

PP20H

Fully welded hygienic pressure sensor with flush membrane



Product highlights

- All market typical hygienic connections available
- EHEDG & 3-A certified versions available
- Condensate-proof measuring cell
- IO-Link available
- Space-saving installations from DN 25 on

Application examples

- Process pressure for a wide variety of applications in Food & Beverage
- Continuous level monitoring
- CIP cleaning processes (Clean In Place)

Technical data

Housing

Style	■ Compact transmitter
Overall size	■ Refer to section "Dimensional drawings"
Material	■ AISI 316L (1.4404)

Electrical connection

Connector	■ M12, 4-pin for 4 ... 20mA output signal ■ M12, 5-pin for IO-Link output signal
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Ambient conditions

Operating temperature range	■ -20 ... 85 °C
Storage temperature range	■ -40 ... 85 °C
Degree of protection (EN 60529)	■ IP67 (unplugged) ■ IP69K (with appropriate cable)
Cold (EN 60068-2-1)	■ Ab: -40 °C, 2 h (not in operation)
Dry heat (EN 60068-2-2)	■ Be: 85 °C, 6 h (in operation)
Damp heat, cyclic (EN 60068-2-30)	■ Db: 55°C, Variant 1, 2 cycles (2 · 24 h)
Vibration (sinusoidal) (EN 60068-2-6)	■ 1.5 mm p-p (10 ... 58 Hz), 10 g (58 Hz ... 2 kHz), 10 cycles (2.5 h) per axis
Shock (EN 60068-2-27)	■ 50 g / 11 ms, 100 g / 6 ms, 10 impulses per axis and direction ■ 5 g / 30 ms, 3 impulses per axis and direction
Bump (EN 60068-2-29)	■ 100 g / 2 ms, 4000 impulses per axis and direction
Vibration, broad-band random (EN 60068-2-64)	■ 0.1 g ² / Hz, > 10 gRMS (20 Hz ... 1 kHz), 30 min. per axis
Insulation resistance	■ > 100 MΩ (500 V DC)

Process connection

Connection variants	■ Refer to section "Dimensional drawings"
Wetted parts material	■ AISI 316L (1.4404) ■ AISI 316L (1.4435) (membrane)

Process conditions

Process temperature	■ -20 ... 125 °C
SIP/CIP compatibility	■ In general: medium temperature up to 135 °C (< 60 min) and medium temperature up to 150 °C (< 35 min) ■ G 1/2: medium temperature up to 135 °C (< 60 min)
Process pressure	■ Refer to table "Operating conditions"

Power supply

Voltage supply range	■ Current output: 11 ... 30 V DC ■ IO-Link: 18 ... 30 V DC
Reverse polarity protection	■ Yes

Output signal

Current output	■ 4 ... 20 mA (2-wire)
Shunt resistance	■ $R_s \leq (V_s - 8 \text{ V}) / 0.02 \text{ A}$
Short circuit protection	■ Yes

Performance characteristics

Measuring range	■ -1 ... 40 bar
Min. measuring span	■ 0.4 bar
Max. measuring span	■ 40 bar
Pressure type	■ Relative (gauged) ■ Absolute
Max. measuring error [1]	■ ± 0.5 % FS ■ ± 1.0 % FS (0 ... 0.4 bar)
Compensated temperature range	■ -20 ... 125 °C
Temperature coefficient	■ Zero point: ≤ ± 0.2 % FS / 10 K ■ Measuring span: ≤ ± 0.2 % FS / 10 K
Long term stability	■ ≤ ± 0.2 % FS / a
Rise time	■ ≤ 20 ms (10 ... 90 %)

Compliance and approvals

EMC	■ 2014/30/EU ■ EN 61000-6-2 ■ EN 61000-6-3 ■ EN 61326-2-3
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Note:

Information on product characteristics may relate to defined product options.

[1] Including zero-point and span error, nonlinearity (by terminal base line), hysteresis and non-repeatability (EN 61298-2) (T_{amb} = 20 °C)

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Operating conditions

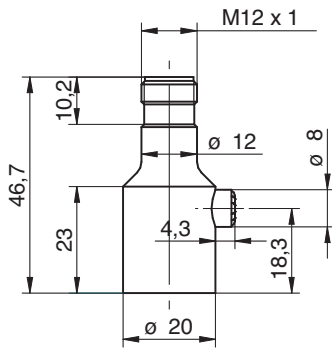
Measuring range (bar)				Proof pressure (bar)	Burst pressure (bar)
0 ... 0.4	0 ... 1	-1 ... 0	-1 ... 1	3	6
0 ... 2.5	0 ... 4	-1 ... 3	-1 ... 5	15	30
0 ... 6	0 ... 10	-1 ... 9		60	120
0 ... 25				70	140
0 ... 40				135	270

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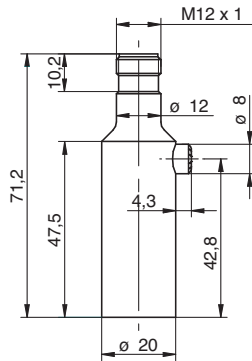
Dimensional drawings

Housing



Short

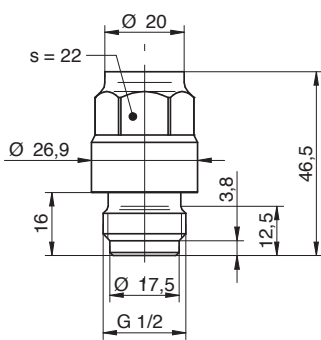
Relates to process connection codes 41, 44, and 48



Long

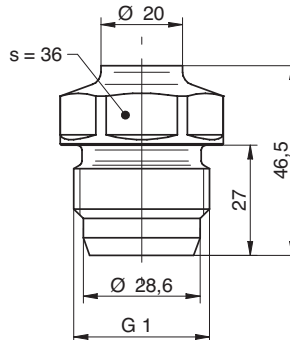
Relates to the rest of the process connections

Process connection



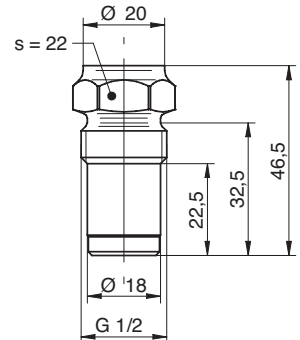
G 1/2 A DIN 3852-E

G51-41



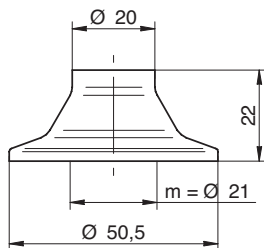
G1 A hygienic

A04-44



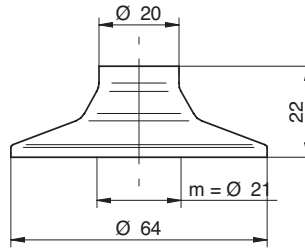
G 1/2 A hygienic [2]

A03-48



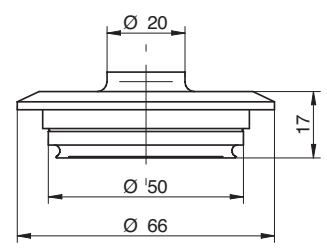
Tri-Clamp Ø 50.5

C03-53



Tri-Clamp Ø 64

C05-54



Varivent® DN 25; 1" (Type F) Ø 50

V01-62

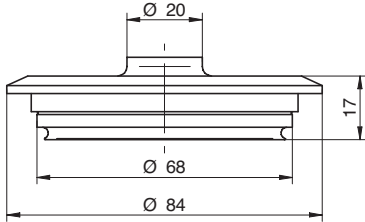
[2] Not compatible with following adapters: ZPW2-321, ZPH1-3213, ZPH1-3216, ZPH1-324E, ZPH1-344F

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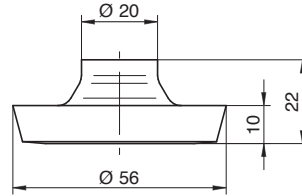
Dimensional drawings

Process connection



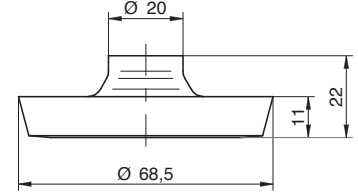
**Varivent® DN 32 ... 125;
1 1/2 ... 6" (Type N), Ø 68**

V02-61



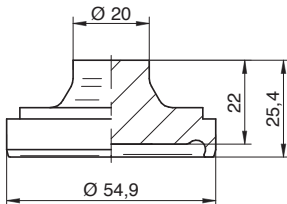
**DIN 11851 (dairy pipe connection),
DN 40**

D03-65



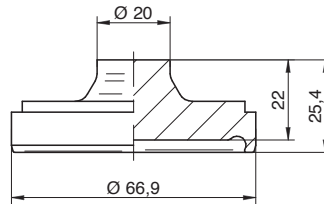
**DIN 11851 (dairy pipe connection),
DN 50**

D04-66



**DIN 11864-1-A (aseptic screwed union),
DN 40**

H03-59



**DIN 11864-1-A (aseptic screwed union),
DN 50**

H04-68

Note:

Information in format AXX-X... relates to „Baumer Connection Identifier“ (BCID) and dedicated ordering code.

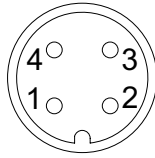
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Electrical connection

Output signal

4 ... 20 mA (2-wire)



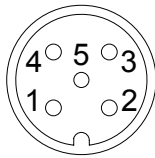
M12, 4-pin
X04-14

Function

PIN

+Vs	1
Iout	3
Frame ground	Plug thread
n.c.	2, 4

IO-Link



M12, 5-pin
X05-15

+Vs	1
GND (0 V)	3
Output switch, IO-Link	4
Frame ground	Plug thread
n.c.	2, 5

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Ordering information

Ordering Key

	PP20H	-	2	.	x	xxx	x	.	xx	xx	.	xx	2	0	2	0	.	0	0	0
Product line	Fully welded pressure sensor for hygienic applications	PP20H																		
Housing	Stainless steel, AISI 316L (1.4404)		2																	
Max. measuring error	± 0.5 % FS (for all except 0 ... 0.4 bar)					3														
	± 1.0 % FS (valid for 0 ... 0.4 bar)					1														
Measuring range (bar)																				
	-1 ... 0					B59														
	-1 ... 1					B73														
	-1 ... 3					B76														
	-1 ... 5					B77														
	-1 ... 9					B79														
	0 ... 0.4					B11														
	0 ... 1					B15														
	0 ... 2.5					B18														
	0 ... 4					B19														
	0 ... 6					B20														
	0 ... 10					B22														
	0 ... 25					B26														
	0 ... 40					B27														
Pressure type	Relative (gauged)								R											
	Absolute [3]								A											
Output signal	4 ... 20 mA (2-wire)											A1								
	IO-Link											D1								
Electrical connection	M12, 4-pin												14							
	M12, 5-pin												15							
Process connection		BCID																		
	G 1/2 A DIN 3852-E	G51													41					
	G1 A hygienic	A04													44					
	G 1/2 A hygienic [4]	A03													48					
	Tri-Clamp Ø 50.5	C03													53					
	Tri-Clamp Ø 64.0	C05													54					
	DIN 11851 (dairy pipe connection), DN 40	D03													65					
	DIN 11851 (dairy pipe connection), DN 50	D04													66					
	DIN 11864-1-A (aseptic screwed union), DN 40	H03													59					
	DIN 11864-1-A (aseptic screwed union) DN 50	H14													68					
	Varivent® DN 25; 1" (Type F), Ø 50	V01													62					
	Varivent® DN 32 ... 125;	V02													61					
	1 1/2" ... 6" (Type N), Ø 68																			
Wetted parts material	AISI 316L (1.4404)														2					
Gasket	Without																		0	
Oil filling	NSF H1 listed (FDA approved)																			2
Display	Without																			0
Explosion protection	Without																			0
Compliance and approvals	Without																			0
Turndown	Without																			0

[3] Available for „Measuring range“ B15 (0 ... 1 bar) ... B27 (0 ... 40 bar)

[4] Not compatible with following adapters: ZPW2-321, ZPH1-3213, ZPH1-3216, ZPH1-324E, ZPH1-344F