

Diaphragm monitoring system with HART® protocol

Hygienic design

Model DMSU21SA

WIKA data sheet DS 95.11



For further approvals,
see page 9



Applications

- Hygienic pressure measurement for the pharmaceutical industry and for aseptic food processing
- Pressure/vacuum measurement on pipelines, fermenters, bioreactors and containers as well as in the processing and transport of high-quality media
- Suitable for the production of active pharmaceutical ingredients (API)
- For the monitoring of processes with pure steam
- For gaseous, liquid, pasty, powdery and crystallising media

Special features

- Double-diaphragm system prevents contamination of process and environment
- Hygienic process connections in different designs
- 2 variants of signal processing of diaphragm monitoring: directly integrated in the process transmitter or separate
- Minimum installation costs, even with retrofitting

Description

The DMSU21SA diaphragm monitoring system enables reliable pressure measurement in processes with pure steam. The hygienic design, consisting of a process transmitter, diaphragm seal and monitoring element, features a double diaphragm to protect against product contamination, as no system filling fluid can escape in the event of a diaphragm rupture and the rupture is reported directly. Due to the variety of process connections, the system can be integrated into almost all plants.

The DMSU21SA operates at maximum medium temperatures of -10 ... +150 °C [14 ... 266 °F] and ambient temperatures of 10 ... 40 °C [50 ... 104 °F], and is also available as an IECEx and ATEX version.



Fig. left: Variant 1 with integrated signal processing of diaphragm monitoring

Fig. right: Variant 2 with separate signal processing of diaphragm monitoring

Reliable hygienic design

The IP65-protected DMSU21SA meets the requirements of current international hygiene standards such as EHEDG and 3-A and uses an FDA-compliant system filling fluid.

Reliable protection against contamination

Thanks to the double diaphragm, with an evacuated intermediate space, the risk of contamination is minimal. The monitoring element immediately transmits diaphragm ruptures to the system. This ensures the high-quality production of medicines and foodstuffs and prevents production downtime.

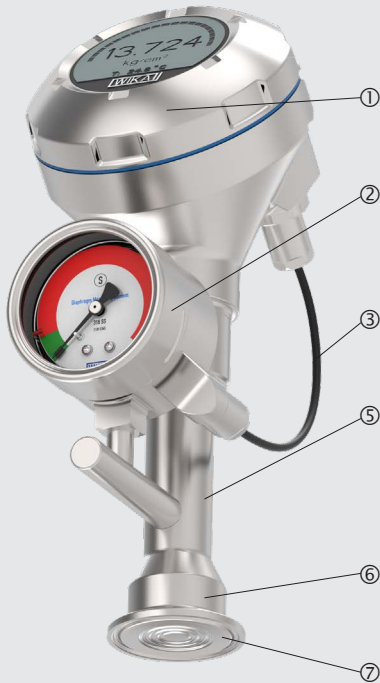
Easy dismounting and cleaning

The clamp connection (TRI-CLAMP®) enables the quick and easy dismounting and thus a simple cleaning with seal replacement.

Indicative image of the diaphragm monitoring system

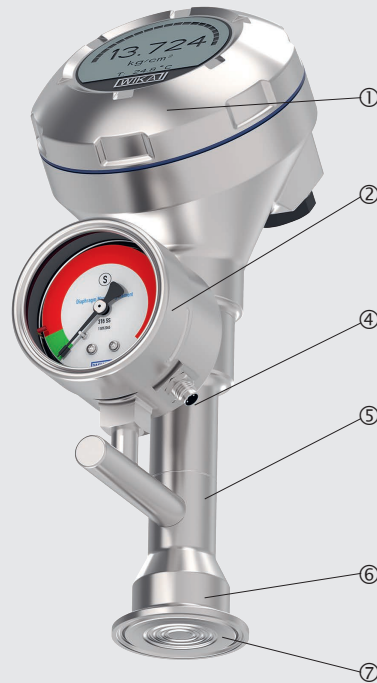
The diaphragm monitoring system is a combination of pressure measuring instrument and diaphragm seal with an additional monitoring element for the diaphragm condition. Depending on the variant, signal processing of diaphragm monitoring takes place either directly integrated in the process transmitter or in a separate evaluation electronics.

Variant 1: Integrated signal processing diaphragm monitoring



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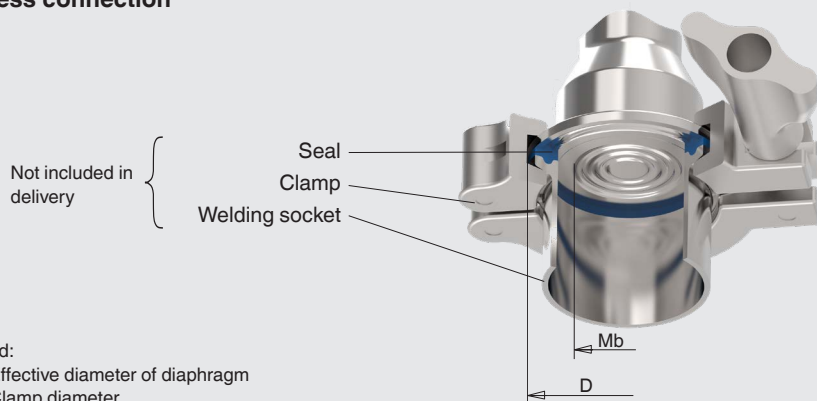
Variant 2: Separate signal processing of diaphragm monitoring



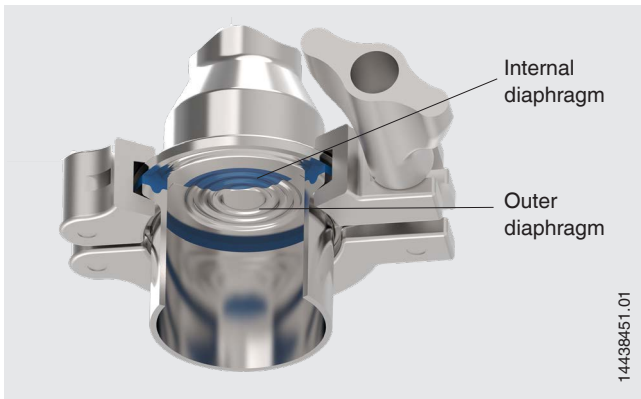
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- | | |
|---|--|
| ① Pressure measuring instrument: Model UPT-20 | ⑤ Direct mounting |
| ② Monitoring element | ⑥ Diaphragm seal with process connection: TRI-CLAMP® |
| ③ Wiring from diaphragm monitoring to process transmitter | ⑦ Diaphragm (welded to diaphragm seal) |
| ④ Electrical output of diaphragm monitoring | |

Process connection



Functional principle of diaphragm monitoring



Normal operation

In normal operation, pressure measurement and diaphragm monitoring operate without restrictions within the performance limits of the overall system.

The space between the two diaphragms is evacuated. With the monitoring element, this vacuum is measured and the condition indicated in the green range; no electrical/digital alarm signal will be output.

Safety

The measurement technology of the monitoring element withstands the process pressure despite the diaphragm rupture. The measurement function of the overall system is maintained without restrictions. The process safety is guaranteed because the materials used for the two diaphragms are the same as those of the wetted parts of the diaphragm seal. The overall system is, nevertheless, damaged and must be replaced immediately.

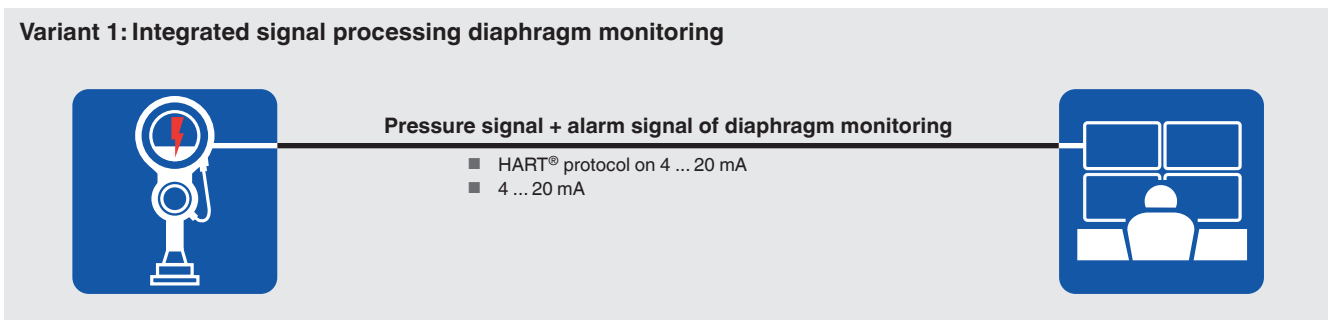
Diaphragm rupture

In the event of a diaphragm rupture, the pressure monitored in the intermediate space increases. As soon as the display of the monitoring element exceeds the predefined set point, the alarm signal for a diaphragm rupture is transmitted.

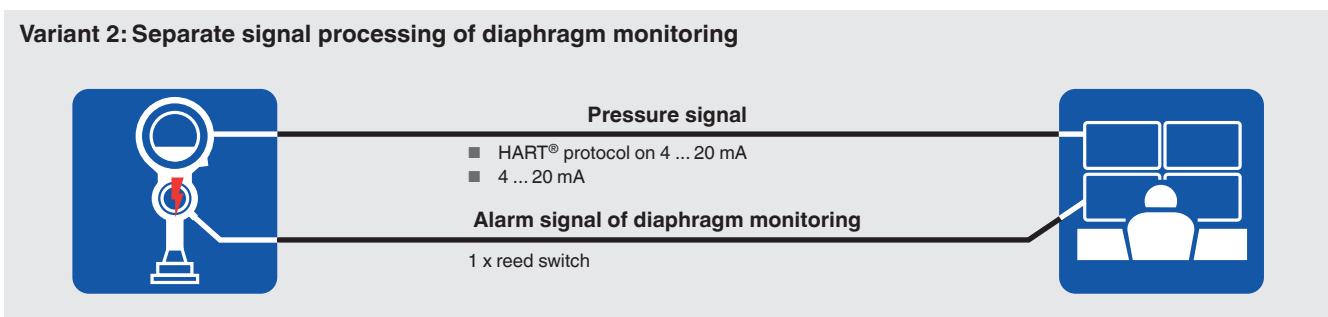
WIKA's double-diaphragm design is the solution for critical processes where neither the medium should find its way into the environment, nor should the system fill fluid find its way into the product.

Signal processing variants

Variant 1, with integrated signal processing, enables the alarm signal of the monitoring element to be output, with only one cable, either via the HART® protocol or as an error signal on the current loop. The use of a single cable enables a quick instrument replacement at the measuring location.



Variant 2, with separate signal processing, allows the alarm signal to be evaluated by the customer and therefore requires an additional cable at the measuring location. With this variant, the model UPT-20 pressure measuring instrument is used for pure pressure measurement and cannot process the signal of a diaphragm rupture.



Variant 1: Integrated signal processing of diaphragm monitoring with HART®

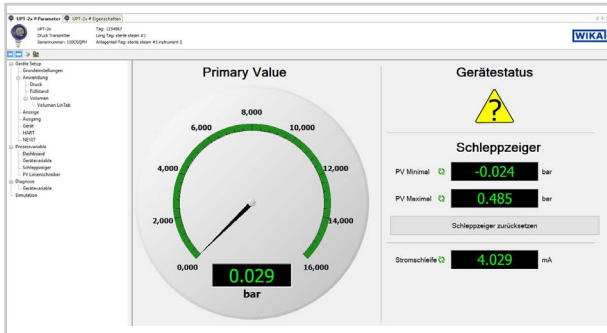
Signal processing via DTM

For HART® output signals, a DTM is available in accordance with the FDT standard.

This software can be downloaded from the website.

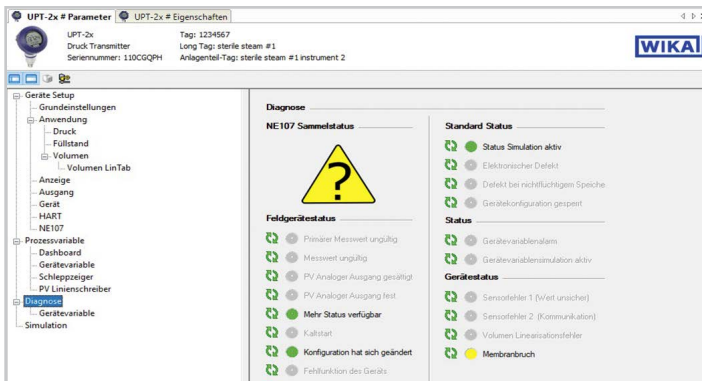
The DTM provides a self-explanatory and clear user interface for all setup and control processes of the transmitter. For testing purposes, it is also possible to simulate process values and archive the parameter data.

Recording of the measured values is available for diagnostic purposes.



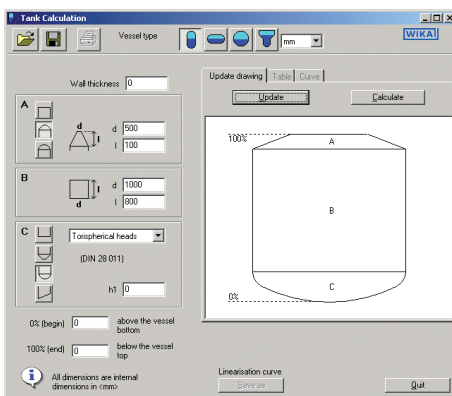
Diagnostics: Diaphragm rupture

In the event of a diaphragm rupture in the first diaphragm, the instrument status will be set to "Diaphragm rupture". This allows the user to analyse faults to the second, while the instrument continues to monitor the process pressure without restriction. The user thus has the advantage of reducing to a minimum any production errors that may occur. No contamination of the process medium or the environment has occurred at this time.



Tank volume calculation

The additional tank volume calculation of the DTM function can be used to reproduce any optional tank geometry. The corresponding linearisation table is generated automatically. The linearisation table can be transferred directly to the transmitter.



Specifications

Diaphragm seal system	
Version	Model UPT-20 process transmitter mounted to a diaphragm seal, hygienic design, welded
Material ¹⁾	
Wetted	Diaphragm and diaphragm seal <ul style="list-style-type: none"> ■ Stainless steel 1.4435 (316L); UNS S31603 ■ Hastelloy C22 (2.4602); UNS N06022
Surface roughness	
Wetted	<ul style="list-style-type: none"> ■ Ra ≤ 0.38 µm [15 µin] per ASME BPE SF4, electropolished ■ Ra ≤ 0.76 µm [30 µin] per ASME BPE SF3
Non-wetted	Ra ≤ 0.76 µm [30 µin]
Case head	<ul style="list-style-type: none"> ■ Plastic (PBT) with conductive surface per EN 60079-0, colour: Night blue RAL5022 ■ Stainless steel case 1.4308 (CF-8) with electropolished surface (suitable for pharmaceutical, food and hygienic industries)
System fill fluid	<ul style="list-style-type: none"> ■ KN92, medicinal white mineral oil ²⁾, FDA 21 CFR 172.878 + FDA 21 CFR 178.362 (a) ■ KN59, Neobee® M-20, FDA 21 CFR 172.856, 21 CFR 174.5
Mounting type	Direct mounting
Level of cleanliness of wetted parts	Oil- and grease-free per ASTM G93-03 level F (< 1,000 mg/m ²) WIKA standard

1) Other materials on request

2) USP-, EP- and JP-certified

USP = United States Pharmacopoeia

EP = European Pharmacopoeia

JP = Japanese Pharmacopoeia

Diaphragm monitoring ¹⁾ via switch contact and dial with red/green ranges	
Output signal	<ul style="list-style-type: none"> ■ Variant 1: Integrated signal processing of diaphragm monitoring with model UPT-20 ■ Variant 2: Separate signal processing with output signal of the monitoring element
Switch contact status	→ See "Output signal"
Variant 1	With integrated signal processing, the switch contact of the monitoring element is monitored in the process transmitter and output via the HART® protocol or as an error signal on the current loop.
Variant 2	Separate signal processing of the monitoring element requires an additional cable and monitoring of the switch contact on the customer side.
Alarm signal condition	For the monitoring element to change the status of the switch contact, the specified set point must be reached for at least 1.5 seconds. This prevents shocks or vibrations from triggering the alarm signal unintentionally.
Dial display	Pointer in green range → Outer diaphragm intact Pointer in red range → Outer diaphragm defective
Material	
Case	Stainless steel, with solid baffle wall (Solidfront) and blow-out back
Pressure element	Stainless steel 316L
Movement	Stainless steel
Bayonet bezel	Stainless steel
Pointer/dial	Aluminium
Window	Laminated safety glass

1) In the event of a diaphragm rupture, diaphragm monitoring is specified for process pressures ≥ 0 bar gauge

Measuring range

Gauge pressure						
bar	0 ... 2.5	0 ... 4	0 ... 6	0 ... 10	0 ... 16	0 ... 25
psi	0 ... 30	0 ... 60	0 ... 100	0 ... 160	0 ... 200	0 ... 300

Vacuum and +/- measuring range ¹⁾						
bar	-1 ... +1.5	-1 ... +3	-1 ... +5	-1 ... +9	-1 ... +15	-1 ... +24
psi	-30 inHg ... 20	-30 inHg ... +40	-30 inHg ... +80	-30 inHg ... +130	-30 inHg ... +200	-30 inHg ... +350

1) Under vacuum, diaphragm monitoring is only possible to a restricted extent

Other units adjustable (→ See page 9).

Other measuring ranges can be set via turndown.

For example, a 0 ... 6 bar [0 ... 100 psi] instrument can also be used from -1 ... +6 bar [-30 inHg ... +100 psi].

Vacuum/Overload safety	
Vacuum safety	Yes
Overload safety	1-time, relative to the measuring range

Output signal

Model UPT-20	
Signal types	<ul style="list-style-type: none"> ■ 4 ... 20 mA with HART® signal (HART® rev. 7) ■ 4 ... 20 mA
Auxiliary power	
Supply voltage	U+ = DC 14 ... 30 V
Load in Ω	≤ U+ - 14 V / 0.023 A
Damping	0 ... 99.9 s, adjustable After the set damping time the instrument outputs 63 % of the applied pressure as output signal.
Settling time t₉₀	80 ms
Refresh rate	50 ms

Monitoring element ¹⁾	
Signal type	1 x reed switch, model 851
Model 851.2	Normally closed (clockwise pointer motion)
Switch hysteresis	3 ... 5 %
Switching current	≤ AC/DC 100 mA
Switching voltage	≤ AC/DC 30 V

1) External evaluation possible with variant 2: Separate signal processing of diaphragm monitoring; otherwise the signal is directly evaluated in the pressure measuring instrument.

Process connection

Standard	
Clamp connection per DIN 32676, ASME BPE and ISO 2852¹⁾	→ See from page 14
Aseptic threaded pipe connection per DIN 11864-1	→ See from page 18
Aseptic flange connection per DIN 11864-2	→ See from page 21
Aseptic clamp connection per DIN 11864-3	→ See from page 24
Ingold connection with union nut	→ See page 25
VARINLINE® connection	→ See page 26

1) The ISO 2852 standard was withdrawn

Accuracy specifications

Accuracy specifications		
Accuracy at reference conditions ¹⁾		
Gauge pressure measuring range	<ul style="list-style-type: none"> ■ 0.1 % of span ■ 0.5 % of span 	
Vacuum and +/- measuring range	-1 bar ... -0,5 bar	■ < 1 % of the span; the vacuum between the diaphragms affects the accuracy in this measuring range
	> -0,5 bar	<ul style="list-style-type: none"> ■ 0.1 % of span ■ 0.5 % of span
Adjustability		
Zero point	-20 ... +95 % (downwards, the adjustability is always limited by the minimum pressure of 0 bar abs. [0 psia])	
Span	-120 ... +120 % with a difference between zero point and span of max. 120 % of the nominal measuring range	
Turndown	Unlimited; maximum recommended turndown 20:1	
	Measuring range ≤ 25 bar [360 psi]	
Mounting correction	-20 ... +20 %	
Non-repeatability	≤ 0.1 % of span	
Behaviour with turndown ²⁾		
TD ≤ 5:1	No influence on the accuracy	
TD > 5:1 ... ≤ 100:1	GES = GG x TD / 5	
Long-term stability	≤ 0.1 % of span	

1) Including non-linearity, hysteresis, zero point offset and end value deviation (corresponds to measured error per IEC 61298-2).

2) **Legend**

GES: Overall accuracy via turndown

GG: Accuracy (e.g. 0.1 %)

TD: Turndown factor (e.g. 4:1 corresponds to TD factor 4)

Reference conditions per IEC 61298-1

Reference conditions per IEC 61298-1	
Temperature	23 °C ±2 °C [73 °F ±7 °F]
Auxiliary power	DC 23 ... 25 V
Air pressure	860 ... 1,060 mbar [86 ... 106 kPa, 12.5 ... 15.4 psi]
Air humidity	45 ... 75 % r. h.
Characteristic curve determination	Terminal method per IEC 61298-2
Curve characteristics	Linear
Reference mounting position	Vertical, diaphragm points downward

→ For more information, see "Approvals"

Case design of process transmitter

Case	
Material	<ul style="list-style-type: none"> ■ Plastic (PBT) with conductive surface per EN 60079-0. Colour: Night blue RAL5022 ■ Stainless steel case 1.4308 (CF-8) with electropolished surface (suitable for pharmaceutical, food and hygienic industries)

Electrical connection

Electrical connection, model UPT-20		
Cable glands M20 x 1.5		
Stainless steel cable gland in hygienic design	Seal	FDA-compliant
	Cable diameter	6 ... 12 mm [0.24 ... 0.47 in]
	Ingress protection per IEC/EN 60529	IP66/67
Angular connector DIN 175301-803A with mating connector	Wire cross-section	Max. 1.5 mm ² (AWG 16)
	Ingress protection per IEC/EN 60529	IP65 ¹⁾
Circular connector M12 x 1 (4-pin) without mating connector	Ingress protection per IEC/EN 60529	IP65 ¹⁾
Electrical safety	Reverse polarity protection	

1) The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

Pin assignment, model UPT-20

Cable gland M20 x 1.5 and spring-loaded terminals

Outlet for connection cable Pin assignment

① Cable gland
 ② Shield
 ③ Positive power supply terminal U+
 ④ Negative power supply terminal U-

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Variant 2: pin assignment, monitoring element

Electrical connection, monitoring element		
Circular connector M8 x 1 (4-pin) without mating connector	Ingress protection per IEC/EN 60529	IP65 ¹⁾
Electrical safety	Reverse polarity protection	

1) The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

Circular connector M8 x 1 (4-pin)

		1
		2

Display and operating unit, model DI-PT-U

Display and operating unit, model DI-PT-U	
Display type	LC display ¹⁾
Refresh rate	200 ms
Main display	4 ½-digit
Segment display	Character size 14 mm [0.55 in]
Additional display	Selectable via menu, three-line display range
Bar graph display	20 segments, radial, pressure gauge simulation
Adjustable units	
Pressure units	<ul style="list-style-type: none"> ■ bar ■ psi ■ mbar ■ MPa ■ kPa ■ hPa ■ Pa ■ mH₂O ■ mmH₂O ■ ftH₂O ■ inH₂O ■ mHg ■ mmHg ■ inHg ■ kg/cm² ■ g/cm² ■ Torr
Level units	<ul style="list-style-type: none"> ■ m ■ cm ■ mm ■ ft ■ in
Volume units	<ul style="list-style-type: none"> ■ l ■ m³ ■ gal ■ inch³ ■ ft³ ■ %
Free unit	A free character string (6 characters) can be defined as a unit
Operating state	Display via symbols
Operation	4 buttons for the recall and operation of the settings
Colours	
Background	Light grey
Digits	Black
Display size	Separated into main and segment displays
Ingress protection per IEC/EN 60529	<ul style="list-style-type: none"> ■ IP20 (loose) ■ IP40 (built-in without cover)
Material	Case from ABS, window from polyester film




1) For the process transmitter only this display may be used. → For order number, see "Accessories and spare parts".

Operating conditions

Operating conditions	
Range of use	Suitable for internal and external operation, exposure to direct sunlight is permitted
Permissible air humidity	≤ 93 % r. h.
Permissible temperature ranges ¹⁾	
Ambient	10 ... 40 °C [50 ... 104 °F]
Medium	<ul style="list-style-type: none"> ■ -10 ... +130 °C [14 ... 266 °F] ■ -10 ... +150 °C [14 ... 302 °F]
Storage	10 ... 60 °C [50 ... 140 °F]
Ingress protection per IEC/EN 60529	IP65
	The ingress protection only applies with closed case head and closed cable glands.

1) For Ex versions, see chapter "Safety-related characteristic values (Ex)", page 11

Approvals




Logo	Description	Region
	EU declaration of conformity	European Union
	EMC directive, interference emission (group 1, class B) and immunity per EN 61326-1 (industrial application), EN 61326-2-3 ¹⁾	
	Pressure Equipment Directive	
	RoHS directive	
	3-A ²⁾ Hygienic design This instrument is 3-A marked, based on a third party verification for conformance to the 3-A standard.	USA
	EHEDG ³⁾ Hygienic Equipment Design EL Class I Closed equipment, wet cleaning in place (CIP) without dismounting	International

1) With electrostatic discharge, a short-term, increased error of up to 1 % of the nominal measuring range can occur.

2) Conformance to 3-A standard only in connection with the marked process connections

3) EHEDG-conformity only in connection with the marked process connections

Optional approvals

Logo	Description	Region
 	EU declaration of conformity	European Union
	ATEX directive ¹⁾ Hazardous areas Zone 1 gas II 2G Ex ia IIC T6 ... T3 Gb Zone 2 gas II 2G Ex ia IIC T6 ... T3 Gc Zone 21 dust II 2D Ex ia IIIC T135°C Db	
	IECEx ¹⁾ Hazardous areas Zone 1 gas Ex ia IIC T6 ... T3 Gb Zone 2 gas Ex ia IIC T6 ... T3 Gc Zone 21 dust Ex ia IIIC T135 °C Db	International

1) Only available for variant 1: Integrated signal processing of diaphragm monitoring

Manufacturer's declaration

Logo	Description
-	Manufacturer's declaration regarding regulation (EC) no. 1935/2004; good manufacturing practice (EC) no. 2023/2006 (GMP)
-	Manufacturer's statement regarding good manufacturing practice GB 31603-2015 (GMP)
-	Manufacturer's statement regarding FDA-conformity of the system fill fluid
-	ADI-free manufacturer's statement

Certificates

Certificates	
Certificates	<ul style="list-style-type: none"> ■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy, free from substances of animal origin) ■ 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy) ■ FDA conformity of the system fill fluid ■ Conformance to 3-A standard of the diaphragm seal, based on a third party verification ■ EHEDG conformity

Certificates	
Certification packages	
Food	<ul style="list-style-type: none"> ■ 2.2 confirmation of the class and indication accuracy ■ 3.1 inspection certificate for wetted metal parts EC1935/2004
Pharma	<ul style="list-style-type: none"> ■ 3.1 inspection certificate with 3 test points ■ 3.1 inspection certificate for wetted metal parts ■ 2.2 test report: state of the art EC1935/2004 ■ 2.2 test report: surface finish quality of wetted metal parts free from substances of animal origin (ADI-free)

Patents, property rights

Patent number	Description
US 10794787 NL 2019251	Diaphragm monitoring for diaphragm seals

→ For approvals and certificates, see website

Safety-related characteristic values (Ex)

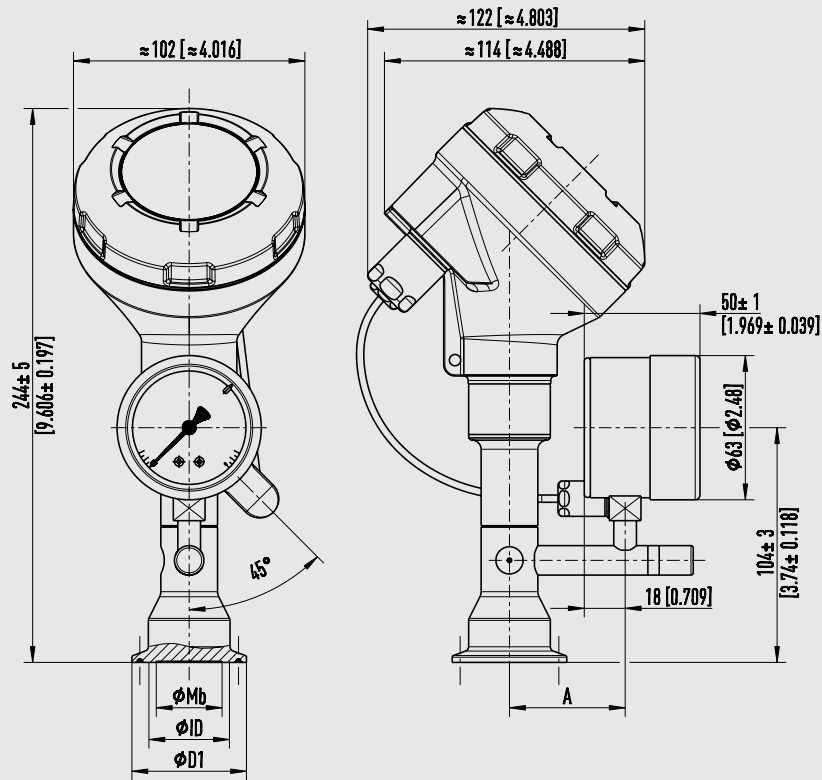
Safety-related characteristic values (Ex)	
Connection values	
Max. supply voltage U_+	DC 30 V
Max. voltage U_i	DC 30 V
Max. current I_i	100 mA
Max. power P_i (gas)	1,000 mW
Max. power P_i (dust)	Depending on the ambient temperature, see table "Ambient temperature range for dust applications"
Effective internal capacitance C_i	11 nF
Effective internal inductance L_i	100 μ H
Temperature class	T6 ... T3, depending on medium temperature and ambient temperature range, see table "Temperature class"
Max. surface temperature (dust)	135 °C [275 °F]

Ambient temperature range for dust applications	Max. power P_i (dust)
$-40 \leq T_a \leq +80$ °C [$-40 \leq T_a \leq +176$ °F]	550 mW
$-40 \leq T_a \leq +70$ °C [$-40 \leq T_a \leq +158$ °F]	650 mW
$-40 \leq T_a \leq +40$ °C [$-40 \leq T_a \leq +104$ °F]	750 mW

Temperature class	Max. medium temperature	Ambient temperature range for gas applications
T3	150 °C [302 °F]	$-40 \leq T_a \leq +40$ °C [$-40 \leq T_a \leq +104$ °F]
T4	120 °C [248 °F]	$-40 \leq T_a \leq +50$ °C [$-40 \leq T_a \leq +122$ °F]
T4	80 °C [176 °F]	$-40 \leq T_a \leq +80$ °C [$-40 \leq T_a \leq +176$ °F]
T5, T6	60 °C [140 °F]	$-40 \leq T_a \leq +60$ °C [$-40 \leq T_a \leq +140$ °F]

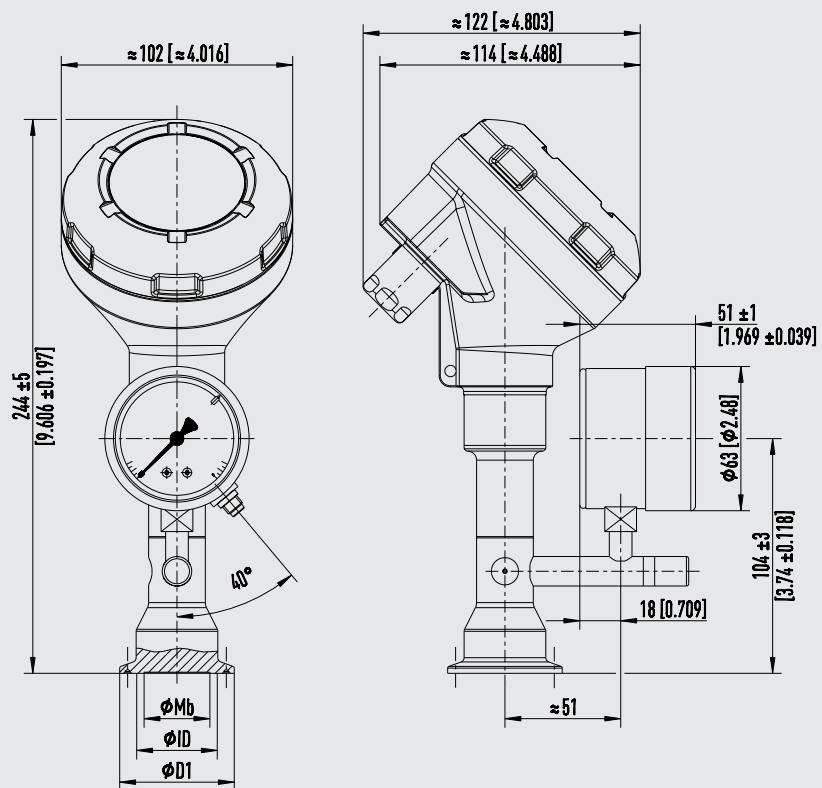
Dimensions in mm [in]

Variant 1 with clamp connection per DIN 32676, DN 1 1/2" or ASME BPE



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Variant 2 with clamp connection per DIN 32676, DN 1 1/2" or ASME BPE



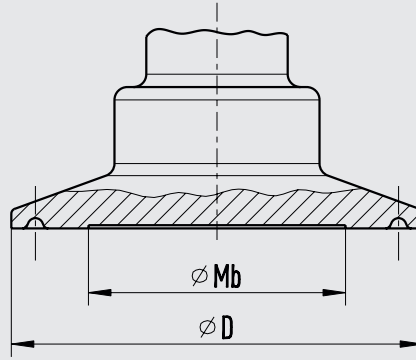
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For further information on model UPT-20, see data sheet PE 86.05

Clamp connections per DIN 32676 and BS 4825-3



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1) EHEDG conformity only in combination with TRI-CLAMP® seals Combifit International B.V., The Netherlands.

Process connection: Clamp connection per DIN 32676

Pipe standard per DIN 11866 row B and ISO 1127 row 1

DN	PN ¹⁾	Dimensions in mm [in]			
		For pipe outer \varnothing x wall thickness	Pipe inner \varnothing	D	Mb
26.9	40	26.9 x 1.6 [1.059 x 0.063]	23.7 [0.933]	50.5 [1.988]	17 [0.669]
33.7	40	33.7 x 2 [1.327 x 0.079]	29.7 [1.169]	50.5 [1.988]	17 [0.669]
42.4	40	42.4 x 2 [1.669 x 0.079]	38.4 [1.512]	64 [2.52]	17 [0.669]
48.3	40	48.3 x 2 [1.902 x 0.079]	44.3 [1.744]	64 [2.52]	29 [1.142]
60.3	40	60.3 x 2 [2.374 x 0.079]	56.3 [2.217]	77.5 [3.051]	29 [1.142]
76.1	25	76.1 x 2 [2.996 x 0.079]	72.1 [2.839]	91 [3.583]	52 [2.047]

Process connection: Clamp connection per DIN 32676

Pipe standard per DIN 11866 row C or ASME BPE

DN	PN ¹⁾	Dimensions in mm [in]			
		For pipe outer \varnothing x wall thickness	Pipe inner \varnothing	D	Mb
1 1/2"	40	38.1 x 1.65 [1.5 x 0.065]	34.8 [1.37]	50.5 [1.988]	29 [1.142]
2"	40	50.8 x 1.65 [2 x 0.065]	47.5 [1.87]	64 [2.52]	29 [1.142]
2 1/2"	40	63.5 x 1.65 [2.5 x 0.065]	60.2 [2.37]	77.5 [3.051]	29 [1.142]
3"	25	76.2 x 1.65 [3 x 0.065]	72.9 [2.87]	91 [3.583]	52 [2.047]

Process connection: clamp connection per BS 4825 part 3

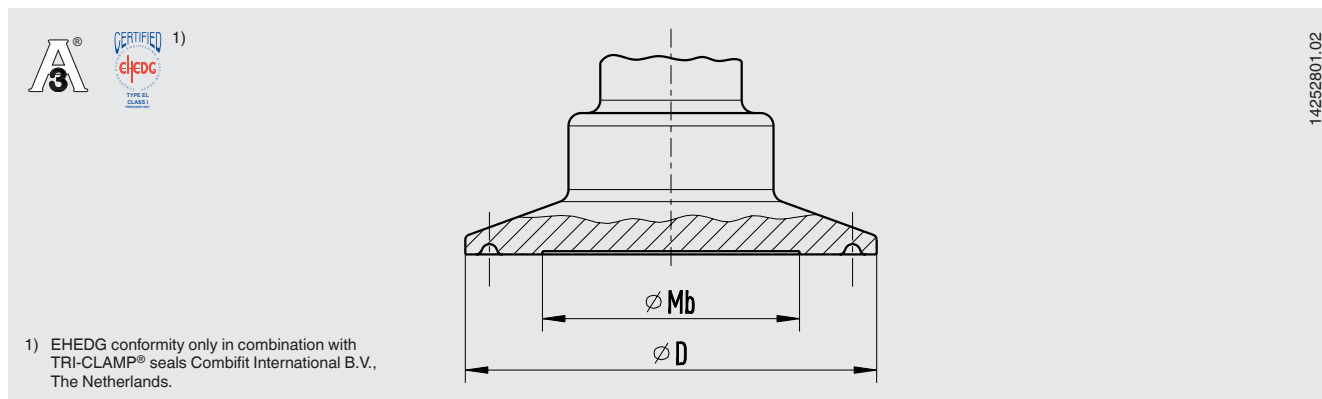
Pipe standard per BS 4825 part 3 and O.D. tube

DN	PN ¹⁾	Dimensions in mm [in]			
		For pipe outer \varnothing x wall thickness	Pipe inner \varnothing	D	Mb
38.1	40	38.1 x 1.6 [1.5 x 0.063]	34.9 [1.374]	50.5 [1.988]	17 [0.669]
50.8	40	50.8 x 1.6 [2 x 0.063]	47.6 [1.874]	64 [2.52]	29 [1.142]
63.5	40	63.5 x 1.6 [2.5 x 0.063]	60.3 [2.374]	77.5 [3.051]	29 [1.142]
76.2	25	76.2 x 1.6 [3 x 0.063]	73 [2.874]	91 [3.583]	52 [2.047]

1) For maximum pressure range consider pressure rating of clamp.

→ Further dimensions and higher nominal pressures on request

Clamp connection per DIN 32676



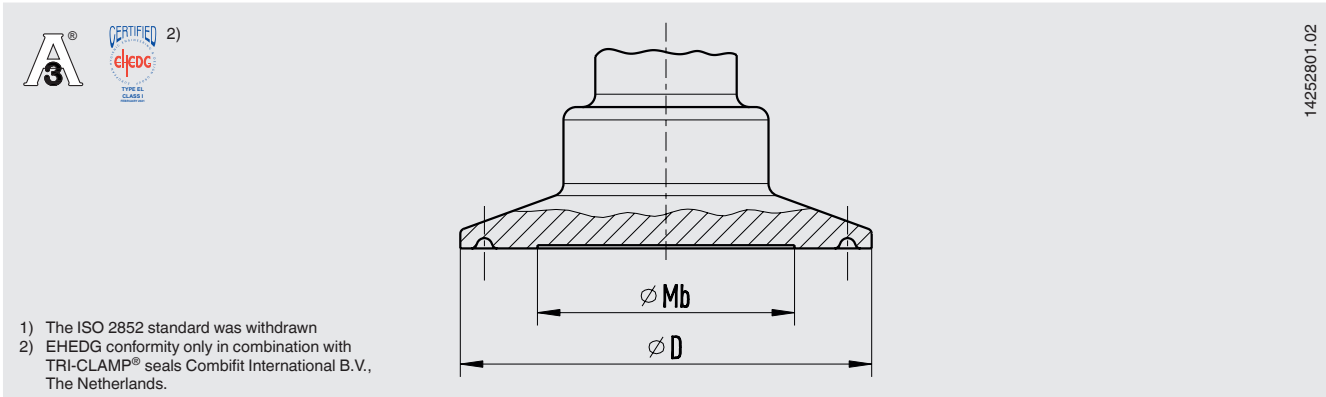
Process connection: Clamp connection per DIN 32676 Pipe standard per DIN 11866 row A and DIN 11850 row 2

DN	PN ¹⁾	Dimensions in mm [in]			
		For pipe outer \varnothing x wall thickness	Pipe inner \varnothing	D	Mb
25	40	29 x 1.5 [x 0.059]	26 [1.024]	50.5 [1.988]	17 [0.669]
32	40	35 x 1.5 [x 0.059]	32 [1.26]	50.5 [1.988]	17 [0.669]
40	40	41 x 1.5 [x 0.059]	38 [1.496]	50.5 [1.988]	17 [0.669]
50	40	53 x 1.5 [x 0.059]	50 [1.969]	64 [2.52]	29 [1.142]
65	25	70 x 2 [x 0.079]	66 [2.598]	91 [3.583]	52 [2.047]
80	25	85 x 2 [x 0.079]	81 [3.189]	106 [4.173]	52 [2.047]
100	25	104 x 2 [x 0.079]	100 [3.937]	119 [4.685]	72 [2.835]

1) For maximum pressure range consider pressure rating of clamp.

→ Further dimensions and higher nominal pressures on request

Clamp connection per ISO 2852 ¹⁾



Process connection: Clamp connection per ISO 2852 Pipe standard per ISO 2037 and BS 4825 part 2

DN	PN ¹⁾	Dimensions in mm [in]			
		For pipe outer \varnothing x wall thickness	Pipe inner \varnothing	D	Mb
33.7	40	33.7 x 1.2 [1.327 x 0.047]	31.3 [1.232]	50.5 [1.988]	17 [0.669]
38	40	38 x 1.2 [1.496 x 0.047]	35.6 [1.402]	50.5 [1.988]	17 [0.669]
40	40	40 x 1.2 [1.575 x 0.047]	37.6 [1.48]	64 [2.52]	17 [0.669]
51	40	51 x 1.2 [2.008 x 0.047]	48.6 [1.913]	64 [2.52]	29 [1.142]
63.5	40	63.5 x 1.6 [2.5 x 0.063]	60.3 [2.374]	77.5 [3.051]	29 [1.142]
70	25	70 x 1.6 [2.756 x 0.063]	66.8 [2.63]	91 [3.583]	52 [2.047]
76.1	25	76.1 x 1.6 [2.996 x 0.063]	72.9 [2.87]	91 [3.583]	52 [2.047]
88.9	25	88.9 x 2 [3.5 x 0.079]	84.9 [3.343]	106 [4.173]	52 [2.047]
101.6	25	101.6 x 2 [4 x 0.079]	97.6 [3.843]	119 [4.685]	72 [2.835]

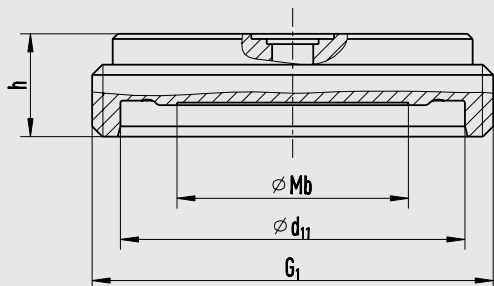
1) For maximum pressure range consider pressure rating of clamp.

→ Further dimensions and higher nominal pressures on request

Aseptic threaded pipe connection per DIN 11864-1

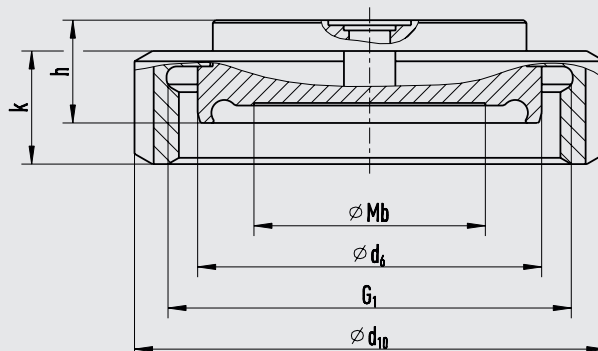


With threaded coupling



11077655.01

With liner and union nut



11077647.01

Type of process connection: Aseptic threaded pipe connection per DIN 11864-1 form A
 Pipe standard per DIN 11866 row A or DIN 11850 row 2

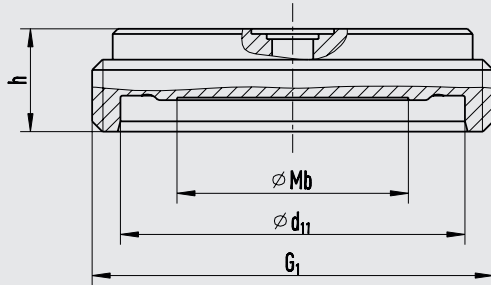
DN	For pipe Outer Ø x wall thickness in mm [in]	PN ¹⁾	Dimensions in mm [in]							
			Mb	d ₆	d ₁₁	G ₁	h	d ₁₀	k	Aseptic O-ring
25	29 x 1.5 [1.142 x 0.071]	40	17 [0.669]	42.9 [1.689]	43 [1.693]	RD 52 x 1/6 [2.047 x 1/6]	20 [0.787]	63 [2.48]	21 [0.827]	28 x 3.5 [1.102 x 0.1378]
32	35 x 1.5 [1.378 x 0.071]	40	17 [0.669]	48.9 [1.925]	49 [1.929]	RD 58 x 1/6 [2.283 x 1/6]	20 [0.787]	70 [2.756]	21 [0.827]	34 x 5 [1.339 x 0.197]
40	41 x 1.5 [1.614 x 0.071]	40	29 [1.142]	54.9 [2.161]	55 [2.165]	RD 65 x 1/6 [2.559 x 1/6]	20 [0.787]	78 [3.071]	21 [0.827]	40 x 5 [1.575 x 0.197]
50	53 x 1.5 [2.087 x 0.071]	25	29 [1.142]	66.9 [2.634]	67 [2.638]	RD 78 x 1/6 [3.071 x 1/6]	20 [0.787]	92 [3.622]	22 [0.866]	52 x 5 [2.047 x 0.197]
65	70 x 2 [2.756 x 0.078]	25	52 [2.047]	84.9 [3.343]	85 [3.346]	RD 95 x 1/6 [3.74 x 1/6]	20 [0.787]	112 [4.409]	25 [0.984]	68 x 5 [2.677 x 0.197]
80	85 x 2 [3.346 x 0.078]	25	52 [2.047]	98.9 [3.894]	99 [3.898]	RD 110 x 1/4 [4.331 x 1/4]	20 [0.787]	127 [5] [5.000]	29 [1.142]	83 x 5 [3.268 x 0.197]
100	104 x 2 [4.094 x 0.078]	25	72 [2.835]	118.9 [4.681]	119 [4.685]	RD 130 x 1/4 [5.118 x 1/4]	20 [0.787]	148 [5.827]	31 [1.22]	102 x 5 [4.016 x 0.197]

1) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature of -10 ... +140 °C.

Aseptic threaded pipe connection per DIN 11864-1

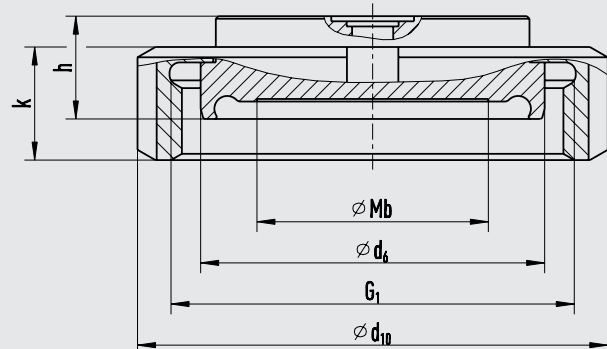


With threaded coupling



11077655.01

With liner and union nut



11077647.01

Type of process connection: Aseptic threaded pipe connection per DIN 11864-1 form A
 Pipe standard per DIN 11866 row B or DIN ISO 1127 row 1

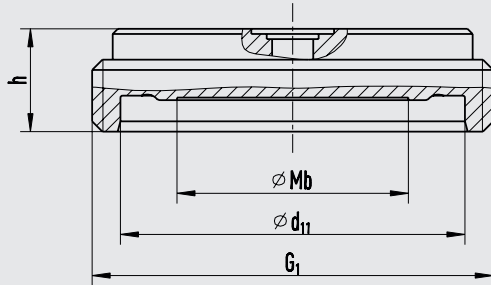
DN	For pipe Outer Ø x wall thick- ness in mm [in]	PN ¹⁾	Dimensions in mm [in]							
			Mb	d ₆	d ₁₁	G ₁	h	d ₁₀	k	Aseptic O-ring
26.9	26.9 x 1.6 [1.059 x 0.063]	40	17 [0.669]	42.9 [1.689]	43 [1.693]	RD 52 x 1/6 [2.047 x 1/6]	20 [0.787]	63 [2.48]	21 [0.827]	26 x 3.5 [1.024 x 0.1378]
33.7	33.7 x 2 [1.327 x 0.078]	40	17 [0.669]	48.9 [1.925]	49 [1.929]	RD 58 x 1/6 [2.283 x 1/6]	20 [0.787]	70 [2.756]	21 [0.827]	32 x 5 [1.26 x 0.197]
42.4	42.4 x 2 [1.669 x 0.078]	25	29 [1.142]	54.9 [2.161]	55 [2.165]	RD 65 x 1/6 [2.559 x 1/6]	20 [0.787]	78 [3.071]	21 [0.827]	40.5 x 5 [1.594 x 0.197]
48.3	48.3 x 2 [1.902 x 0.078]	25	29 [1.142]	66.9 [2.634]	67 [2.638]	RD 78 x 1/6 [3.071 x 1/6]	20 [0.787]	92 [3.622]	22 [0.866]	46.5 x 5 [1.831 x 0.197]
60.3	60.3 x 2 [2.374 x 0.078]	25	29 [1.142]	84.9 [3.343]	85 [3.346]	RD 95 x 1/6 [3.74 x 1/6]	20 [0.787]	112 [4.409]	25 [0.984]	58.5 x 5 [1.831 x 0.197]
76.1	76.1 x 2 [2.996 x 0.078]	25	52 [2.047]	98.9 [3.894]	99 [3.898]	RD 110 x 1/4 [4.331 x 1/4]	20 [0.787]	127 [5]	29 [1.142]	73.5 x 5 [2.894 x 0.197]
88.9	88.9 x 2.3 [3.5 x 0.091]	25	52 [2.047]	118.9 [4.681]	119 [4.685]	RD 130 x 1/4 [5.118 x 1/4]	20 [0.787]	148 [5.827]	31 [1.22]	86.5 x 5 [3.406 x 0.197]

1) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature of -10 ... +140 °C.

Aseptic threaded pipe connection per DIN 11864-1

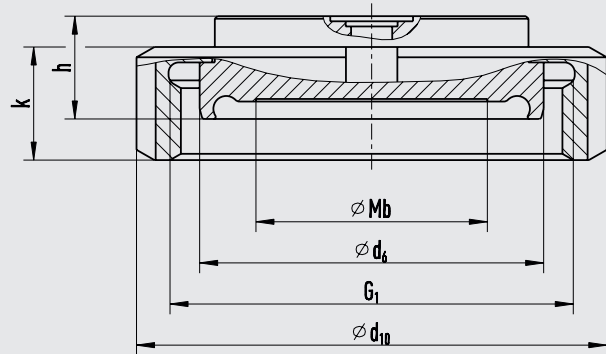


With threaded coupling



11077655.01

With liner and union nut



11077647.01

Type of process connection: Aseptic threaded pipe connection per DIN 11864-1 form A
 Pipe standard per DIN 11866 row C or ASME BPE 1997

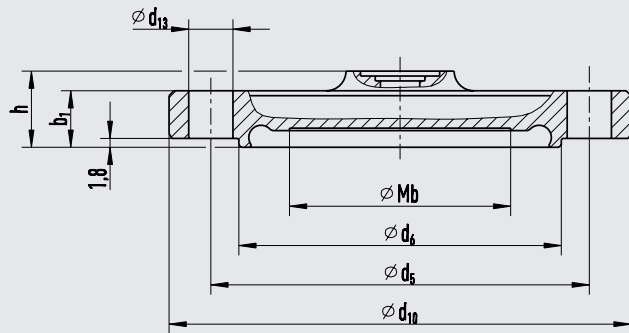
DN	For pipe Outer Ø x wall thickness in mm [in]	PN ¹⁾	Dimensions in mm [in]							
			Mb	d ₆	d ₁₁	G ₁	h	d ₁₀	k	Aseptic O-ring
1"	25.4 x 1.65 [1.831 x 0.065]	40	17 [0.669]	42.9 [1.689]	43 [1.693]	RD 52 x 1/6 [2.047 x 1/6]	20 [0.787]	63 [2.48]	21 [0.827]	24 x 3.5 [0.945 x 0.1378]
1 1/2"	42.4 x 1.65 [1.669 x 0.065]	40	17 [0.669]	54.9 [2.161]	55 [2.165]	RD 65 x 1/6 [2.559 x 1/6]	20 [0.787]	78 [3.071]	21 [0.827]	37 x 5 [1.457 x 0.197]
2"	48.3 x 1.65 [1.902 x 0.065]	25	29 [1.142]	66.9 [2.634]	67 [2.638]	RD 78 x 1/6 [3.071 x 1/6]	20 [0.787]	92 [3.622]	22 [0.866]	50 x 5 [1.969 x 0.197]
2 1/2"	60.3 x 1.65 [2.374 x 0.065]	25	29 [1.142]	84.9 [3.343]	85 [3.346]	RD 95 x 1/6 [3.74 x 1/6]	20 [0.787]	112 [4.409]	25 [0.984]	62 x 5 [2.441 x 0.197]
3"	76.1 x 1.65 [2.996 x 0.065]	25	52 [2.047]	98.9 [3.894]	99 [3.898]	RD 110 x 1/4 [4.331 x 1/4]	20 [0.787]	127 [5]	29 [1.142]	75 x 5 [2.953 x 0.197]
4"	88.9 x 2.11 [3.5 x 0.083]	25	72 [2.835]	118.9 [4.681]	119 [4.685]	RD 130 x 1/4 [5.118 x 1/4]	20 [0.787]	148 [5.827]	31 [1.22]	100 x 5 [3.937 x 0.197]

1) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature of -10 ... +140 °C.

Aseptic flange connection per DIN 11864-2

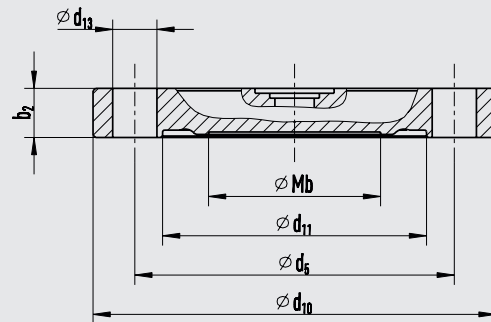


With flange with groove



11077680.01

With flange with notch



11077680.01

Type of process connection: Aseptic flange connection per DIN 11864-2 form A
Pipe standard per DIN 11866 row A or DIN 11850 row 2

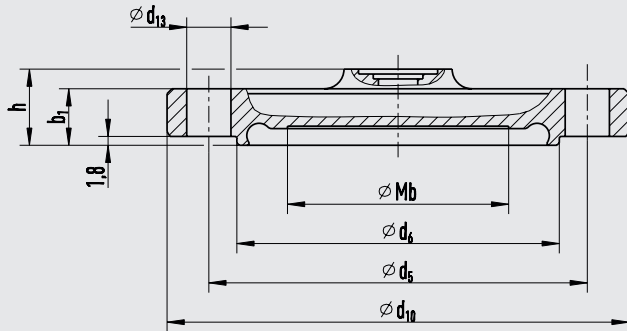
DN	For pipe Outer Ø x wall thickness in mm [in]	PN ¹⁾	Dimensions in mm [in]									Aseptic O-ring
			Mb	d ₆	d ₁₁	d ₅	d ₁₀	h	b ₁	b ₂	d ₁₃	
25	29 x 1.5 [1.142 x 0.071]	25	17 [0.669]	38.3 [1.508]	38.4 [1.512]	53 [2.087]	70 [2.756]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x Ø 9 [0.354]	28 x 3.5 [1.102 x 0.1378]
32	35 x 1.5 [1.378 x 0.071]	25	17 [0.669]	47.6 [1.878]	47.7 [1.878]	59 [2.323]	76 [2.992]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x Ø 9 [0.354]	34 x 5 [1.339 x 0.197]
40	41 x 1.5 [1.614 x 0.071]	25	29 [1.142]	53.6 [2.11]	53.7 [2.114]	65 [2.559]	82 [3.228]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x Ø 9 [0.354]	40 x 5 [1.575 x 0.197]
50	53 x 1.5 [2.087 x 0.071]	16	29 [1.142]	65.6 [2.583]	65.7 [2.587]	77 [3.032]	94 [3.7]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x Ø 9 [0.354]	52 x 5 [2.047 x 0.197]
65	70 x 2 [2.756 x 0.078]	16	52 [2.047]	81.6 [3.213]	81.7 [3.217]	95 [3.74]	113 [4.449]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	8 x Ø 9 [0.354]	68 x 5 [2.677 x 0.197]
80	85 x 2 [3.346 x 0.078]	16	52 [2.047]	97.6 [3.843]	97.7 [3.846]	112 [4.409]	133 [5.236]	17.5 [0.689]	13.5 [0.531]	12 [0.472]	8 x Ø 11 [0.433]	83 x 5 [3.268 x 0.197]
100	104 x 2 [4.094 x 0.078]	16	72 [2.835]	116.6 [4.591]	116.7 [4.594]	137 [5.394]	159 [6.2598]	19.5 [0.768]	15.5 [0.61]	14 [0.551]	8 x Ø 11 [0.433]	102 x 5 [4.016 x 0.197]

1) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature of -10 ... +140 °C.

Aseptic flange connection per DIN 11864-2

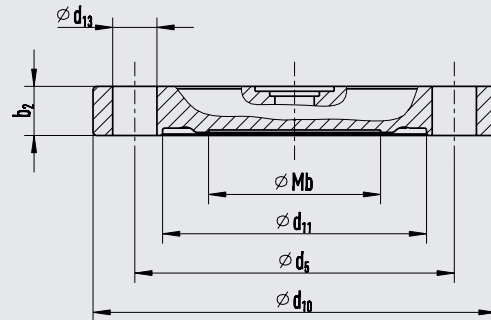


With flange with groove



11077680.01

With flange with notch



11077680.01

Type of process connection: Aseptic flange connection per DIN 11864-2 form A
 Pipe standard per DIN 11866 row B or DIN ISO 1127 row 1

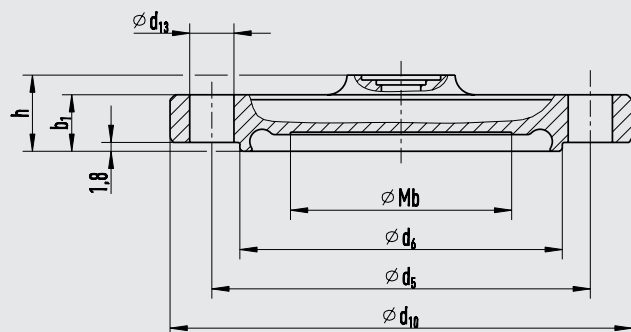
DN	For pipe Outer Ø x wall thickness in mm [in]	PN ¹⁾	Dimensions in mm [in]									
			Mb	d ₆	d ₁₁	d ₅	d ₁₀	h	b ₁	b ₂	d ₁₃	Aseptic O-ring
26.9	26.9 x 1.6 [1.059 x 0.063]	25	17 [0.669]	36 [1.417]	36.1 [1.421]	52 [2.047]	69 [2.717]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x Ø 9 [0.354]	26 x 3.5 [1.024 x 0.1378]
33.7	33.7 x 2 [1.327 x 0.078]	25	17 [0.669]	45.3 [1.783]	45.4 [1.787]	57 [2.244]	74 [2.913]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x Ø 9 [0.354]	32 x 5 [1.2598 x 0.197]
42.4	42.4 x 2 [1.669 x 0.078]	16	29 [1.142]	54 [2.126]	54.1 [2.1299]	65 [2.559]	82 [3.228]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x Ø 9 [0.354]	40.5 x 5 [1.594 x 0.197]
48.3	48.3 x 2 [1.902 x 0.078]	16	29 [1.142]	59.9 [2.358]	60 [2.362]	71 [2.795]	88 [3.465]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x Ø 9 [0.354]	46.5 x 5 [1.831 x 0.197]
60.3	60.3 x 2 [2.374 x 0.078]	16	29 [1.142]	71.9 [2.831]	72 [2.835]	85 [3.346]	103 [4.055]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	8 x Ø 9 [0.354]	58.5 x 5 [1.831 x 0.197]
76.1	76.1 x 2 [2.996 x 0.078]	16	52 [2.047]	88.1 [3.469]	88.1 [3.469]	104 [4.094]	125 [4.921]	17.5 [0.689]	13.5 [0.531]	12 [0.472]	8 x Ø 11 [0.433]	73.5 x 5 [2.894 x 0.197]
88.9	88.9 x 2.3 [3.5 x 0.091]	16	52 [2.047]	100.9 [3.972]	101 [3.976]	116 [4.567]	137 [5.394]	17.5 [0.689]	13.5 [0.531]	12 [0.472]	8 x Ø 11 [0.433]	86.5 x 5 [3.406 x 0.197]

1) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature of -10 ... +140 °C.

Aseptic flange connection per DIN 11864-2

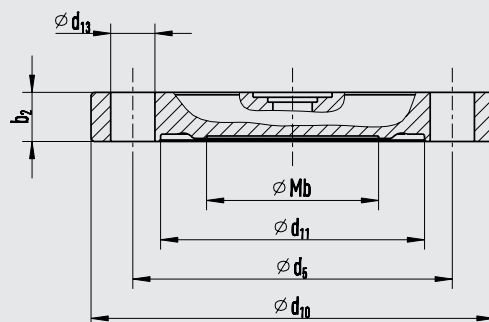


With flange with groove



11077680.01

With flange with notch



11077698.01

Type of process connection: Aseptic flange connection per DIN 11864-2 form A
 Pipe standard per DIN 11866 row C or ASME BPE 1997

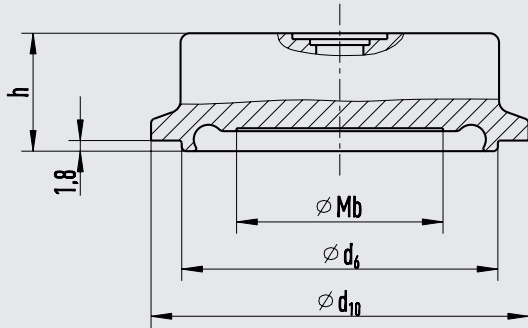
DN	For pipe Outer \varnothing x wall thick- ness in mm [in]	PN ¹⁾	Dimensions in mm [in]									
			Mb	d ₆	d ₁₁	G ₁	d ₁₀	h	b ₁	b ₂	d ₁₃	Aseptic O-ring
1 ½"	42.4 x 1.65 [1.669 x 0.065]	25	17 [0.669]	50.4 [1.984]	50.4 [1.984]	62 [2.44]	79 [3.11]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x \varnothing 9 [0.354]	37 x 5 [1.457 x 0.197]
2"	48.3 x 1.65 [1.902 x 0.065]	16	29 [1.142]	63 [2.48]	63 [2.48]	75 [2.953]	92 [3.622]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x \varnothing 9 [0.354]	50 x 5 [1.969 x 0.197]
2 ½"	60.3 x 1.65 [2.374 x 0.065]	16	29 [1.142]	75.8 [2.984]	75.9 [2.988]	89 [3.504]	107 [4.213]	15.5 [0.61]	11.5 [0.071]	10 [0.394]	4 x \varnothing 9 [0.354]	62 x 5 [2.441 x 0.197]
3"	76.1 x 1.65 [2.996 x 0.065]	16	52 [2.047]	89.5 [3.524]	89.6 [3.528]	104 [4.094]	125 [4.921]	17.5 [0.689]	13.5 [0.531]	12 [0.472]	8 x \varnothing 11 [0.433]	75 x 5 [2.953 x 0.197]
4"	88.9 x 2.11 [3.5 x 0.083]	16	72 [2.835]	114.2 [4.496]	114.3 [4.5]	135 [5.315]	157 [6.181]	19.5 [0.768]	15.5 [0.61]	14 [0.551]	8 x \varnothing 11 [0.433]	100 x 5 [3.937 x 0.197]

1) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature of -10 ... +140 °C.

Aseptic clamp connection per DIN 11864-3

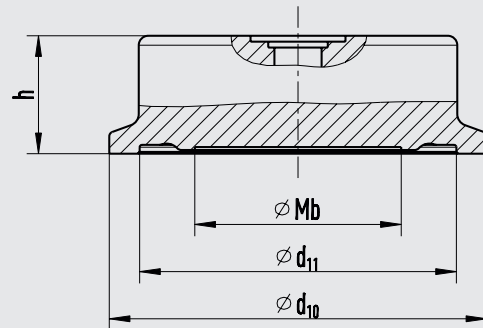


With clamp ferrule with groove



11077701.01

With clamp ferrule with collar



11077710.01

Type of process connection: Aseptic clamp connection DIN 11864-3 form A
 Pipe standard per DIN 11866 row A or DIN 11850 row 2

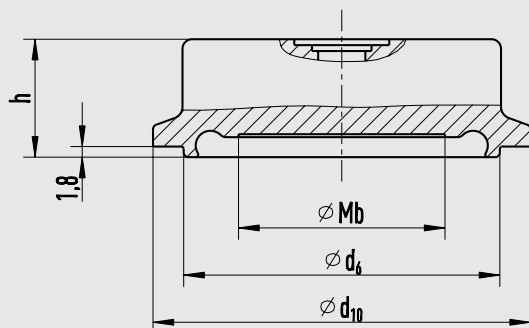
DN	For pipe Outer \varnothing x wall thick- ness in mm [in]	PN ¹⁾	Dimensions in mm [in]					Aseptic O-ring
			Mb	d_6	d_{11}	h	d_{10}	
25	29 x 1.5 [1.142 x 0.071]	40	17 [0.669]	38.3 [1.508]	38.4 [1.512]	20 [0.787]	50.5 [1.988]	28 x 3.5 [1.102 x 0.1378]
32	35 x 1.5 [1.378 x 0.071]	40	17 [0.669]	47.6 [1.878]	47.7 [1.878]	20 [0.787]	50.5 [1.988]	34 x 5 [1.339 x 0.197]
40	41 x 1.5 [1.614 x 0.071]	40	29 [1.142]	53.6 [2.11]	53.7 [2.114]	20 [0.787]	64 [2.5197]	40 x 5 [1.575 x 0.197]
50	53 x 1.5 [2.087 x 0.071]	25	29 [1.142]	65.6 [2.583]	65.7 [2.587]	20 [0.787]	77.5 [3.051]	52 x 5 [2.047 x 0.197]
65	70 x 2 [2.756 x 0.078]	25	52 [2.047]	81.6 [3.213]	81.7 [3.217]	20 [0.787]	91 [3.583]	68 x 5 [2.677 x 0.197]
80	85 x 2 [3.346 x 0.078]	16	52 [2.047]	97.6 [3.843]	97.7 [3.846]	20 [0.787]	106 [4.173]	83 x 5 [3.268 x 0.197]
100	104 x 2 [4.094 x 0.078]	16	72 [2.835]	116.6 [4.591]	116.7 [4.594]	20 [0.787]	130 [5.118]	102 x 5 [4.016 x 0.197]

1) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature of -10 ... +140 °C.

Aseptic clamp connection per DIN 11864-3

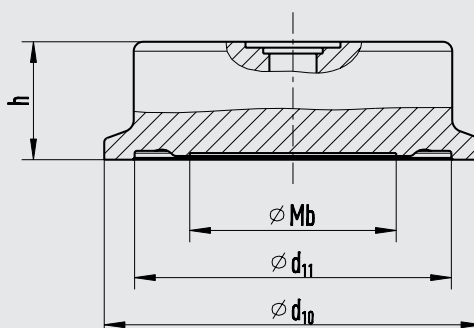


With clamp ferrule with groove



11077701.01

With clamp ferrule with collar



11077710.01

Type of process connection: Aseptic clamp connection DIN 11864-3 form A
 Pipe standard per DIN 11866 row B or DIN ISO 1127 row 1

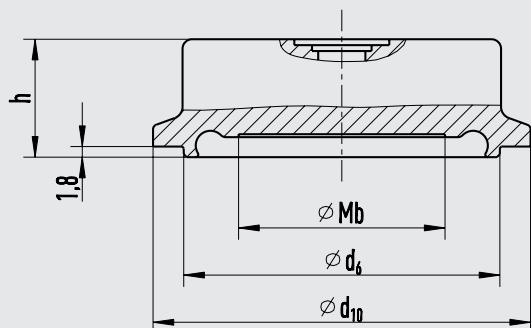
DN	For pipe Outer Ø x wall thick- ness in mm [in]	PN ¹⁾	Dimensions in mm [in]					Aseptic O-ring
			Mb	d ₆	d ₁₁	h	d ₁₀	
26.9	26.9 x 1.6 [1.059 x 0.063]	40	17 [0.669]	36.0 [1.417]	36.1 [1.421]	20 [0.787]	50.5 [1.988]	26 x 3.5 [1.024 x 0.1378]
33.7	33.7 x 2 [1.327 x 0.078]	40	17 [0.669]	45.3 [1.783]	45.3 [1.783]	20 [0.787]	50.5 [1.988]	32 x 5 [1.2598 x 0.197]
42.4	42.4 x 2 [1.669 x 0.078]	25	29 [1.142]	54.0 [2.126]	54.1 [2.1299]	20 [0.787]	64 [2.5197]	40.5 x 5 [1.594 x 0.197]
48.3	48.3 x 2 [1.902 x 0.078]	25	29 [1.142]	59.9 [2.358]	60 [2.362]	20 [0.787]	64 [2.5197]	46.5 x 5 [1.831 x 0.197]
60.3	60.3 x 2 [2.374 x 0.078]	25	29 [1.142]	71.9 [2.831]	72.0 [2.835]	20 [0.787]	91 [3.583]	58.5 x 5 [2.303 x 0.197]
76.1	76.1 x 2 [2.996 x 0.078]	16	52 [2.047]	88.1 [3.469]	88.2 [3.472]	20 [0.787]	106 [4.173]	73.5 x 5 [2.894 x 0.197]
88.9	88.9 x 2.3 [3.5 x 0.091]	16	52 [2.047]	100.9 [3.972]	101 [3.976]	25 [0.984]	119 [4.685]	86.5 x 5 [3.406 x 0.197]

1) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature of -10 ... +140 °C.

Aseptic clamp connection per DIN 11864-3

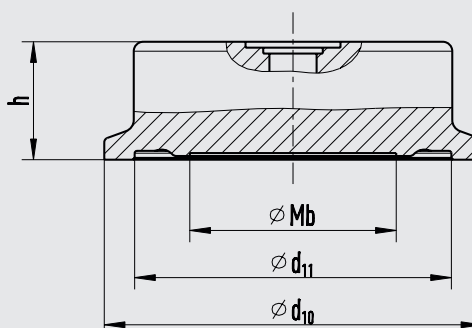


With clamp ferrule with groove



11077701.01

With clamp ferrule with collar



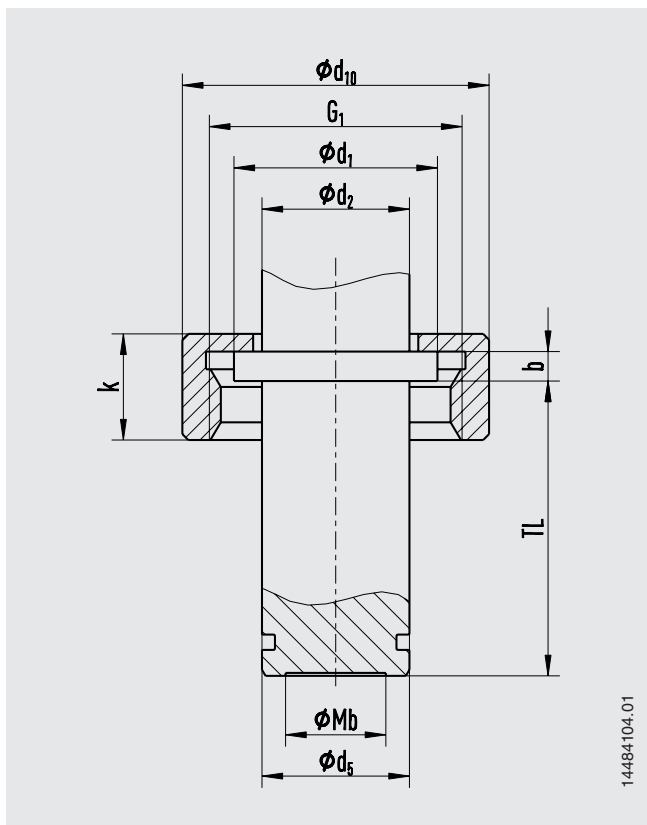
11077710.01

Type of process connection: Aseptic clamp connection DIN 11864-3 form A
 Pipe standard per DIN 11866 row C or ASME BPE 1997

DN	For pipe Outer Ø x wall thick- ness in mm [in]	PN ¹⁾	Dimensions in mm [in]					Aseptic O-ring
			Mb	d ₆	d ₁₁	h	d ₁₀	
1 ½"	42.4 x 1.65 [1.669 x 0.065]	40	17 [0.669]	50.4 [1.984]	50.5 [1.988]	20 [0.787]	64 [2.5197]	37 x 5 [1.457 x 0.197]
2"	48.3 x 1.65 [1.902 x 0.065]	25	29 [1.142]	63 [2.48]	63 [2.48]	20 [0.787]	77.5 [3.051]	50 x 5 [1.969 x 0.197]
2 ½"	60.3 x 1.65 [2.374 x 0.065]	25	29 [1.142]	75.8 [2.984]	75.9 [2.988]	20 [0.787]	91 [3.583]	62 x 5 [2.441 x 0.197]
3"	76.1 x 1.65 [2.996 x 0.065]	16	52 [2.047]	89.5 [3.524]	89.6 [3.528]	20 [0.787]	106 [4.173]	75 x 5 [2.953 x 0.197]
4"	88.9 x 2.11 [3.5 x 0.083]	16	72 [2.835]	114.2 [4.496]	114.3 [4.5]	25 [0.984]	130 [5.118]	100 x 5 [3.937 x 0.197]

1) Permissible pressure in bar; these pressures may only be applied when using suitable sealing materials up to a temperature of -10 ... +140 °C.

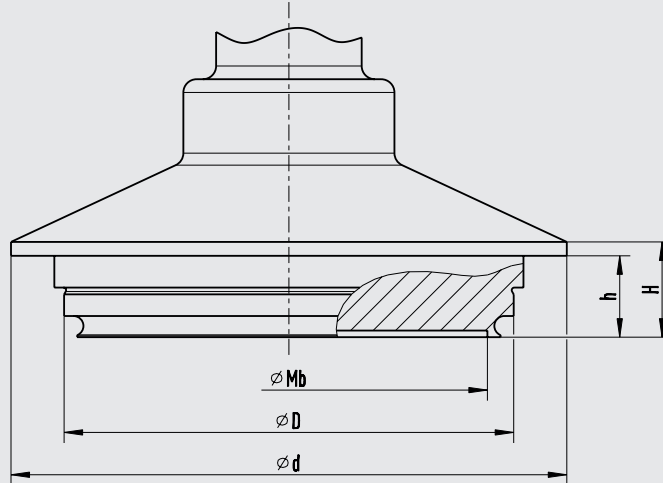
Ingold connection with union nut



DN	PN	Dimensions in mm [in]								
		Mb	d ₅	d ₁	d ₂	b	TL	G ₁	d ₁₀	k
25	25	17 [0.669]	25 [0.984]	34.5 [1.358]	25 [0.984]	5 [0.917]	50 [1.969]	G 1 ¼	52 [2.047]	18 [0.709]
40	25	29 [1.142]	40 [1.575]	55 [2.165]	25 [0.984]	5 [0.917]	56 [2.205]	G 2	78 [3.071]	27 [1.063]
50	25	29 [1.142]	50 [1.969]	55.5 [2.185]	25 [0.984]	5 [0.917]	60 [2.362]	G 2	78 [3.071]	32 [1.26]

This process connection is delivered with a seal from NBR, FKM or EPDM.

VARINLINE® connection



2327516.01


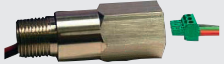


For installation in VARINLINE® components

Size	PN in bar	Dimensions in mm [in]				
		Mb	D	d	H	h
Form F for DN 25, ISO 33,7 and 1" (installation \varnothing 50 mm, clamp \varnothing 66 mm)	25	29 [1.142]	50 [1.969]	66 [2.598]	14.4 [0.567]	12.3 [0.484]
Form N for DN 40 ... DN 125, ISO 42,4 ... ISO 114,3 and 1 1/2" ... 6" (installation \varnothing 68 mm, clamp \varnothing 84 mm)	25	52 [2.047]	68 [2.677]	84 [3.307]	14.4 [0.567]	12.3 [0.484]



Suitable VARINLINE® component	EHEDG-compliant	
	Form F	Form N
Case	No	Yes
Type T case connecting flange	Yes	Yes
Type T-S case connecting flange	No	No
Type U case connecting flange	No	No
Type U-S case connecting flange	No	No
Type P tank connecting flange	Yes	Yes

EHEDG-compliant only in combination with an EPDM O-ring

Accessories and spare parts

Description	Order number	
	HART® modem for USB interface, specifically designed for use with notebooks (model 010031)	11025166
	HART® modem for RS-232 interface (model 010001)	7957522
	HART® modem for Bluetooth® interface Ex ia IIC (model 010041)	11364254
	PowerXpress HART® modem, with optional power supply (model 010031P)	14133234
	Surge protection for transmitters, 4 ... 20 mA, M20 x 1.5, series connection	14002489
	Display and operating unit, model DI-PT-U The display and operating unit can be attached in 90° steps. The display and operating unit features a main display and an additional display. The main display shows the output signal. The additional display shows different values, at the same time as the main display - these values can be selected by the user. The process transmitter can be configured via the display and operating unit. Only this display may be used for installation into the process transmitter.	14090181
	Hygienic cable gland M20 x 1.5 Cable diameter: 6 ... 12 mm [0.24 ... 0.47 in]	11348691

Instruments for on-site calibration

Model	Description
	DTK1X00 Pneumatic service kit, accuracy 0.1 % FS (0.05 % FS or 0.025 % FS also available) <ul style="list-style-type: none"> ■ Precision digital pressure gauge model CPG1500 ■ Model CPP30 pneumatic hand test pump, pressure generation -0.95 ... +35 bar ■ Adapter set ■ Service case <p>→ See data sheet CT 93.03</p>
	CPH7000 Portable process calibrator, accuracy 0.025 % FS <ul style="list-style-type: none"> ■ Model CPH7000 process calibrator, integrated manual pressure generation -0.85 ... +25 bar ■ Power supply unit ■ Service case <p>→ See data sheet CT 15.51</p>

FS = Full scale = End of measuring range - Start of measuring range

Calibration adapter

Description	Order number
Calibration adapter TRI-CLAMP®, 1 ½" suitable for clamp connections per DIN 32676 and pipe standard per DIN 11866 - Row A for nominal width: DN 25 ... DN 100 - Row B for nominal width: DN 26.9 ... DN 76.1 - Row C or ASME BPE for nominal width: DN 1 ½" ... 3"	11563206
Calibration adapter TRI-CLAMP®, 2" suitable for clamp connections per DIN 32676 and pipe standard per DIN 11866 - Row A for nominal width: DN 25 ... DN 100 - Row B for nominal width: DN 26.9 ... DN 76.1 - Row C or ASME BPE for nominal width: DN 1 ½" ... 3"	14332415

→ Other calibration adapters on request

WIKA-Cal calibration software

Easy and fast creation of a high-quality calibration certificate

The WIKA-Cal calibration software is used for generating calibration certificates or logger protocols for pressure measuring instruments and is available as a demo version for free download.

"A template guides through the creation process of a document.

In order to switch from the demo version to a full version of the respective template, a USB dongle with the template must be purchased.

The preinstalled demo version changes automatically to the selected full version when the USB dongle is inserted and remains available as long as the USB dongle is connected to the computer.



- Creation of calibration certificates for mechanical and electronic pressure measuring instruments
- A calibration assistant guides you through the calibration
- Automatic generation of the calibration steps
- Creation of 3.1 inspection certificates per DIN EN 10204
- Creation of logger protocols
- User-friendly interface
- Menu languages: German, English, Italian, French, Dutch, Polish, Portuguese, Romanian, Spanish, Swedish, Russian, Greek, Japanese, Chinese. More languages are due with software updates

→ For further information, see data sheet CT 95.10

Calibration certificates can be created with the Cal template and logger protocols can be created with the Log template.



Cal Demo

Generation of calibration certificates limited to 2 measuring points, with automatic initiation of pressures via a pressure controller.



Cal Light

Generation of calibration certificates with no limitations on measuring points, without automatic initiation of pressures via a pressure controller.



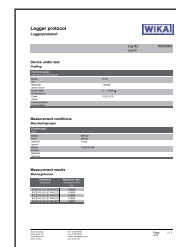
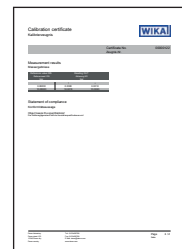
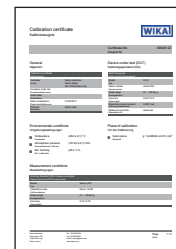
Log Demo

Creation of data logger test logs, limited to 5 measured values.



Log

Creation of data logger test logs without limiting the measured values.



Ordering information

Model / Case head / Surface roughness / System fill fluid / Measuring range / Accuracy / Output signal / Electrical connection of the process transmitter / Process connection and nominal width (DN) / Material, wetted / Manufacturer's declaration / Certificates

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TRI-CLAMP® is a trademark of the company Alfa Laval AB SE
VARINLINE® is a trademark of the company GEA Tuchenhausen GmbH

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