone M50	B	-10 ... +200 °C (14 ... +392 °F)
High-temperature oil	C	-10 ... +300 °C (14 ... +572 °F)
Silicone oil M5	A	-40 ... +140 °C (-40 ... +284 °F)
Food oil (FDA-listed)	E	-10 ... +140 °C (14 ... +284 °F)
Halocarbon oil	D	-20 ... +60 °C (-4 ... +140 °F)
Neobee M20 (FDA-listed)	R	-10 ... +140 °C (14 ... +284 °F)

- **If the process temperatures** deviate from the temperature ranges mentioned in the table above, we ask you to send the process temperature with the **order code Y50** along with the order.
- If the remote seal has a small diameter (< DN 50/2") or a long capillary (> 4 m), we also ask you to provide the process data with the **following order code** when ordering.

These entries are transmitted and ensure the correct functioning of the remote seal systems.

	Order code
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**

Overview

Diaphragm seals in sandwich design

Selection and ordering data

		Article No.												Order code			
Diaphragm seal **In sandwich design, connected with flexible capillary tube to a transmitter**																	
SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only in conjunction with underpressure service) **7MF03../7MF04../7MF802. to be ordered separately; scope of delivery: 1 unit**		**7MF0800-**															
SITRANS P320/P420 for absolute pressure from differential pressure **7MF03../7MF04.. order separately, scope of delivery: 1 unit**		**7MF0801-**															
SITRANS P320/P420 transmitter for differential pressure and flow **7MF03../7MF04.. order separately, scope of delivery: 2 units**		**7MF0802-**															
		●	●	●	●	●	-	0	●	●	●			●	●	●	
Click the article number for online configuration in the PIA Life Cycle Portal.																	
Nominal diameter	**Nominal pressure**																
Process connection standard EN 1092-1																	
(DN 25, DN 40 and DN 50 only recommended for pressure transmitters for gauge pressure)																	
DN 25	PN 16 ... 400	**0**	**B**	**Q**													
DN 40	PN 16 ... 400	**0**	**D**	**Q**													
DN 50	PN 16 ... 400	**0**	**E**	**Q**													
DN 65	PN 16 ... 400	**0**	**F**	**Q**													
DN 80	PN 16 ... 400	**0**	**G**	**Q**													
DN 100	PN 16 ... 400	**0**	**H**	**Q**													
DN 125	PN 16 ... 400	**0**	**J**	**Q**													
Process connection standard ASME B16.5																	
(1 inch, 1½ inches and 2 inches only recommended for pressure transmitters for gauge pressure)																	
1 inch	Class 150 ... 2500	**1**	**K**	**X**													
1½ inches	Class 150 ... 2500	**1**	**L**	**X**													
2 inches	Class 150 ... 2500	**1**	**M**	**X**													
2½ inches	Class 150 ... 2500	**1**	**N**	**X**													
3 inches	Class 150 ... 2500	**1**	**P**	**X**													
4 inches	Class 150 ... 2500	**1**	**Q**	**X**													
5 inches	Class 150 ... 2500	**1**	**R**	**X**													
Process connection standard J.I.S.																	
(DN 25, DN 40 and DN 50 only recommended for pressure transmitters for gauge pressure)																	
DN 25	10K ... 63K	**2**	**B**	**W**													
DN 40	10K ... 63K	**2**	**D**	**W**													
DN 50	10K ... 63K	**2**	**E**	**W**													
DN 65	10K ... 63K	**2**	**F**	**W**													
DN 80	10K ... 63K	**2**	**G**	**W**													
DN 100	10K ... 63K	**2**	**H**	**W**													
DN 125	10K ... 63K	**2**	**J**	**W**													
Other version, add order code and plain text		**9**	**A**	**A**										**H**	**1**	**Y**	
Capillary length																	
1 m (38.37 inches)					**1**	**0**											
1.6 m (63 inches)					**1**	**1**											
2 m (78.7 inches)					**1**	**2**											
2.5 m (98.4 inches)					**1**	**3**											
3 m (118.1 inches)					**1**	**4**											
4 m (157.5 inches)					**1**	**5**											
5 m (196.9 inches)					**1**	**6**											
6 m (236.2 inches)					**1**	**7**											
7 m (275.6 inches)					**1**	**8**											
8 m (315 inches)					**2**	**0**											
9 m (354.3 inches)					**2**	**1**											
10 m (393.7 inches)					**2**	**2**											
11 m (433.1 inches); only for 7MF0802					**2**	**3**											
12 m (472.4 inches); only for 7MF0802					**2**	**4**											
13 m (511.811 inches); only for 7MF0802					**2**	**5**											
14 m (551.2 inches); only for 7MF0802					**2**	**6**											
15 m (590.6 inches); only for 7MF0802					**2**	**7**											
Other version, add order code and plain text					**9**	**8**								**L**	**1**	**Y**	
Filling liquid																	
Silicone oil M50									**B**								
High-temperature oil									**C**								

Selection and ordering data (continued)

	Article No.	Order code
Diaphragm seal **In sandwich design, connected with flexible capillary tube to a transmitter** **SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only in conjunction with underpressure service)** **7MF03../7MF04../7MF802. to be ordered separately; scope of delivery: 1 unit**	**7MF0800-**	
SITRANS P320/P420 for absolute pressure from differential pressure **7MF03../7MF04.. order separately, scope of delivery: 1 unit**	**7MF0801-**	
SITRANS P320/P420 transmitter for differential pressure and flow **7MF03../7MF04.. order separately, scope of delivery: 2 units**	**7MF0802-**	
	● ● ● ● ● - 0 ● ● ●	● ● ●
Silicone oil M5	A	
Food oil (FDA-listed)	E	
Halocarbon oil	D	
Neobee M20 (FDA listed)	R	
Other version, add order code and plain text	Z	P 1 Y
Material of wetted parts		
Stainless steel 316L		
• Without coating	A	
• With PFA coating	D	
• With PTFE coating	E 0	
• With ECTFE 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 and flange Duplex, 1.4462	R	
Stainless steel 316L, gold-plated	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
Tube length		
None	0	
50 mm (2 inches)	1	
100 mm (4 inches)	2	
150 mm (6 inches)	3	
200 mm (8 inches)	4	
250 mm (10 inches)	5	
Other version, add order code and plain text	Z 8	Q 1 Y
Customer-specific tube length		
Wetted parts: Stainless steel without coating		
Range / ***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches) / 50 mm (1.97 inches)	A 1	
51 ... 100 mm (2.01 ... 3.94 inches) / 100 mm (3.94 inches)	A 2	
101 ... 150 mm (3.98 ... 5.91 inches) / 150 mm (5.91 inches)	A 3	
151 ... 200 mm (5.94 ... 7.87 inches) / 200 mm (7.87 inches)	A 4	
201 ... 250 mm (7.91 ... 9.84 inches) / 250 mm (9.84 inches)	A 5	
Wetted parts: Stainless steel with ECTFE coating		
Range / ***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches) / 50 mm (1.97 inches)	F 1	
51 ... 100 mm (2.01 ... 3.94 inches) / 100 mm (3.94 inches)	F 2	
101 ... 150 mm (3.98 ... 5.91 inches) / 150 mm (5.91 inches)	F 3	
151 ... 200 mm (5.94 ... 7.87 inches) / 200 mm (7.87 inches)	F 4	
201 ... 250 mm (7.91 ... 9.84 inches) / 250 mm (9.84 inches)	F 5	
Wetted parts: Stainless steel with PFA coating		
Range / ***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches) / 50 mm (1.97 inches)	D 1	

Selection and ordering data (continued)

		Article No.	Order code
Diaphragm seal **In sandwich design, connected with flexible capillary tube to a transmitter**			
SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only in conjunction with underpressure service) **7MF03../7MF04../7MF802. to be ordered separately; scope of delivery: 1 unit**		**7MF0800-**	
SITRANS P320/P420 for absolute pressure from differential pressure **7MF03../7MF04.. order separately, scope of delivery: 1 unit**		**7MF0801-**	
SITRANS P320/P420 transmitter for differential pressure and flow **7MF03../7MF04.. order separately, scope of delivery: 2 units**		**7MF0802-**	
		● ● ● ● ● - 0 ● ● ●	● ● ●
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**D 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**D 3**
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**D 4**
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)		**D 5**
Wetted parts: Monel 400			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		**G 1**
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**G 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**G 3**
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**G 4**
Wetted parts: Hastelloy C276			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		**J 1**
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**J 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**J 3**
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**J 4**
Wetted parts: Tantalum			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		**K 1**
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**K 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**K 3**
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**K 4**

Options **Add "-Z" to article number and specify order code.**	**Order code**
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) acc. to IEC 62828-2	**C11**
Inspection certificate to EN 10204-3.1 for material of body and diaphragm	**C12**
Manufacturer declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with wetted parts made of stainless steel 316 L and Hastelloy)	**C13**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil according to EN 10204-2.2	**C17**
Factory certificate functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (includes SIL Declaration of Conformity)	**C20**
Accessories	
Remote seal nameplate Attached, made of stainless steel, contains Article No. and order number of the remote seal	**D42**
Volume deflagration flame arrester (VDEF)	
• For gauge pressure and absolute pressure transmitters	**D61**
• For differential pressure and level transmitters	**D62**

Options **Add "-Z" to article number and specify order code.**	**Order code**
Negative pressure service	
Negative pressure service	
• For gauge pressure and absolute pressure transmitters	**D81**
• For differential pressure transmitters	**D83**
Extended negative pressure service	
• For gauge pressure and absolute pressure transmitters (only 7MF0800)	**D85**
• For differential pressure transmitters	**D88**
Marine approvals	
Note:	
If one of the order codes E50 to E60 is selected, the corresponding option must also be selected for the transmitter!	
DNV-GL (Det Norske Veritas/Germanischer Lloyd)	**E50**
LR (Lloyds Register)	**E51**
BV (Bureau Veritas)	**E52**
ABS (American Bureau of Shipping)	**E53**
RMR (Russian Maritime Register)	**E55**
KR (Korean Register of Shipping)	**E56**
RINA (Registro Italiano Navale)	**E57**
CCS (China Classification Society)	**E58**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
Country-specific approval	
CRN approval Canada (Canadian Registration Number)	**E60**
General product approvals without explosion proof approvals	
Oil-free and grease-free cleaned version for oxygen application including certificate EN 10204-2.2 (only with filling liquid halocarbon oil max. temperature 60 °C and max. pressure 50 bar)	**E80**
Oil-free and grease-free cleaned version not for oxygen application, including certificate EN 10204-2.2	**E87**
Sealing surface	
Sealing surface smooth, form B2/EN 1092-1 resp. RFSF/ANSI 16.5 (for wetted parts made of stainless steel 316L only)	**M50**
Sealing surface groove according to EN 1092-1, form D (instead of sealing surface B1, only for wetted parts made of stainless steel 316L)	**M54**
Sealing surface RJF (groove) according to ASME B16.5 (instead of sealing surface RF 125 ... 250AO, only for wetted parts made of stainless steel 316L)	**M64**
Sealing surface with tongue to EN 1092-1, form C (for wetted parts made of stainless steel 316L only)	
• DN 25	**M70**
• DN 40	**M71**
• DN 50	**M72**
• DN 80	**M73**
• DN 100	**M74**
• DN 125	**M75**
Sealing surface with spigot according to EN 1092-1, form E (for wetted parts made of stainless steel 316L only)	
• DN 25	**M76**
• DN 40	**M77**
• DN 50	**M78**
• DN 80	**M79**
• DN 100	**M80**
• DN 125	**M81**
Sealing surface female face according to EN 1092-1, form F (only for wetted parts made of stainless steel 316L)	
• DN 25	**M82**
• DN 40	**M83**
• DN 50	**M84**
• DN 80	**M85**
• DN 100	**M86**
• DN 125	**M87**
Capillary connection (Only for 7MF0800)	
Single-side mounted at differential pressure transmitter at high side	**S03**
Single-side mounted at differential pressure transmitter at low side	**S04**
Capillary coating	
PE protective tube	
• 1 m (38.37 inches)	**S10**
• 1.6 m (63 inches)	**S11**
• 2 m (78.7 inches)	**S12**
• 2.5 m (98.4 inches)	**S13**
• 3 m (118.1 inches)	**S14**
• 4 m (157.5 inches)	**S15**
• 5 m (196.9 inches)	**S16**
• 6 m (236.2 inches)	**S17**
• 7 m (275.6 inches)	**S18**
• 8 m (315 inches)	**S19**
• 9 m (354.3 inches)	**S20**
• 10 m (393.7 inches)	**S21**
• 11 m (433.1 inches); only for 7MF0802	**S22**
• 12 m (472.4 inches); only for 7MF0802	**S23**
• 13 m (511.811 inches); only for 7MF0802	**S24**
• 14 m (551.2 inches); only for 7MF0802	**S25**
• 15 m (590.6 inches); only for 7MF0802	**S26**
PTFE protective tube	
• 1 m (38.37 inches)	**S40**
• 1.6 m (63 inches)	**S41**
• 2 m (78.7 inches)	**S42**
• 2.5 m (98.4 inches)	**S43**
• 3 m (118.1 inches)	**S44**
• 4 m (157.5 inches)	**S45**
• 5 m (196.9 inches)	**S46**
• 6 m (236.2 inches)	**S47**
• 7 m (275.6 inches)	**S48**
• 8 m (315 inches)	**S49**
• 9 m (354.3 inches)	**S50**
• 10 m (393.7 inches)	**S51**
• 11 m (433.1 inches); only for 7MF0802	**S52**
• 12 m (472.4 inches); only for 7MF0802	**S53**
• 13 m (511.811 inches); only for 7MF0802	**S54**
• 14 m (551.2 inches); only for 7MF0802	**S55**
• 15 m (590.6 inches); only for 7MF0802	**S56**
PVC protective tube	
• 1 m (38.37 inches)	**S70**
• 1.6 m (63 inches)	**S71**
• 2 m (78.7 inches)	**S72**
• 2.5 m (98.4 inches)	**S73**
• 3 m (118.1 inches)	**S74**
• 4 m (157.5 inches)	**S75**
• 5 m (196.9 inches)	**S76**
• 6 m (236.2 inches)	**S77**
• 7 m (275.6 inches)	**S78**
• 8 m (315 inches)	**S79**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
• 9 m (354.3 inches)	**S80**
• 10 m (393.7 inches)	**S81**
• 11 m (433.1 inches); only for 7MF0802	**S82**
• 12 m (472.4 inches); only for 7MF0802	**S83**
• 13 m (511.811 inches); only for 7MF0802	**S84**
• 14 m (551.2 inches); only for 7MF0802	**S85**
• 15 m (590.6 inches); only for 7MF0802	**S86**
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**

Options Add "-Z" to article number and specify order code.	Order code
Special design	
Welded filling hole	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text in mm)	**Y44**
Specification of process conditions[1]	
Ambient temperature range	
• +10 ... +50 °C (+50 ... +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" in the section "More information" under "Technical reference" for SITRANS P320/P420.

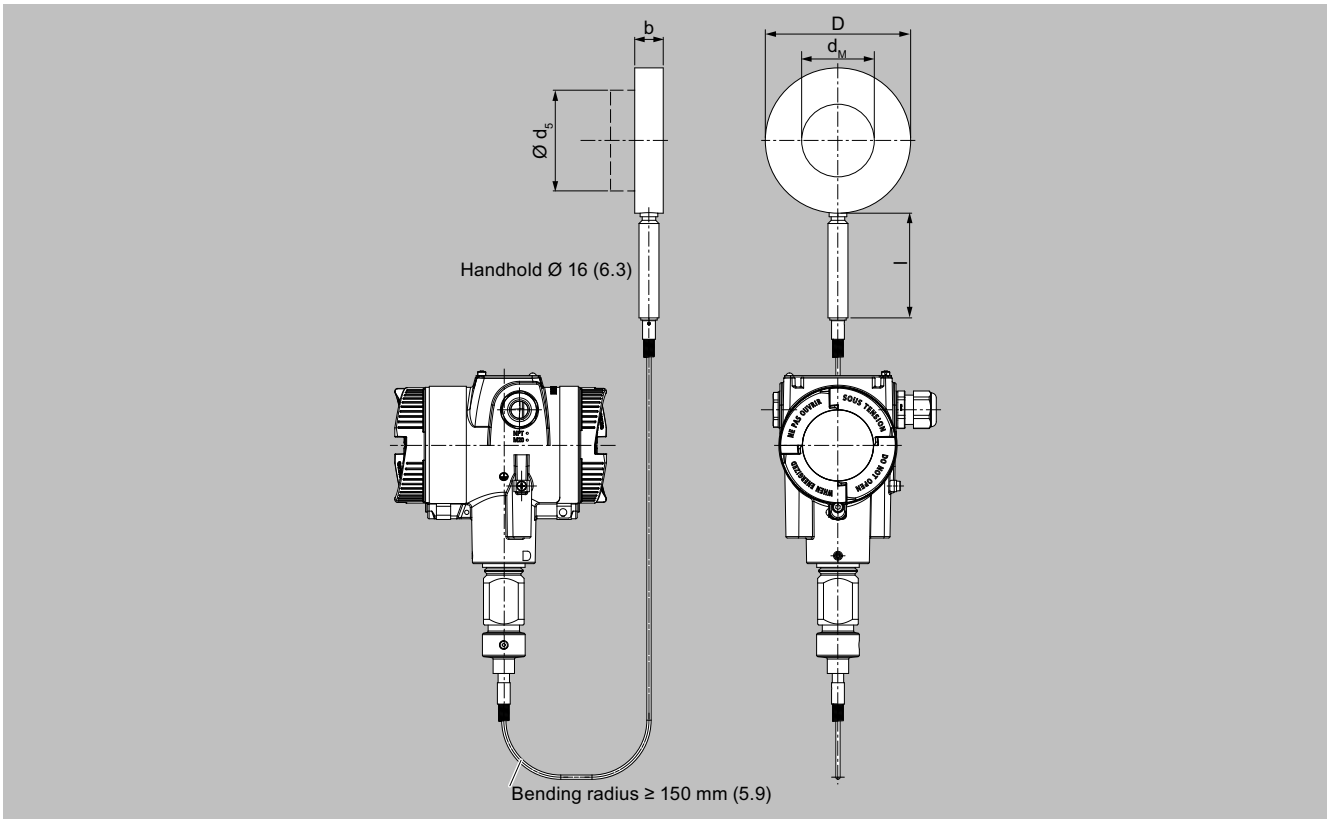
Technical specifications

SITRANS P320/P420 diaphragm seals in sandwich design with flexible capillary	
Nominal diameter	**Nominal pressure**
Standard of process connection EN 1092-1	
• DN 25, DN 40, DN 50, DN 65, DN 80, DN 100, DN 125	PN 16 ... PN 400
Standard of process connection ASME B16.5	
• 1 inch, 1½ inch, 2 inch, 2½ inch, 3 inch, 4 inch, 5 inch	Class 150 ... Class 2500
Process connection standard J.I.S.	
• DN 25, DN 40, DN 50, DN 65, DN 80, DN 100, DN 125	10K ... 63K
Sealing surface	
• For stainless steel mat. no. 1.4404/316L	According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA
• For the other materials	According 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 negative pressure on request) • PFA coating Monel 400, mat. no. 2.4360 Hastelloy C276, mat. no. 2.4819 Hastelloy C4, mat. no. 2.4610 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, layer thickness approx. 25 µm
• Capillary	Stainless steel, mat. no. 1.4571/316Ti (with options W01 and E50 ... E58) or mat. no. 1.4301/304
• Sheath	Flexible spiral coiled tube made of stainless steel, mat. no. 1.4404/316L
Gasket material in the process flanges	
• For gauge pressure transmitters, absolute pressure transmitters and negative pressure applications	Copper
• For other applications	Viton
Permissible pressure load	See above and the technical specifications of the pressure transmitters
Tube length	Without tube as standard. A custom tube length can be selected as an order code.
Capillary	
• Length	≤ 10 m (32.8 ft), longer lengths on request
• Inside diameter	≤ 1.3 mm (0.051 inch)
• Minimum bending radius	150 mm (5.9 inches)
Filling liquid	• Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil (for measuring O_2) • Food oil (FDA-listed) • Neobee M20 (FDA-listed)

Technical specifications (continued)

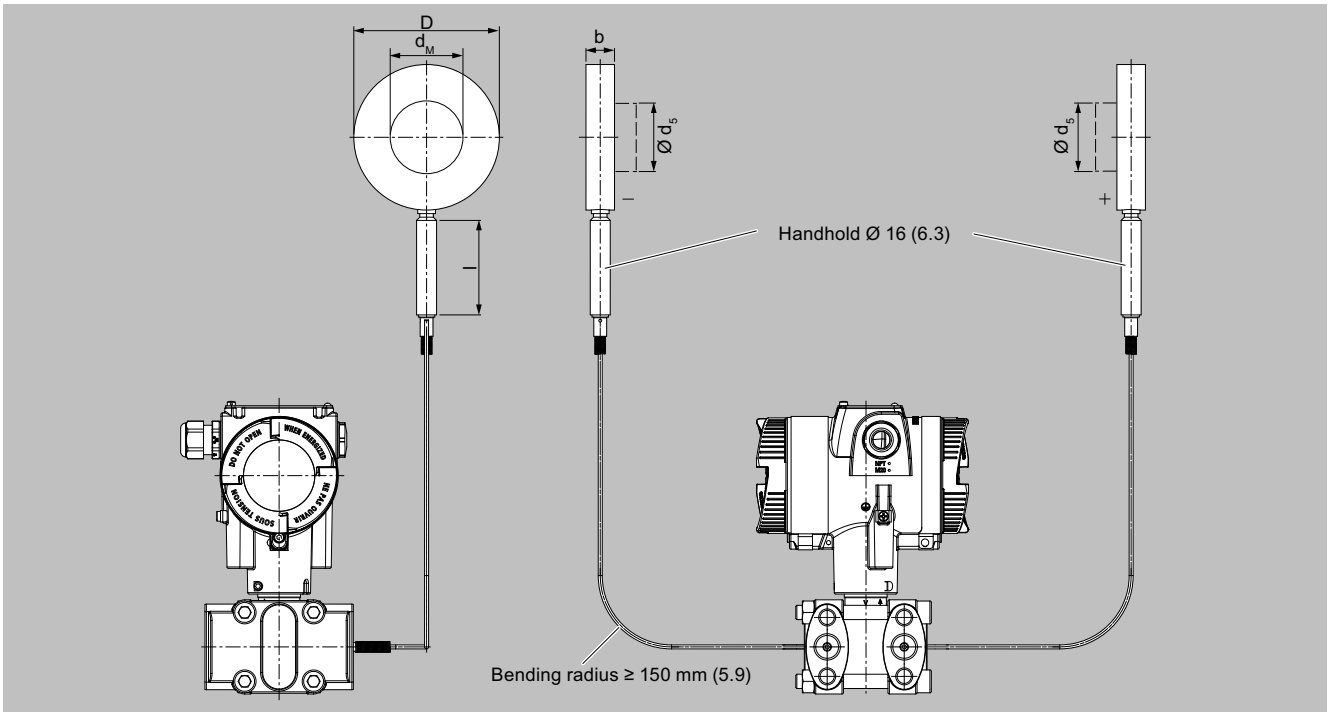
SITRANS P320/P420 diaphragm seals in sandwich design with flexible capillary	
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal. **More information** In the technical specifications of the pressure transmitters and in the sections in the technical reference of the remote seals: • "Function" - "Technical specifications of the remote seal filling liquids" • "More information" - "Specification of process conditions for selection and ordering data"
Weight	Approx. 4 kg (8.82 lbs)
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)

Dimensional drawings



Diaphragm seals of sandwich design with flexible capillary for connection to SITRANS P320/420 pressure transmitters for gauge pressure, dimensions in mm (inch)

Dimensional drawings (continued)



Diaphragm seals of sandwich design (without flange) with flexible capillary for connection to SITRANS P320/420 pressure transmitters for absolute pressure or differential pressure and flow, dimensions in mm (inch)

Connection according to EN 1092-1

Nominal diameter	Nominal pressure	b	D	d_5	d_M with tube	d_M without tube	l
		mm	mm	mm	mm	mm	mm
DN 25	PN 16 ... PN 400	20	68	24.5	22.6	27	100
DN 40		20	88	38	30	40	100
DN 50		20	102	48.3	40	51	100
DN 65		20	122	48.3	40	65	100
DN 80		20	138	76	65	85	100
DN 100		20	158	94	85	85	100
DN 125		22	188	125	16	116	100

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

Connection according to ASME B16.5

Nominal diameter	Nominal pressure	b	D	d_5	d_M with tube	d_M without tube	l
	lb/sq.in.	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
1"	150 ... 2500	20 (0.79)	51 (2.01)	24.5 (0.96)	22.6 (0.89)	30 (1.18)	100 (3.94)
1½"		20 (0.79)	73 (2.9)	38 (1.5)	30 (1.18)	40 (1.57)	100 (3.94)
2"		20 (0.79)	100 (3.94)	48.3 (1.9)	40 (1.57)	51 (2.01)	100 (3.94)
2½"		20 (0.79)	105 (4.13)	48.3 (1.9)	40 (1.57)	65 (2.56)	100 (3.94)
3"		20 (0.79)	134 (5.28)	72 (2.8)	65 (2.56)	85 (3.35)	100 (3.94)
4"		20 (0.79)	158 (6.22)	94 (3.69)	85 (3.35)	85 (3.35)	100 (3.94)
5"		22 (0.87)	186 (7.32)	125 (4.92)	116 (4.57)	116 (4.57)	100 (3.94)

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

Dimensional drawings (continued)

Connection according to J.I.S.

Nominal diameter	Nominal pressure	b mm (inch)	D 10K, 20K mm (inch)	D 30K ... 63K mm (inch)	d_5 mm (inch)	d_M with tube mm (inch)	d_M without tube mm (inch)	l mm (inch)
DN 25	10K ... 63K	20 (0.79)	67 (2.64)	70 (2.76)	24.5 (0.96)	22.6 (0.89)	30 (1.18)	100 (3.94)
DN 40		20 (0.79)	81 (3.19)	90 (3.54)	38 (1.5)	30 (1.18)	36 (1.42)	100 (3.94)
DN 50		20 (0.79)	96 (3.78)	105 (4.13)	48.3 (1.9)	40 (1.57)	51 (2.01)	100 (3.94)
DN 65		20 (0.79)	116 (4.57)	130 (5.12)	48.3 (1.9)	40 (1.57)	65 (2.56)	100 (3.94)
DN 80		20 (0.79)	132 (5.2)	140 (5.51)	76 (2.99)	65 (2.56)	85 (3.35)	100 (3.94)
DN 100		20 (0.79)	160 (6.3)	160 (6.3)	94 (3.69)	85 (3.35)	85 (3.35)	100 (3.94)
DN 125		20 (0.79)	195 (7.68)	195 (7.68)	125 (4.92)	116 (4.57)	116 (4.57)	100 (3.94)

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

Overview

Diaphragm seals of flange design

Selection and ordering data

		Article No.												Order code		
Diaphragm seal Flange type design, connected to a transmitter with flexible capillary																
SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit		**7MF0810-**														
SITRANS P320/P420 for absolute pressure from differential pressure 7MF03../7MF04.. order separately, scope of delivery: 1 unit		**7MF0811-**														
SITRANS P320/P420 transmitter for differential pressure and flow 7MF03../7MF04.. order separately, scope of delivery: 2 units		**7MF0812-**														
		●	●	●	●	●	-	0	●	●	●			●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.																
Nominal diameter	**Nominal pressure**															
Process connection standard EN 1092-1																
(DN 25, DN 40 and DN 50 only recommended for pressure transmitters for gauge pressure)																
DN 25	PN 10/16/25/40	**0**	**B**	**D**												
	PN 63/100	**0**	**B**	**F**												
	PN 160	**0**	**B**	**G**												
	PN 250	**0**	**B**	**H**												
DN 40	PN 10/16/25/40	**0**	**D**	**D**												
	PN 63/100	**0**	**D**	**F**												
	PN 160	**0**	**D**	**G**												
DN 50	PN 10/16/25/40	**0**	**E**	**D**												
	PN 63	**0**	**E**	**E**												
	PN 100	**0**	**E**	**F**												
DN 80	PN 10/16/25/40	**0**	**G**	**D**												
	PN 100	**0**	**G**	**F**												
DN 100	PN 10/16	**0**	**H**	**B**												
	PN 25/40	**0**	**H**	**D**												
DN 125	PN 16	**0**	**J**	**B**												
	PN 40	**0**	**J**	**D**												
Process connection standard ASME B16.5																
(1 inch, 1½ inches and 2 inches only recommended for pressure transmitters for gauge pressure)																
1 inch	Class 150	**1**	**K**	**L**												
	Class 300	**1**	**K**	**M**												
	Class 600	**1**	**K**	**N**												
	Class 1500	**1**	**K**	**P**												
1½ inches	Class 150	**1**	**L**	**A**												
	Class 300	**1**	**L**	**B**												
	Class 400/600	**1**	**L**	**D**												
	Class 900/1500	**1**	**L**	**F**												
2 inches	Class 150	**1**	**M**	**A**												
	Class 300	**1**	**M**	**B**												
	Class 400/600	**1**	**M**	**D**												
	Class 900/1500	**1**	**M**	**F**												
3 inches	Class 150	**1**	**P**	**A**												
	Class 300	**1**	**P**	**B**												
	Class 600	**1**	**P**	**D**												
	Class 1500	**1**	**P**	**F**												
4 inches	Class 150	**1**	**Q**	**A**												
	Class 300	**1**	**Q**	**B**												
	Class 400	**1**	**Q**	**C**												
	Class 1500	**1**	**Q**	**F**												
5 inches	Class 150	**1**	**R**	**A**												
	Class 300	**1**	**R**	**B**												
	Class 400	**1**	**R**	**C**												
Process connection standard J.I.S.																
(DN 50 only recommended for pressure transmitters for gauge pressure)																
DN 50	10 K	**2**	**E**	**S**												
	20 K	**2**	**E**	**T**												
	40 K	**2**	**E**	**U**												
DN 80	10 K	**2**	**G**	**S**												
	20 K	**2**	**G**	**T**												

Selection and ordering data (continued)

		Article No.											Order code		
Diaphragm seal **Flange type design, connected to a transmitter with flexible capillary**															
SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit		**7MF0810-**													
SITRANS P320/P420 for absolute pressure from differential pressure 7MF03../7MF04.. order separately, scope of delivery: 1 unit		**7MF0811-**													
SITRANS P320/P420 transmitter for differential pressure and flow 7MF03../7MF04.. order separately, scope of delivery: 2 units		**7MF0812-**													
		●	●	●	●	●	-	0	●	●	●		●	●	●
	40 K	2	G	U											
DN 100	10 K	2	H	S											
	20 K	2	H	T											
	40 K	2	H	U											
Other version, add order code and plain text		9	A	A									H	1	Y
Transmitter connection															
Connection via capillary Capillary length															
1 m (38.37 inches)					1	0									
1.6 m (63 inches)					1	1									
2 m (78.7 inches)					1	2									
2.5 m (98.4 inches)					1	3									
3 m (118.1 inches)					1	4									
4 m (157.5 inches)					1	5									
5 m (196.9 inches)					1	6									
6 m (236.2 inches)					1	7									
7 m (275.6 inches)					1	8									
8 m (315 inches)					2	0									
9 m (354.3 inches)					2	1									
10 m (393.7 inches)					2	2									
11 m (433.1 inches); only for 7MF0812					2	3									
12 m (472.4 inches); only for 7MF0812					2	4									
13 m (511.811 inches); only for 7MF0812					2	5									
14 m (551.2 inches); only for 7MF0812					2	6									
15 m (590.6 inches); only for 7MF0812					2	7									
Other version, add order code and plain text					9	8							L	1	Y
Filling liquid															
Silicone oil M50								B							
High-temperature oil								C							
Silicone oil M5								A							
Food oil (FDA-listed)								E							
Halocarbon oil								D							
Neobee M20 (FDA listed)								R							
Other version, add order code and plain text								Z					P	1	Y
Material of wetted parts															
Stainless steel 316L															
• Without coating									A						
• With PFA coating									D						
• With PTFE coating									E	0					
• With ECTFE 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 and flange Duplex, 1.4462									R						
Stainless steel 316L, gold-plated									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

Selection and ordering data (continued)

		Article No.	Order code
Diaphragm seal **Flange type design, connected to a transmitter with flexible capillary**			
SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit		**7MF0810-**	
SITRANS P320/P420 for absolute pressure from differential pressure 7MF03../7MF04.. order separately, scope of delivery: 1 unit		**7MF0811-**	
SITRANS P320/P420 transmitter for differential pressure and flow 7MF03../7MF04.. order separately, scope of delivery: 2 units		**7MF0812-**	
		● ● ● ● ● - 0 ● ● ●	● ● ●
Tube length			
Without tube			**0**
50 mm (2 inches)			**1**
100 mm (4 inches)			**2**
150 mm (6 inches)			**3**
200 mm (8 inches)			**4**
250 mm (10 inches)			**5**
Other version, add order code and plain text			**Z 8** **Q 1 Y**
Customer-specific tube length			
Wetted parts: Stainless steel without coating			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		**A 1**
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**A 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**A 3**
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**A 4**
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)		**A 5**
Wetted parts: Stainless steel with ECTFE coating			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		**F 1**
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**F 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**F 3**
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**F 4**
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)		**F 5**
Wetted parts: Stainless steel with PFA coating			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		**D 1**
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**D 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**D 3**
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**D 4**
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)		**D 5**
Wetted parts: Monel 400			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		**G 1**
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**G 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**G 3**
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**G 4**
Wetted parts: Hastelloy C276			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		**J 1**
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**J 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**J 3**
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**J 4**
Wetted parts: Tantalum			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)		**K 1**
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)		**K 2**
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)		**K 3**

Selection and ordering data (continued)

		Article No.	Order code
Diaphragm seal **Flange type design, connected to a transmitter with flexible capillary**			
SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit		**7MF0810-**	
SITRANS P320/P420 for absolute pressure from differential pressure 7MF03../7MF04.. order separately, scope of delivery: 1 unit		**7MF0811-**	
SITRANS P320/P420 transmitter for differential pressure and flow 7MF03../7MF04.. order separately, scope of delivery: 2 units		**7MF0812-**	
		● ● ● ● ● - 0 ● ● ●	● ● ●
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)		**K 4**

Options Add "-Z" to article number and specify order code.	Order code
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) acc. to IEC 62828-2	**C11**
Inspection certificate to EN 10204-3.1 for material of body and diaphragm	**C12**
Manufacturer declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with wetted parts made of stainless steel 316 L and Hastelloy)	**C13**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil according to EN 10204-2.2	**C17**
Factory certificate functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (includes SIL Declaration of Conformity)	**C20**
Accessories	
Representation of the epoxy resin coating Color: Transparent coverage: Front and rear of the remote seal, connecting pipe, process connection of the transmitter. Maximum process medium temperature for epoxy lacquering: 140 °C	**D15**
Remote seal nameplate Attached, made of stainless steel, contains Article No. and order number of the remote seal	**D42**
Volume deflagration flame arrester (VDEF)	
• For gauge pressure and absolute pressure transmitters	**D61**
• For differential pressure and level transmitters	**D62**
Negative pressure service	
Negative pressure service	
• For gauge pressure and absolute pressure transmitters (only 7MF0810)	**D81**
• For differential pressure transmitters	**D83**
Extended negative pressure service	
• For gauge pressure and absolute pressure transmitters (only 7MF0810)	**D85**
• For differential pressure transmitters	**D88**
Marine approvals	
Note:	
If one of the order codes E50 to E60 is selected, the corresponding option must also be selected for the transmitter!	
DNV-GL (Det Norske Veritas/Germanischer Lloyd)	**E50**
LR (Lloyds Register)	**E51**
BV (Bureau Veritas)	**E52**
ABS (American Bureau of Shipping)	**E53**

Options Add "-Z" to article number and specify order code.	Order code
RMR (Russian Maritime Register)	**E55**
KR (Korean Register of Shipping)	**E56**
RINA (Registro Italiano Navale)	**E57**
CCS (China Classification Society)	**E58**
Country-specific approval	
CRN approval Canada (Canadian Registration Number)	**E60**
General product approvals without explosion proof approvals	
Oil-free and grease-free cleaned version for oxygen application including certificate EN 10204-2.2 (only with filling liquid halocarbon oil max. temperature 60 °C and max. pressure 50 bar)	**E80**
Oil-free and grease-free cleaned version not for oxygen application, including certificate EN 10204-2.2	**E87**
Sealing surface	
Sealing surface smooth, form B2/EN 1092-1 or RFSF/ANSI 16.5 (only for wetted parts made of stainless steel 316L)	**M50**
Sealing surface groove according to EN 1092-1, form D (instead of sealing surface B1, only for wetted parts made of stainless steel 316L)	**M54**
Sealing surface RJF (groove) according to ASME B16.5 (instead of sealing surface RF 125 ... 250AO, only for wetted parts made of stainless steel 316L)	**M64**
Sealing surface with tongue to EN 1092-1, form C (for wetted parts made of stainless steel 316L only)	
• DN 25	**M70**
• DN 40	**M71**
• DN 50	**M72**
• DN 80	**M73**
• DN 100	**M74**
• DN 125	**M75**
Sealing surface with spigot according to EN 1092-1, form E (for wetted parts made of stainless steel 316L only)	
• DN 25	**M76**
• DN 40	**M77**
• DN 50	**M78**
• DN 80	**M79**
• DN 100	**M80**
• DN 125	**M81**
Sealing surface female face according to EN 1092-1, form F (only for wetted parts made of stainless steel 316L)	
• DN 25	**M82**
• DN 40	**M83**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
• DN 50	**M84**
• DN 80	**M85**
• DN 100	**M86**
• DN 125	**M87**
Capillary connection	
For 7MF0810	
• Radial capillary outlet (for single-side mounting)	**S01**
• Single-side mounted at differential pressure transmitter at high side	**S03**
• Single-side mounted at differential pressure transmitter at low side	**S04**
For 7MF0811	
• Radial capillary outlet (for single-side mounting)	**S01**
For 7MF0812	
• Radial capillary pipe outlet (for double-side mounting)	**S02**
Capillary coating	
PE protective tube	
• 1 m (38.37 inches)	**S10**
• 1.6 m (63 inches)	**S11**
• 2 m (78.7 inches)	**S12**
• 2.5 m (98.4 inches)	**S13**
• 3 m (118.1 inches)	**S14**
• 4 m (157.5 inches)	**S15**
• 5 m (196.9 inches)	**S16**
• 6 m (236.2 inches)	**S17**
• 7 m (275.6 inches)	**S18**
• 8 m (315 inches)	**S19**
• 9 m (354.3 inches)	**S20**
• 10 m (393.7 inches)	**S21**
• 11 m (433.1 inches); only for 7MF0812	**S22**
• 12 m (472.4 inches); only for 7MF0812	**S23**
• 13 m (511.811 inches); only for 7MF0812	**S24**
• 14 m (551.2 inches); only for 7MF0812	**S25**
• 15 m (590.6 inches); only for 7MF0812	**S26**
PTFE protective tube	
• 1 m (38.37 inches)	**S40**
• 1.6 m (63 inches)	**S41**
• 2 m (78.7 inches)	**S42**
• 2.5 m (98.4 inches)	**S43**
• 3 m (118.1 inches)	**S44**
• 4 m (157.5 inches)	**S45**
• 5 m (196.9 inches)	**S46**
• 6 m (236.2 inches)	**S47**
• 7 m (275.6 inches)	**S48**
• 8 m (315 inches)	**S49**
• 9 m (354.3 inches)	**S50**
• 10 m (393.7 inches)	**S51**
• 11 m (433.1 inches); only for 7MF0812	**S52**

Options Add "-Z" to article number and specify order code.	Order code
• 12 m (472.4 inches); only for 7MF0812	**S53**
• 13 m (511.811 inches); only for 7MF0812	**S54**
• 14 m (551.2 inches); only for 7MF0812	**S55**
• 15 m (590.6 inches); only for 7MF0812	**S56**
PVC protective tube	
• 1 m (38.37 inches)	**S70**
• 1.6 m (63 inches)	**S71**
• 2 m (78.7 inches)	**S72**
• 2.5 m (98.4 inches)	**S73**
• 3 m (118.1 inches)	**S74**
• 4 m (157.5 inches)	**S75**
• 5 m (196.9 inches)	**S76**
• 6 m (236.2 inches)	**S77**
• 7 m (275.6 inches)	**S78**
• 8 m (315 inches)	**S79**
• 9 m (354.3 inches)	**S80**
• 10 m (393.7 inches)	**S81**
• 11 m (433.1 inches); only for 7MF0812	**S82**
• 12 m (472.4 inches); only for 7MF0812	**S83**
• 13 m (511.811 inches); only for 7MF0812	**S84**
• 14 m (551.2 inches); only for 7MF0812	**S85**
• 15 m (590.6 inches); only for 7MF0812	**S86**
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**
Special design	
Welded filling hole	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text in mm)	**Y44**
Specification of process conditions[1)]	
Ambient temperature range	
• +10 ... +50 °C (+50 ... +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" in the section "More information" under "Technical reference" for SITRANS P320/P420.

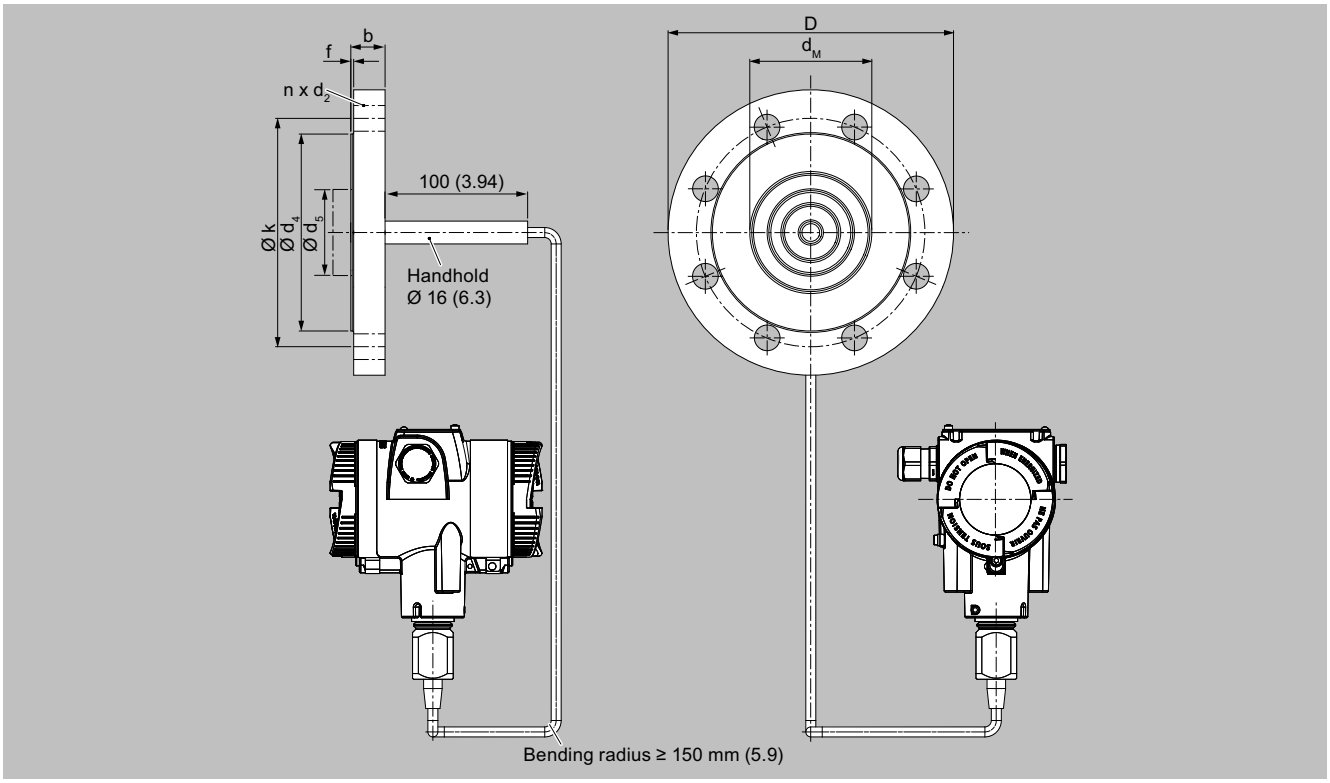
Technical specifications

SITRANS P320/P420 diaphragm seals in flange design with flexible capillary	
Nominal diameter	**Nominal pressure**
Standard of process connection EN 1092-1	
• DN 25	PN 10/16/25/40/63/100/160/250
• 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
Process connection standard ASME B16.5	
• 1 inch	Class 150/300/600/1500
• 1½ inches	Class 150/300/400/600/900/1500
• 2 inches	Class 150/300/400/600/900/1500
• 3 inches	Class 150/300/600/1500
• 4 inches	Class 150/300/400/1500
• 5 inches	Class 150/300/400
Process connection standard J.I.S.	
• DN 50	10K
• DN 80	20K
• DN 100	40K
Sealing surface	
• For stainless steel mat. no. 1.4404/316L	According to EN 1092-1, form B1 or ASMR B16.5 RF 125 ... 250 AO
• For other materials	According 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 negative pressure on request) • PFA coating Monel 400, mat. no. 2.4360 Hastelloy C276, mat. no. 2.4819 Hastelloy C4, mat. no. 2.4610 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, layer thickness approx. 25 µm
• Capillary	Stainless steel, mat. no. 1.4571/316Ti (with options W01 and E50 to E58) or mat. no. 1.4301/304
• Sheath	Flexible spiral coiled tube made of stainless steel mat. no. 1.4404/316L
Gasket material in the process flanges	
• For pressure transmitters, absolute pressure transmitters and negative pressure applications	Copper
• For other applications	Viton
Permissible pressure load	See above and the technical specifications of the pressure transmitter
Tube length	Without tube as standard. A custom tube length can be selected as an order code.

Technical specifications (continued)

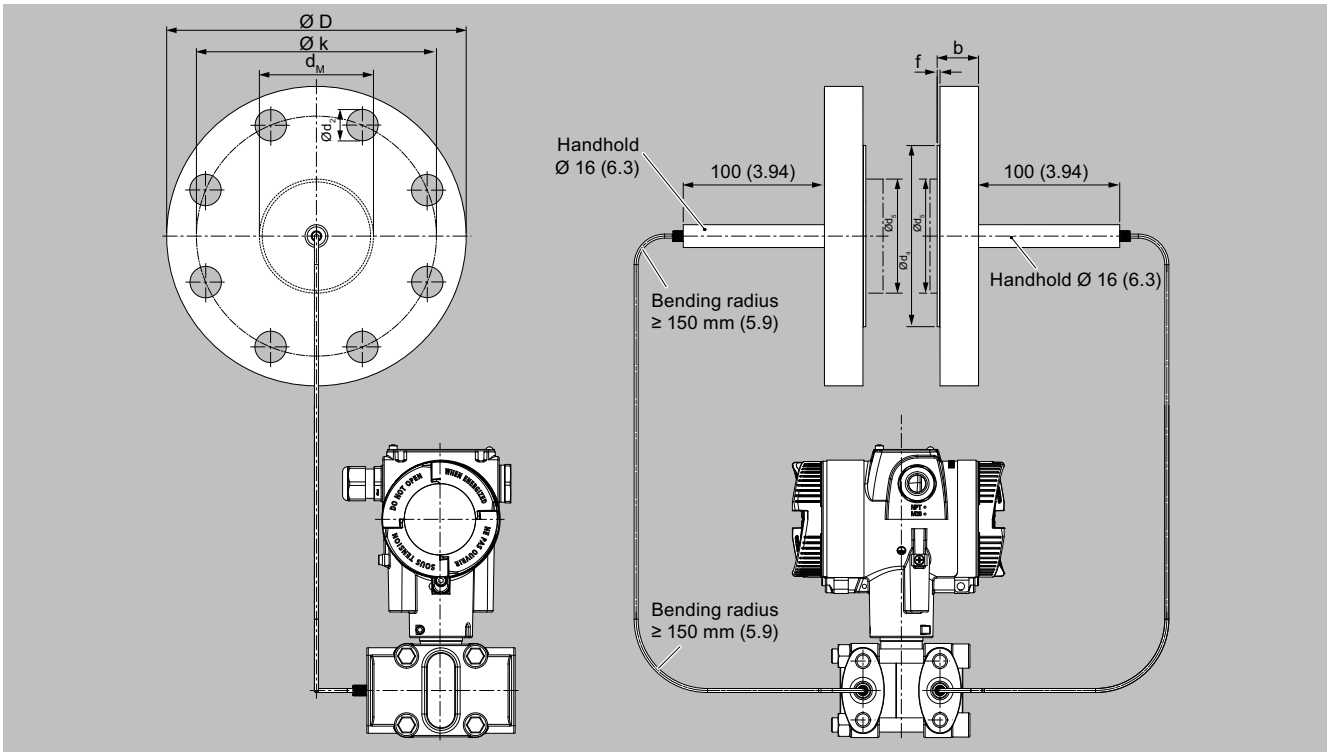
SITRANS P320/P420 diaphragm seals in flange design with flexible capillary	
Capillary	
• Length	≤ 10 m (32.8 ft), longer lengths on request
• Inside diameter	≤ 1.3 mm (0.051 inch)
• Minimum bending radius	150 mm (5.9 inches)
Filling liquid (for remote seals of sandwich and flange type)	• Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil (for measuring O_2) • Food oil (FDA-listed) • Neobee M20 (FDA-listed)
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal. **More information** In the technical specifications of the pressure transmitters and in the sections in the technical reference of the remote seals: • "Function" - "Technical specifications of the remote seal filling liquids" • "More information" - "Specification of process conditions for selection and ordering data"
Weight	Approx. 4 kg (8.82 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)

Dimensional drawings



Diaphragm seals of flange design with flexible capillary for connection to SITRANS P320/420 pressure transmitters for gauge pressure, dimensions in mm (inch)

Dimensional drawings (continued)



Diaphragm seals of flange design with flexible capillary for connection to SITRANS P320/420 pressure transmitters for absolute pressure or for differential pressure and flow, dimensions in mm (inch)

Connection according to EN 1092-1

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	f	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 25	PN 10/16/25/40	18	115	14	68	24.5	22.6	27	2	85	4	0, 50, 100, 150 or 200
	PN 63/100	24	140	18	68	24.5	22.6	27	2	100	4	
	PN 160	24	140	18	68	24.5	22.6	27	2	100	4	
	PN 250	28	150	22	68	24.5	22.6	27	2	105	4	
DN 40	PN 10/16/25/40	16	150	18	88	38	30	42	2	110	4	
	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	

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

Dimensional drawings (continued)

Connection according to ASME B16.5

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	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)
1"	150	0.71 (18)	4.33 (110)	0.61 (15.6)	2 (50.8)	0.96 (24.5)	0.89 (22.6)	1,18 (30)	0.08 (2)	3.13 (79.4)	4	0, 2, 3.94, 5.94 or 7.87 (0, 50, 100, 150 or 200)
	300	0.77 (19.5)	4.92 (125)	0.75 (19.1)	2 (50.8)	0.96 (24.5)	0.89 (22.6)	1,18 (30)	0.08 (2)	3.5 (88.9)	4	
	600	0.96 (24.5)	4.92 (125)	0.75 (19.1)	2 (50.8)	0.96 (24.5)	0.89 (22.6)	1,18 (30)	0.28 (7)	3.5 (88.9)	4	
	1500	1.4 (35.6)	5.91 (150)	1 (25.4)	2 (50.8)	0.96 (24.5)	0.89 (22.6)	1,18 (30)	0.28 (7)	4 (101.6)	4	
1½"	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	
	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"	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"	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"	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"	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	

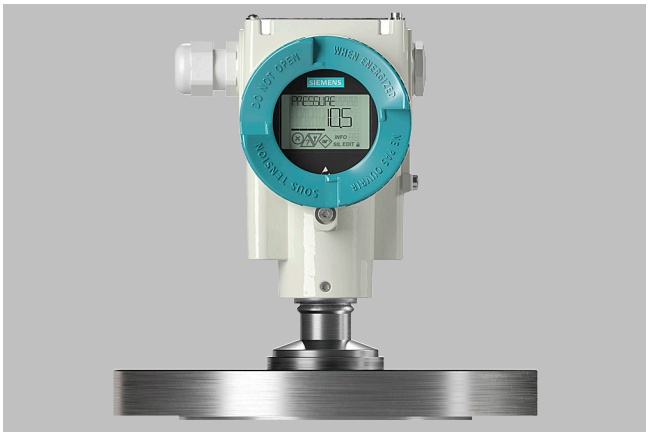
d: Inside diameter of gasket according to EN 1092-1/ASME B16.5
d_M: Effective diaphragm diameter

Connection according to J.I.S.

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	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 or 200 (0, 2, 3.94, 5.94 or 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: Inside diameter of gasket according to EN 1092-1/ASME B16.5
d_M: Effective diaphragm diameter

Overview



Diaphragm seals of flange design, directly fitted on a pressure transmitter for gauge pressure

Selection and ordering data

Diaphragm seal Flange type design, mounted directly onto the transmitter SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit		Article No. 7MF0810-	Order code
		● ● ● ● ● - 0 ● ● ●	● ● ●
Click the article number for online configuration in the PIA Life Cycle Portal.			
Nominal diameter	Nominal pressure		
Process connection standard EN 1092-1			
DN 25	PN 10/16/25/40	0 B D	
	PN 63/100	0 B F	
	PN 160	0 B G	
	PN 250	0 B H	
DN 40	PN 10/16/25/40	0 D D	
	PN 63/100	0 D F	
	PN 160	0 D G	
DN 50	PN 10/16/25/40	0 E D	
	PN 63	0 E E	
	PN 100	0 E F	
DN 80	PN 10/16/25/40	0 G D	
	PN 100	0 G F	
DN 100	PN 10/16	0 H B	
	PN 25/40	0 H D	
DN 125	PN 16	0 J B	
	PN 40	0 J D	
Process connection standard ASME B16.5			
1 inch	Class 150	1 K L	
	Class 300	1 K M	
	Class 600	1 K N	
	Class 1500	1 K P	
1½ inches	Class 150	1 L A	
	Class 300	1 L B	
	Class 400/600	1 L D	
	Class 900/1500	1 L F	
2 inches	Class 150	1 M A	
	Class 300	1 M B	
	Class 400/600	1 M D	
	Class 900/1500	1 M F	
3 inches	Class 150	1 P A	
	Class 300	1 P B	
	Class 600	1 P D	
	Class 1500	1 P F	
4 inches	Class 150	1 Q A	
	Class 300	1 Q B	
	Class 400	1 Q C	
	Class 1500	1 Q F	
5 inches	Class 150	1 R A	
	Class 300	1 R B	
	Class 400	1 R C	
Process connection standard J.I.S.			
DN 50	10 K	2 E S	
	20 K	2 E T	
	40 K	2 E U	
DN 80	10 K	2 G S	
	20 K	2 G T	
	40 K	2 G U	
DN 100	10 K	2 H S	
	20 K	2 H T	
	40 K	2 H U	
Other version, add order code and plain text		9 A A	H 1 Y

Selection and ordering data (continued)

Diaphragm seal Flange type design, mounted directly onto the transmitter SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit	Article No. 7MF0810-										Order code			
	●	●	●	●	●	-	0	●	●	●	●	●	●	
Transmitter connection														
Without capillary pipe, direct mount, straight connection (for gauge pressure transmitters)				0	0									
Without capillary pipe, direct mount, connection with 90° elbow (for gauge pressure transmitters)				0	1									
Filling liquid														
Silicone oil M50								B						
High-temperature oil								C						
Silicone oil M5								A						
Food oil (FDA-listed)								E						
Halocarbon oil								D						
Neobee M20 (FDA listed)								R						
Other version, add order code and plain text								Z			P	1	Y	
Material of wetted parts														
Stainless steel 316L														
• Without coating									A					
• With PFA coating									D					
• With PTFE coating									E	0				
• With ECTFE 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 and flange Duplex, 1.4462									R					
Stainless steel 316L, gold-plated									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
Tube length														
Without tube										0				
50 mm (2 inches)										1				
100 mm (4 inches)										2				
150 mm (6 inches)										3				
200 mm (8 inches)										4				
250 mm (10 inches)										5				
Other version, add order code and plain text									Z	8		Q	1	Y
Customer-specific tube length														
Wetted parts: Stainless steel without coating														
Range	***Standard length***													
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)								A	1				
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)								A	2				
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)								A	3				
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)								A	4				
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)								A	5				
Wetted parts: Stainless steel with ECTFE coating														
Range	***Standard length***													
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)								F	1				
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)								F	2				
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)								F	3				
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)								F	4				
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)								F	5				

Selection and ordering data (continued)

Diaphragm seal Flange type design, mounted directly onto the transmitter SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit		Article No. 7MF0810-	Order code
		● ● ● ● ● - 0 ● ● ●	● ● ●
Wetted parts: Stainless steel with PFA coating			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)	D	1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)	D	2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)	D	3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)	D	4
201 ... 250 mm (7.91 ... 9.84 inches)	250 mm (9.84 inches)	D	5
Wetted parts: Monel 400			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)	G	1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)	G	2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)	G	3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)	G	4
Wetted parts: Hastelloy C276			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)	J	1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)	J	2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)	J	3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)	J	4
Wetted parts: Tantalum			
Range	***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches)	50 mm (1.97 inches)	K	1
51 ... 100 mm (2.01 ... 3.94 inches)	100 mm (3.94 inches)	K	2
101 ... 150 mm (3.98 ... 5.91 inches)	150 mm (5.91 inches)	K	3
151 ... 200 mm (5.94 ... 7.87 inches)	200 mm (7.87 inches)	K	4

Options Add "-Z" to article number and specify order code.	Order code
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) acc. to IEC 62828-2	**C11**
Inspection certificate to EN 10204-3.1 for material of body and diaphragm	**C12**
Manufacturer declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with wetted parts made of stainless steel 316 L and Hastelloy)	**C13**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil according to EN 10204-2.2	**C17**
Factory certificate functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (includes SIL Declaration of Conformity)	**C20**
Accessories	
Representation of the epoxy resin coating Color: Transparent coverage: Front and rear of the remote seal, connecting pipe, process connection of the transmitter. Maximum process medium temperature for epoxy lacquering: 140 °C	**D15**
Remote seal nameplate Attached, made of stainless steel, contains Article No. and order number of the remote seal	**D42**

Options Add "-Z" to article number and specify order code.	Order code
Volume deflagration flame arrester (VDEF) for gauge pressure and absolute pressure transmitters	**D61**
Negative pressure service	
Negative pressure service for gauge pressure and absolute pressure transmitters	**D81**
Extended negative pressure service for gauge pressure and absolute pressure transmitters (only for 7MF0810)	**D85**
Country-specific approval	
CRN approval Canada (Canadian Registration Number)	**E60**
Note: If the order code E60 is selected, the option E60 must also be selected for the transmitter!	
General product approvals without explosion proof approvals	
Oil-free and grease-free cleaned version for oxygen application including certificate EN 10204-2.2 (only with filling liquid halocarbon oil max. temperature 60 °C and max. pressure 50 bar)	**E80**
Oil-free and grease-free cleaned version not for oxygen application, including certificate EN 10204-2.2	**E87**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
Sealing surface	
Sealing surface smooth, form B2/EN 1092-1 or RFSF/ANSI 16.5 (only for wetted parts made of stainless steel 316L)	**M50**
Sealing surface groove according to EN 1092-1, form D (instead of sealing surface B1, only for wetted parts made of stainless steel 316L)	**M54**
Sealing surface RJF (groove) according to ASME B16.5 (instead of sealing surface RF 125 ... 250AO, only for wetted parts made of stainless steel 316L)	**M64**
Sealing surface with tongue to EN 1092-1, form C (for wetted parts made of stainless steel 316L only)	
• DN 25	**M70**
• DN 40	**M71**
• DN 50	**M72**
• DN 80	**M73**
• DN 100	**M74**
• DN 125	**M75**
Sealing surface with spigot according to EN 1092-1, form E (for wetted parts made of stainless steel 316L only)	
• DN 25	**M76**
• DN 40	**M77**
• DN 50	**M78**
• DN 80	**M79**
• DN 100	**M80**
• DN 125	**M81**
Sealing surface female face according to EN 1092-1, form F (only for wetted parts made of stainless steel 316L)	
• DN 25	**M82**
• DN 40	**M83**
• DN 50	**M84**
• DN 80	**M85**
• DN 100	**M86**
• DN 125	**M87**

Options Add "-Z" to article number and specify order code.	Order code
Capillary connection	
Elongated pipe elbow, 150 mm instead of 100 mm, max. media temperature 250 °C (482 °F), observe the max. permissible media temperature of the filling liquid.	**S05**
Elongated pipe elbow, 200 mm instead of 100 mm, max. media temperature 300 °C (572 °F), observe the max. permissible media temperature of the filling liquid.	**S06**
Elongated pipe elbow, 200 mm instead of 130 mm, max. media temperature 300 °C (572 °F), observe the max. permissible media temperature of the filling liquid.	**S07**
Cooling element, max. medium temperature 300 °C (572 °F), observe the max. permissible media temperature of the filling liquid.	**S08**
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**
Special design	
Welded filling hole	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text in mm)	**Y44**
Specification of process conditions[1]	
Ambient temperature range	
• +10 ... +50 °C (+50 ... +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" in the section "More information" under "Technical reference" for SITRANS P320/P420.

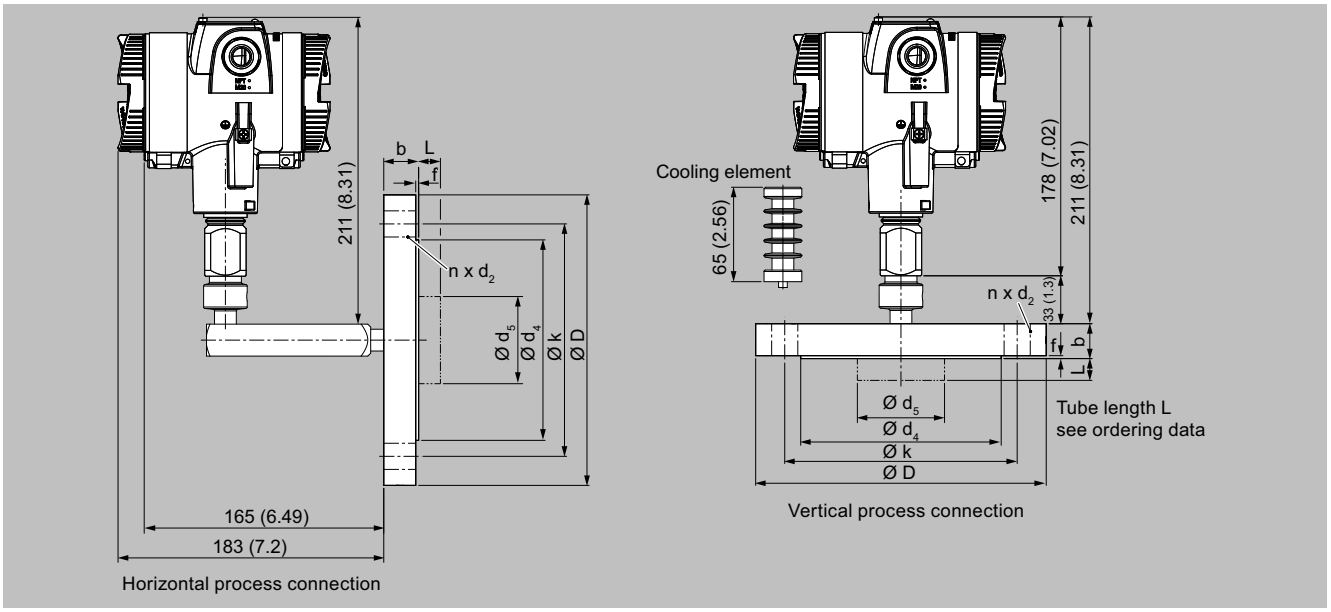
Technical specifications

SITRANS P320/P420 diaphragm seals in flange design, mounted directly on the transmitter	
Nominal diameter	**Nominal pressure**
Standard of process connection EN 1092-1	
• DN 25	PN 10/16/25/40/63/100/160/250
• 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
Process connection standard ASME B16.5	
• 1 inch	Class 150/300/600/1500
• 1½ inches	Class 150/300/400/600/900/1500
• 2 inches	Class 150/300/400/600/900/1500
• 3 inches	Class 150/300/600/1500
• 4 inches	Class 150/300/400/1500
• 5 inches	Class 150/300/400
Process connection standard J.I.S.	
• DN 50	10K
• DN 80	20K
• DN 100	40K
Sealing surface	
• For stainless steel mat. no. 1.4404/316L	According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA
• For the other materials	Smooth according 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 • No coating • PTFE coating • ECTFE coating (for negative pressure on request) • PFA coating Monel 400, mat. no. 2.4360 Hastelloy C276, mat. no. 2.4819 Hastelloy C4, mat. no. 2.4610 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, layer thickness approx. 25 µm
• Capillary	Stainless steel, mat. no. 1.4404/316L
• Gasket material at the transmitter connection	Copper
Permissible pressure load	See above and the technical specifications of the transmitter
Tube length	• Without tube • 50 mm (1.97 inches) • 100 mm (3.94 inches) • 150 mm (5.91 inches) • 200 mm (7.87 inches)
Capillary	
• Length	≤ 10 m (32.8 ft), longer lengths on request
• Inside diameter	≤ 1.3 mm (0.051 inch)

Technical specifications (continued)

SITRANS P320/P420 diaphragm seals in flange design, mounted directly on the transmitter	
• Minimum bending radius	150 mm (5.9 inches)
Filling liquid	• Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil (for measuring O_2) • Food oil (FDA-listed) • Neobee M20 (FDA-listed)
Max. recommended medium temperature	170 °C (338 °F)
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal. **More information** In the technical specifications of the pressure transmitters and in the sections in the technical reference of the remote seals: • "Function" - "Technical specifications of the remote seal filling liquids" • "More information" - "Specification of process conditions for selection and ordering data"
Weight	Approx. 4 kg (8.82 lbs)
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)

Dimensional drawings



Diaphragm seals of flange design, direct connection to a SITRANS P320/420 pressure transmitter (process connection vertical (top) and horizontal (bottom)), dimensions in mm (inch)

Connection according to EN 1092-1

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	f	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 25	PN 10/16/25/40	18	115	14	68	24.5	22.6	27	2	85	4	0, 50, 100, 150 or 200
	PN 63/100	24	140	18	68	24.5	22.6	27	2	100	4	
	PN 160	24	140	18	68	24.5	22.6	27	2	100	4	
	PN 250	28	150	22	68	24.5	22.6	27	2	105	4	
DN 40	PN 10/16/25/40	16	150	18	88	38	30	42	2	110	4	
	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	

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

Connection according to ASME B16.5

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	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)
1"	150	0.71 (18)	4.33 (110)	0.61 (15.6)	2 (50.8)	0.96 (24.5)	0.89 (22.6)	1,18 (30)	0.08 (2)	3.13 (79.4)	4	0, 2, 3.94, 5.94 or 7.87 (0, 50, 100, 150 or 200)
	300	0.77 (19.5)	4.92 (125)	0.75 (19.1)	2 (50.8)	0.96 (24.5)	0.89 (22.6)	1,18 (30)	0.08 (2)	3.5 (88.9)	4	
	600	0.96 (24.5)	4.92 (125)	0.75 (19.1)	2 (50.8)	0.96 (24.5)	0.89 (22.6)	1,18 (30)	0.28 (7)	3.5 (88.9)	4	
	1500	1.4 (35.6)	5.91 (150)	1 (25.4)	2 (50.8)	0.96 (24.5)	0.89 (22.6)	1,18 (30)	0.28 (7)	4 (101.6)	4	

Dimensional drawings (continued)

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	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"	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 or 7.87 (0, 50, 100, 150 or 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"	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"	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"	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"	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	

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

Connection according to J.I.S.

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	f	k	n	L
		mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)		Inch (mm)
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 or 200 (0, 2, 3.94, 5.94 or 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: Inside diameter of gasket according to EN 1092-1/ASME B16.5
d_M: Effective diaphragm diameter

Overview

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

Selection and ordering data

		Article No.												Order code		
Diaphragm seal Flange design, mounted directly and with capillary Mounting flange (optionally with tube) for direct mounting on high side and flange remote seal without tube, mounted via capillary on low side of SITRANS P for differential pressure; SITRANS P320/420 SITRANS P320/P420 transmitter for differential pressure and flow 7MF03../7MF04.. order separately, scope of delivery: 2 units		**7MF0813-**														
		●	●	●	●	●	-	0	●	●	●			●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.																
Nominal diameter	**Nominal pressure**															
Process connection standard EN 1092-1																
DN 40	PN 10/16/25/40	0	D	D												
	PN 63/100	0	D	F												
	PN 160	0	D	G												
DN 50	PN 10/16/25/40	0	E	D												
	PN 63	0	E	E												
	PN 100	0	E	F												
DN 80	PN 10/16/25/40	0	G	D												
	PN 100	0	G	F												
DN 100	PN 10/16	0	H	B												
	PN 25/40	0	H	D												
DN 125	PN 16	0	J	B												
	PN 40	0	J	D												
Process connection standard ASME B16.5																
1½ inches	Class 150	1	L	A												
	Class 300	1	L	B												
	Class 400/600	1	L	D												
	Class 900/1500	1	L	F												
2 inches	Class 150	1	M	A												
	Class 300	1	M	B												
	Class 400/600	1	M	D												
	Class 900/1500	1	M	F												
3 inches	Class 150	1	P	A												
	Class 300	1	P	B												
	Class 600	1	P	D												
	Class 1500	1	P	F												
4 inches	Class 150	1	Q	A												
	Class 300	1	Q	B												
	Class 400	1	Q	C												
	Class 1500	1	Q	F												
5 inches	Class 150	1	R	A												
	Class 300	1	R	B												
	Class 400	1	R	C												
Process connection standard J.I.S.																
DN 50	10K	2	E	S												
	20K	2	E	T												
	40K	2	E	U												
DN 80	10K	2	G	S												
	20K	2	G	T												
	40K	2	G	U												
DN 100	10K	2	H	S												
	20K	2	H	T												
	40K	2	H	U												
Other version, add order code and plain text		9	A	A										H	1	Y
Capillary length at low side																
1 m (38.37 inches)					1	0										
1.6 m (63 inches)					1	1										
2 m (78.7 inches)					1	2										
2.5 m (98.4 inches)					1	3										
3 m (118.1 inches)					1	4										

Selection and ordering data (continued)

	Article No.											Order code		
Diaphragm seal **Flange design, mounted directly and with capillary** **Mounting flange (optionally with tube) for direct mounting on high side and flange remote seal without tube, mounted via capillary on low side of SITRANS P for differential pressure; SITRANS P320/420** **SITRANS P320/P420 transmitter for differential pressure and flow 7MF03../7MF04.. order separately, scope of delivery: 2 units**	**7MF0813-**													
	●	●	●	●	●	-	0	●	●	●		●	●	●
4 m (157.5 inches)				1	5									
5 m (196.9 inches)				1	6									
6 m (236.2 inches)				1	7									
7 m (275.6 inches)				1	8									
8 m (315 inches)				2	0									
9 m (354.3 inches)				2	1									
10 m (393.7 inches)				2	2									
Other version, add order code and plain text				9	8							L	1	Y
Filling liquid														
Silicone oil M50								B						
High-temperature oil								C						
Silicone oil M5								A						
Food oil (FDA-listed)								E						
Halocarbon oil								D						
Neobee M20 (FDA listed)								R						
Other version, add order code and plain text								Z				P	1	Y
Material of wetted parts														
Stainless steel 316L														
• Without coating									A					
• With PFA coating									D					
• With PTFE coating									E	0				
• With ECTFE 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 and flange Duplex, 1.4462									R					
Stainless steel 316L, gold-plated									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
Tube length														
Note: If a tube is ordered, only the directly mounted remote seal is equipped with a tube.														
None										0				
50 mm (2 inches)										1				
100 mm (4 inches)										2				
150 mm (6 inches)										3				
200 mm (8 inches)										4				
250 mm (10 inches)										5				
Other version, add order code and plain text									Z	8		Q	1	Y
Customer-specific tube length														
Wetted parts: Stainless steel without coating														
Range / ***Standard length***														
20 ... 50 mm (0.79 ... 1.97 inches) / 50 mm (1.97 inches)									A	1				
51 ... 100 mm (2.01 ... 3.94 inches) / 100 mm (3.94 inches)									A	2				
101 ... 150 mm (3.98 ... 5.91 inches) / 150 mm (5.91 inches)									A	3				
151 ... 200 mm (5.94 ... 7.87 inches) / 200 mm (7.87 inches)									A	4				
201 ... 250 mm (7.91 ... 9.84 inches) / 250 mm (9.84 inches)									A	5				
Wetted parts: Stainless steel with ECTFE coating														

Selection and ordering data (continued)

	Article No.	Order code
Diaphragm seal **Flange design, mounted directly and with capillary** **Mounting flange (optionally with tube) for direct mounting on high side and flange remote seal without tube, mounted via capillary on low side of SITRANS P for differential pressure; SITRANS P320/420** **SITRANS P320/P420 transmitter for differential pressure and flow 7MF03../7MF04.. order separately, scope of delivery: 2 units**	**7MF0813-**	● ● ● ● ● - 0 ● ● ● ● ● ●
Range / ***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches) / 50 mm (1.97 inches)		F 1
51 ... 100 mm (2.01 ... 3.94 inches) / 100 mm (3.94 inches)		F 2
101 ... 150 mm (3.98 ... 5.91 inches) / 150 mm (5.91 inches)		F 3
151 ... 200 mm (5.94 ... 7.87 inches) / 200 mm (7.87 inches)		F 4
201 ... 250 mm (7.91 ... 9.84 inches) / 250 mm (9.84 inches)		F 5
Wetted parts: Stainless steel with PFA coating		
Range / ***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches) / 50 mm (1.97 inches)		D 1
51 ... 100 mm (2.01 ... 3.94 inches) / 100 mm (3.94 inches)		D 2
101 ... 150 mm (3.98 ... 5.91 inches) / 150 mm (5.91 inches)		D 3
151 ... 200 mm (5.94 ... 7.87 inches) / 200 mm (7.87 inches)		D 4
201 ... 250 mm (7.91 ... 9.84 inches) / 250 mm (9.84 inches)		D 5
Wetted parts: Monel 400		
Range / ***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches) / 50 mm (1.97 inches)		G 1
51 ... 100 mm (2.01 ... 3.94 inches) / 100 mm (3.94 inches)		G 2
101 ... 150 mm (3.98 ... 5.91 inches) / 150 mm (5.91 inches)		G 3
151 ... 200 mm (5.94 ... 7.87 inches) / 200 mm (7.87 inches)		G 4
Wetted parts: Hastelloy C276		
Range / ***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches) / 50 mm (1.97 inches)		J 1
51 ... 100 mm (2.01 ... 3.94 inches) / 100 mm (3.94 inches)		J 2
101 ... 150 mm (3.98 ... 5.91 inches) / 150 mm (5.91 inches)		J 3
151 ... 200 mm (5.94 ... 7.87 inches) / 200 mm (7.87 inches)		J 4
Wetted parts: Tantalum		
Range / ***Standard length***		
20 ... 50 mm (0.79 ... 1.97 inches) / 50 mm (1.97 inches)		K 1
51 ... 100 mm (2.01 ... 3.94 inches) / 100 mm (3.94 inches)		K 2
101 ... 150 mm (3.98 ... 5.91 inches) / 150 mm (5.91 inches)		K 3
151 ... 200 mm (5.94 ... 7.87 inches) / 200 mm (7.87 inches)		K 4

Options Add "-Z" to article number and specify order code.	Order code
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) acc. to IEC 62828-2	**C11**
Inspection certificate to EN 10204-3.1 for material of body and diaphragm	**C12**
Manufacturer declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with wetted parts made of stainless steel 316 L and Hastelloy)	**C13**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil according to EN 10204-2.2	**C17**
Factory certificate functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (includes SIL Declaration of Conformity)	**C20**

Options Add "-Z" to article number and specify order code.	Order code
Accessories	
Representation of the epoxy resin coating Color: Transparent coverage: Front and rear of the remote seal, connecting pipe, process connection of the transmitter. Maximum process medium temperature for epoxy lacquering: 140 °C	**D15**
Remote seal nameplate Attached, made of stainless steel, contains Article No. and order number of the remote seal	**D42**
Volume deflagration flame arrester (VDEF) for differential pressure and level transmitters	**D62**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
Negative pressure service	
Negative pressure service for differential pressure transmitters	**D83**
Extended negative pressure service for differential pressure transmitters	**D88**
Country-specific approval	
CRN approval Canada (Canadian Registration Number)	**E60**
Note:	
If the order code E60 is selected, the option E60 must also be selected for the transmitter!	
General product approvals without explosion proof approvals	
Oil-free and grease-free cleaned version for oxygen application including certificate EN 10204-2.2 (only with filling liquid halocarbon oil max. temperature 60 °C and max. pressure 50 bar)	**E80**
Oil-free and grease-free cleaned version not for oxygen application, including certificate EN 10204-2.2	**E87**
Sealing surface	
Sealing surface smooth, form B2/EN 1092-1 or RFSF/ANSI 16.5 (only for wetted parts made of stainless steel 316L)	**M50**
Sealing surface groove according to EN 1092-1, form D (instead of sealing surface B1, only for wetted parts made of stainless steel 316L)	**M54**
Sealing surface RJF (groove) according to ASME B16.5 (instead of sealing surface RF 125 ... 250AO, only for wetted parts made of stainless steel 316L)	**M64**
Sealing surface with tongue to EN 1092-1, form C (for wetted parts made of stainless steel 316L only)	
• DN 25	**M70**
• DN 40	**M71**
• DN 50	**M72**
• DN 80	**M73**
• DN 100	**M74**
• DN 125	**M75**
Sealing surface with spigot according to EN 1092-1, form E (for wetted parts made of stainless steel 316L only)	
• DN 25	**M76**
• DN 40	**M77**
• DN 50	**M78**
• DN 80	**M79**
• DN 100	**M80**
• DN 125	**M81**
Sealing surface female face according to EN 1092-1, form F (only for wetted parts made of stainless steel 316L)	
• DN 25	**M82**
• DN 40	**M83**
• DN 50	**M84**
• DN 80	**M85**
• DN 100	**M86**
• DN 125	**M87**
Capillary coating	
PE protective tube	
• 1 m (38.37 inches)	**S10**
• 1.6 m (63 inches)	**S11**
• 2 m (78.7 inches)	**S12**
• 2.5 m (98.4 inches)	**S13**
• 3 m (118.1 inches)	**S14**
• 4 m (157.5 inches)	**S15**
• 5 m (196.9 inches)	**S16**
• 6 m (236.2 inches)	**S17**
• 7 m (275.6 inches)	**S18**
• 8 m (315 inches)	**S19**
• 9 m (354.3 inches)	**S20**
• 10 m (393.7 inches)	**S21**
PTFE protective tube	
• 1 m (38.37 inches)	**S40**
• 1.6 m (63 inches)	**S41**
• 2 m (78.7 inches)	**S42**
• 2.5 m (98.4 inches)	**S43**
• 3 m (118.1 inches)	**S44**
• 4 m (157.5 inches)	**S45**
• 5 m (196.9 inches)	**S46**
• 6 m (236.2 inches)	**S47**
• 7 m (275.6 inches)	**S48**
• 8 m (315 inches)	**S49**
• 9 m (354.3 inches)	**S50**
• 10 m (393.7 inches)	**S51**
PVC protective tube	
• 1 m (38.37 inches)	**S70**
• 1.6 m (63 inches)	**S71**
• 2 m (78.7 inches)	**S72**
• 2.5 m (98.4 inches)	**S73**
• 3 m (118.1 inches)	**S74**
• 4 m (157.5 inches)	**S75**
• 5 m (196.9 inches)	**S76**
• 6 m (236.2 inches)	**S77**
• 7 m (275.6 inches)	**S78**
• 8 m (315 inches)	**S79**
• 9 m (354.3 inches)	**S80**
• 10 m (393.7 inches)	**S81**
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**
Special design	
Welded filling hole	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text in mm)	**Y44**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
Specification of process conditions[1]	
Ambient temperature range	
• +10 ... +50 °C (+50 ... +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" in the section "More information" under "Technical reference" for SITRANS P320/P420.

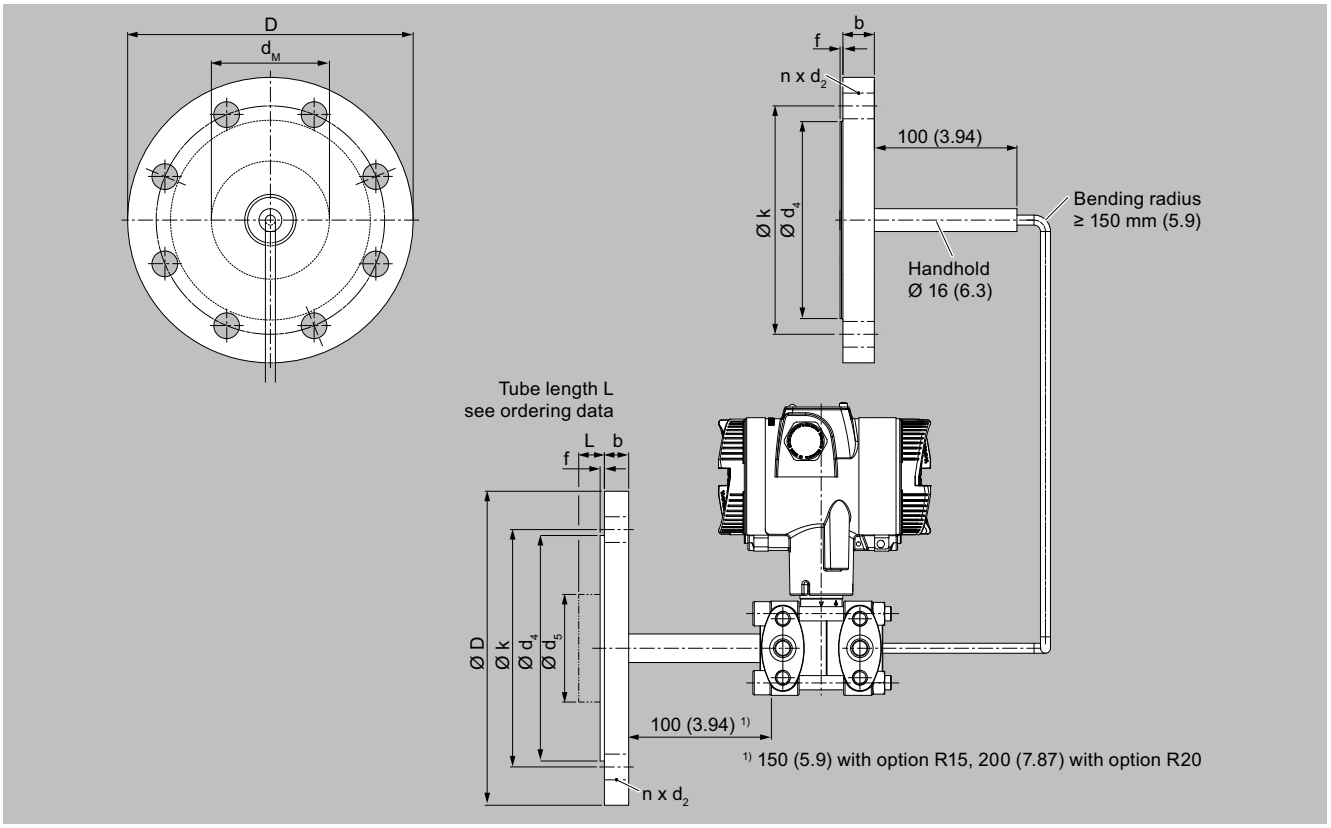
Technical specifications

SITRANS P320/P420 diaphragm seals in flange design, mounted directly and with capillary	
Nominal diameter	**Nominal pressure**
Standard of process connection 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
Process connection standard ASME B16.5	
• 1½ inches	Class 150/300/400/600/900/1500
• 2 inches	Class 150/300/400/600/900/1500
• 3 inches	Class 150/300/600/1500
• 4 inches	Class 150/300/400/1500
• 5 inches	Class 150/300/400
Process connection standard J.I.S.	
• DN 50	10K
• DN 80	20K
• DN 100	40K
Sealing surface	
• For stainless steel mat. no. 1.4404/316L	According to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AO
• For the other materials	According 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 negative pressure on request)
	• PFA coating
	Monel 400, mat. no. 2.4360
	Hastelloy C276, mat. no. 2.4819
	Hastelloy C4, mat. no. 2.4610
	Hastelloy C22, mat. no. 2.4602
	Tantalum
	Titanium, mat. no. 3.7035
	Nickel 201
	Duplex 2205, mat. no. 1.4462

Technical specifications (continued)

SITRANS P320/P420 diaphragm seals in flange design, mounted directly and with capillary	
• Wetted parts	Stainless steel 316L, gold plated, layer thickness approx. 25 µm
• Capillary	Stainless steel, mat. no. 1.4571/316Ti (with option W01) or mat. no. 1.4301/304
• Sheath	Flexible spiral coiled tube made of stainless steel, mat. no. 1.4404/316L
Gasket material in the process flanges	
• For gauge pressure transmitters, absolute pressure transmitters and negative pressure applications	Copper
• For other applications	Viton
Permissible pressure load	See above and the technical specifications of the pressure transmitter
Tube length	• Without tube
	• 50 mm (1.97 inch)
	• 100 mm (3.94 inches)
	• 150 mm (5.91 inches)
	• 200 mm (7.87 inches)
	Note: If a tube is ordered, only the directly mounted remote seal is equipped with a tube.
Capillary	
• Length	≤ 10 m (32.8 ft), longer lengths on request
• Inside diameter	≤ 1.3 mm (0.051 inch)
• Minimum bending radius	150 mm (5.9 inches)
Filling liquid	• Silicone oil M5
	• Silicone oil M50
	• High-temperature oil
	• Halocarbon oil (for measuring O_2)
	• Food oil (FDA-listed)
	• Neobee M20 (FDA-listed)
Max. recommended medium temperature	170 °C (338 °F)
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal. **More information** In the technical specifications of the pressure transmitters and in the sections in the technical reference of the remote seals: • "Function" - "Technical specifications of the remote seal filling liquids" • "More information" - "Specification of process conditions for selection and ordering data"
Weight	Approx. 4 kg (8.82 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)

Dimensional drawings



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

Connection according to EN 1092-1

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	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 or 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	

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

Dimensional drawings (continued)

Connection according to ASME B16.5

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	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"	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 or 7.87 (0, 50, 100, 150 or 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"	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"	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"	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"	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	

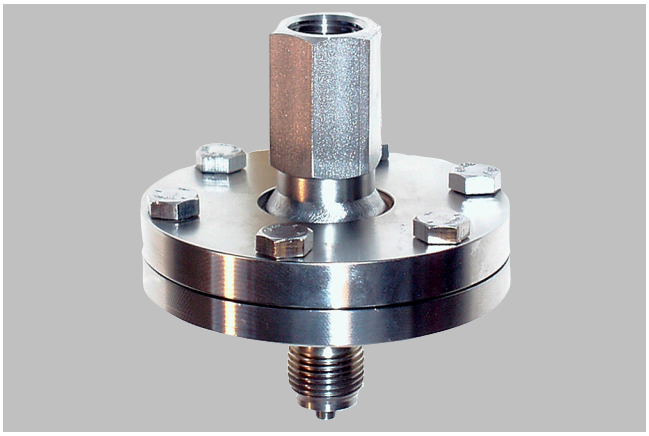
d: Inside diameter of gasket according to EN 1092-1/ASME B16.5
d_M: Effective diaphragm diameter

Connection according to J.I.S.

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M with tube	d_M without tube	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 or 200 (0, 2, 3.94, 5.94 or 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: Inside diameter of gasket according to EN 1092-1/ASME B16.5
d_M: Effective diaphragm diameter

Overview



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

Process connection: open measurement flange

Selection and ordering data

		Article No.	Order code
Diaphragm seals, screwed **With inside diaphragm, direct mounting or connected via flexible capillary pipe to a transmitter**			
SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only in conjunction with underpressure service) **7MF03../7MF04../7MF802. to be ordered separately; scope of delivery: 1 unit**		**7MF0840-**	
SITRANS P320/P420 for differential pressure and flow **7MF03../7MF04.. to be ordered separately; scope of delivery: 2 units**		**7MF0842-**	
		● ● ● ● ● - 0 ● ● 0	● ● ●
Click the article number for online configuration in the PIA Life Cycle Portal.			
Nominal diameter	**Nominal pressure**		
Open flange, process connection standard EN 1092-1			
DN 15	PN 10/16/25/40	0 A D	
	PN 63/100	0 A F	
	PN 160	0 A G	
	PN 250	0 A H	
DN 20	PN 10/16/25/40	0 A M	
DN 25	PN 10/16/25/40	0 B D	
	PN 63/100	0 B F	
	PN 160	0 B G	
	PN 250	0 B H	
Open flange, process connection standard ASME B16.5			
½ inch	Class 150	1 K A	
	Class 300	1 K B	
	Class 600	1 K C	
	Class 1500	1 K D	
¾ inch	Class 150	1 K F	
	Class 300	1 K G	
	Class 600	1 K H	
	Class 1500	1 K J	
1 inch	Class 150	1 K L	
	Class 300	1 K M	
	Class 600	1 K N	
	Class 1500	1 K P	
Process connection: Thread according to EN 837-1			
G¼"B	PN 100	3 S B	
G¼"B	PN 250	3 S C	
G½"B	PN 100	3 S F	
G½"B	PN 250	3 S G	
G¾"B	PN 100	3 S K	
G¾"B	PN 250	3 S L	
G1"B	PN 100	3 S P	
G1"B	PN 250	3 S Q	
Process connection: thread according to ASME B1.20.1			
¼" NPTM	Class 1500	5 T A	
¼" NPTM	Class 3675	5 T B	
¼" NPTF	Class 1500	5 T C	
¼" NPTF	Class 3675	5 T D	
½" NPTM	Class 1500	5 T E	
½" NPTM	Class 3675	5 T F	
½" NPTF	Class 1500	5 T G	
½" NPTF	Class 3675	5 T H	
¾" NPTM	Class 1500	5 T J	
¾" NPTM	Class 3675	5 T K	
¾" NPTF	Class 1500	5 T L	
¾" NPTF	Class 3675	5 T M	
1" NPTM	Class 1500	5 T N	
1" NPTM	Class 3675	5 T P	

Selection and ordering data (continued)

Diaphragm seals, screwed With inside diaphragm, direct mounting or connected via flexible capillary pipe to a transmitter SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only in conjunction with underpressure service) 7MF03../7MF04../7MF802. to be ordered separately; scope of delivery: 1 unit SITRANS P320/P420 for differential pressure and flow 7MF03../7MF04.. to be ordered separately; scope of delivery: 2 units		Article No.											Order code		
		7MF0840-													
		7MF0842-													
		●	●	●	●	●	-	0	●	●	0		●	●	●
1" NPTF	Class 1500	5	T	Q											
1" NPTF	Class 3675	5	T	R											
Other version, add order code and plain text		9	A	A									H	1	Y
Transmitter connection															
Without capillary pipe, direct mount, straight connection (for gauge pressure transmitters)					0	0									
Other version, add order code and plain text															
1 m (38.37 inches)					1	0									
1.6 m (63 inches)					1	1									
2 m (78.7 inches)					1	2									
2.5 m (98.4 inches)					1	3									
3 m (118.1 inches)					1	4									
4 m (157.5 inches)					1	5									
5 m (196.9 inches)					1	6									
6 m (236.2 inches)					1	7									
7 m (275.6 inches)					1	8									
8 m (315 inches)					2	0									
9 m (354.3 inches)					2	1									
10 m (393.7 inches)					2	2									
Other version, add order code and plain text					9	8							L	1	Y
Filling liquid															
Silicone oil M50								B							
High-temperature oil								C							
Silicone oil M5								A							
Food oil (FDA-listed)								E							
Neobee M20 (FDA-listed)								R							
Halocarbon oil								D							
Other version, add order code and plain text								Z					P	1	Y
Material of wetted parts															
Stainless steel 316L without coating									A						
Stainless steel 316L with PTFE coating									E						
Monel 400, 2.4360									G						
Hastelloy C276, 2.4819									J						
Tantalum									K						
Stainless steel 316L, gold-plated									S						
Neobee M20 (FDA listed)									R						
Hastelloy C4, 2.4610									U						
Other version, add order code and plain text									Z				Q	1	Y

Options Add "-Z" to article number and specify order code.	Order code
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) acc. to IEC 62828-2	**C11**
Inspection certificate to EN 10204-3.1 for material of body and diaphragm	**C12**
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with wetted parts made of stainless steel 316 L and Hastelloy)	**C13**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil according to EN 10204-2.2	**C17**

Options Add "-Z" to article number and specify order code.	Order code
Factory certificate functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (includes SIL Declaration of Conformity)	**C20**
Accessories	
Representation of the epoxy resin coating Color: Transparent coverage: Front and rear of the remote seal, connecting pipe, process connection of the transmitter. Maximum process medium temperature for epoxy lacquering: 140 °C	**D15**
Flushing port ¼" 18 NPT unsealed	**D70**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
Flushing port ¼" 18 NPT sealed with stainless steel plug	**D71**
Gasket material between upper and lower enclosure PTFE (instead of FKM viton)	**D75**
Gasket material between upper and lower enclosure metal C spring lock washer (instead of FKM viton)	**D76**
PTFE coating of lower section (only for G½B PN 100, DN 25 PN 10 ... 40, 1 inch Class 150/300)	**D77**
Country-specific approval	
CRN approval Canada (Canadian Registration Number)	**E60**
Note:	
If the order code E60 is selected, the option E60 must also be selected for the transmitter!	
Negative pressure service	
Negative pressure service (for gauge pressure and absolute pressure transmitters)	**D81**
Negative pressure service (for differential pressure transmitters)	**D83**
Extended negative pressure service (for gauge pressure and absolute pressure transmitters) (only 7MF0800)	**D85**
Extended negative pressure service (for differential pressure transmitters)	**D88**
General product approvals without explosion proof approvals	
Oil-free and grease-free cleaned version for oxygen application including certificate EN 10204-2.2 (only with filling liquid halocarbon oil max. temperature 60 °C and max. pressure 50 bar)	**E80**
Oil-free and grease-free cleaned version not for oxygen application, including certificate EN 10204-2.2	**E87**
Capillary connection (Only for 7MF0840)	
Single-side mounted at differential pressure transmitter at high side	**S03**
Single-side mounted at differential pressure transmitter at low side	**S04**
Cooling element	**S08**
Capillary coating	
PE protective tube	
• 1 m (38.37 inches)	**S10**
• 1.6 m (63 inches)	**S11**
• 2 m (78.7 inches)	**S12**
• 2.5 m (98.4 inches)	**S13**
• 3 m (118.1 inches)	**S14**
• 4 m (157.5 inches)	**S15**
• 5 m (196.9 inches)	**S16**
• 6 m (236.2 inches)	**S17**
• 7 m (275.6 inches)	**S18**
• 8 m (315 inches)	**S19**
• 9 m (354.3 inches)	**S20**
• 10 m (393.7 inches)	**S21**
PTFE protective tube	
• 1 m (38.37 inches)	**S40**
• 1.6 m (63 inches)	**S41**
• 2 m (78.7 inches)	**S42**
• 2.5 m (98.4 inches)	**S43**
• 3 m (118.1 inches)	**S44**
• 4 m (157.5 inches)	**S45**
• 5 m (196.9 inches)	**S46**
• 6 m (236.2 inches)	**S47**
• 7 m (275.6 inches)	**S48**
• 8 m (315 inches)	**S49**
• 9 m (354.3 inches)	**S50**
• 10 m (393.7 inches)	**S51**
PVC protective tube	
• 1 m (38.37 inches)	**S70**
• 1.6 m (63 inches)	**S71**
• 2 m (78.7 inches)	**S72**
• 2.5 m (98.4 inches)	**S73**
• 3 m (118.1 inches)	**S74**
• 4 m (157.5 inches)	**S75**
• 5 m (196.9 inches)	**S76**
• 6 m (236.2 inches)	**S77**
• 7 m (275.6 inches)	**S78**
• 8 m (315 inches)	**S79**
• 9 m (354.3 inches)	**S80**
• 10 m (393.7 inches)	**S81**
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**
Special design	
Welded filling holes	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text)	**Y44**
Specification of process conditions[1)]	
Ambient temperature range	
• +10 ... +50 °C (+50 ... +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" in the section "More information" under "Technical reference" for SITRANS P320/P420.

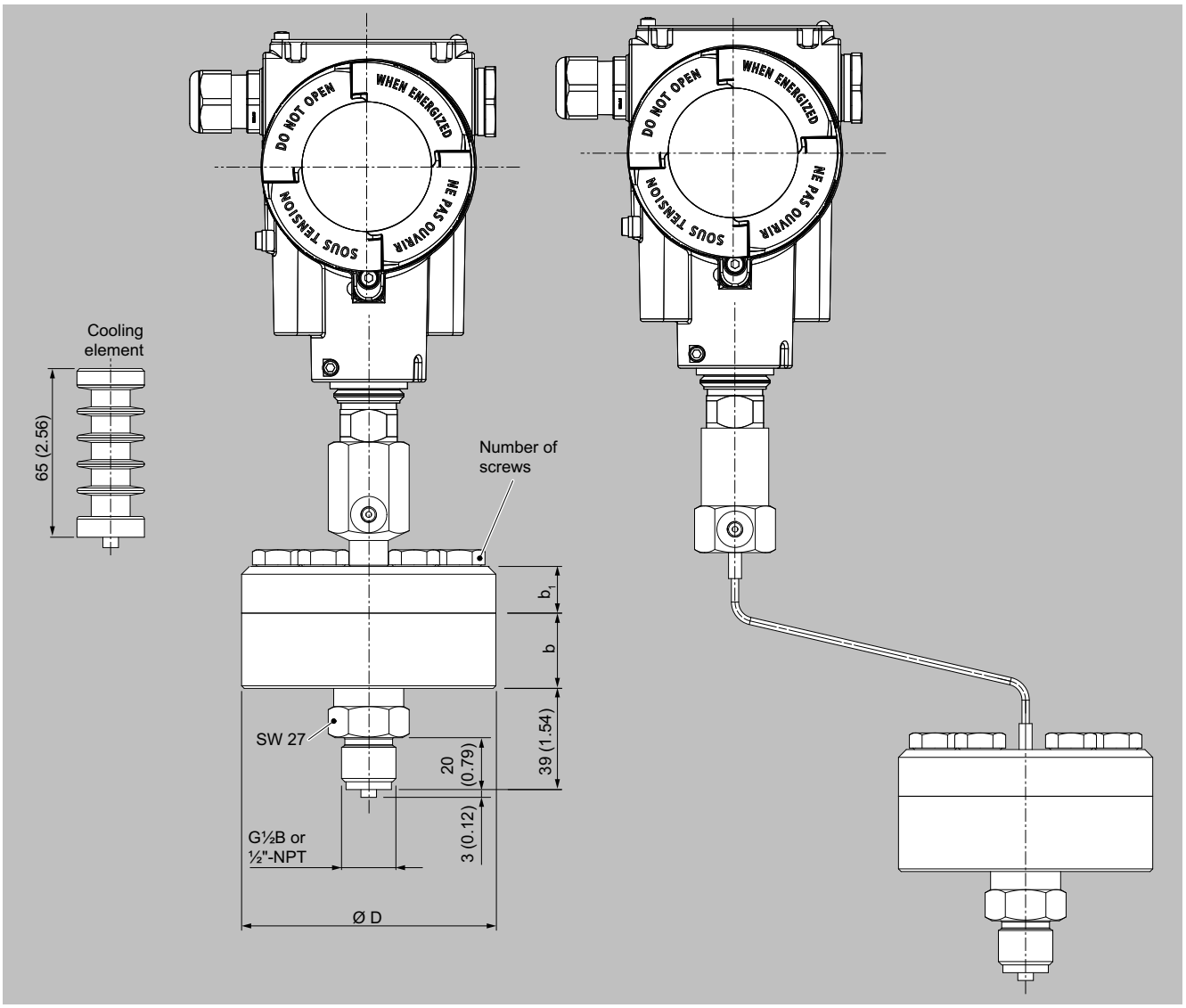
Technical specifications

SITRANS P320/P420 diaphragm seals, screwed design	
Process connection	**Nominal pressure**
- Open flange EN 1092-1	
• DN 15	PN 10/16/25/40/63/100/160/250
• DN 20	PN 10/16/25/40
• DN 25	PN 10/16/25/40/63/100/160/250
Open flange ASME B16.5	
• ½ inch, ¾ inch, 1 inch	Class 150/300/600/1500
Thread EN 837-1	
• G¼"B, G½"B, G¾"B, G1"B	PN 100/250
Thread ASME B1.20.1	
• ¼" NPT-M, ¼" NPT-F	Class 1500/3675
• ½" NPT-M, ½" NPT-F	Class 1500/3675
• ¾" NPT-M, ¾" NPT-F	Class 1500/3675
• 1" NPT-M, 1" NPT-F	Class 1500/3675
Sealing surface for open measurement flange	
• For stainless steel mat. no. 1.4404/316L	According to EN 1092-1, form B1 or ASMR 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 • Without coating • With PTFE coating Monel 400, mat. no. 2.4360 Hastelloy C276, mat. no. 2.4819 Hastelloy C4, mat. no. 2.4610 Hastelloy C22, mat. no. 2.4602 Tantalum Titanium, mat. no. 3.7035 Nickel 201 Stainless steel 316L, gold plated, layer thickness approx. 25 µm
• Top section (process connection in the case of an open measurement flange)	Stainless steel, mat. no. 1.4404/316L
• Capillary	Stainless steel, mat. no. 1.4571/316Ti (with option W01) or mat. no. 1.4301/304
• Gasket material on the process connection	Viton or copper (in the case of vacuum-free version)
• Gasket material between top and bottom section	Viton (FKM) (standard:) Teflon (PTFE) metal spring ring (silver-coated)
Capillary	
• Length	≤ 10 m (32.8 ft)
• Inside diameter	≤ 1.3 mm (0.051 inch)
• Minimum bending radius	150 mm (5.9 inches)
• Sheath	Flexible spiral coiled tube made of stainless steel, mat. no. 14301/304
Filling liquid (for remote seals of sandwich and flange type)	• Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil (for measuring O_2) • Food oil (FDA-listed) • Neobee M20 (FDA-listed)
Max. recommended medium temperature	170 °C (338 °F)

Technical specifications (continued)

SITRANS P320/P420 diaphragm seals, screwed design	
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal. **More information** In the technical specifications of the pressure transmitters and in the sections in the technical reference of the remote seals: • "Function" - "Technical specifications of the remote seal filling liquids" • "More information" - "Specification of process conditions for selection and ordering data"
Weight	Approx. 1.5 kg (3.3 lbs)
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)

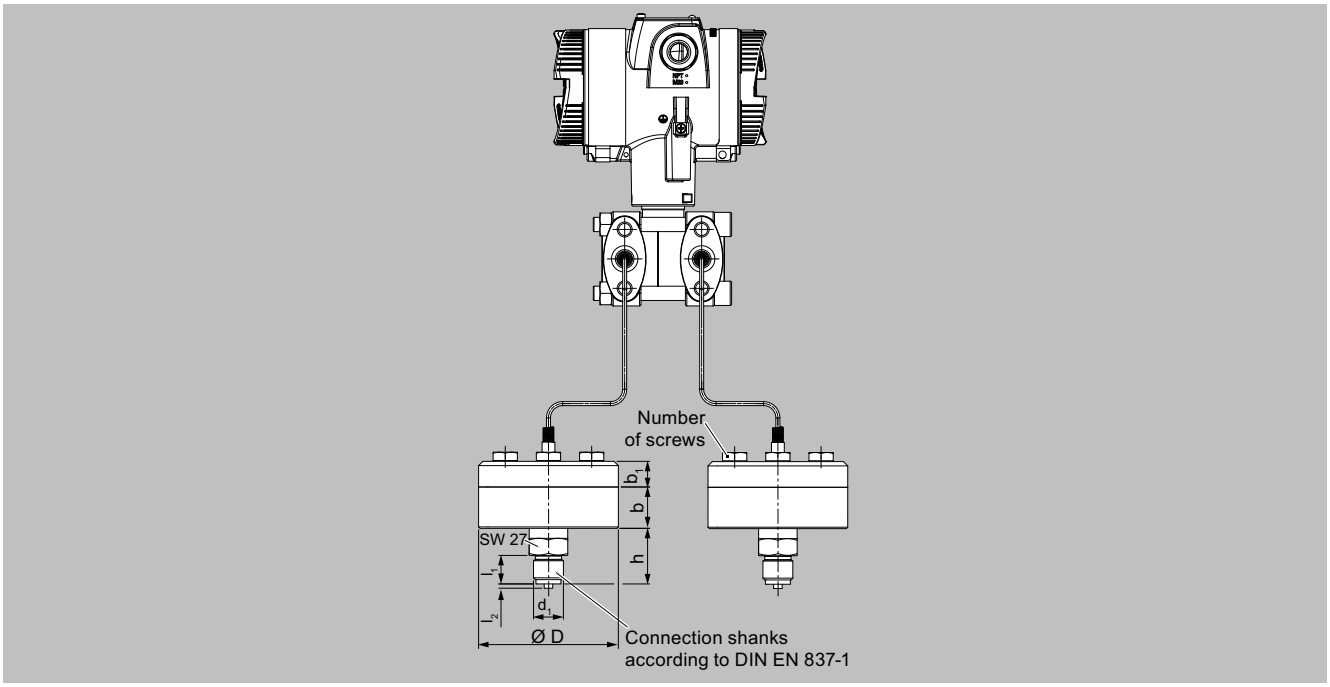
Dimensional drawings



Diaphragm seal, screwed design with interior diaphragm, for gauge and absolute pressure, attached to the transmitter directly and with capillaries, dimensions in mm (inch)

Range	D mm (inch)	b mm (inch)	b_1 mm (inch)	Number of screws
Up to 100 bar	98 (3.86)	14 (0.55)	16 (0.63)	6
Up to 250 bar	98 (3.86)	14 (0.55)	20 (0.79)	12

Dimensional drawings (continued)



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

Nominal diameter	Nominal pressure	D mm (inch)	d4	k	M	Number of holes	b mm (inch)	b1	f
DN 25	PN 10/16/25/40	115 (4.53)	68 (2.68)	85 (3.35)	M12	4	26 (1.02)	12 (0.47)	21 (0.83)
1"	150 lb/sq.in	110 (4.33)	50.8 (2)	79.4 (3.13)	M12	4	32 (1.26)	12 (0.47)	1.6 (0.063)
1"	300 lb/sq.in	125 (4.92)	50.8 (2)	88.9 (3.5)	M16	4	32 (1.26)	12 (0.47)	1.6 (0.063)

Overview

Quick-release diaphragm seals, acc. to DIN 11851 with slotted union nut

Quick-release diaphragm seals, with clamp connection

Quick-release diaphragm seals can be supplied for the pressure transmitters of the SITRANS P320/420 series.

The quick-release remote seals are common designs in the food industry. Their design means that the medium cannot accumulate in dead volumes. The remote seal's quick release mechanism enables fast disassembly for cleaning.

Selection and ordering data

		Article No.													Order code		
Diaphragm seal with quick-release **Flange type design, with flexible capillary pipe or direct mounting on pressure transmitter** **SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only in conjunction with underpressure service)** **7MF03../7MF04../7MF802. to be ordered separately; scope of delivery: 1 unit**		**7MF0830-**															
SITRANS P320/P420 for absolute pressure from differential pressure **7MF03../7MF04.. order separately, scope of delivery: 2 units**		**7MF0832-**															
		●	●	●	●	●	-	0	●	A	0				●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.																	
Nominal diameter	**Nominal pressure**																
Process connection standard DIN 11851 with groove nut																	
DN 25	PN 40	**0**	**B**	**M**													
DN 32	PN 40	**0**	**C**	**D**													
DN 40	PN 40	**0**	**D**	**M**													
DN 50	PN 25	**0**	**E**	**K**													
DN 65	PN 25	**0**	**F**	**L**													
DN 80	PN 25	**0**	**G**	**K**													
Process connection standard DIN 11851 with thread																	
DN 25	PN 40	**1**	**B**	**M**													
DN 32	PN 40	**1**	**C**	**D**													
DN 40	PN 40	**1**	**D**	**M**													
DN 50	PN 25	**1**	**E**	**K**													
DN 65	PN 25	**1**	**F**	**L**													
DN 80	PN 25	**1**	**G**	**K**													
Process connection standard clamp ISO 2852																	
DN 25	PN 16	**2**	**B**	**K**													
DN 38	PN 16	**2**	**C**	**Q**													
DN 51	PN 16	**2**	**F**	**H**													
DN 63.5	PN 10	**2**	**F**	**J**													
DN 76.1	PN 10	**2**	**G**	**J**													
Process connection standard clamp DIN 32676, schedule C																	
DN 1 inch	PN 25	**3**	**K**	**V**													
DN 1½ inch	PN 25	**3**	**L**	**V**													
DN 2 inch	PN 16	**3**	**M**	**V**													
DN 2½ inch	PN 16	**3**	**N**	**V**													
DN 3 inch	PN 10	**3**	**P**	**V**													
Process connection standard clamp DIN 32676, schedule A metric																	
DN 25	PN 25	**4**	**B**	**L**													
DN 32	PN 25	**4**	**C**	**C**													
DN 40	PN 25	**4**	**D**	**L**													
DN 50	PN 16	**4**	**E**	**J**													
DN 65	PN 10	**4**	**F**	**K**													
Varivent																	
DN 25/32	PN 25	**5**	**C**	**L**													
DN 40/50	PN 25	**5**	**D**	**K**													
DRD flange																	
DN 50	PN 40	**6**	**E**	**M**													
Other version, add order code and plain text		**9**	**A**	**A**											**H**	**1**	**Y**
Transmitter connection																	
Without capillary pipe, direct mount, straight connection (for gauge pressure transmitters)					**0**	**0**											
Connection via capillary Capillary length:																	
1 m (38.37 inches)					**1**	**0**											
1.6 m (63 inches)					**1**	**1**											
2 m (78.7 inches)					**1**	**2**											
2.5 m (98.4 inches)					**1**	**3**											
3 m (118.1 inches)					**1**	**4**											
4 m (157.5 inches)					**1**	**5**											

Selection and ordering data (continued)

	Article No.	Order code
Diaphragm seal with quick-release **Flange type design, with flexible capillary pipe or direct mounting on pressure transmitter** **SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only in conjunction with underpressure service)** **7MF03../7MF04../7MF802. to be ordered separately; scope of delivery: 1 unit** **SITRANS P320/P420 for absolute pressure from differential pressure** **7MF03../7MF04.. order separately, scope of delivery: 2 units**	**7MF0830-** **7MF0832-**	
	● ● ● ● ● - 0 ● A 0	● ● ●
5 m (196.9 inches)	1 6	
6 m (236.2 inches)	1 7	
7 m (275.6 inches)	1 8	
8 m (315 inches)	2 0	
9 m (354.3 inches)	2 1	
10 m (393.7 inches)	2 2	
Other version, add order code and plain text	9 8	L 1 Y
Filling liquid		
Food oil (FDA-listed)	E	
Neobee M20 (FDA listed)	R	
Other version, add order code and plain text	Z	P 1 Y

Options Add "-Z" to article number and specify order code.	Order code
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) acc. to IEC 62828-2	**C11**
Inspection certificate to EN 10204-3.1 for material of body and diaphragm	**C12**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil according to EN 10204-2.2	**C17**
Factory certificate functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (includes SIL Declaration of Conformity)	**C20**
Accessories	
Remote seal nameplate Attached, made of stainless steel, contains Article No. and order number of the remote seal	**D42**
Negative pressure service	
Negative pressure service	
• For gauge pressure and absolute pressure transmitters	**D81**
• For differential pressure transmitters	**D83**
Extended negative pressure service	
• For gauge pressure and absolute pressure transmitters	**D85**
• For differential pressure transmitters	**D88**
Country-specific approval	
CRN approval Canada (Canadian Registration Number)	**E60**
Note:	
If the order code E60 is selected, the option E60 must also be selected for the transmitter!	
Capillary connection (Only for 7MF0830)	
Single-side mounted at differential pressure transmitter at high side	**S03**
Single-side mounted at differential pressure transmitter at low side	**S04**
Cooling element	**S08**

Options Add "-Z" to article number and specify order code.	Order code
Capillary coating	
PE protective tube	
• 1 m (38.37 inches)	**S10**
• 1.6 m (63 inches)	**S11**
• 2 m (78.7 inches)	**S12**
• 2.5 m (98.4 inches)	**S13**
• 3 m (118.1 inches)	**S14**
• 4 m (157.5 inches)	**S15**
• 5 m (196.9 inches)	**S16**
• 6 m (236.2 inches)	**S17**
• 7 m (275.6 inches)	**S18**
• 8 m (315 inches)	**S19**
• 9 m (354.3 inches)	**S20**
• 10 m (393.7 inches)	**S21**
PTFE protective tube	
• 1 m (38.37 inches)	**S40**
• 1.6 m (63 inches)	**S41**
• 2 m (78.7 inches)	**S42**
• 2.5 m (98.4 inches)	**S43**
• 3 m (118.1 inches)	**S44**
• 4 m (157.5 inches)	**S45**
• 5 m (196.9 inches)	**S46**
• 6 m (236.2 inches)	**S47**
• 7 m (275.6 inches)	**S48**
• 8 m (315 inches)	**S49**
• 9 m (354.3 inches)	**S50**
• 10 m (393.7 inches)	**S51**
PVC protective tube	
• 1 m (38.37 inches)	**S70**
• 1.6 m (63 inches)	**S71**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
• 2 m (78.7 inches)	**S72**
• 2.5 m (98.4 inches)	**S73**
• 3 m (118.1 inches)	**S74**
• 4 m (157.5 inches)	**S75**
• 5 m (196.9 inches)	**S76**
• 6 m (236.2 inches)	**S77**
• 7 m (275.6 inches)	**S78**
• 8 m (315 inches)	**S79**
• 9 m (354.3 inches)	**S80**
• 10 m (393.7 inches)	**S81**

Options Add "-Z" to article number and specify order code.	Order code
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**
Special design	
Welded filling holes	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text in mm)	**Y44**
Specification of process conditions[1)]	
Ambient temperature range	
• +10 ... +50 °C (+50 ... +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" in the section "More information" under "Technical reference" for SITRANS P320/P420.

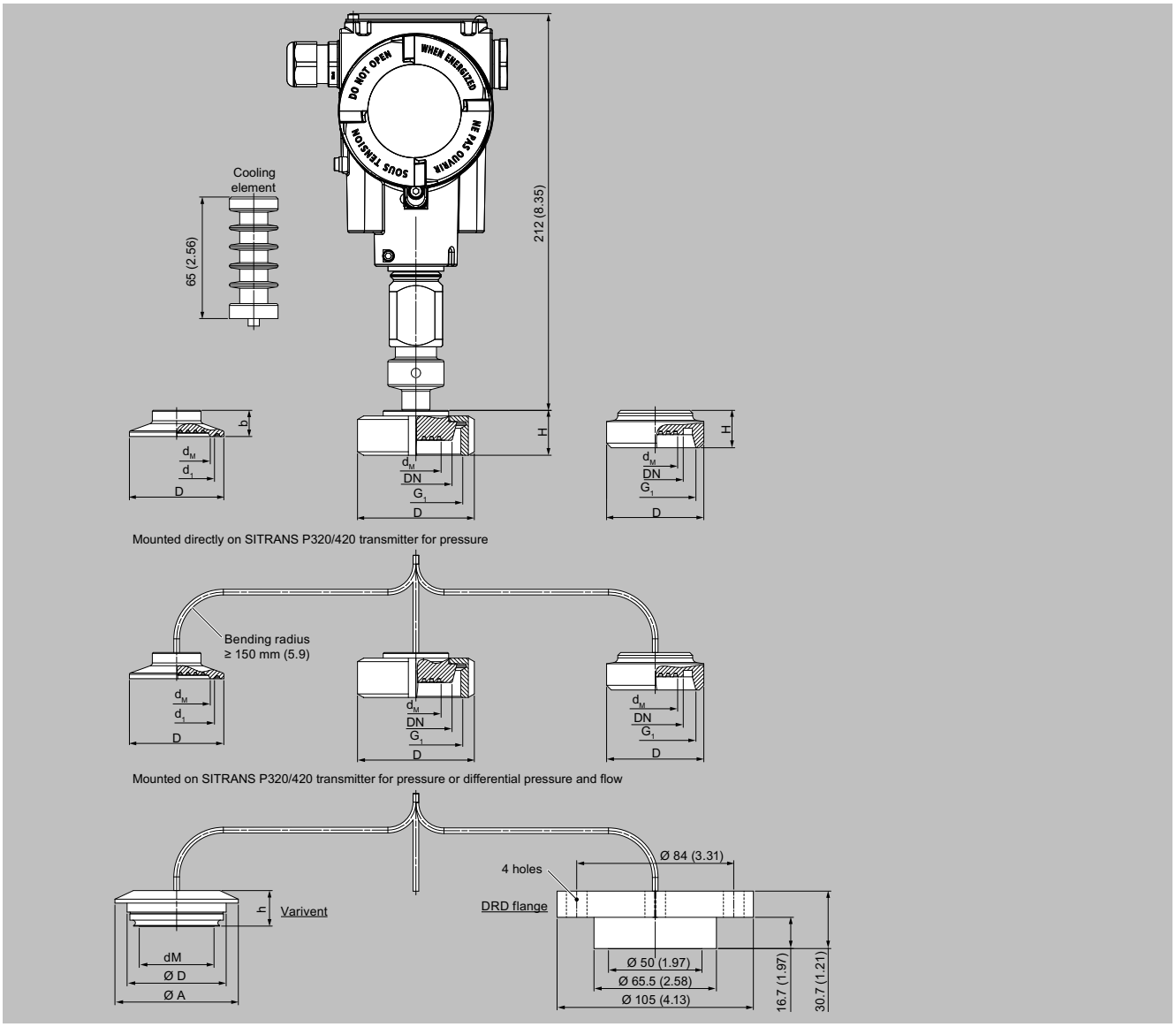
Technical specifications

SITRANS P320/P420 quick-release diaphragm seals	
Connection, nominal diameter	**Nominal pressure**
Process connection standard DIN 11851 with groove nut	
• DN 25/32/40	PN 40
• DN 50/65/80	PN 25
Process connection standard DIN 11851 with thread	
• DN 25/32/40	PN 40
• DN 50/65/80	PN 25
Standard of process connection clamp ISO 2852	
• DN 25/38/51	PN 16
• DN 63.5/76.1	PN 10
Standard of process connection clamp DIN 32676, schedule C Tri-Clamp	
• 1 inch, 1½ inches	PN 25
• 2 inches, 2½ inch	PN 16
• 3 inches	PN 10
Standard of process connection clamp DIN 32676, schedule A metric	
• DN 25/32/40	PN 25
• DN 50	PN 16
• DN 65	PN 10
Varivent	
• DN 25/32/40/50	PN 25
DRD flange	
• DN 50	PN 40
Materials	
• Main body	Stainless steel, mat. no. 1.4404/316L
• Wetted parts	Stainless steel, mat. no. 1.4404/316L
• Capillary	Stainless steel, mat. no. 1.4571/316Ti (with option W01) or mat. no. 1.4301/304
• Sheath	Spiral coiled tube made of stainless steel, mat. no. 1.4404/316L
Permissible pressure load	See above and the technical specifications of the pressure transmitter
Tube length	Without tube
Capillary	
• Length	≤ 10 m (32.8 ft), longer lengths on request
• Inside diameter	≤ 1.3 mm (0.051 inch)
• Minimum bending radius	150 mm (5.9 inches)
• Sheath	Flexible spiral coiled tube made of stainless steel mat. no. 1.4404/316L
Filling liquid	• Food oil (FDA-listed) • Neobee M20 (FDA-listed)
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal. **More information** In the technical specifications of the pressure transmitters and in the sections in the technical reference of the remote seals: • "Function" - "Technical specifications of the remote seal filling liquids" • "More information" - "Specification of process conditions for selection and ordering data"
Weight	Approx. 4 kg (8.82 lbs)

Technical specifications (continued)

SITRANS P320/P420 quick-release diaphragm seals	
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)
EHEDG	Complies with EHEDG recommendations

Dimensional drawings



Quick-release diaphragm seals

Connection according to DIN 11851 with groove nut

Nominal diameter	Ø d_M mm	Ø D mm	H mm	G_1 mm
DN 25	25	63	36	Radius 52x1/6
DN 32	32	70	36	Radius 52x1/6
DN 40	40	78	36	Radius 65x1/6
DN 50	52	112	36	Radius 78x1/6
DN 65	65	112	36	Radius 95x1/6
DN 80	72	127	36	Radius 110x1/6

d_M effective diaphragm diameter

Dimensional drawings (continued)

Connection according to DIN 11851 with thread

Nominal diameter	Ø d_M mm	H mm	G_1 mm
DN 25	25	36	Radius 52x1/6
DN 32	32	36	Radius 52x1/6
DN 40	40	36	Radius 65x1/6
DN 50	52	36	Radius 78x1/6
DN 65	65	36	Radius 95x1/6
DN 80	72	36	Radius 110x1/6

d_M effective diaphragm diameter

Clamp connection according to ISO 2852 for pipes according to ISO 2037

Nominal diameter	Nominal pressure	d_M mm	d_1 mm	b mm	D mm
DN 25	PN 16	22.6	43.5	14	50.5
DN 38	PN 16	34	43.5	12	50.5
DN 51	PN 16	46	56.5	14	64
DN 63.5	PN 10	51	70.5	14	77.5
DN 76.1	PN 10	65	83.5	14	91

d_M effective diaphragm diameter

Clamp connection according to DIN 32676 row C for pipes according to ASME BPE

Nominal diameter	Nominal pressure	d_M mm (inch)	d_1 mm (inch)	b mm (inch)	D mm (inch)
1"	PN 25	22.6 (0.89)	43.5 (1.71)	14 (0.55)	50.5 (1.99)
1½"	PN 25	34 (1.34)	43.5 (1.71)	12 (0.47)	50.5 (1.99)
2"	PN 16	46 (1.81)	56.5 (2.22)	14 (0.55)	64 (2.52)
2½"	PN 16	51 (2.01)	70.5 (2.78)	14 (0.55)	77.5 (3.05)
3"	PN 16	65 (2.56)	83.5 (3.29)	14 (0.55)	91 (3.58)

d_M effective diaphragm diameter

Clamp connection according to DIN 32676 row A (metric) for pipes according to EN 10357 (DIN 11850)

Nominal diameter	Nominal pressure	Ø d_M mm	d_1 mm	b mm	D mm
DN 25	PN 25	22.6	43.5	14	50.5
DN 32	PN 25	27	43.5	12	50.5
DN 40	PN 25	34	43.5	12	50.5
DN 50	PN 16	46	56.5	14	64
DN 65	PN 16	65	83.5	14	91

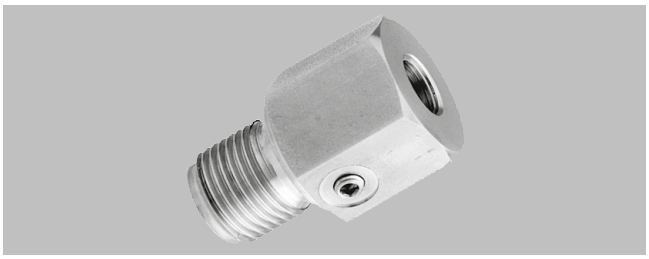
d_M effective diaphragm diameter

Varivent

Nominal diameter	d_M mm (inch)	A mm (inch)	D mm (inch)	h mm (inch)
DN 25, DN 32, 1", 1¼"	40 (1.57)	66 (2.6)	50 (1.97)	19 (0.75)
DN 40 ... 125, 1 ½" ... 6"	58 (2.28)	84 (3.3)	68 (2.68)	19 (0.75)

d_M effective diaphragm diameter

Overview



The miniature diaphragm seals are available for the pressure transmitters of the SITRANS P320/420 series.

For high pressures, contaminated, fibrous and viscous media in the chemical, paper, food and drink industries.

Design

The miniature diaphragm seals consist of a flush diaphragm, a fixed threaded pin and are free of dead space.

Selection and ordering data

Diaphragm seals, miniature type Installed directly on pressure transmitter SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit		Article No. 7MF0850-										Order code		
		●	●	●	0	0	-	0	●	●	0	●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.														
Process connection														
Process connection standard DIN 3852-2 form A														
G 1"	PN 400	4	S	V										
G 1½"	PN 250	4	S	W										
G 2"	PN 250	4	S	X										
Process connection standard ASME B1.20.1														
1" NPTM	PN 250	5	T	U										
1½" NPT-M	PN 100	5	T	V										
2" NPTM	PN 100	5	T	W										
Other version, add order code and plain text		9	A	A								H	1	Y
Filling liquid														
Silicone oil M5									A					
Food oil (FDA-listed)									E					
Neobee M20 (FDA listed)									R					
Other version, add order code and plain text									Z			P	1	Y
Material of wetted parts														
Stainless steel 316L without coating										A				
Hastelloy C276, 2.4819										J				

Options Add "-Z" to article number and specify order code.	Order code
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) acc. to IEC 62828-2	**C11**
Inspection certificate to EN 10204-3.1 for material of body and diaphragm	**C12**
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with wetted parts made of stainless steel 316 L and Hastelloy)	**C13**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil according to EN 10204-2.2	**C17**
Factory certificate functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (includes SIL Declaration of Conformity)	**C20**
Accessories	
Remote seal nameplate Attached, made of stainless steel, contains Article No. and order number of the remote seal	**D42**
Negative pressure service	
Negative pressure service for gauge pressure and absolute pressure transmitters	**D81**
Extended negative pressure service for gauge pressure and absolute pressure transmitters	**D85**
Country-specific approval	
CRN approval Canada (Canadian Registration Number)	**E60**
Note:	
If the order code E60 is selected, the option E60 must also be selected for the transmitter!	

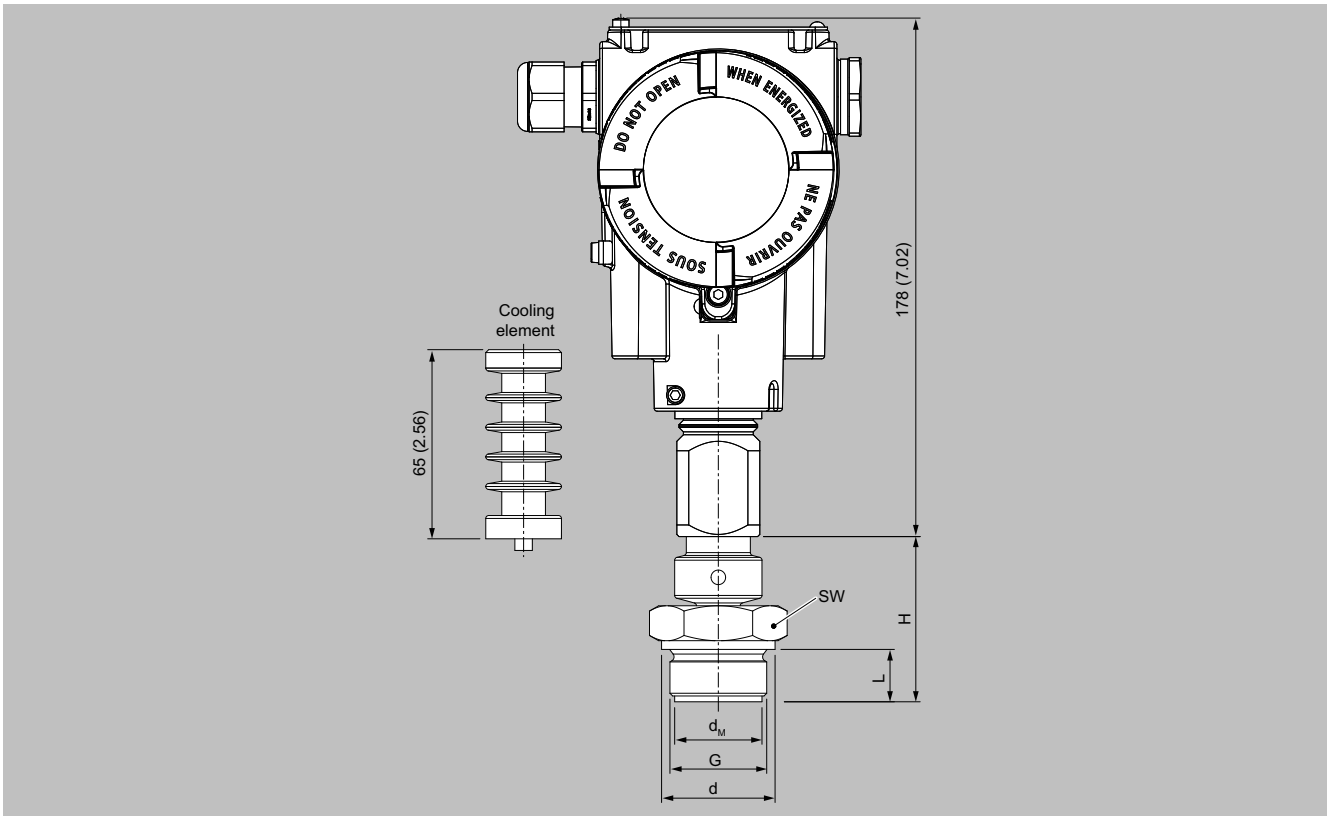
Options Add "-Z" to article number and specify order code.	Order code
Capillary connection	
Cooling element between transmitter and remote seal	**S08**
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**
Special design	
Welded filling hole	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text in mm)	**Y44**
Specification of process conditions[1]	
Ambient temperature range	
• +10 ... +50 °C (+50 ... +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" in the section "More information" under "Technical reference" for SITRANS P320/P420.

Technical specifications

SITRANS P320/P420 miniature diaphragm seals	
Measuring span when	
• G1B and 1" NPT	> 6 bar (> 87 psi)
• G1½B and 1½" NPT	> 2 bar (> 29 psi)
• G2B and 2" NPT	> 600 mbar (> 8.7 psi)
Filling liquid	• Silicone oil M5 • Food oil (FDA-listed) • Neobee M20 (FDA-listed)
Material	
• Main body	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819
• Diaphragm	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819
Maximum pressure	100% of the nominal pressure of the pressure transmitter, but a maximum of PN 400 (5802 psi) (depending on the seal used)
Temperature of use	As for pressure transmitter
Medium temperature range	As for pressure transmitter
Max. recommended medium temperature	150 °C (302 °F)
Weight	
• G1B and 1" NPT	Approx. 0.3 kg (approx. 0.66 lb)
• G1½B and 1½" NPT	Approx. 0.5 kg (approx. 1.10 lb)
• G2B and 2" NPT	Approx. 0.8 kg (approx. 1.76 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)

Dimensional drawings



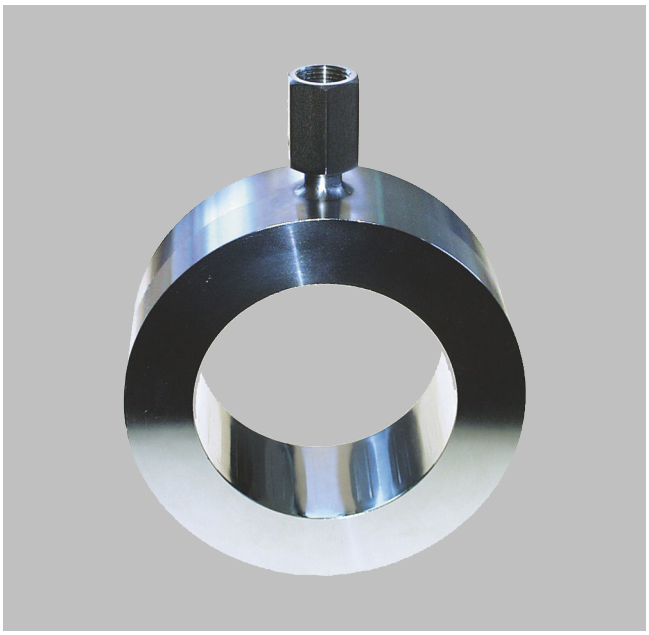
Diaphragm seal, miniature type, dimensions in mm (inch)

G	Ø d_M mm (inch)	Width across flats mm (inch)	Ø d mm (inch)	L mm (inch)	H mm (inch)
G1B	25 (0.98)	41 (1.61)	39 (1.53)	28 (1.1)	56 (2.21)
G1½B	40 (1.57)	55 (2.17)	60 (2.36)	30 (1.18)	50 (1.97)
G2B	50 (1.97)	60 (2.36)	70 (2.76)	30 (1.18)	63 (2.48)

G	Ø d_M mm (inch)	Width across flats mm (inch)	L mm (inch)	H mm (inch)
1" NPT	27 (1.06)	41 (1.61)	25 (0.98)	40 (1.57)
1½" NPT	34 (1.34)	55 (2.17)	26 (1.02)	45 (1.77)
2" NPT	46 (1.81)	60 (2.56)	26 (1.02)	45 (1.77)

d_M: Effective diaphragm diameter

Overview



Inline seals for flange-mounting

The inline seal is fully integrated into the process control. It is especially suitable for flowing and high-viscosity media.

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

Design

- Inline seals for flange-mounting (flange design) according to EN/ASME for SITRANS P320/420 pressure transmitters
  - For gauge and absolute pressure (only in connection with negative pressure service)
  - For differential pressure and flow
- Sealing surface according to EN 1092-1 or ASME B16.5
- Connection to the pressure transmitter directly or by means of a flexible capillary (max. 10 m long)
- See Technical specifications for details of materials used for the wetted parts
- Material used for the capillary, the protective jacket, the remote 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) vegetable oil or glycerin/water (not suitable for applications in negative pressure range).

Function

The measured pressure is transferred to the filling liquid by the diaphragm and enters the sample chamber of the pressure transmitter either directly or through the capillary. The filling fluid completely fills the inside of the diaphragm seal, the capillary and the sample chamber of the pressure transmitter so that it is free of gas.

Note:

A vacuum-resistant remote seal is recommended for low-pressure operation, including during commissioning (see ordering data).

Selection and ordering data

		Article No.												Order code		
Inline seals in sandwich design, direct mounting or with a flexible capillary connected with pressure transmitter																
SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit		**7MF0900-**														
SITRANS P320/P420 for differential pressure and flow 7FM03../7MF04.. to be ordered separately, scope of delivery: 2 units		**7MF0902-**														
		●	●	●	●	●	-	0	●	●	0			●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.																
Nominal diameter	**Nominal pressure**															
Process connection standard EN 1092-1																
DN 25	PN 6 ... 100	**0**	**B**	**P**												
DN 40	PN 6 ... 100	**0**	**D**	**P**												
DN 50	PN 6 ... 100	**0**	**E**	**P**												
DN 65	PN 6 ... 100	**0**	**F**	**P**												
DN 80	PN 6 ... 100	**0**	**G**	**P**												
DN 100	PN 6 ... 100	**0**	**H**	**P**												
DN 125	PN 6 ... 100	**0**	**J**	**P**												
Process connection standard ASME B16.5																
1 inch	Class 150 ... 2500	**1**	**K**	**X**												
1½ inches	Class 150 ... 2500	**1**	**L**	**X**												
2 inches	Class 150 ... 2500	**1**	**M**	**X**												
2½ inches	Class 150 ... 2500	**1**	**N**	**X**												
3 inches	Class 150 ... 2500	**1**	**P**	**X**												
4 inches	Class 150 ... 2500	**1**	**Q**	**X**												
5 inches	Class 150 ... 2500	**1**	**R**	**X**												
Different version, add order code and plain text.		**9**	**A**	**A**										**H**	**1**	**Y**
Transmitter connection																
Without capillary pipe, direct mount, straight connection (for gauge pressure transmitters)					**0**	**0**										
Without capillary pipe, direct mount, connection with 90° elbow (for gauge pressure transmitters)					**0**	**1**										
Connection via capillary Capillary length:																
1 m (38.37 inches)					**1**	**0**										
1.6 m (63 inches)					**1**	**1**										
2 m (78.7 inches)					**1**	**2**										
2.5 m (98.4 inches)					**1**	**3**										
3 m (118.1 inches)					**1**	**4**										
4 m (157.5 inches)					**1**	**5**										
5 m (196.9 inches)					**1**	**6**										
6 m (236.2 inches)					**1**	**7**										
7 m (275.6 inches)					**1**	**8**										
8 m (315 inches)					**2**	**0**										
9 m (354.3 inches)					**2**	**1**										
10 m (393.7 inches)					**2**	**2**										
11 m (433.1 inches); only for 7MF0902					**2**	**3**										
12 m (472.4 inches); only for 7MF0902					**2**	**4**										
13 m (511.811 inches); only for 7MF0902					**2**	**5**										
14 m (551.2 inches); only for 7MF0902					**2**	**6**										
15 m (590.6 inches); only for 7MF0902					**2**	**7**										
Other version, add order code and plain text					**9**	**8**								**L**	**1**	**Y**
Filling liquid																
Silicone oil M50									**B**							
High-temperature oil									**C**							
Silicone oil M5									**A**							
Food oil (FDA-listed)									**E**							
Halocarbon oil									**D**							
Neobee M20 (FDA listed)									**R**							
Other version, add order code and plain text									**Z**					**P**	**1**	**Y**
Material of wetted parts																
Stainless steel 316L										**A**						
Other version, add order code and plain text										**Z**				**Q**	**1**	**Y**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) acc. to IEC 62828-2	**C11**
Inspection certificate to EN 10204-3.1 for material of body and diaphragm	**C12**
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with wetted parts made of stainless steel 316 L and Hastelloy)	**C13**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil according to EN 10204-2.2	**C17**
Factory certificate functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (includes SIL Declaration of Conformity)	**C20**
Accessories	
Remote seal nameplate Attached, made of stainless steel, contains Article No. and order number of the remote seal	**D42**
Volume deflagration flame arrester (VDEF)	
• For gauge pressure and absolute pressure transmitters	**D61**
• For differential pressure and level transmitters	**D62**
Negative pressure service	
Negative pressure service	
• For gauge pressure and absolute pressure transmitters	**D81**
• For differential pressure transmitters	**D83**
Extended negative pressure service	
• For gauge pressure and absolute pressure transmitters	**D85**
• For differential pressure transmitters	**D88**
Country-specific approval	
CRN approval Canada (Canadian Registration Number)	**E60**
Note:	
If the order code E60 is selected, the option E60 must also be selected for the transmitter!	
General product approvals without explosion proof approvals	
Oil-free and grease-free cleaned version for oxygen application including certificate EN 10204-2.2 (only with filling liquid halocarbon oil max. temperature 60 °C and max. pressure 50 bar)	**E80**
Oil-free and grease-free cleaned version not for oxygen application, including certificate EN 10204-2.2	**E87**
Sealing surface	
Sealing surface smooth, form B2/EN 1092-1 or RFSF/ANSI 16.5 (only for wetted parts made of stainless steel 316L)	**M50**
Sealing surface groove according to EN 1092-1, form D (instead of sealing surface B1, only for wetted parts made of stainless steel 316L)	**M54**
Sealing surface RJF (groove) according to ASME B16.5 (instead of sealing surface RF 125 ... 250AO, only for wetted parts made of stainless steel 316L)	**M64**
Sealing surface with tongue to EN 1092-1, form C (for wetted parts made of stainless steel 316L only)	
• DN 25	**M70**
• DN 40	**M71**
• DN 50	**M72**
• DN 80	**M73**
• DN 100	**M74**
• DN 125	**M75**
Sealing surface with spigot according to EN 1092-1, form E (for wetted parts made of stainless steel 316L only)	
• DN 25	**M76**
• DN 40	**M77**
• DN 50	**M78**
• DN 80	**M79**
• DN 100	**M80**
• DN 125	**M81**
Sealing surface female face according to EN 1092-1, form F (only for wetted parts made of stainless steel 316L)	
• DN 25	**M82**
• DN 40	**M83**
• DN 50	**M84**
• DN 80	**M85**
• DN 100	**M86**
• DN 125	**M87**
Capillary connection	
For 7MF0900	
• Single-side mounted at differential pressure transmitter at high side	**S03**
• Single-side mounted at differential pressure transmitter at low side	**S04**
• Cooling element	**S08**
Capillary coating	
PE protective tube	
• 1 m (38.37 inches)	**S10**
• 1.6 m (63 inches)	**S11**
• 2 m (78.7 inches)	**S12**
• 2.5 m (98.4 inches)	**S13**
• 3 m (118.1 inches)	**S14**
• 4 m (157.5 inches)	**S15**
• 5 m (196.9 inches)	**S16**
• 6 m (236.2 inches)	**S17**
• 7 m (275.6 inches)	**S18**
• 8 m (315 inches)	**S19**
• 9 m (354.3 inches)	**S20**
• 10 m (393.7 inches)	**S21**
• 11 m (433.1 inches); only for 7MF0902	**S22**
• 12 m (472.4 inches); only for 7MF0902	**S23**
• 13 m (511.811 inches); only for 7MF0902	**S24**
• 14 m (551.2 inches); only for 7MF0902	**S25**
• 15 m (590.6 inches); only for 7MF0902	**S26**
PTFE protective tube	
• 1 m (38.37 inches)	**S40**
• 1.6 m (63 inches)	**S41**
• 2 m (78.7 inches)	**S42**
• 2.5 m (98.4 inches)	**S43**

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
• 3 m (118.1 inches)	**S44**
• 4 m (157.5 inches)	**S45**
• 5 m (196.9 inches)	**S46**
• 6 m (236.2 inches)	**S47**
• 7 m (275.6 inches)	**S48**
• 8 m (315 inches)	**S49**
• 9 m (354.3 inches)	**S50**
• 10 m (393.7 inches)	**S51**
• 11 m (433.1 inches); only for 7MF0902	**S52**
• 12 m (472.4 inches); only for 7MF0902	**S53**
• 13 m (511.811 inches); only for 7MF0902	**S54**
• 14 m (551.2 inches); only for 7MF0902	**S55**
• 15 m (590.6 inches); only for 7MF0902	**S56**
PVC protective tube	
• 1 m (38.37 inches)	**S70**
• 1.6 m (63 inches)	**S71**
• 2 m (78.7 inches)	**S72**
• 2.5 m (98.4 inches)	**S73**
• 3 m (118.1 inches)	**S74**
• 4 m (157.5 inches)	**S75**
• 5 m (196.9 inches)	**S76**
• 6 m (236.2 inches)	**S77**
• 7 m (275.6 inches)	**S78**
• 8 m (315 inches)	**S79**

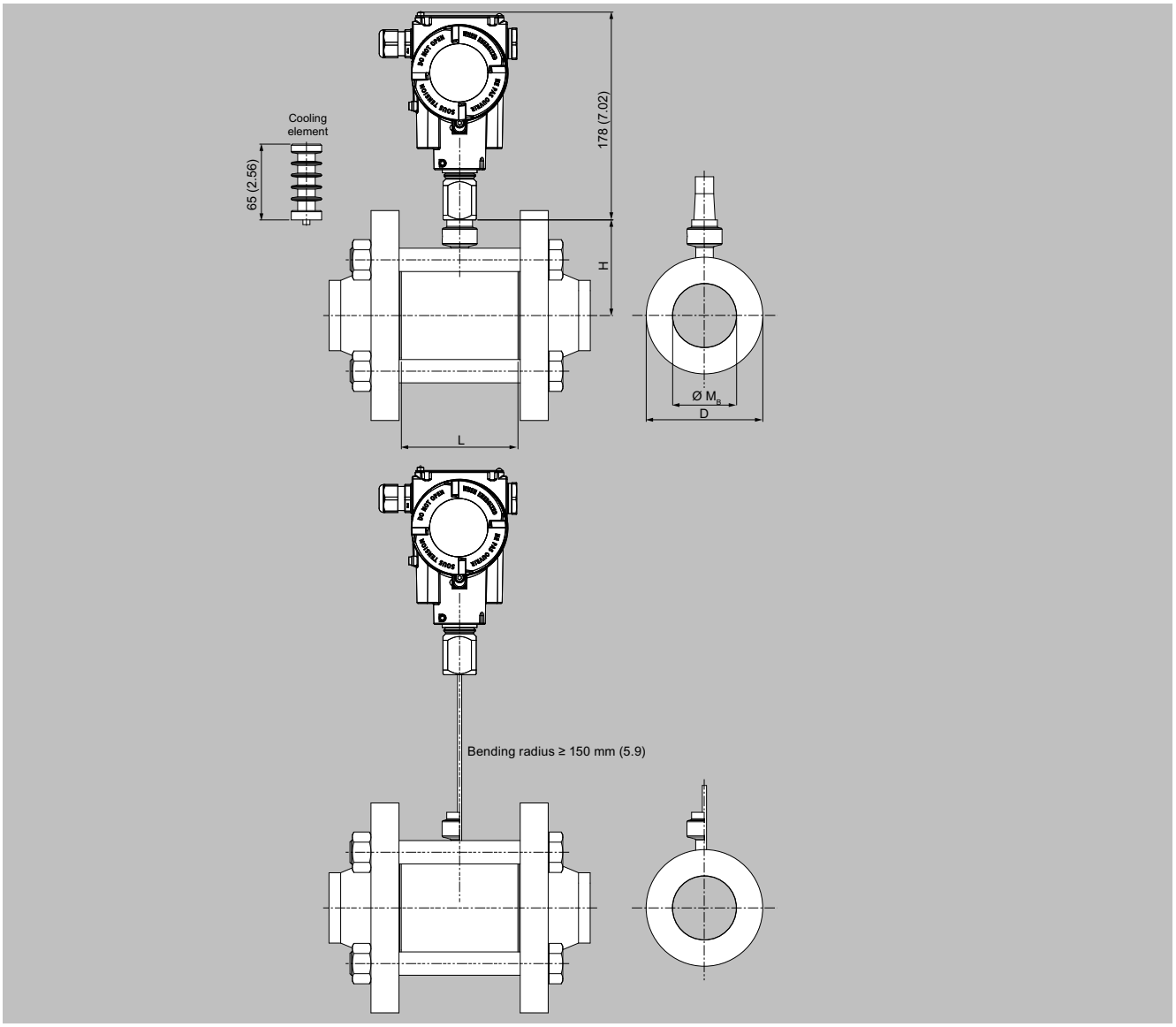
Options Add "-Z" to article number and specify order code.	Order code
• 9 m (354.3 inches)	**S80**
• 10 m (393.7 inches)	**S81**
• 11 m (433.1 inches); only for 7MF0902	**S82**
• 12 m (472.4 inches); only for 7MF0902	**S83**
• 13 m (511.811 inches); only for 7MF0902	**S84**
• 14 m (551.2 inches); only for 7MF0902	**S85**
• 15 m (590.6 inches); only for 7MF0902	**S86**
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**
Special design	
Welded filling holes	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text in mm)	**Y44**
Specification of process conditions[1)]	
Ambient temperature range	
• +10 ... +50 °C (+50 ... +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" in the section "More information" under "Technical reference" for SITRANS P320/P420.

Technical specifications

SITRANS P320/P420 inline seals in sandwich design	
Nominal diameter	Nominal pressure
Standard of process connection EN 1092-1	
• DN 25/40/50/65/80/100/125	PN 6 ... PN 100
Standard of process connection ASME B16.5	
• 1, 1½, 2, 2½, 3, 4, 5 inch	Class 150 ... Class 2500
Process connection	Flange according to EN 1092-1 or ASME B 16.5
Sealing surface	• For stainless steel mat. no. 1.4404/316L according to EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA • For the other materials according to EN 1092-1, form B2 or ASME B16.5 RFSF
Materials	
• Main body	Stainless steel, mat. no. 1.4404/316L
• Diaphragm	Stainless steel, mat. no. 1.4404/316L
• Wetted parts	Stainless steel, mat. no. 1.4404/316L
• Capillary	Stainless steel, mat. no. 1.4571/316Ti (with option W01) or mat. no. 1.4301/304
• Sheath	Flexible spiral coiled tube made of stainless steel, mat. no. 1.4404/316L
Capillary	
• Length	≤ 10 m (32.8 ft)
• Inside diameter	≤ 1.3 mm (0.051 inch)
• Minimum bending radius	150 mm (5.9 inches)
Filling liquid	• Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil • Food oil (FDA-listed) • Neobee M20 (FDA-listed)
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal. **More information** In the technical specifications of the pressure transmitters and in the sections in the technical reference of the remote seals: • "Function" - "Technical specifications of the remote seal filling liquids" • "More information" - "Specification of process conditions for selection and ordering data"
Weight	Approx. 4 kg (8.82 lbs)
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 the requirements of Article 4, Paragraph 1 (annex 1); assigned to category III, conformity evaluation module H by the TÜV Nord

Dimensional drawings



Inline seal for flange-mounting, installed on SITRANS P320/420 pressure transmitter, dimensions in mm (inch)

Connection according to EN 1092-1

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

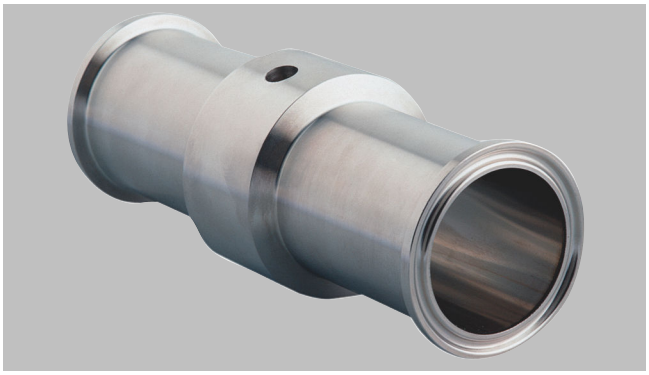
Dimensional drawings (continued)

Connection according to ASME B16.5

Nominal diameter	Class	D mm (inch)	Mb mm (inch)	L mm (inch)	H mm (inch)
1"	150 ... 2500	50 (1.97)	28.5 (1.12)	60 (2.36)	72 (2.83)
1½"		73.5 (2.89)	43.1 (1.70)	60 (2.36)	84 (3.31)
2"		91.9 (3.62)	54.5 (2.15)	60 (2.36)	93 (3.66)
2½"		104.6 (4.12)	70.3 (2.77)	60 (2.36)	99 (3.9)
3"		127 (5)	82.5 (3.25)	60 (2.36)	110 (4.33)
4"		157.2 (6.19)	107.1 (4.22)	60 (2.36)	125 (4.92)
5"		188 (7.4)	127 (5)	60 (2.36)	141 (5.55)

Overview

Quick-release inline seal, according to DIN 11851 with screwed connector



Quick-release inline seal, with clamp connection

Quick-release inline seals are available for pressure transmitters of the SITRANS P320/420 series.

Application

The quick-release inline seal is a special design for flowing and high-viscosity media. Because it is completely integrated in the process line, there are no turbulences, dead spaces or other obstacles in the flow direction. The medium flows almost unhindered through the inline seal and causes self-cleaning of the sample chamber. The inline seal is also piggable.

Design

The quick-release lock is available in two versions:

- DIN 11851 with threaded socket
- Clamp connection

The inline seal is connected to the pressure transmitter either directly or via a capillary tube.

Function

The measured pressure is transferred to the filling liquid by the measuring diaphragm located around the circumference inside the inline seal and enters the sample chamber of the pressure transmitter through the capillary. The filling fluid completely fills the inside of the inline seal, the capillary and the sample chamber of the pressure transmitter so that it is free of gas.

Note:

A vacuum-resistant remote seal is recommended for low-pressure operation, including during commissioning (see ordering data).

Selection and ordering data

Inline seal with quick-release Flange type design, with flexible capillary pipe or direct mounting on pressure transmitter SITRANS P320/P420 or SITRANS P300 for gauge and absolute pressure (only together with negative pressure service), 7MF03../7MF04../7MF802 is to be ordered separately, scope of delivery: 1 unit		Article No. 7MF0930-												Order code		
		●	●	●	●	●	-	0	●	A	0			●	●	●
Click the article number for online configuration in the PIA Life Cycle Portal.																
Nominal diameter	**Nominal pressure**															
Process connection standard DIN 11851 with thread																
DN 25	PN 40	1	B	M												
DN 32	PN 40	1	C	D												
DN 40	PN 40	1	D	M												
DN 50	PN 25	1	E	K												
DN 65	PN 25	1	F	L												
DN 80	PN 25	1	G	K												
Process connection standard Clamp ISO 2852																
DN 25	PN 16	2	B	K												
DN 38	PN 16	2	C	Q												
DN 51	PN 16	2	F	H												
DN 63.5	PN 10	2	F	J												
DN 76.1	PN 10	2	G	J												
Process connection standard Clamp DIN 32676, schedule C																
DN 1 inch	PN 25	3	K	V												
DN 1½ inch	PN 25	3	L	V												
DN 2 inch	PN 16	3	M	V												
DN 2½ inch	PN 16	3	N	V												
DN 3 inch	PN 10	3	P	V												
Process connection standard Clamp DIN 32676, schedule A metric																
DN 25	PN 25	4	B	L												
DN 32	PN 25	4	C	C												
DN 40	PN 25	4	D	L												
DN 50	PN 16	4	E	J												
DN 65	PN 10	4	F	K												
Other version Add order code and plain text.		9	A	A										H	1	Y
Transmitter connection																
Without capillary pipe, direct mount, straight connection (for gauge pressure transmitters)					0	0										
Connection via capillary Capillary length:																
1 m (38.37 inches)					1	0										
1.6 m (63 inches)					1	1										
2 m (78.7 inches)					1	2										
2.5 m (98.4 inches)					1	3										
3 m (118.1 inches)					1	4										
4 m (157.5 inches)					1	5										
5 m (196.9 inches)					1	6										
6 m (236.2 inches)					1	7										
7 m (275.6 inches)					1	8										
8 m (315 inches)					2	0										
9 m (354.3 inches)					2	1										
10 m (393.7 inches)					2	2										
Other version, add order code and plain text					9	8								L	1	Y
Filling liquid																
Food oil (FDA-listed)									E							
Neobee M20 (FDA listed)									R							
Other version, add order code and plain text									Z					P	1	Y

Selection and ordering data (continued)

Options Add "-Z" to article number and specify order code.	Order code
Factory certificates	
Quality inspection certificate (5-point characteristic curve test) acc. to IEC 62828-2	**C11**
Inspection certificate to EN 10204-3.1 for material of body and diaphragm	**C12**
Inspection certificate according to EN 10204-3.1, PMI test of pressure containing and wetted parts	**C15**
Certificate of FDA-approved fill oil according to EN 10204-2.2	**C17**
Factory certificate functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511 (includes SIL Declaration of Conformity)	**C20**
Accessories	
Remote seal nameplate Attached, made of stainless steel, contains Article No. and order number of the remote seal	**D42**
Negative pressure service	
Negative pressure service for gauge pressure and absolute pressure transmitters	**D81**
Extended negative pressure service for gauge pressure and absolute pressure transmitters	**D85**
Country-specific approval	
CRN approval Canada (Canadian Registration Number)	**E60**
Note:	
If the order code E60 is selected, the option E60 must also be selected for the transmitter!	
Capillary connection	
Single-side mounted at differential pressure transmitter at high side	**S03**
Single-side mounted at differential pressure transmitter at low side	**S04**
Cooling element	**S08**
Capillary coating	
PE protective tube	
• 1 m (38.37 inches)	**S10**
• 1.6 m (63 inches)	**S11**
• 2 m (78.7 inches)	**S12**
• 2.5 m (98.4 inches)	**S13**
• 3 m (118.1 inches)	**S14**
• 4 m (157.5 inches)	**S15**
• 5 m (196.9 inches)	**S16**
• 6 m (236.2 inches)	**S17**
• 7 m (275.6 inches)	**S18**
• 8 m (315 inches)	**S19**
• 9 m (354.3 inches)	**S20**
• 10 m (393.7 inches)	**S21**
PTFE protective tube	
• 1 m (38.37 inches)	**S40**
• 1.6 m (63 inches)	**S41**
• 2 m (78.7 inches)	**S42**

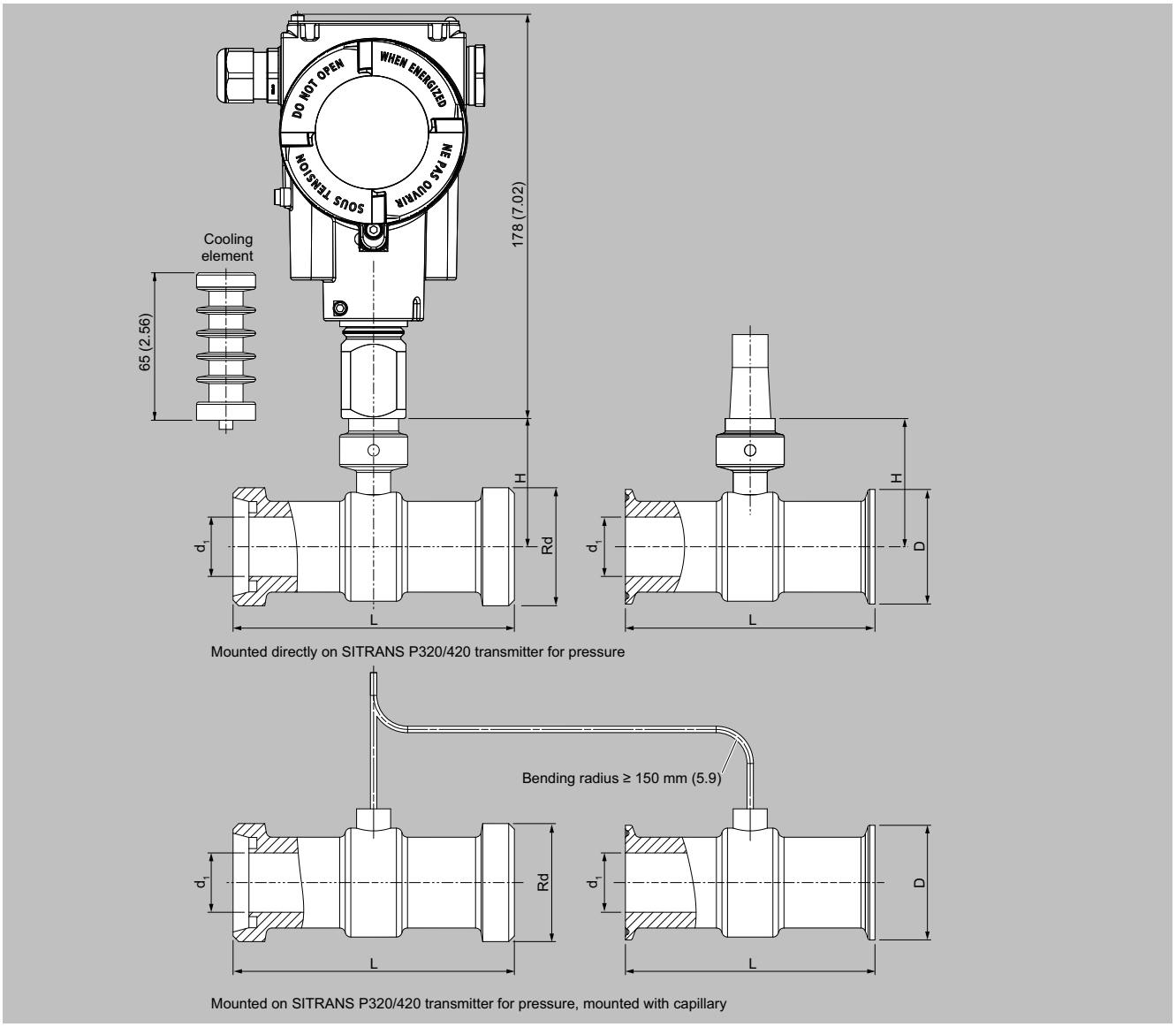
Options Add "-Z" to article number and specify order code.	Order code
• 2.5 m (98.4 inches)	**S43**
• 3 m (118.1 inches)	**S44**
• 4 m (157.5 inches)	**S45**
• 5 m (196.9 inches)	**S46**
• 6 m (236.2 inches)	**S47**
• 7 m (275.6 inches)	**S48**
• 8 m (315 inches)	**S49**
• 9 m (354.3 inches)	**S50**
• 10 m (393.7 inches)	**S51**
PVC protective tube	
• 1 m (38.37 inches)	**S70**
• 1.6 m (63 inches)	**S71**
• 2 m (78.7 inches)	**S72**
• 2.5 m (98.4 inches)	**S73**
• 3 m (118.1 inches)	**S74**
• 4 m (157.5 inches)	**S75**
• 5 m (196.9 inches)	**S76**
• 6 m (236.2 inches)	**S77**
• 7 m (275.6 inches)	**S78**
• 8 m (315 inches)	**S79**
• 9 m (354.3 inches)	**S80**
• 10 m (393.7 inches)	**S81**
Desired remote seal supplier	
Note:	
If the remote seal is to be supplied only by one of the suppliers specified below, this option needs to be selected. For orders without this option, the remote seal supplier is selected through the dispatch center.	
Company WIKA, Klingenberg	**W01**
Company Labom, Hude	**W02**
Special design	
Welded filling holes	**X01**
Customer-specific tube length	
Customer-specific tube length (specify in plain text in mm)	**Y44**
Specification of process conditions[1)]	
Ambient temperature range	
+10 ... +50 °C (+50 ... +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" in the section "More information" under "Technical reference" for SITRANS P320/P420.

Technical specifications

SITRANS P320/P420 quick-release inline seals		
Connection	***Nominal diameter***	***Nominal pressure***
• Process connection standard DIN 11851 with thread	DN 25/32/40	PN 40
	DN 50/65/80	PN 25
• Standard of process connection clamp ISO 2852	DN 25/38/51	PN 16
	DN 63.5/76.1	PN 10
• Standard of process connection clamp DIN 32676, schedule C Tri-Clamp	1, 1½ inch	PN 25
	2, 2½ inch	PN 16
	3 inches	PN 10
• Process connection standard clamp DIN 32676, schedule A metric	DN 25/32/40	PN 25
	DN 50	PN 16
	DN 65	PN 10
Material		
• Main body	Stainless steel, mat. no. 1.4404/316L	
• Capillary	Stainless steel, mat. no. 1.4571/316Ti (with option W01) or mat. no. 1.4301/304	
• Diaphragm	Stainless steel, mat. no. 1.4404/316L	
Capillary		
• Length	≤ 10 m (32.8 ft)	
• Inside diameter	≤ 1.3 mm (0.051 inch)	
• Minimum bending radius	150 mm (5.9 inches)	
• Sheath	Flexible spiral coiled tube made of stainless steel, mat. no. 1.4404/316L	
Filling liquid	• Food oil (FDA-listed)	
	• Neobee M20 (FDA-listed)	
Permissible ambient temperature	Dependent on the pressure transmitter and the filling liquid of the remote seal. **More information** In the technical specifications of the pressure transmitters and in the sections in the technical reference of the remote seals: • "Function" - "Technical specifications of the remote seal filling liquids" • "More information" - "Specification of process conditions for selection and ordering data"	
Weight	Approx. 4 kg (approx. 8.82 lbs)	
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 the requirements of Article 4, Paragraph 1 (annex 1); assigned to category III, conformity evaluation module H by the TÜV Nord	
EHEDG	Complies with EHEDG recommendations	

Dimensional drawings



Quick-release inline seal, dimensions in mm (inch)

Dimensional drawings (continued)

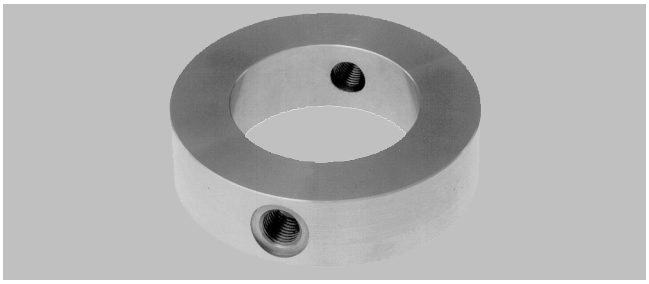
Inline seals for pipes according to EN 10357 (DIN 11851)

				Food connections DIN 11851		DIN 32676	
	Length	Inside diameter	Connection height	Nominal pressure	Round thread connection according to DIN 11851	Nominal pressure	Clamp connection according to DIN 32676
Nominal diameter	L [mm]	di (mm)	h (mm)		Thread radius		D (mm)
DN 10	96	10	27.5	PN 40	28 × 1/8"	PN 16	34
DN 15	150	16	12	PN 40	34 × 1/8"	PN 16	34
DN 25	110	26	21	PN 40	52 × 1/6"	PN 16	50.5
DN 32	110	32	26	PN 40	58 × 1/6"	PN 16	50.5
DN 40	110	38	28.5	PN 40	65 × 1/6"	PN 16	50.5
DN 50	110	50	34	PN 25	78 × 1/6"	PN 16	64
DN 65	110	66	42	PN 25	95 × 1/6"	PN 10	91
DN 80	60	81	47.5	PN 25	110 × 1/4"	PN 10	106
DN 100	60	100	60	PN 25	130 × 1/4"	PN 10	119

Inline seals for pipes according to BS 4825 Part 3 and pipe outer diameter (suitable for pipes according to ASME-BPE)

Nominal diameter					Food connections IDF according to ISO 2853		Clamp connection according to ISO 2852	
		Length	Inside diameter	Connection height	Nominal pressure	IDF thread according to ISO 2853	Nominal pressure	Clamp connection according to ISO 2852
Inch	mm	L [mm]	di (mm)	h (mm)		IDF thread (Tr)		D (mm)
1	25.4	110	22.2	21	PN 40	37 × 3.175	PN 16	50.5
1½	38	110	34.8	28.5	PN 40	50 × 3.175	PN 16	50.5
2	51	110	47.8	34	PN 25	64 × 3.175	PN 16	64
1½	63.5	110	60.3	38	PN 25	77.5 × 3.175	PN 16	77.5
3	76.1	60	72.9	44.5	PN 25	91 × 3.175	PN 10	91
4	101.6	60	97.6	59.5	PN 25	118 × 3.175	PN 10	119

Overview



Flushing rings are required for remote seals in flange and sandwich design (article numbers 7MF0800 ... 7MF0814) when the medium has a tendency to form deposits or blockages due to the process conditions and the geometry of the connection.

The ferrule is clamped in between the process flange and the remote seal.

Due to the lateral flushing holes, particles accumulated in front of the membrane can be washed away and the pressure space can be vented. Different nominal diameters and forms enable adaption to the relevant process flange.

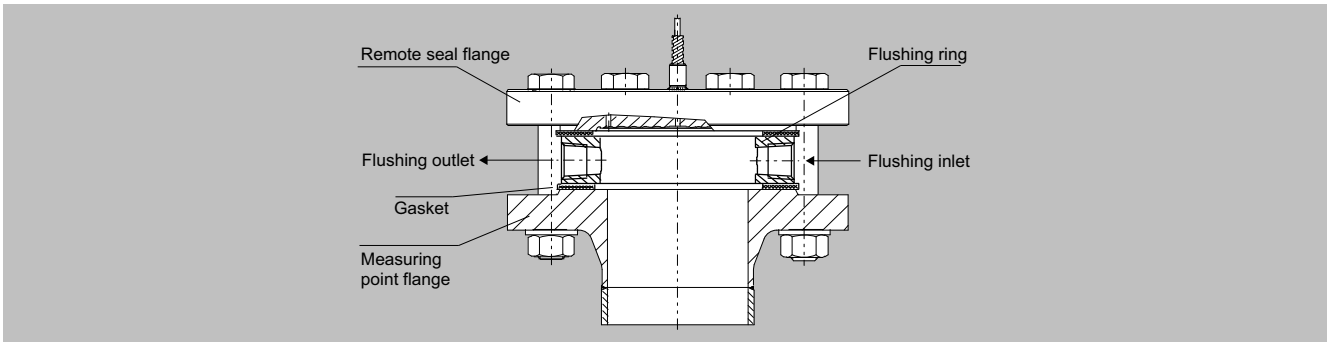
Process connection

For flanges according to EN and ASME:
DN 50, 80, 100, 125; PN 16 ... 100 or
DN 2 inch, 3 inch, 4 inch, 5 inch; Class 150 ... 600

Standard version

Material: CrNi steel, mat. no. 1.4404/316L
Sealing surfaces and flushing holes: See ordering data

Design



Example of installation

Selection and ordering data

Flushing ring For remote seals 7MF0800 to 7MF0814		Article No. 7MF4925- 1 ● ● ● ●	Order code ● ● ●
Click the article number for online configuration in the PIA Life Cycle Portal.			
Nominal diameter	**Nominal pressure**		
DN 50	PN 16 ... PN 100	A	
DN 80	PN 16 ... PN 100	B	
DN 100	PN 16 ... PN 100	C	
DN 125	PN 16 ... PN 100	D	
2 inches	Class 150 ... 600	G	
3 inches	Class 150 ... 600	H	
4 inches	Class 150 ... 600	J	
5 inches	Class 150 ... 600	K	
Only for RJF ring groove, 7MF4925-1*R....:			
2 inches	Class 150	N R	
3 inches	Class 150	P R	
4 inches	Class 150	Q R	
5 inches	Class 150	R R	
2 inches	Class 300 ... 600	U R	
3 inches	Class 300 ... 600	V R	
4 inches	Class 300 ... 600	W R	
5 inches	Class 300 ... 600	X R	
Other version, add Order Code and plain text: Nominal diameter ...; Nominal pressure ...		Z	J 1 Y
Sealing surface			
EN 1092-1			
• Form B1		A	
• Form B2		C	
• Form C / Form C		D	
• Form D / Form C		E	
• Form D / Form D		F	
• Form E		G	
• Form F		H	
ASME B16.5			
• RF 125 ... 250 AA		M	
• RFSF		Q	
• RJF ring groove		R	
Other version, add Order Code and plain text: Sealing surface ...		Z	K 1 Y
Flushing holes (2 units)			
Female thread G¼		1	
Female thread G½		2	
Female thread ¼-18 NPT		3	
Female thread ½-14 NPT		4	
Material			
Stainless steel mat. no. 1.4404/316L		0	
Other version, add Order Code and plain text: Material ...		9	M 1 Y

Options Add "-Z" to article number and specify order code.	Order code
Inspection certificate according to EN 10204-3.1	**C12**

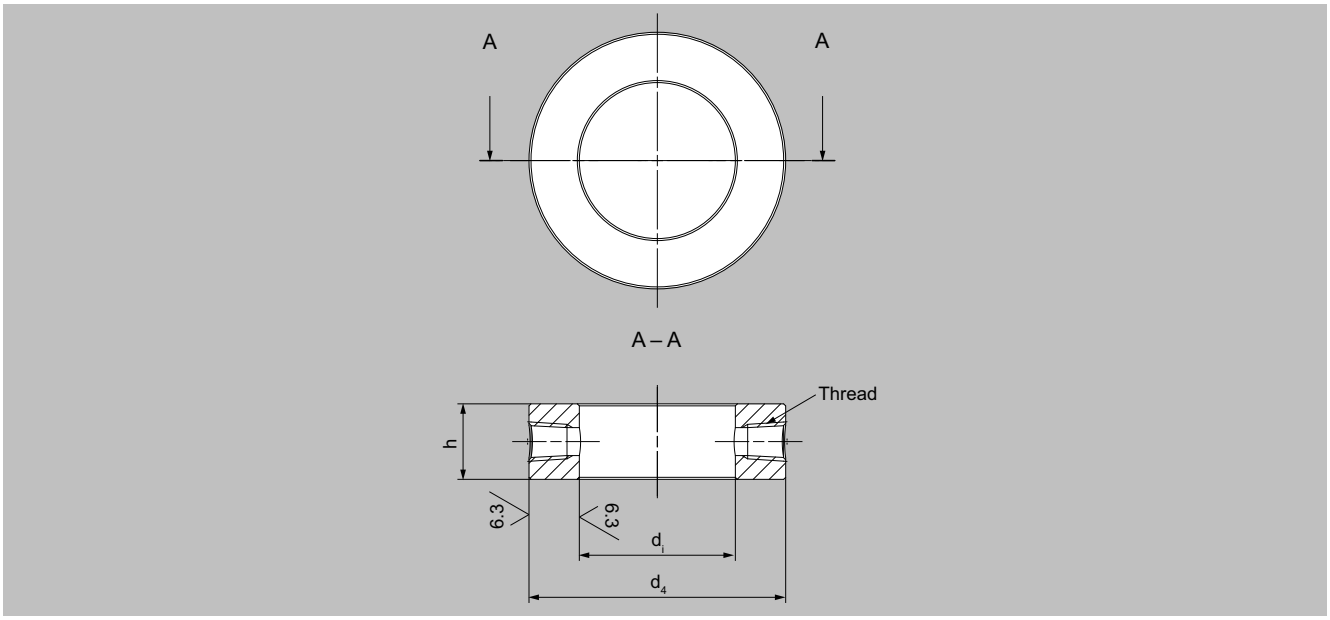
Technical specifications

SITRANS P320/P420 flushing ring for diaphragm seals	
Nominal diameter	Nominal pressure
• DN 50	PN 16 ... PN 100
• DN 80	PN 16 ... PN 100
• DN 100	PN 16 ... PN 100
• DN 125	PN 16 ... PN 100
• 2 inches	Class 150 ... Class 600
• 3 inches	Class 150 ... Class 600
• 4 inches	Class 150 ... Class 600
• 5 inches	Class 150 ... Class 600
Sealing surface	
• According to EN 1092-1	• Form B1 • Form B2 • Form D/Form D • Form C/Form C • Form D/Form C • Form E • Form F
• According to ASME B16.5	• RF 125 ... 250 AA • RFSF • RJF ring groove
Flushing holes (2 units), female thread:	• G¼ • G½ • ¼-18 NPT • ½-14 NPT
Material	Stainless steel 1.4404/316L

Dimensional drawings

Connection according to EN 1092-1

Form B1 and form B2

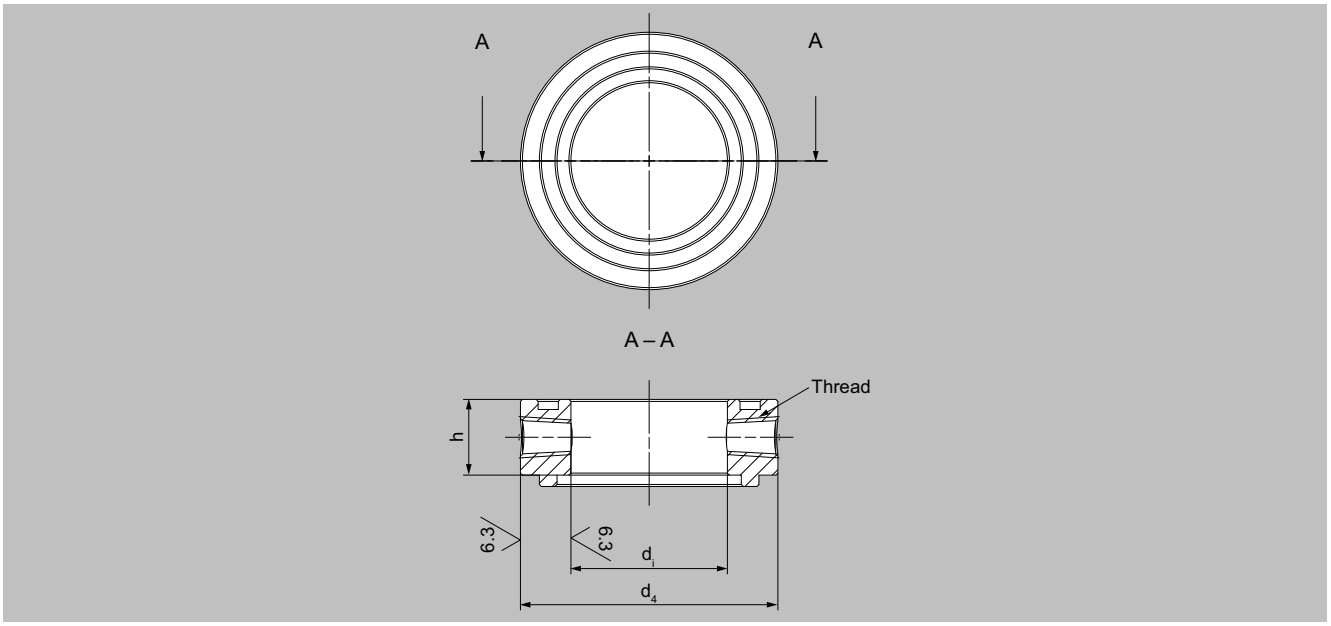


Flushing ring; sealing surface (EN 1092-1), form B1 and form B2

Nominal diameter	PN bar	Thread	d_4 Ø in mm (inch)	d_i Ø in mm (inch)	h Ø in mm (inch)	Weight kg (lb)
DN 50	16 ... 100	¼ NPT	102 (4.02)	62 (2.44)	30 (1.18)	1.24 (2.73)
DN 80	16 ... 100	¼ NPT	138 (5.43)	92 (3.62)	30 (1.18)	1.99 (4.39)
DN 100	16 ... 100	¼ NPT	162 (6.38)	92 (3.62)	30 (1.18)	3.35 (7.39)
DN 125	16 ... 100	¼ NPT	188 (7.40)	132 (5.2)	30 (1.18)	3.38 (7.45)
DN 50	16 ... 100	½ NPT	102 (4.02)	62 (2.44)	30 (1.18)	1.24 (2.73)
DN 80	16 ... 100	½ NPT	138 (5.43)	92 (3.62)	30 (1.18)	1.99 (4.39)
DN 100	16 ... 100	½ NPT	162 (6.38)	92 (3.62)	30 (1.18)	3.35 (7.39)
DN 125	16 ... 100	½ NPT	188 (7.40)	132 (5.2)	30 (1.18)	3.38 (7.45)

Dimensional drawings (continued)

Form D / Form C

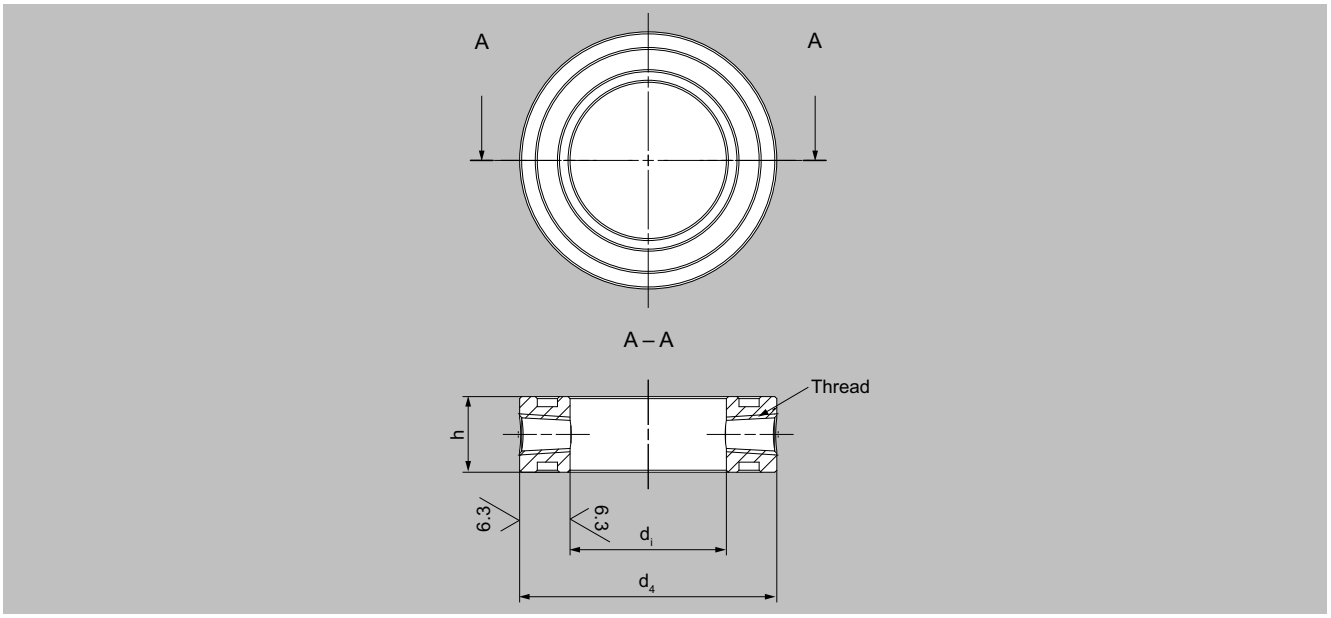


Flushing ring; sealing surface (EN 1092-1), form D / form C

Nominal diameter	PN bar	Thread	d_4 Ø in mm (inch)	d_i Ø in mm (inch)	h Ø in mm (inch)	Weight kg (lb)
DN 50	16 ... 100	¼ NPT	102 (4.02)	62 (2.44)	35.5 (1.40)	1.46 (3.22)
DN 80	16 ... 100	¼ NPT	138 (5.43)	92 (3.62)	35.5 (1.40)	2.36 (5.2)
DN 100	16 ... 100	¼ NPT	162 (6.38)	92 (3.62)	35.5 (1.40)	3.96 (8.73)
DN 125	16 ... 100	¼ NPT	188 (7.40)	132 (5.2)	35.5 (1.40)	4.00 (8.82)
DN 50	16 ... 100	½ NPT	102 (4.02)	62 (2.44)	40.5 (1.595)	1.67 (3.68)
DN 80	16 ... 100	½ NPT	138 (5.43)	92 (3.62)	40.5 (1.595)	2.69 (5.93)
DN 100	16 ... 100	½ NPT	162 (6.38)	92 (3.62)	40.5 (1.595)	4.52 (9.97)
DN 125	16 ... 100	½ NPT	188 (7.40)	132 (5.2)	40.5 (1.595)	4.56 (10.05)

Dimensional drawings (continued)

Form D / Form D

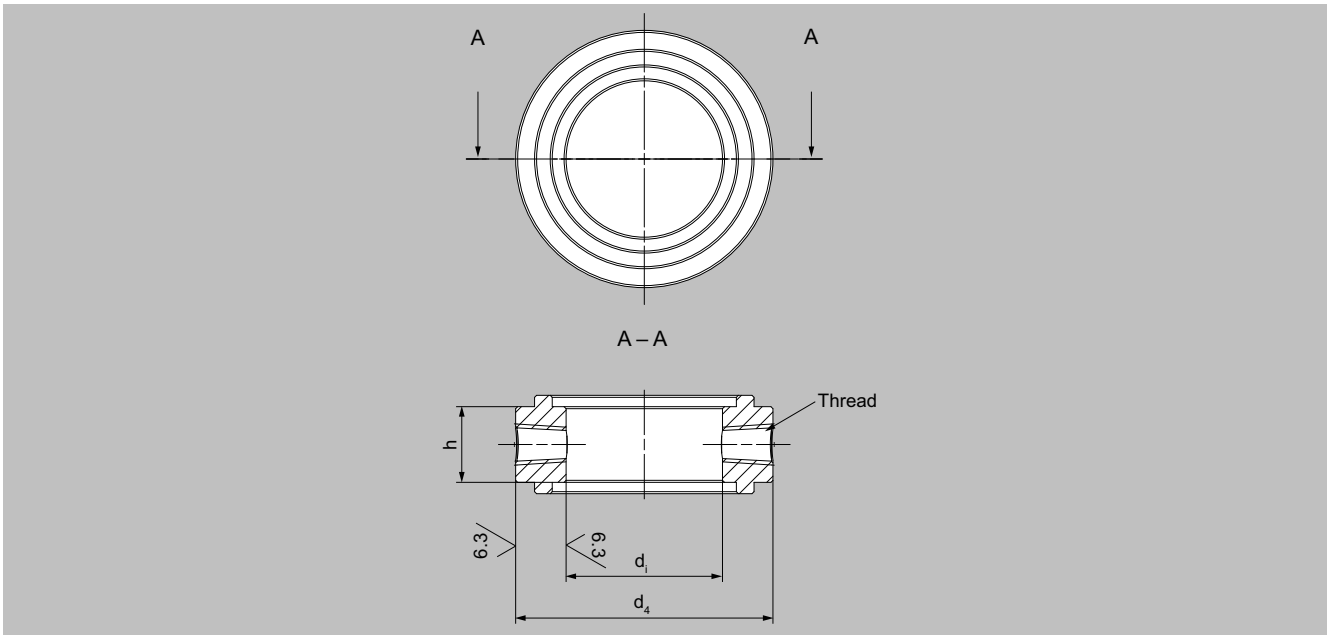


Flushing ring; sealing surface (EN 1092-1), form D/form D

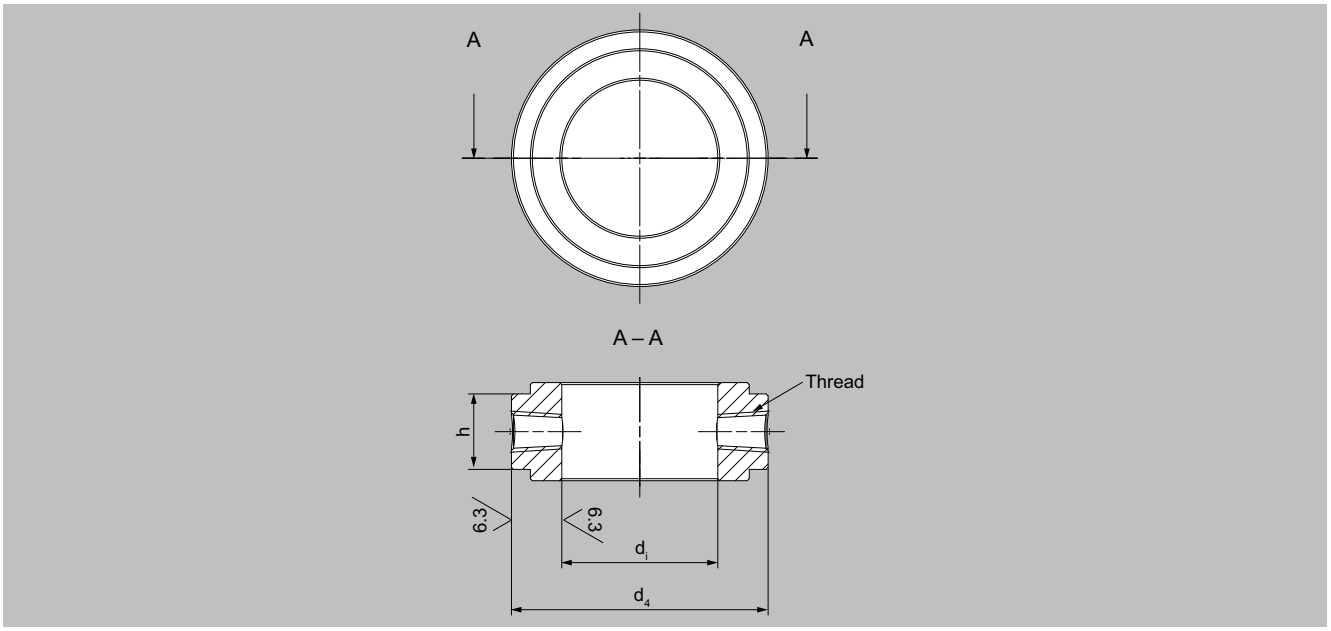
Nominal diameter	PN bar	Thread	d_4 Ø in mm (inch)	d_i Ø in mm (inch)	h Ø in mm (inch)	Weight kg (lb)
DN 50	16 ... 100	¼ NPT	102 (4.02)	62 (2.44)	40 (1.58)	1.65 (3.64)
DN 80	16 ... 100	¼ NPT	138 (5.43)	92 (3.62)	40 (1.58)	2.66 (5.86)
DN 100	16 ... 100	¼ NPT	162 (6.38)	92 (3.62)	40 (1.58)	4.47 (9.86)
DN 125	16 ... 100	¼ NPT	188 (7.40)	132 (5.2)	40 (1.58)	4.50 (9.92)
DN 50	16 ... 100	½ NPT	102 (4.02)	62 (2.44)	40 (1.58)	1.65 (3.64)
DN 80	16 ... 100	½ NPT	138 (5.43)	92 (3.62)	40 (1.58)	2.66 (5.86)
DN 100	16 ... 100	½ NPT	162 (6.38)	92 (3.62)	40 (1.58)	4.47 (9.86)
DN 125	16 ... 100	½ NPT	188 (7.40)	132 (5.2)	40 (1.58)	4.50 (9.92)

Dimensional drawings (continued)

Form C / form C and form E



Flushing ring; sealing surface (EN 1092-1), form C / form C

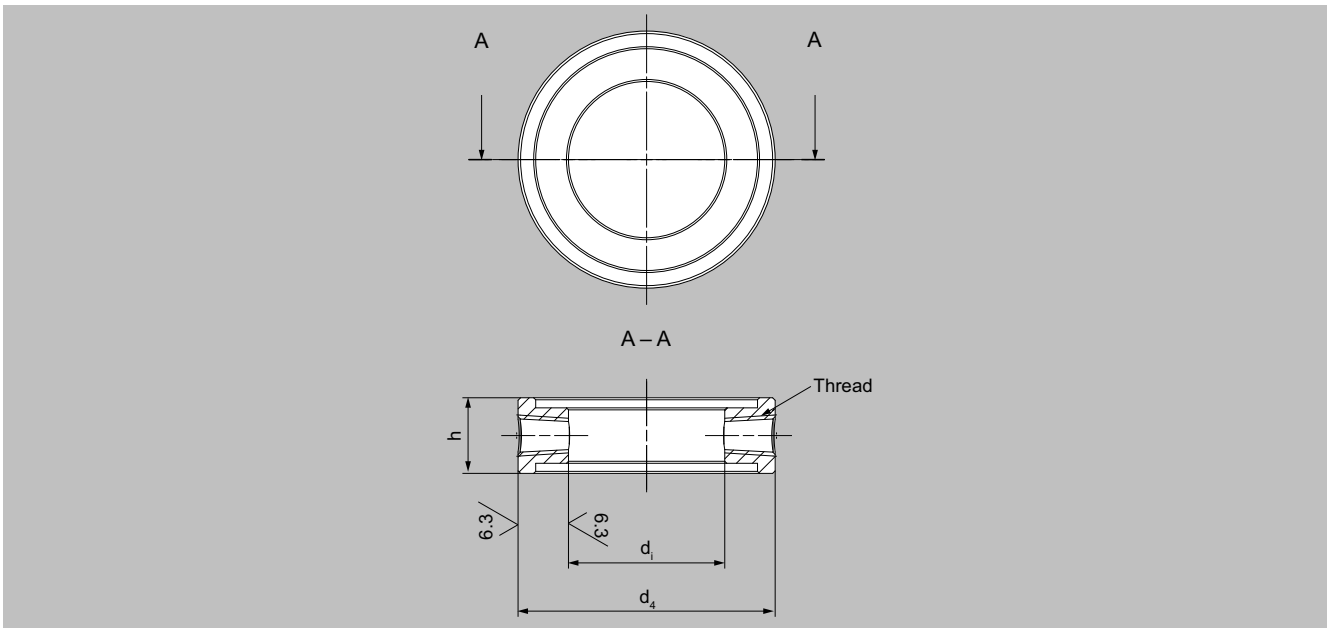


Flushing ring; sealing surface (EN 1092-1), form E

Dimensional drawings (continued)

Nominal diameter	PN bar	Thread	d_4 Ø in mm (inch)	d_i Ø in mm (inch)	h Ø in mm (inch)	x Ø in mm (inch)	f3 Ø in mm (inch)	Weight kg (lb)
DN 50	16 ... 100	¼ NPT	102 (4.02)	62 (2.44)	31 (1.22)	87 (3.43)	4.5 (0.18)	1.49 (3.28)
DN 80	16 ... 100	¼ NPT	138 (5.43)	92 (3.62)	31 (1.22)	120 (4.72)	4.5 (0.18)	2.40 (5.29)
DN 100	16 ... 100	¼ NPT	162 (6.38)	92 (3.62)	30 (1.18)	149 (5.87)	5 (0.2)	4.21 (9.28)
DN 125	16 ... 100	¼ NPT	188 (7.40)	132 (5.2)	30 (1.18)	175 (6.89)	5 (0.2)	4.21 (9.28)
DN 50	16 ... 100	½ NPT	102 (4.02)	62 (2.44)	31 (1.22)	87 (3.43)	4.5 (0.18)	1.49 (3.28)
DN 80	16 ... 100	½ NPT	138 (5.43)	92 (3.62)	31 (1.22)	120 (4.72)	4.5 (0.18)	2.40 (5.29)
DN 100	16 ... 100	½ NPT	162 (6.38)	92 (3.62)	30 (1.18)	149 (5.87)	5 (0.2)	4.21 (9.28)
DN 125	16 ... 100	½ NPT	188 (7.40)	132 (5.2)	30 (1.18)	175 (6.89)	5 (0.2)	3.38 (7.45)

Form F



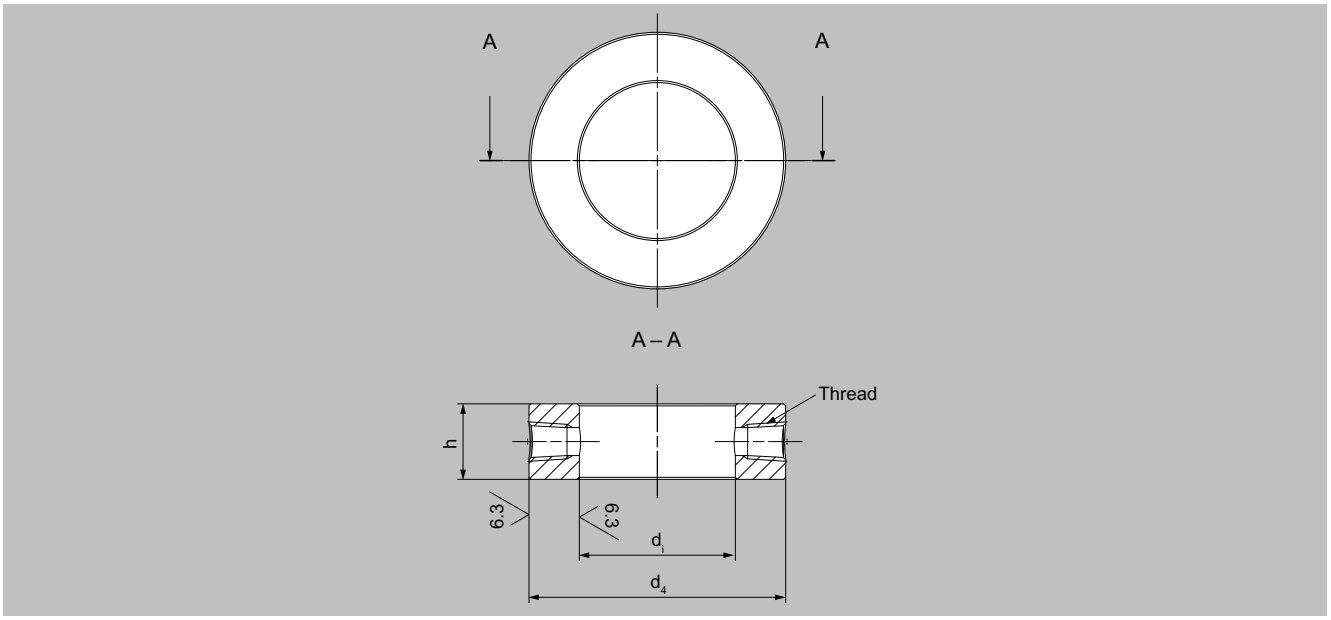
Flushing ring; sealing surface (EN 1092-1), form F

Nominal diameter	PN bar	Thread	d_4 Ø in mm (inch)	d_i Ø in mm (inch)	h Ø in mm (inch)	x Ø in mm (inch)	f3 Ø in mm (inch)	Weight kg (lb)
DN 50	16 ... 100	¼ NPT	102 (4.02)	62 (2.44)	35 (1.38)	88 (3.46)	4 (0.16)	1.25 (2.76)
DN 80	16 ... 100	¼ NPT	138 (5.43)	92 (3.62)	35 (1.38)	121 (4.76)	4 (0.16)	2.02 (4.45)
DN 100	16 ... 100	¼ NPT	162 (6.38)	92 (3.62)	35 (1.38)	150 (5.91)	4.5 (0.18)	3.11 (6.86)
DN 125	16 ... 100	¼ NPT	188 (7.40)	132 (5.2)	35 (1.38)	175 (6.89)	4.5 (0.18)	3.19 (7.03)
DN 50	16 ... 100	½ NPT	102 (4.02)	62 (2.44)	40 (1.58)	88 (3.46)	4 (0.16)	1.45 (3.2)
DN 80	16 ... 100	½ NPT	138 (5.43)	92 (3.62)	40 (1.58)	121 (4.76)	4 (0.16)	2.35 (5.18)
DN 100	16 ... 100	½ NPT	162 (6.38)	92 (3.62)	40 (1.58)	150 (5.91)	4.5 (0.18)	3.67 (8.09)
DN 125	16 ... 100	½ NPT	188 (7.40)	132 (5.2)	40 (1.58)	175 (6.89)	4.5 (0.18)	3.76 (8.29)

Dimensional drawings (continued)

Connection according to ASME B 16.5

RFSF and RF 125 ... 250 AO

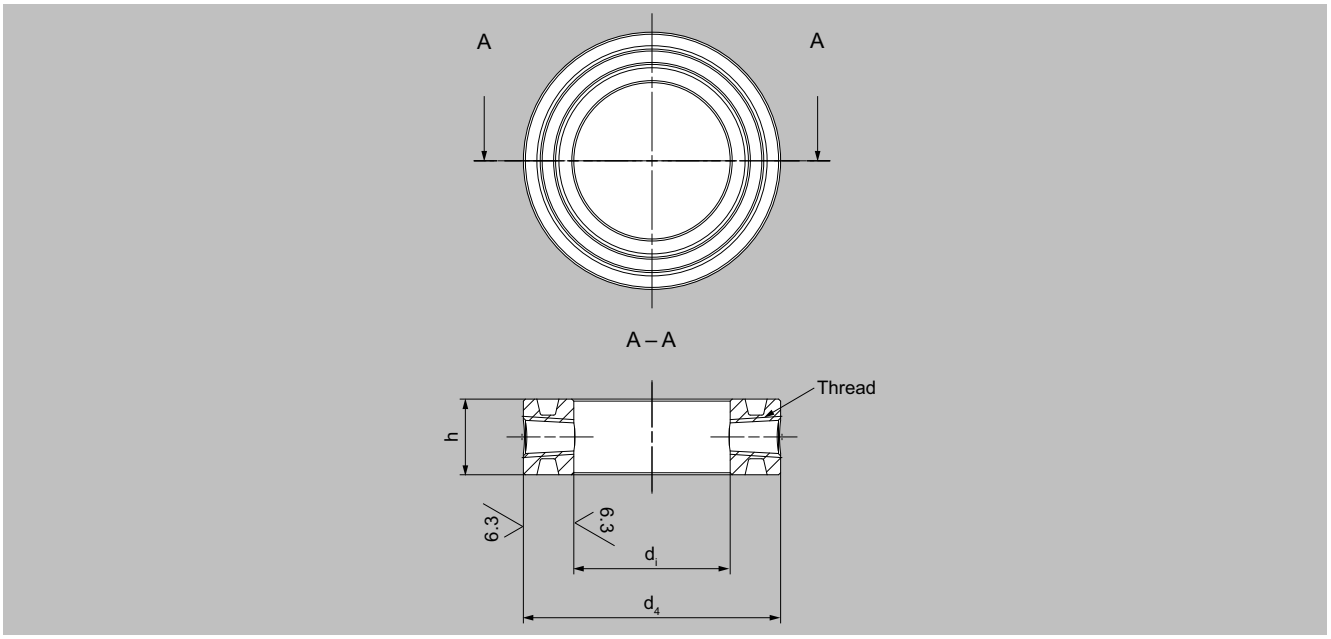


Flushing ring; sealing surface (ASME B 16.5), RFSF and RF 125 to 250 AO

Nominal diameter	Class	Thread	d_4 Ø in mm (inch)	d_i Ø in mm (inch)	h Ø in mm (inch)	Weight kg (lb)
2"	150 ... 600	¼ NPT	92 (3.62)	62 (2.44)	30 (1.18)	0.87 (1.92)
3"	150 ... 600	¼ NPT	127 (5)	92 (3.62)	30 (1.18)	1.44 (3.17)
4"	150 ... 600	¼ NPT	157 (6.18)	92 (3.62)	30 (1.18)	3.05 (6.72)
5"	150 ... 600	¼ NPT	186 (7.32)	141 (5.55)	30 (1.18)	2.77 (6.11)
2"	150 ... 600	½ NPT	92 (3.62)	62 (2.44)	30 (1.18)	0.87 (1.92)
3"	150 ... 600	½ NPT	127 (5)	92 (3.62)	30 (1.18)	1.44 (3.17)
4"	150 ... 600	½ NPT	157 (6.18)	92 (3.62)	30 (1.18)	3.05 (6.72)
5"	150 ... 600	½ NPT	186 (7.32)	141 (5.55)	30 (1.18)	2.77 (6.11)

Dimensional drawings (continued)

RJF ring groove



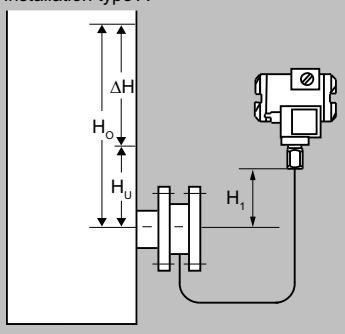
Flushing ring; sealing surface (ASME B 16.5), RJF ring groove

Nominal diameter	Class	Thread	d_4 Ø in mm (inch)	d_i Ø in mm (inch)	h Ø in mm (inch)	Weight kg (lb)
2"	150	¼ NPT	102 (4.02)	62 (2.44)	40 (1.58)	1.65 (3.64)
3"	150	¼ NPT	133 (5.24)	92 (3.62)	40 (1.58)	2.32 (5.12)
4"	150	¼ NPT	171 (6.73)	92 (3.62)	40 (1.58)	5.22 (11.51)
5"	150	¼ NPT	194 (7.64)	141 (5.55)	40 (1.58)	4.46 (9.83)
2"	150	½ NPT	102 (4.02)	62 (2.44)	46 (1.81)	1.90 (4.19)
3"	150	½ NPT	133 (5.24)	92 (3.62)	46 (1.81)	2.66 (5.86)
4"	150	½ NPT	171 (6.73)	92 (3.62)	46 (1.81)	6.00 (13.23)
5"	150	½ NPT	194 (7.64)	141 (5.55)	46 (1.81)	5.13 (11.31)
2"	300 ... 600	¼ NPT	108 (4.25)	62 (2.44)	40 (1.58)	1.96 (4.32)
3"	300 ... 600	¼ NPT	146 (5.75)	92 (3.62)	40 (1.58)	3.23 (7.12)
4"	300 ... 600	¼ NPT	175 (6.89)	92 (3.62)	40 (1.58)	5.57 (12.28)
5"	300 ... 600	¼ NPT	210 (8.27)	141 (5.55)	40 (1.58)	6.08 (13.4)
2"	300 ... 600	½ NPT	108 (4.25)	62 (2.44)	46 (1.81)	2.26 (4.98)
3"	300 ... 600	½ NPT	146 (5.75)	92 (3.62)	46 (1.81)	3.71 (8.18)
4"	300 ... 600	½ NPT	175 (6.89)	92 (3.62)	46 (1.81)	6.4 (14.11)
5"	300 ... 600	½ NPT	210 (8.27)	141 (5.55)	46 (1.81)	7 (15.43)

Dimensional drawings

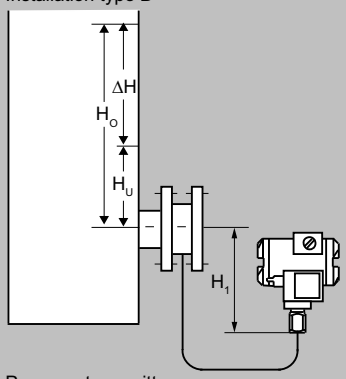
Mounting types for gauge pressure and level measurements (open vessels)

Installation type A



Pressure transmitter
above the measuring point

Installation type B



Pressure transmitter
below the measuring point

$H_1 \leq 7$ m (23 ft), with halocarbon oil as filling liquid only $H_1 \leq 4$ m (13.1 ft)

Installation type A

Lower range value: $p_{MA} = \rho_{FL} \cdot g \cdot H_U - \rho_{Oil} \cdot g \cdot H_1$

Upper range value: $p_{ME} = \rho_{FL} \cdot g \cdot H_O - \rho_{Oil} \cdot g \cdot H_1$

Installation type B

Lower range value: $p_{MA} = \rho_{FL} \cdot g \cdot H_U + \rho_{Oil} \cdot g \cdot H_1$

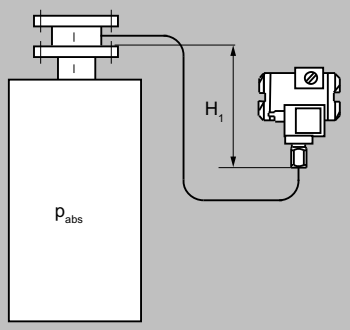
Upper range value: $p_{ME} = \rho_{FL} \cdot g \cdot H_O + \rho_{Oil} \cdot g \cdot H_1$

Legend

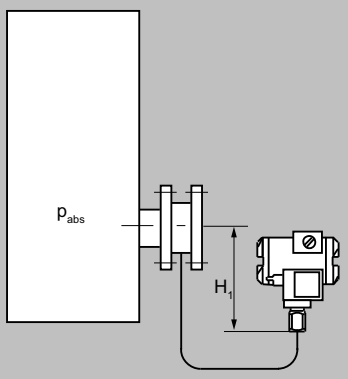
p_{MA}	Lower range value to be set
p_{ME}	Upper range value to be set
ρ_{FL}	Density of medium in vessel
ρ_{Oil}	Density of filling oil in the capillary to the remote seal
g	Local acceleration due to gravity
H_U	Lower range value
H_O	Upper range value
H_1	Distance between vessel flange and pressure trans.

Mounting type for absolute pressure measurements (closed vessels)

Installation type C_1



Installation type C_2



Pressure transmitter for absolute pressure always below the measuring point: $H_1 \geq 200$ mm (7.9 inch)

Installation type C_1 and C_2

Lower range value: $p_{MA} = p_{START} + \rho_{Oil} \cdot g \cdot H_1$

Upper range value: $p_{ME} = p_{END} + \rho_{Oil} \cdot g \cdot H_1$

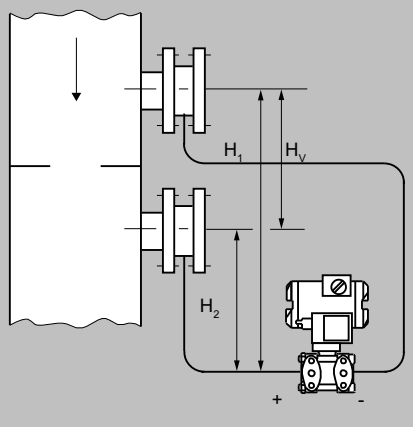
Legend

p_{MA}	Lower range value to be set
p_{ME}	Upper range value to be set
p_{START}	Lower range value
p_{END}	Upper range value
ρ_{Oil}	Density of filling oil in the capillary to the remote seal
g	Local acceleration due to gravity
H_1	Distance between vessel flange and pressure trans.

Dimensional drawings (continued)

Mounting types for differential pressure and flow measurements

Installation type D Filter monitoring



Installation type D

Lower range value: $p_{MA} = p_{START} - \rho_{Oil} \cdot g \cdot H_V$

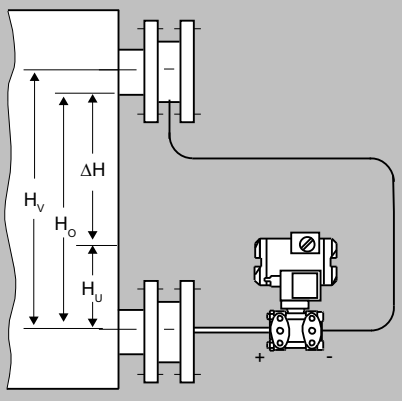
Upper range value: $p_{ME} = p_{END} - \rho_{Oil} \cdot g \cdot H_V$

Legend

p_{MA}	Lower range value to be set
p_{ME}	Upper range value to be set
p_{START}	Lower range value
p_{END}	Upper range value
ρ_{Oil}	Density of filling oil in the capillary to the remote seal
g	Local acceleration due to gravity
H_V	Distance between the measuring points (spigots)

Mounting type for level measurements (closed vessels)

Installation type E



Installation type E

Lower range value: $p_{MA} = \rho_{FL} \cdot g \cdot H_U - \rho_{Oil} \cdot g \cdot H_V$

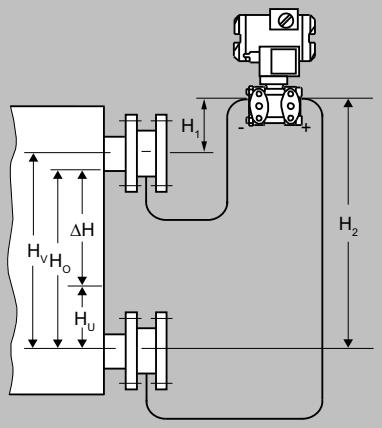
Upper range value: $p_{ME} = \rho_{FL} \cdot g \cdot H_O - \rho_{Oil} \cdot g \cdot H_V$

Legend

p_{MA}	Lower range value to be set
p_{ME}	Upper range value to be set
ρ_{FL}	Density of medium in vessel
ρ_{Oil}	Density of filling oil in the capillary to the remote seal
g	Local acceleration due to gravity
H_U	Lower range value
H_O	Upper range value
H_V	Distance between the measuring points (spigots)

Dimensional drawings (continued)

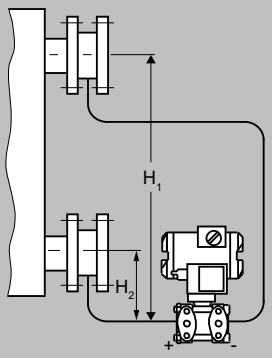
Installation type G



Pressure transmitter for differential pressure above the upper measuring point, no vacuum

$H_2 \leq 7$ m (23 ft), with halocarbon oil as filling liquid only $H_1 \leq 4$ m (13.1 ft)

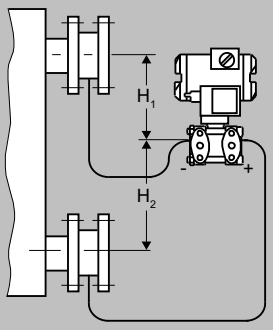
Installation type H



below the lower measuring point

Installation type for vacuum applications

Installation type J



between the measuring points, no vacuum

$H_2 \leq 7$ m (23 ft), with halocarbon oil as filling liquid only $H_2 \leq 4$ m (13.1 ft)

Installation type G, H and J

Lower range value:
$p_{MA} = \rho_{FL} \cdot g \cdot H_U - \rho_{Oil} \cdot g \cdot H_V$

Upper range value:
$p_{ME} = \rho_{FL} \cdot g \cdot H_O - \rho_{Oil} \cdot g \cdot H_V$

Legend

p_{MA}	Lower range value to be set	g	Local acceleration due to gravity
p_{ME}	Upper range value to be set	H_U	Lower range value
ρ_{FL}	Density of medium in vessel	H_O	Upper range value
ρ_{Oil}	Density of filling oil in the capillary to the remote seal	H_V	Distance between the measuring points (spigots)

Overview

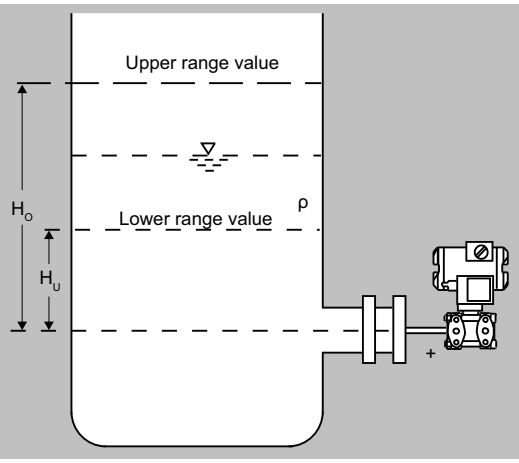
Notes

- For interface measurements, the interface must be located between the two nozzles. In addition, the fill level of the container must always be above the top nozzle.
- A constant level of the process medium is required for density measurement. The level should be above the top nozzle.

Dimensional drawings

Pressure transmitters for differential pressure for flanging

Measuring arrangements for open containers



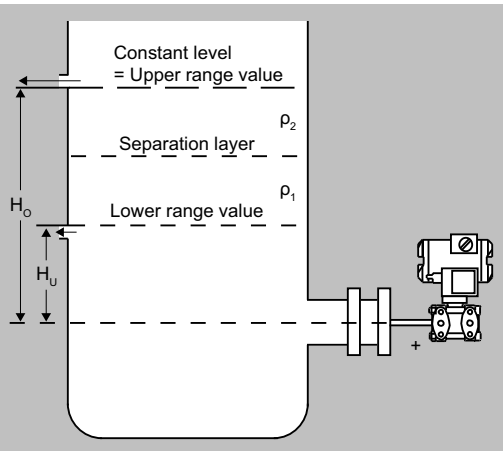
Level measurement

Lower range value: $p_{MA} = \rho \cdot g \cdot H_U$

Upper range value: $p_{ME} = \rho \cdot g \cdot H_O$

Legend

p_{MA}	Lower range value to be set
p_{ME}	Upper range value to be set
ρ	Density of medium in vessel
g	Local acceleration due to gravity
H_U	Lower range value
H_O	Upper range value



Separation layer measurement

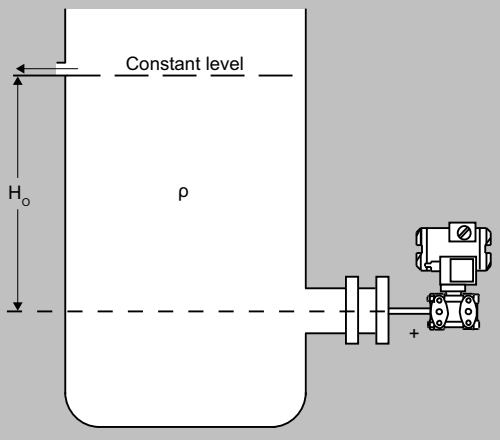
Lower range value: $p_{MA} = g \cdot (H_U \cdot \rho_1 + (H_O - H_U) \cdot \rho_2)$

Upper range value: $p_{ME} = \rho_1 \cdot g \cdot H_O$

Legend

p_{MA}	Lower range value to be set
p_{ME}	Upper range value to be set
ρ_1	Density of heavier liquid
ρ_2	Density of lighter liquid
g	Local acceleration due to gravity
H_U	Lower range value
H_O	Upper range value

Dimensional drawings (continued)



Density measurement

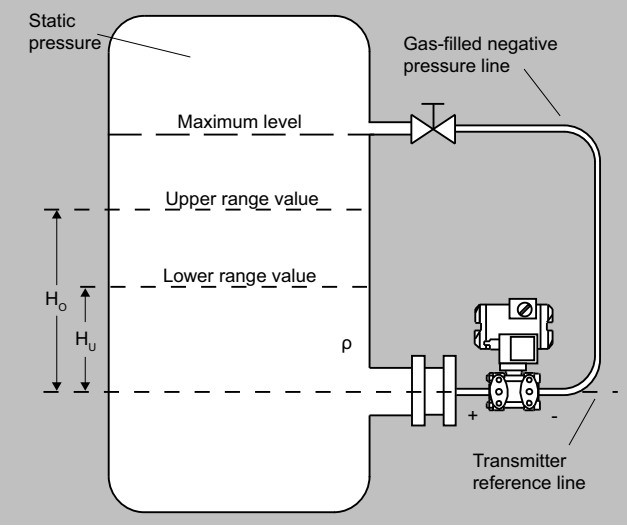
Lower range value: $p_{MA} = \rho_{MIN} \cdot g \cdot H_O$

Upper range value: $p_{ME} = \rho_{MAX} \cdot g \cdot H_O$

Legend

p_{MA}	Lower range value to be set
p_{ME}	Upper range value to be set
ρ_{MIN}	Minimum density of medium in vessel
ρ_{MAX}	Maximum density of medium in vessel
g	Local acceleration due to gravity
H_O	Upper range value in m

Measuring arrangements for closed containers



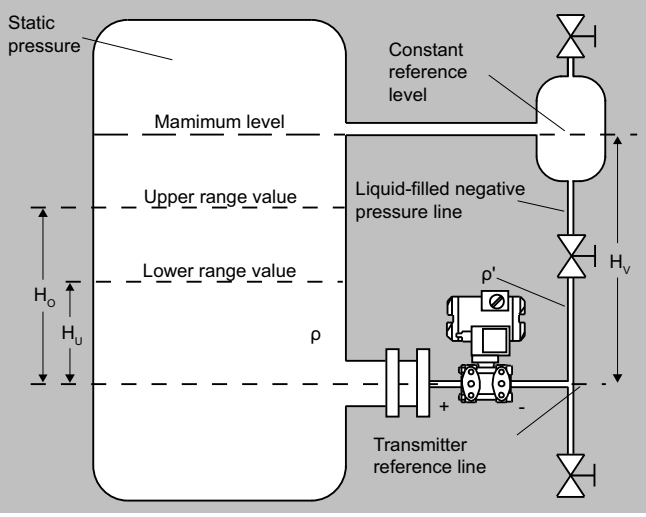
Level measurement, Version 1

Lower range value: $\Delta p_{MA} = \rho \cdot g \cdot H_U$

Upper range value: $\Delta pME = \rho \cdot g \cdot H_O$

Legend

Δp_{MA}	Lower range value to be set
Δp_{ME}	Upper range value to be set
ρ	Density of medium in vessel
g	Local acceleration due to gravity
H_U	Lower range value
H_O	Upper range value



Level measurement, Version 2

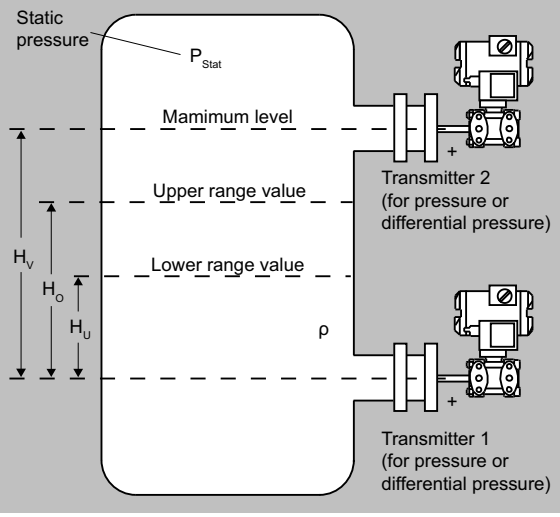
Lower range value: $\Delta p_{MA} = g \cdot (H_U \cdot \rho - H_V \cdot \rho')$

Upper range value: $\Delta p_{ME} = g \cdot (H_O \cdot \rho - H_V \cdot \rho')$

Legend

Δp_{MA}	Lower range value to be set
Δp_{ME}	Upper range value to be set
ρ	Density of medium in vessel
ρ'	Density of liquid in the negative pressure line (corresponding to the temperature existing there)
g	Local acceleration due to gravity
H_U	Lower range value
H_O	Upper range value
H_V	Distance between the measuring points (spigots)

Dimensional drawings (continued)



Level measurement, Version 3

Lower range value: $\Delta p_{MA} = \underbrace{P_{Stat} + \rho \cdot g \cdot H_U}_{\text{Transmitter 1}} - \underbrace{P_{Stat}}_{\text{Transmitter 2}}$

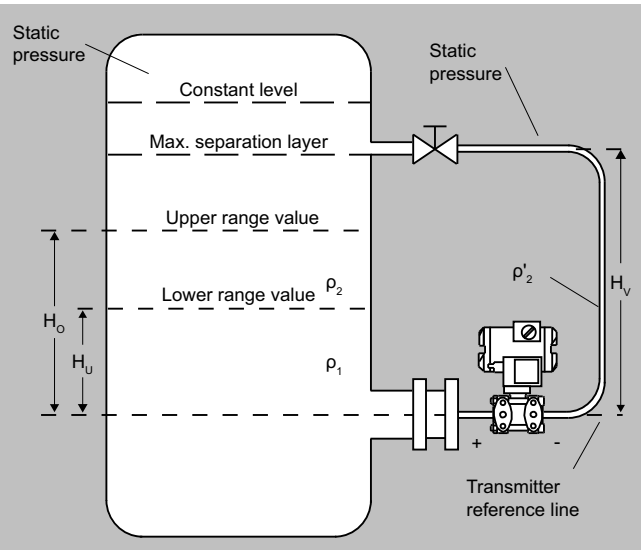
Upper range value: $\Delta p_{ME} = \underbrace{P_{Stat} + \rho \cdot g \cdot H_O}_{\text{Transmitter 1}} - \underbrace{P_{Stat}}_{\text{Transmitter 2}}$

Legend

Δp_{MA}	Lower range value to be set
Δp_{ME}	Upper range value to be set
ρ	Density of medium in vessel
g	Local acceleration due to gravity
H_U	Lower range value
H_O	Upper range value
H_V	Distance between the measuring points (spigots)

The pressure measuring range (≙ level) will be calculated by subtraction of measuring range of transmitter 1 minus measuring range of transmitter 2 in the process control system.

Pressure transmitters for differential pressure for flanging, measuring arrangement for closed containers, level measurement



Separation layer measurement

Lower range value: $\Delta p_{MA} = g \cdot (H_U \cdot \rho_1 + (H_O - H_U) \cdot \rho_2 - H_V \cdot \rho'_2)$

Upper range value: $\Delta p_{ME} = g \cdot (H_O \cdot \rho_1 - H_V \cdot \rho'_2)$

Legend

Δp_{MA}	Lower range value to be set
Δp_{ME}	Upper range value to be set
ρ_1	Density of heavier liquid with separation layer in vessel
ρ_2	Density of lighter liquid with separation layer
ρ'_2	Density of liquid in the negative pressure line (corresponding to the temperature existing there)
g	Local acceleration due to gravity
H_U	Lower range value
H_O	Upper range value
H_V	Distance between the measuring points (spigots)