

PBMH autoclavable

Fully autoclavable pressure transmitter for hygienic applications

PBMH-2#####200#

Overview

- Fully autoclavable pressure sensor for common sterilization processes
- High temperature resistance for SIP and CIP processes
- Surface roughness of process connection $R_a \leq 0.8$ for highest hygienic requirements
- Fully welded and compact design for washdowns without residuals
- Excellent active temperature compensation for increased process stability
- External programming of zero point and span with FlexProgrammer 9701



Technical data

Performance characteristics

Pressure type	Absolute Relative (gauged)
Compensated temperature range	-10 ... 85 °C
Long term stability	≤ 0.1 % FSR/a, measuring range > 1 bar ≤ 1 mbar, measuring range ≤ 1 bar
Max. measuring error	± 0.1 % FSR ± 0.25 % FSR Including zero-point and span error, non-linearity (by terminal base line), hysteresis and non-repeatability (EN 61298-2) For turndown, multiply this value by the applied turndown ratio
Max. measuring span	40 bar
Max. turndown ratio	5 : 1
Measuring range	-1 ... 40 bar
Standard error of measurement (BFSL)	± 0.04 % FSR ± 0.1 % FSR Including non-linearity, hysteresis and non-repeatability according BFSL For turndown, multiply this value by the applied turndown ratio
Min. measuring span	0.4 bar
Rise time (10 ... 90 %)	≤ 5 ms
Temperature coefficient	≤ 0.03 % FSR/10 K, measuring span ≤ 0.03 % FSR/10 K, zero point

Process conditions

Process temperature	-10 ... 125 °C, without cooling neck -40 ... 200 °C, with cooling neck
Process pressure	Refer to section "Operating conditions"
SIP/CIP compatibility	< 60 min, without cooling neck @ medium temperature up to 150 °C Permanent, with cooling neck @ medium temperature up to 200 °C

Autoclavability

Sterilisation conditions	Complete sensor with attached protective cover
Ambient pressure during sterilisation process	≤ 3500 mbar
Process duration	≤ 30 min
Sterilisation temperature	≤ 140 °C

Process connection

Connection variants	Refer to section "Dimensional drawings"
Wetted parts material, process connection	AISI 316L (1.4435)
Wetted parts material, membrane	AISI 316L (1.4435)
Wetted parts material, gasket	EPDM, optional EPDM O-rings are conform to 3-A Sanitary Standard 18-03 Class II, EPDM gaskets are conform to 3-A Sanitary Standard 18-03 Class I (8% milk fat max.)

Surface roughness (in contact with medium)

Membrane	$R_a \leq 0.4$ μm
Process connection	$R_a \leq 0.4$ μm
Weld joint	$R_a \leq 0.8$ μm

Ambient conditions

Operating temperature range	-10 ... 85 °C
Storage temperature range	-10 ... 85 °C
Degree of protection (EN 60529)	IP 67
Bump (EN 60068-2-27)	100 g / 2 ms, 4000 impulses per axis and direction
Shock (EN 60068-2-27)	50 g / 11 ms, 100 g / 6 ms, 10 impulses per axis and direction
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

PBMH autoclavable

Fully autoclavable pressure transmitter for hygienic applications

PBMH-2#####200#

Technical data

Ambient conditions

Vibration, broad-band random (EN 60068-2-64) 0.1 g² / Hz, > 10 gRMS (20 Hz ... 1 kHz), 30 min. per axis

Output signal

Current output 4 ... 20 mA, 2-wire
20 ... 4 mA, 2-wire

Voltage output 0 ... 10 V, 3-wire
0 ... 5 V, 3-wire
0.5 ... 4.5 V, 3-wire
1 ... 5 V, 3-wire
10 ... 0 V, 3-wire

Load resistance > 5 kΩ, with voltage output
R = (U_{ver} - 8 V)/20 mA, with current output

Insulation resistance > 100 MΩ, 500 V DC

Short circuit protection Yes

Shunt resistance R_s ≤ (V_s - 8 V)/0.0205 A
R_s ≤ 750 Ω, V_s = 24 V

IO-Link interface

IO-Link version 1.1

IO-Link port type Class A

Baud rate 38,4 kbaud (COM2)

Cycle time ≥ 2.3 ms

IO-Link interface

Process data length 24 bit

SIO-mode No

Process data (cyclic) Process pressure

Diagnostic data (acyclic) Process temperature

Housing

Style Compact transmitter

Overall size Refer to section "Dimensional drawings"

Material AISI 316L (1.4404)

Electrical connection

Connector Fischer, 4-pin, stainless steel
M12-A, 4-pin, stainless steel

Power supply

Voltage supply range 13 ... 30 V DC, with voltage output

8 ... 30 V DC, with current output

18 ... 30 V DC, with IO-Link

Compliance and approvals

EMC EN 61000-6-2

EN 61000-6-3

Hygiene 3-A (74-07)

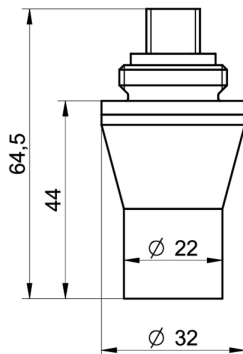
EHEDG EL Class I

Operating conditions

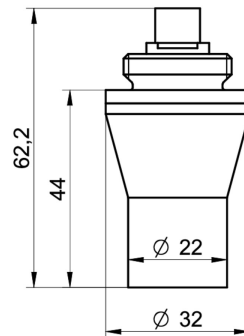
Measuring range (bar)						Proof pressure (bar)	Burst Pressure (bar)	
-1 ... 0	-1 ... 0,6	0 ... 0,4	0 ... 0,6	0 ... 1		3	6	
-1 ... 1,5	-1 ... 3	-1 ... 5	0 ... 1,6	0 ... 2	0 ... 2,5	0 ... 4	15	30
	-1 ... 9	-1 ... 15	0 ... 6	0 ... 10	0 ... 16	0 ... 20	60	120
		-1 ... 24	0 ... 25				70	140
		-1 ... 39	0 ... 40				135	270

Dimensional drawings (mm)

Housing



Housing with connector M12-A, 4-pin, high temperature



Housing with connector Fischer, 4-pin, stainless steel

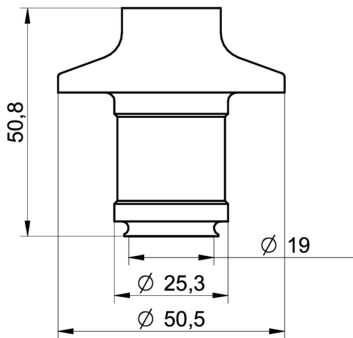
PBMH autoclavable

Fully autoclavable pressure transmitter for hygienic applications

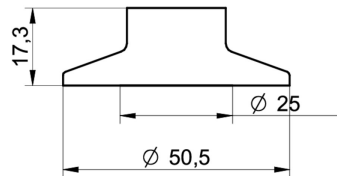
PBMH-2#####200#

Dimensional drawings (mm)

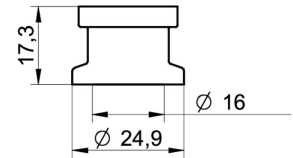
Process connection



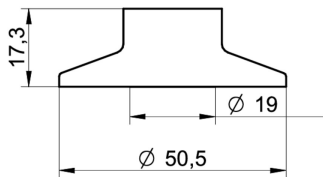
B01-50
BHC 3A DN 38, membrane \varnothing 19 mm (BCID: B01)



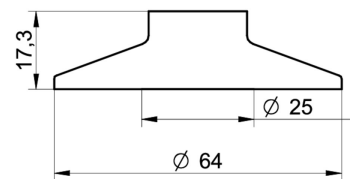
C04-51
Tri-Clamp \varnothing 50.5, membrane \varnothing 25 mm (BCID: C04)



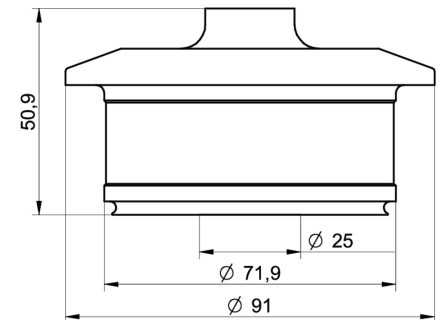
C01-52
Tri-Clamp \varnothing 24.9, membrane \varnothing 16 mm (BCID: C01)



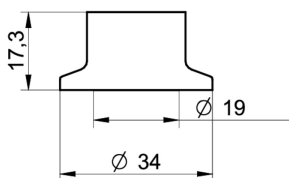
C03-53
Tri-Clamp \varnothing 50.5, membrane \varnothing 19 mm (BCID: C03)



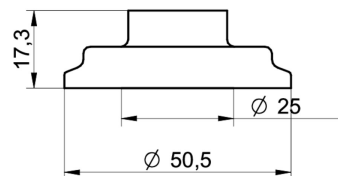
C05-54
Tri-Clamp \varnothing 64.0, membrane \varnothing 25 mm (BCID: C05)



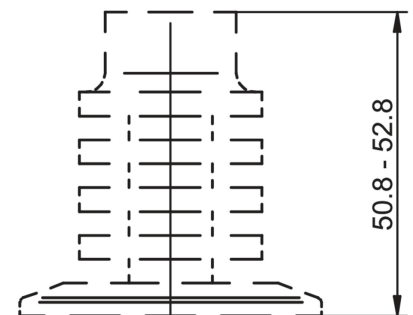
B02-56
BHC 3A DN 76, membrane \varnothing 25 mm (BCID: B02)



C02-57
Tri-Clamp \varnothing 34.0, membrane \varnothing 19 mm (BCID: C02)



H51-58
DIN 11864-3-A BKS (Aseptic Clamp), DN25, \varnothing 50.5, membrane \varnothing 25 mm (BCID: H41)



Cooling neck

PBMH autoclavable

Fully autoclavable pressure transmitter for hygienic applications

PBMH-2#####200#

Electrical connection

Output signal	Equivalent circuit	Electrical connection	Function	Pin assignment
4 ... 20 mA (2-wire)			+Vs	1
			Iout	3
0 ... 10 V (3-wire)			+Vs	1
			Uout	2, 4
			GND (0 V)	3
			Frame Ground	Plug thread
			n.c.	2, 4
			+Vs	1
			Uout	2
			GND (0 V)	3
			Frame Ground	Plug thread
			n.c.	4

Output signal	Equivalent circuit	Electrical connection	Function	Pin assignment
IO-Link (3-wire)			+Vs	1
			GND (0 V)	3
			SW1, IO-Link	4
			Iout	2
			Frame Ground	Plug thread
			n.c.	5

Ordering information

Ordering key - Configuration possibilities see website

	PBMH	-	2	#	###	#	##	##	##	#	#	#	2	0	0	#
Product	PBMH															
Housing material	Stainless steel 1.4404 AISI 316L		2													
Accuracy	±0.25 % FS			4												
	±0.10 % FS			5												
Measuring range	0 ... 0.4 bar (EN)									B11						
	0...0,6 bar (EN)									B12						
	0...1 bar (EN)									B15						
	0...1,6 bar (EN)									B16						
	0...2 bar (EN)									B17						
	0 ... 2.5 bar (EN)									B18						
	0 ... 4 bar (EN)									B19						
	0...12 bar (EN)									B1K						
	-1...39 bar (EN)									B1L						
	0 ... 6 bar (EN)									B20						
	0 ... 10 bar (EN)									B22						
	0 ... 16 bar (EN)									B24						

PBMH autoclavable

Fully autoclavable pressure transmitter for hygienic applications

PBMH-2#####200#

Ordering information

Ordering key - Configuration possibilities see website

	PBMH	-	2	#	###	#	##	##	##	#	#	2	0	0	#
0...20 bar (EN)					B	2	5								
0...25 bar (EN)					B	2	6								
0 ... 40 bar (EN)					B	2	7								
-0,1...0,1 bar (EN)					B	2	H								
-0,2...0,2 bar (EN)					B	4	G								
-0,6...0 bar (EN)					B	5	8								
-1...0 bar (EN)					B	5	9								
-1...0,6 bar (EN)					B	7	2								
-1...1 bar (EN)					B	7	3								
-1 ... 1,5 bar (EN)					B	7	4								
-1...2 bar (EN)					B	7	5								
-1...3 bar (EN)					B	7	6								
-1...5 bar (EN)					B	7	7								
-1...9 bar (EN)					B	7	9								
-1...15 bar (EN)					B	8	1								
-1...24 bar (EN)					B	8	2								
0...5 bar (EN)					B	9	8								
0...6 psi (ANSI)					H	1	1								
0...10 psi (ANSI)					H	1	3								
0...15 psi (ANSI)					H	1	5								
0...25 psi (ANSI)					H	1	6								
0...30 psi (ANSI)					H	1	7								
0...60 psi (ANSI)					H	1	9								
0...20 psi (ANSI)					H	1	C								
0...500 psi (ANSI)					H	1	E								
-30Hg...600 psi (ANSI)					H	1	L								
0...100 psi (ANSI)					H	2	1								
0...160 psi (ANSI)					H	2	2								
0...200 psi (ANSI)					H	2	3								
0...250 psi (ANSI)					H	2	4								
0...300 psi (ANSI)					H	2	5								
0...400 psi (ANSI)					H	2	6								
0...600 psi (ANSI)					H	2	7								
-30HG...60 psi (ANSI)					H	2	C								
-30HG...0 (ANSI)					H	5	9								
-30HG...15 psi (ANSI)					H	7	3								
-30HG...30 psi (ANSI)					H	7	5								
-30HG...100 psi (ANSI)					H	7	8								
-30HG...150 psi (ANSI)					H	7	9								
-30HG...220 psi (ANSI)					H	8	1								
-30HG...300 psi (ANSI)					H	8	2								
Kind of pressure															
Relative (gauged)															R
Absolute															A

The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

PBMH autoclavable

Fully autoclavable pressure transmitter for hygienic applications

PBMH-2#####200#

Ordering information

Ordering key - Configuration possibilities see website

	PBMH	-	2	#	###	#	##	##	#	#	2	0	0	#
Output signal														
20...4 mA														A0
4...20 mA														A1
0...10 V														A2
1...5 V														A3
0...5 V														A4
0.5...4.5 V														A5
10...0 V														A7
Output Connection														
M12-A, 4-pin high temperature														24
Fischer, 4-pin, stainl. steel														56
Process connection														
BHC 3A DN 38 (B01) ⁽³⁾														50
ISO 2852 (Tri-Clamp), DN 33.7; 38, Ø 50.5 (C04) ⁽¹⁾														51
Tri-Clamp, DN 3/4, Ø 24.9 (ohne 3-A) (C01) ⁽²⁾														52
ISO 2852 (Tri-Clamp), DN 25, Ø 50.5 (C03) ⁽¹⁾														53
ISO 2852 (Tri-Clamp), DN 40; 51, Ø 64.0 (C05) ⁽¹⁾														54
BHC 3A DN 76 (B02) ⁽³⁾														56
ISO 2852 (Tri-Clamp), DN 21.3, Ø 34.0 (C02) ⁽²⁾														57
DIN 11864-3-A BKS (Aseptic Clamp), DN25, Ø 50.5 (H41) ⁽³⁾														58
BHC 3A DN 38, with cooling neck (B01) ⁽³⁾														80
ISO 2852 (Tri-Clamp), DN 33.7; 38, Ø 50.5 with cooling neck (C04) ⁽¹⁾														81
DIN 32676-C (Tri-Clamp), DN 3/4, Ø 24.9 (without 3-A) with cooling neck (C01) ⁽²⁾														82
ISO 2852 (Tri-Clamp), DN 25, Ø 50.5 with cooling neck (C03) ⁽¹⁾														83
ISO 2852 (Tri-Clamp), DN 40; 51, Ø 64.0 with cooling neck (C05) ⁽¹⁾														84
BHC 3A DN 76, with cooling neck (B02) ⁽³⁾														86
ISO 2852 (Tri-Clamp), DN 21.3, Ø 34.0 with cooling neck (C02) ⁽²⁾														87
Process connection material														
Stainless steel 1.4435 AISI 316L														5
Stainless steel AISI 316L, 1.4435 electropolished Ra 0.4														F
Seal														
None														0
EPDM														2
EPDM EHEDG														7
Oil filling														
NSF H1 listed (FDA approved)														2
Display														
Without display														0
ATEX														
Standard safety														0
Approvals														
Standard approvals														0
EAC														7

PBMH autoclavable

Fully autoclavable pressure transmitter for hygienic applications

PBMH-2#####200#

Ordering information

Ordering key - Configuration possibilities see website

- (1) EHEDG only with special gasket
- (2) EHEDG not included
- (3) EHEDG included