

Contrans P Transmitter

AMD 200 / 210 / 220 / 230 with Remote Seal for Gauge / Absolute Pressure and Level

Span: 60 mbar to 600 bar (250 bar abs)
(6 kPa to 60,000 kPa)
(6 kPa to 25,000 kPa abs)

10/15-5.44 EN



- Isolation between Process and Transmitter with Measuring Media having: • High Temperatures and Viscosities • Corrosive Components, a Tendency to Polymerization
- Prevention of Deposits in the Process Connection Flanges by Extended Remote Seals
- Mounting to various DIN or ANSI Flanges
- Two-wire technique
- Turn down ratio 1:8
- Output signal 4...20 mA
- The Lower range value, span and damping can be continuously adjusted after removing the cover
- IP 65 Degree of Protection, field mounting
- „Intrinsic Safety“ explosion protection
- E.M.C. according to IEC 801
- P/I - convertor 0.2 to 1 bar (3 to 15 psi)

The transmitter AMD 200 / 210 / 220 and 230 combines proven, mature technology with a favourable price / performance ratio.

It is based on a proven, highly-stable measuring sensor, on which a remote seal is fitted. The pressure present is transferred via the diaphragm and the filling liquid to the internal sensing diaphragm in the measuring sensor and converted into an electrical signal by the electronics.

The high over-ranging capability provides for high operational safety, also with disturbances from the process.

The remote seals, which depending on type, are either connected directly to the transmitter or via a flexible capillary tube. The length of the capillary tube is determined by the location and mounting position.

The process wetted parts of the remote seal can be selected from various materials, i.e. Stainless Steel, Hastelloy C or Tantalum, depending upon the required resistance to corrosion. Various filling liquids, for example for the food and beverage industry, complete the spectrum of applications.

The Transmitter AMD 200 / 210 / 220 and 230 with remote seal is thus an efficient, intelligent element, a must for every type of automation.

ABB

Technical Data

Measuring Mechanism

Measuring limits

AMD 200 / 220: -100% (≥ -1 bar) and +100% of the max. span

AMD 210 / 230: 0% and +100% of the max. span

Lower range value

Continuously adjustable between the measuring limits

Span

The min. and max. span is depending of the Remote Seal Type and the Nominal Pressure. Span values see Table 1 on side 4. The span is continuously adjustable.

Characteristic

- Linear, rising (without Code-No.) or falling (Code-No. 215)

Over-ranging limit

Order No. V15556AE or V15557AE:

ranges ≤ 400 mbar: 10 bar

range 2.5 bar: 25 bar

range 16 bar: 32 bar

Order No. V15536AE:

ranges 2.5 bar...250 bar: 2 times the range end value

range 600 bar: 900 bar

Order No. V15536AE:

ranges 40 bar...250 bar: 2 times the range end value

Materials of Process Wetted Parts

see Ordering Data

Materials of non Process Wetted Parts

- Capillary tube: Stainless Steel
- Protective tube: Stainless Steel or with PVC covering
- Flange: Stainless Steel

Power Supply

Transmitter operating voltage

$U_{B,max} = DC 45 V$ $U_{B,min} = DC 12 V$

Output signal

4...20 mA, gauge-pressure proportional

Load R

$$R \leq \frac{U_s - 12V}{20 \text{ mA}} \text{ k}\Omega \quad U_s = \text{Supply voltage}$$

General and Safety Data

Ambient Conditions

Storage and transport temperature range

-40°C...+80°C

Transmitter

Ambient temperature

minimal: dependent of the filling liquid, maximal: +80°C

Medium temperature at remote seal

Directly connected:

Ambient temperature $\leq 40^\circ\text{C}$: max. +180°C

Ambient temperature +60°C: max. +140°C

minimal medium temperature dependent on the filling liquid (see Table 2, page 4)

Remote seal with Running Union and Buna O-ring maximal +120°C

with Capillary tube:

dependent on the filling liquid (see Table 2, page 4) with the following restrictions:

- Flush diaphragm remote seal DN25 / DN 1": maximal +250°C
- Flush diaphragm remote seal, Mat'l: tantalum: maximal +220°C
- In-line remote seal DN 25 / DN 1": maximal +250°C

Humidity

$\leq 95\%$, annual mean, condensation permissible

Amplifier Enclosure, Weight

Material

Die cast copperfree aluminium (GD-AISI) /

Screw cover made of polycarbonate

Protective varnish

Epoxy resin, gravel-grey, RAL 7032

Degree of Protection

IP 65 (jet waterproof) according to EN 60 529

(= NEMA standard type 4)

Weight

- Flange Remote Seals with Flush diaphragm / Extended diaphragm DN 50 / 2", DN 80 / 3":
 - DN 50 / DN 2" with Flush diaphragm: approx. 3.3kg
 - DN 50 / DN 2" with Extended diaphragm 100mm: approx. 3.8kg
 - DN 80 / DN 3" with Flush diaphragm: approx. 5.8kg
 - DN 80 / DN 3" with Extended diaphragm 100mm: approx. 6.8kg
- Flush Diaphragm Remote Seals DN 25 / DN 1", Miniature Remote Seals, In-line Remote Seals and Fast Coupled Remote Seals: see Dimensional Diagrams.

In addition to the quoted weights, the weight of the transmitter, approx. 1.0 kg and the weight of the capillary tube, if fitted at approx. 0.15 kg / m, must be added.

Mounting Instructions, Mounting, Dimensions

Mounting Instructions

- Remote Seal with Capillary Tube:

The maximum difference in height between the remote seal and the transmitter when mounting the remote seal **below** the transmitter is:

with silicone oil (IC)	5 m
with carbon fluoride (L)	2.5 m
with high temperature oil (IH)	5 m
with vegetable oil (PF)	2.5m

With an operating pressure < 1000 mbar abs, the transmitter must be mounted below the remote seal.

The minimum bending radius of the capillary tube is 75 mm; do not kink!

Mounting

- Flange Remote Seal with Flush / Extended diaphragm
The remote seal is mounted at the connecting flange on site. Only gaskets of soft materials to be used with remote seals having diaphragms and sealing surfaces made of tantalum (Gasket not supplied).
- In-line Remote Seal
The remote seal is mounted direct in the process piping between two flanges.
- Remote Seal with Fast Coupling
The remote seal is mounted directly onto the process via either a Running union or a clamp connection.
- Miniature Remote Seal
The threaded remote seal is screwed with the available threaded process connector.
- Transmitter
The transmitter is wall or pipe mounted or by an instrument support fitting according to DIN 16 281, when the transmitter is connected to the remote seal with a flexible capillary tube. When the transmitter is directly connected to the remote seal then no supplementary mountings or supports are necessary.

Dimensions

see Dimensional Diagrams.

Technical Data

Transient Response (at reference conditions)

(see Instruction 42/15-536 / 537 EN for further data)

All values are limit values and refers to the output span. The effects identified with a ★ are with reference to the measuring range and are to be multiplied by the turn-down factor. The ratio range / calibrated span should be as small as possible.

However the limit values and response times are dependent upon the remote seal and the measuring point.

Data for the instrument combination are first possible after knowledge of all the data submitted in the questionnaire 80/15-105 EN (see pages 12 and 13).

Data for transmitter (without effect from the remote seal):

Conformity

including hysteresis and dead band, terminal-based

0.2 %

Hysteresis

0.1 %

Dead band

0.02 %

Power supply

Voltage effect per Volt

0.005 %

Ambient temperature effect per 10 K between -10°C...+60°C

★ on zero
on span

0.2 %

0.15 %

★ Long-term drift within 6 months

0.3 %

Rise time according to DIN 16 086

0.3 s

additional adjustable time constant

0...6.6 s

Operating conditions:

max. ambient temperature 80°C with T4

max. ambient temperature 40°C with T6

Connected to an intrinsically safe current circuit with the highest values:

with T4 temperature class:

$U \leq 28 \text{ V}$

$I \leq 100 \text{ mA}$

$P \leq 1.0 \text{ W}$

or

$U \leq 28 \text{ V}$

$R_i \geq 250 \Omega$

or

with T6 temperature class:

$U \leq 19 \text{ V}$

$I \leq 25 \text{ mA}$

$P \leq 0.46 \text{ W}$

effective internal capacitance $\leq 0.015 \mu\text{F}$

effective internal inductance $\leq 0.01 \text{ mH}$

Further approvals, such as Ex Designs (Switzerland, Austria), on request.

● for Zone 2

BASEEFA Type N Approval (BS 6941)

Ex N IIC T5 (T_{amb} : -40 °C up to +80 °C)

Explosion Protection

● for "Zone 0"

Type Approval (Germany only)

according to VbF (German Regulations for Flammable Liquids) "Zone 0"

Instrument Construction (Germany only)

The instrument combination consists of 1 remote seal and the associated transmitter. The remote seal is installed on the "Zone 0" measuring point.

The transmitter must be designed in the "Intrinsic Safety EEx i" or "Flameproof Enclosure EEx d" Type of Protection.

● for "Zone 1"

When the transmitter is installed in "Zone 1", the type of protection "Intrinsic Safety EEx i" is sufficient.

Explosion protection Intrinsic Safety "i" (transmitter)

Identification Code (DIN EN 50 014): EEx ib IIC T4 or T6

Type Approval Certificate:

for AMD 200 / 210

PTB No. Ex-89.C.2098

for AMD 220 / 230

PTB No. Ex-89.C.2179

Test Certificate can be obtained under No.:

- 49/15-31 EX (for AMD 200 / 210)

- 49/15-32 EX (for AMD 220 / 230)

Technical Data

Table 1: Type of Construction, Spans and Lengths of Capillary tube

Remote Seal Type		Nominal Diameter	Spans min. / max.	max. Length of Capillary Tube
Flush Diaphragm		DN 25 / DN 1"	1.6 bar / 250 bar	6 m
		DN 50 / DN 2"	100 mbar / 100 bar	16 m
		DN 80 / DN 3"	60 mbar ¹⁾ / 100 bar	16 m
Extended Diaphragm		DN 50 / DN 2"	160 mbar / 100 bar	16 m
		DN 80 / DN 3"	60 mbar ¹⁾ / 100 bar	16 m
In-Line Remote Seal		DN 25 / DN 1"	4 bar / 250 bar	4 m
		DN 40 / DN 1 1/2"	2.5 bar / 250 bar	6 m
		DN 50 / DN 2"	2.5 bar / 250 bar	8 m
		DN 80 / DN 3"	2.5 bar / 250 bar	16 m
with Fast Coupling	Running Union acc. to DIN 11 851	DN 50	1.3 bar / 25 bar	--
	Clamp-connection	DN 2"	6 bar / 40 bar	--
Miniature Remote Seal		G 1 A	6 bar / 600 bar	--
		G 1 1/2 A	1.2 bar / 600 bar	--

¹⁾ With AMD 230 use 400 mbar abs. range.

When selecting transmitter range please take nominal pressure (PN) of Remote seal into consideration!

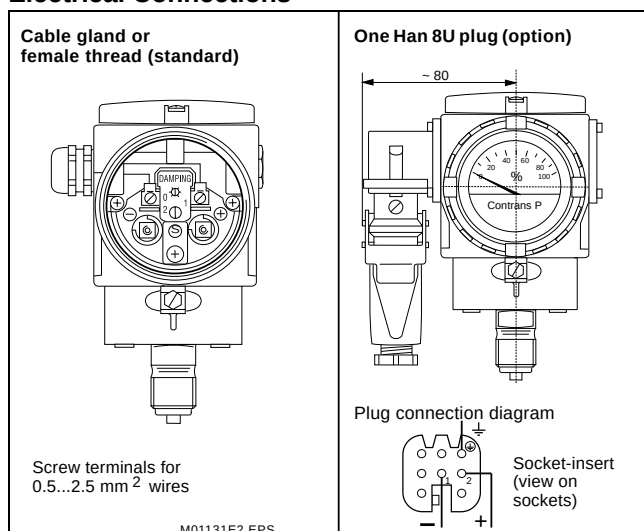
Table 2: Application Limits: permissible Temperature / Minimum Operating Pressure

Attention:

- The pressure has to be linearly interpolated between the stated temperatures.
- Flush diaphragm remote seals with **tantalum diaphragm** (Code-No. P02, P05, P08, P11, P14, P17, P20, P23) should not be used with operating temperature > 220°C.

Filling liquid	Silicone Oil	Carbon Fluoride	High-temperature Oil	Vegetable Oil	Vacuumproof Design
Identification	IC	L	IH	PF	IC
Density at 20°C in kg/m ³	1055	1880	1070	920	1055
Operating Temperature in °C	-30...+250	-30...+150	-10...+400	-10...+250	-30...+200
Pressure rating in mbar abs. at 20°C	> 500	> 1000	> 500	> 500	> 5
100°C	> 500	> 1000	> 500	> 1000	> 25
150°C	> 500	> 1000	> 500	> 1000	> 38
200°C	> 750	---	> 750	> 1000	> 50
250°C	> 1000		> 1000	> 1000	---
400°C	---		> 1000	---	

Electrical Connections



Transmitter AMD 200 / 220, AMD 210 / 230 with Remote Seal for Gauge Pressure, Absolute Pressure and Level

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Ordering Data								
		Order No.						
Transmitter AMD 200 / 220, AMD 210 / 230		V155	AE-					
Measuring range (AMD 220 for Gauge Pressure / Level)								
0...60 mbar (6 kPa)		56		10X	X10			
0...400 mbar (40 kPa)		56		10X	X14			
adjusted from...to...bar/bar/kPa or acc. to questionnaire ¹⁾ (data is necessary)						Y04		
Measuring range (AMD 200 for Gauge Pressure / Level)								
0...2,5 bar (250 kPa)		36		20X	X18			
0...16 bar (1600 kPa)		36		20X	X22			
0...40 bar (4 MPa)		36		20X	X24			
0...100 bar (10 MPa)		36		20X	X26			
0...250 bar (25 MPa)		36		20X	X28			
0...600 bar (60 MPa)		36		10X	X30			
adjusted from...to...bar/bar/kPa or acc. to questionnaire ¹⁾ (data is necessary)						Y04		
Measuring range (AMD 230 for Absolute Pressure)								
0...400 mbar abs. (40 kPa abs.)		57		10X	X70			
0...1.1 bar abs. (110 kPa abs.)		57		20X	X94			
adjusted from...to...mbar/bar/kPa abs. or acc. to questionnaire ¹⁾ (data is necessary)						Y04		
Measuring range (AMD 200 for Gauge Pressure / Level)								
0...2,5 bar abs. (250 kPa abs.)		37		20X	X74			
0...16 bar abs. (1600 kPa abs.)		37		20X	X78			
0...40 bar abs. (4 MPa abs.)		37		20X	X79			
0...100 bar abs. (10 MPa abs.)		37		20X	X95			
0...250 bar abs. (25 MPa abs.)		37		20X	X96			
adjusted from...to...bar/bar/kPa or acc. to questionnaire ¹⁾ (data is necessary)						Y04		
Vacuum measurement								
Vacuumproof design (is always necessary with AMD 230)						739		
Filling liquid (in measuring mechanism, only with AMD 200 and AMD 210)								
Silicone oil						070		
Carbon fluoride (min. ambient temperature -20 °C)						133		
Output signal								
4...20 mA, linear						021		
Electrical connection								
One M 20 x 1,5 cable gland						269		
Two 1/2-14 NPT female threads						270		
One plug connector (Han 8U)						272		

The three-digit code numbers are added to the order number, separated by diagonal strokes.

¹⁾ Completed questionnaire 80/15-105 necessary, when connection via capillary tube takes place and remote seal and transmitter are not at the same height.

Transmitter AMD 200 / 220, AMD 210 / 230 with Remote Seal for Gauge Pressure, Absolute Pressure and Level

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Additional Ordering Data for AMD 200 / 220, AMD 210 / 230				
Instrument Options		Code-No.		
Explosion Protection Ex-design: EEx ib IIC T4 / T6		550		
Characteristic Falling characteristic (e.g. adjusted from 0...-1 bar, +400 mbar...0 bar)		215		
Indicating Instrument Normal or Ex-design EEx i		209		
Scale Markings of the indicating instrument: 0...100 % linear of the indicating instrument: acc. to data of the order		092		
		423		
Tagging on Type plate (maximal 30 characters) on Tie-on plate, material stainless steel (maximal 30 characters)		205		
		202		
Mounting Bracket Bracket for wall mounting (carbon steel) Bracket and U-bolts for 2" pipe mounting (carbon steel) Bracket for wall mounting (stainless steel) Bracket and U-bolts for 2" pipe mounting (stainless steel)		141		
		142		
		143		
		144		
Instructions ¹⁾ german english french		Z2D		
		Z2E		
		Z2F		

The three-digit code numbers are added to the order number, separated by diagonal strokes.

¹⁾ One "german" copy included in the scope of supply - no specification required.

Further operation instructions require an additional price (please indicate number of copies)

Scope of Supply:

- 1 Instructions
- 1 Instrument socket with plug connector if plug for electrical connection is ordered.

Supplied against special order:

Power supply e.g. TZN 128, Data sheet 18-8.39 EN

Mounting accessories, Data sheet 15-8.98 EN

Transmitter AMD 200 / 220, AMD 210 / 230 with Remote Seal for Gauge Pressure, Absolute Pressure and Level

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Flush Diaphragm Remote Seal DN 25 / ANSI 1" (with internal diaphragm)				
Options		Code-No.		
Remote Seal Mounting ¹⁾				
Direct mounting (without capillary tube)		699		
Connection to pressure measuring cell with capillary tube		754		
Materials				
Diaphragm and sealing surface made of stainless steel 316 Ti (1.4571)				
Sealing ring (only with nominal pressure up to PN 63 or 600 psi) PTFE				
Flange				
acc. to DIN 2501, made of stainless steel 316 Ti (1.4571)				
Nominal diameter	Pressure rating	Sealing surface		
DN 25	PN 10 / 40	Form D (DIN 2526)	P70	
DN 25	PN 10 / 40	Form N (DIN 2512)	P71	
DN 25	PN 63 / 100	Form D (DIN 2526)	701	
DN 25	PN 160	Form D (DIN 2526)	702	
DN 25	PN 250	Form D (DIN 2526)	703	
acc. to ANSI B 16.5, made of stainless steel 316 Ti (1.4571)				
Nominal diameter	Pressure rating	Sealing surface		
DN 1"	Class 150 psi	Form RF	P72	
DN 1"	Class 300 psi	Form RF	P73	
DN 1"	Class 600 psi	Form RF	706	
DN 1"	Class 1500 psi	Form RF	707	
Filling Liquid ¹⁾				
Silicon oil		074		
Vacuumproof design		739		
Lengths of capillary tube				
1 m		755		
2 m		757		
4 m		759		
6 m		760		
Special length between 1 m and 6 m				
Basic price of the next longer standard length plus an extra fee		764		
Special features				
Capillary tube with PVC protective cover		775		
Other variations regarding pressure rating, materials, sealing surfaces, filling liquids on request				

The three-digit code numbers are added to the order number, separated by diagonal strokes.

¹⁾ When mounted on an absolute or gauge pressure transmitter for measurement < 500 mbar (abs.), the vacuumproof design must be ordered (Code-No. 739).

Transmitter AMD 200 / 220, AMD 210 / 230 with Remote Seal for Gauge Pressure, Absolute Pressure and Level

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Remote Seal with Flush / Extended Diaphragm DN 50 / ANSI 2" complete with Flange						
Options			Code-No.			
Remote seal mounting						
Direct mounting (without capillary tube)			699			
Connection to pressure measuring cell with capillary tube			754			
Nominal diameter	Sealing surface	Diaphragm / sealing				
DN 50	Form E (DIN 2526)	316 L st.st. (1.4404)	P00			
		Hastelloy C	P01			
		Tantalum	P02			
	Form V 13 (DIN 2513)	316 L st.st. (1.4404)	P03			
		Hastelloy C	P04			
		Tantalum	P05			
	Form N (DIN 2512)	316 L st.st. (1.4404)	P06			
		Hastelloy C	P07			
		Tantalum	P08			
	DN 2"	Form RF (ANSI B 16.5)	316 L st.st. (1.4404)	P09		
Hastelloy C			P10			
Tantalum			P11			
Flange / Pressure rating						
DN 50	PN 16 / 40		P30			
	PN 64	diaph. Tantalum on request	P31			
	PN 100	diaph. Tantalum on request	P32			
ANSI 2"	Class 150 psi	only sealing RF	P33			
	Class 300 psi	only sealing RF	P34			
	Class 600 psi	only sealing RF, diaph. Tantalum on request	P35			
Flush diaphragm / extended diaphragm						
Remote seal with flush diaphragm (without extension)			P50			
Remote seal with extension (not combineable with diaphragm material "Tantalum")						
DN 50 / 2"	Extension made of 316 L st.st.	Extension length 50 mm	P51			
		Extension length 100 mm	P52			
		Extension length 150 mm	P53			
	Extension made of Hastelloy C	Extension length 50 mm	P54			
		Extension length 100 mm	P55			
		Extension length150 mm	P56			
Filling liquid ¹⁾						
Silicone oil			074			
Carbon fluoride			687			
Vegetable oil (suitable for the use in the food and beverage industry)			673			
High-temperature oil (not for directly connenction, Code-No. 699)			663			
Vacuumproof design			739			
Lengths of capillary tube						
1 m			755			
2 m			757			
4 m			759			
6 m			760			
8 m			761			
11 m			762			
16 m			763			
Special length between 1 m and 16 m						
Basic price of the next longer standard length plus an extra fee			764			
Special features						
Diaphragm with FEP-coating ²⁾			662			
(for material 316L (1.4404) and Hastelloy C; medium temperature < 150 °C)						
Capillary tube with PVC protective cover			775			
Other variations regarding pressure rating, materials, sealing surfaces, filling liquids on request						
For mounting from remote seals in "sandwich construction" (additional blank flange required)						
see data sheet 15-8.14 EN.						

The three-digit code numbers are added to the order number, separated by diagonal strokes.

¹⁾ When mounted on an absolute or gauge pressure transmitter for measurement < 500 mbar (abs.), the vacuumproof design must be ordered (Code-No. 739).

²⁾ With "extended diaphragm" on request.

Transmitter AMD 200 / 220, AMD 210 / 230 with Remote Seal for Gauge Pressure, Absolute Pressure and Level

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Remote Seal with Flush / Extended Diaphragm DN 80 / ANSI 3" complete with flange						
Options			Code-No.			
Remote seal mounting						
Direct mounting (without capillary tube)			699			
Connection to pressure measuring cell with capillary tube			754			
Nominal diameter	Sealing surface	Diaphragm / sealing				
DN 80	Form E (DIN 2526)	316 L st.st. (1.4404)	P12			
		Hastelloy C	P13			
		Tantalum	P14			
	Form V 13 (DIN 2513)	316 L st.st. (1.4404)	P15			
		Hastelloy C	P16			
		Tantalum	P17			
	Form N (DIN 2512)	316 L st.st. (1.4404)	P18			
		Hastelloy C	P19			
		Tantalum	P20			
	ANSI 3"	Form RF (ANSI B 16.5)	316 L st.st. (1.4404)	P21		
Hastelloy C			P22			
Tantalum			P23			
Flange / Pressure rating						
DN 80	PN 16 / 40		P36			
	PN 64	diaph. Tantalum on request	P37			
ANSI 3"	PN 100	diaph. Tantalum on request	P38			
	Class 150 psi	only sealing RF	P39			
	Class 300 psi	only sealing RF	P40			
	Class 600 psi	only sealing RF, diaph. Tantalum on request	P41			
Flush diaphragm / extended diaphragm						
Remote seal with flush diaphragm (without extension)			P50			
Remote seal with extension (not combineable with diaphragm material "Tantalum")						
DN 80 / ANSI 3"	Extension made of 316 L st.st.	Extension length 50 mm	P57			
		Extension length 100 mm	P58			
		Extension length 150 mm	P59			
	Extension made of Hastelloy C	Extension length 50 mm	P60			
		Extension length 100 mm	P61			
		Extension length150 mm	P62			
Filling liquid ¹⁾						
Silicone oil			074			
Carbon fluoride			687			
Vegetable oil (suitable for the use in the food and beverage industry)			673			
High-temperature oil (not for directly connenction, Code-No. 699)			663			
Vacuumproof design			739			
Lengths of capillary tube						
1 m			755			
2 m			757			
4 m			759			
6 m			760			
8 m			761			
11 m			762			
16 m			763			
Special length between 1 m and 16 m						
Basic price of the next longer standard length plus an extra fee			764			
Special features						
Diaphragm with FEP-coating ²⁾			662			
(for material 316L (1.4404) and Hast. C; medium temperature < 150 °C)						
Capillary tube with PVC protective cover			775			
Other variations regarding pressure rating, materials, sealing surfaces, filling liquids on request For mounting from remote seals in "sandwich construction" (additional blank flange required) see Data Sheet 15-8.14 EN.						

The three-digit code numbers are added to the order number, separated by diagonal strokes.

¹⁾ When mounted on an absolute or gauge pressure transmitter for measurement < 500 mbar (abs.), the vacuumproof design must be ordered (Code-No. 739).

²⁾ With "extended diaphragm" on request.

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In-Line Remote Seal DN 25...DN 80 / ANSI 1"...3"				
Options		Code-No.		
Remote seal mounting ¹⁾				
Direct mounting (without capillary tube)		699		
Connection to pressure measuring cell with capillary tube		754		
Pressure rating				
PN 6...PN 400 or				
Class 150 psi...Class 2500 psi				
Connection acc. to DIN 2501 or ANSI B 16.5				
Diaphragm and sealing surface made of 316 Ti st.st. (1.4571)				
Nominal diameter	Sealing surface			
DN 25 / ANSI 1"	Form E (DIN 2526) / Form RF	740		
DN 40 / ANSI 1 1/2"	Form E (DIN 2526) / Form RF	741		
DN 50 / ANSI 2"	Form E (DIN 2526) / Form RF	742		
DN 80 / ANSI 3"	Form E (DIN 2526) / Form RF	743		
Diaphragm and sealing surface made of Hastelloy C				
Nominal diameter	Sealing surface			
DN 25 / ANSI 1"	Form E (DIN 2526) / Form RF	744		
DN 40 / ANSI 1 1/2"	Form E (DIN 2526) / Form RF	795		
DN 50 / ANSI 2"	Form E (DIN 2526) / Form RF	749		
DN 80 / ANSI 3"	Form E (DIN 2526) / Form RF	727		
Filling liquid ¹⁾				
Silicone oil		074		
Carbon fluoride		687		
Vegetable oil (suitable for the use in the food and beverage industry)		673		
High-temperature oil (not for directly connenction, Code-No. 699)		663		
Vacuumproof design		739		
Kapillarrörlänge				
1 m		755		
2 m		757		
4 m (maximum length with DN 25 / ANSI 1")		759		
6 m (maximum length with DN 40 / ANSI 1 1/2")		760		
8 m (maximum length with DN 50 / ANSI 2")		761		
11 m		762		
16 m		763		
Special length between 1 m and 16 m				
Basic price of the next longer standard length plus an extra fee		764		
Special features				
Capillary tube with PVC protective cover		775		
Other variations regarding pressure rating, materials, sealing surfaces, filling liquids on request				

The three-digit code numbers are added to the order number, separated by diagonal strokes.

¹⁾ When mounted on an absolute or gauge pressure transmitter for measurement < 500 mbar (abs.), the vacuumproof design must be ordered (Code-No. 739).

Transmitter AMD 200 / 220, AMD 210 / 230 with Remote Seal for Gauge Pressure, Absolute Pressure and Level

Data Sheet
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Fast Coupled Remote Seal DN 50 / ANSI 2"				
Options		Code-No.		
Remote seal mounting ¹⁾				
Direct mounting (without capillary tube)		699		
with Running Union acc. to DIN 11 851				
Nominal diameter	Pressure rating	Process wetted parts		
DN 50	PN 25	316 Ti st.st. (1.4571)	712	
DN 50	PN 25	Hastelloy C	713	
with Clamp connection				
Nominal diameter	Pressure rating	Process wetted parts		
ANSI 2"	PN 40	316 Ti st.st. (1.4571)	716	
ANSI 2"	PN 40	Hastelloy C	726	
Sealing ring (O-ring) (only in conjunction with running union acc. to DIN 11 851)				
Buna (Tmax. = 120 °C)		714		
PTFE		715		
Filling liquid ¹⁾				
Silicone oil		074		
Carbon fluoride		687		
Vegetable oil (suitable for the use in the food and beverage industry)		673		
Vacuumproof design		739		
Other variations regarding pressure rating, materials, sealing surfaces, filling liquids on request				

The three-digit code numbers are added to the order number, separated by diagonal strokes.

- 1) When mounted on an absolute or gauge pressure transmitter for measurement < 500 mbar (abs.), the vacuumproof design must be ordered (Code-No. 739).

Miniature Remote Seal				
Options		Code-No.	EUR	Delivery
Remote seal mounting ¹⁾				
Direct mounting (without capillary tube)		699	-	-
with Spigot acc. to DIN 16 288				
Process connection	Pressure rating	Process wetted parts		
G 1 A	PN 600	316 Ti st.st. (1.4571)	708	+ 279,-
G 1 A	PN 600	Hastelloy C	710	+ 686,-
G 1 1/2 A	PN 600	316 Ti st.st. (1.4571)	709	+ 290,-
G 1 1/2 A	PN 600	Hastelloy C	711	+ 926,-
Filling liquid ¹⁾				
Silicone oil		074	-	-
Carbon fluoride		687	+ 113,-	-
Vegetable oil (suitable for the use in the food and beverage industry)		673	+ 56,-	-
Vacuumproof design		739	+ 400,-	+4 wks
Other variations regarding pressure rating, materials, sealing surfaces, filling liquids on request				

The three-digit code numbers are added to the order number, separated by diagonal strokes.

- 1) When mounted on an absolute or gauge pressure transmitter for measurement < 500 mbar (abs.), the vacuumproof design must be ordered (Code-No. 739).

Measuring instruments with remote seals for measuring gauge pressure, differential pressure, flowrate and level

The information given in this questionnaire is binding for the technical design of measuring system. The HARTMANN & BRAUN AG can only guarantee satisfactory measurement results when exact and correct information is provided.

The questions identified by ☐ will be answered by Hartmann & Braun.

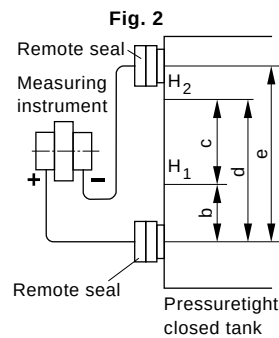
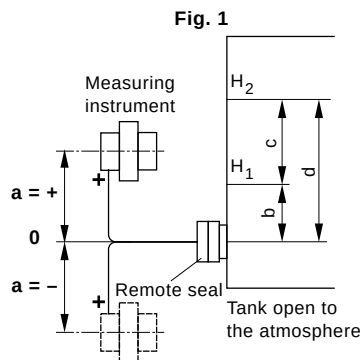
☐ Company	☐ H&B offer number:
☐ Location	☐ H&B contract number:
☐ Customer number:	☐ Position number:
☐ Measuring-point number:	

Level Measurement

1 Medium to be measured	Measuring instrument with one remote seal (see Fig. 1)	Measuring instrument with two remote seals (see Fig. 2)
2 Operating data of the medium to be measured which will be referred to for the calculation and design Temperatures Process pressure Density Density of the gas above the process Process variable (e.g. 0 ... 5m $\hat{=}$ 0 ... 20mA)	$t = \text{_____} ^\circ\text{C}$ $\rho_M = \text{_____} \text{ kg/m}^3$ $\text{_____} \hat{=} 0/4...20\text{mA}$	$t = \text{_____} ^\circ\text{C}$ $p = \text{_____} \text{ bar}$ $\rho_M = \text{_____} \text{ kg/m}^3$ $\rho_G = \text{_____} \text{ kg/m}^3$ $\text{_____} \hat{=} 0/4...20\text{mA}$
3 Elevation between remote seal and measuring instr. Instrument above the remote seal Instrument below the remote seal	$a = + \text{_____} \text{ m}$ $a = - \text{_____} \text{ m}$	
4 Difference in elevation of the two remote seals		$e = \text{_____} \text{ m}$
5 Tank dimensions: Difference in height of levels Dimension: from lower remote seal up to lower level from lower remote seal up to upper level	$c = \text{_____} \text{ m}$ $b = \text{_____} \text{ m}$ $d = \text{_____} \text{ m}$	$c = \text{_____} \text{ m}$ $b = \text{_____} \text{ m}$ $d = \text{_____} \text{ m}$
6 Capillary tube length + (HP) side - (LP) side	$\text{_____} \text{ m}$	$\text{_____} \text{ m}$ $\text{_____} \text{ m}$
7 Additional data Process temperature range Average ambient temperature at the measuring instr. Average ambient temperature at the capillary tube	$t_M = \text{from to } ^\circ\text{C}$ $t_{uM} = \text{_____} ^\circ\text{C}$ $t_{uK} = \text{_____} ^\circ\text{C}$	$t_M = \text{from to } ^\circ\text{C}$ $t_{uM} = \text{_____} ^\circ\text{C}$ $t_{uK} = \text{_____} ^\circ\text{C}$
8 Data of limits which for example can occur with cleaning processes or blowing through (not measuring operation) Temperature Pressure	$t_{\max} = \text{_____} ^\circ\text{C}$ $t_{\min} = \text{_____} ^\circ\text{C}$ $p_{\max} = \text{_____} \text{ bar}$ $p_{\min} = \text{_____} \text{ bar}$	$t_{\max} = \text{_____} ^\circ\text{C}$ $t_{\min} = \text{_____} ^\circ\text{C}$ $p_{\max} = \text{_____} \text{ bar}$ $p_{\min} = \text{_____} \text{ bar}$

Note: Remote seals with silicone oil (standard) may be mounted up to a maximum of 5m below the measuring instrument.

H_1 = lower level
 H_2 = upper level

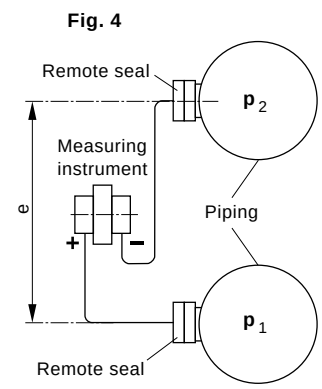
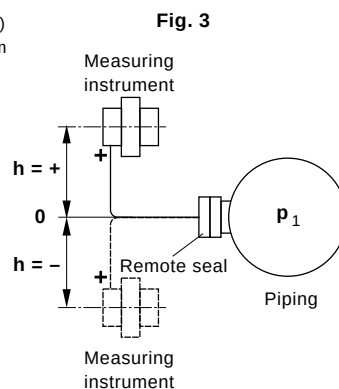


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Gauge pressure, Differential pressure and Flowrate Measurement

1 Medium to be measured 	Measuring instrument with one remote seal (see Fig. 3)	Measuring instrument with two remote seals (see Fig. 4)
2 Operating data of the medium to be measured which will be referred to for the calculation and design Temperatures Process pressure Measuring span Differential pressure Density of the gas above the process Process variable (e.g. 0 ... 500mbar $\hat{=}$ 0 ... 20mA)	$t = \text{_____} ^\circ \text{C}$ $p = \text{_____} \text{ bar}$ $\Delta M = \text{_____} \text{ bar}$ $\rho_M = \text{_____} \text{ kg/m}^3$ $\text{_____} \hat{=} 0/4 \dots 20 \text{mA}$	$t = \text{_____} ^\circ \text{C}$ $p_1 = \text{_____} \text{ bar}$ $p_2 = \text{_____} \text{ bar}$ $\Delta M = \text{_____} \text{ bar}$ $\Delta p = p_1 - p_2 = \text{_____} \text{ bar}$ $\rho_M = \text{_____} \text{ kg/m}^3$ $\text{_____} \hat{=} 0/4 \dots 20 \text{mA}$
3 Elevation between remote seal and measuring instr. Instrument above the remote seal Instrument below the remote seal	$a = + \text{_____} \text{ m}$ $a = - \text{_____} \text{ m}$	
4 Difference in elevation of the two remote seals		$e = \text{_____} \text{ m}$
5 Capillary tube length + (HP) side - (LP) side	$\text{_____} \text{ m}$	$\text{_____} \text{ m}$ $\text{_____} \text{ m}$
6 Additional data Process temperature range Average ambient temperature at the measuring instr. Average ambient temperature at the capillary tube	$t_M = \text{from } \dots \text{ to } \dots ^\circ \text{C}$ $t_{uM} = \text{_____} ^\circ \text{C}$ $t_{uK} = \text{_____} ^\circ \text{C}$	$t_M = \text{from } \dots \text{ to } \dots ^\circ \text{C}$ $t_{uM} = \text{_____} ^\circ \text{C}$ $t_{uK} = \text{_____} ^\circ \text{C}$
7 Data of limits which for example can occur with cleaning processes or blowing through (not measuring operation) Temperature Pressure	$t_{\max} = \text{_____} ^\circ \text{C}$ $t_{\min} = \text{_____} ^\circ \text{C}$ $p_{\max} = \text{_____} \text{ bar}$ $p_{\min} = \text{_____} \text{ bar}$	$t_{\max} = \text{_____} ^\circ \text{C}$ $t_{\min} = \text{_____} ^\circ \text{C}$ $p_{\max} = \text{_____} \text{ bar}$ $p_{\min} = \text{_____} \text{ bar}$

Note: Remote seals with silicone oil (standard) may be mounted up to a maximum of 5m below the measuring instrument.



e.g. also with filter measurements;
in front of and behind the filter

Compiled: _____, Date _____ 19 ____

Company stamp

(Signature)

Flush Diaphragm Seal / Extended Diaphragm Seal DN 50 / DN 2", DN 80 / DN 3" complete with Flange

Data Sheet

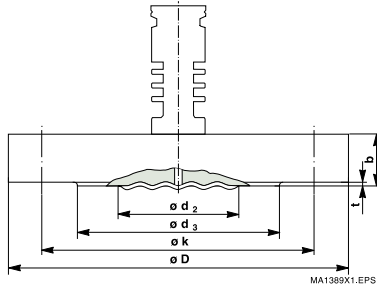
15-5.44 EN

Dimensional Diaphragm

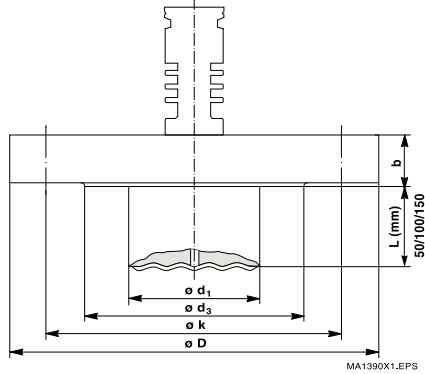
Sealin rings and fixing materials not supplied!

Directly Connected

- Flush diaphragm remote seals

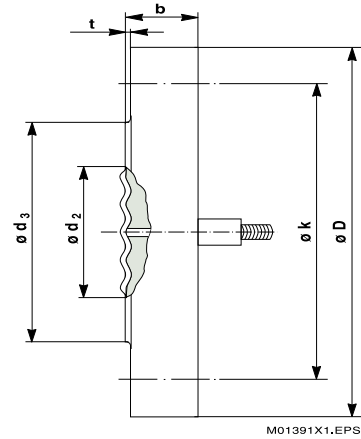


- Extended diaphragm remote seals

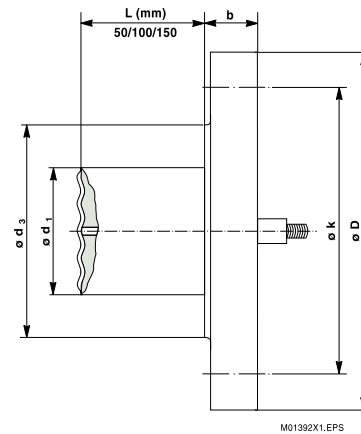


Mounting with Capillary Tube

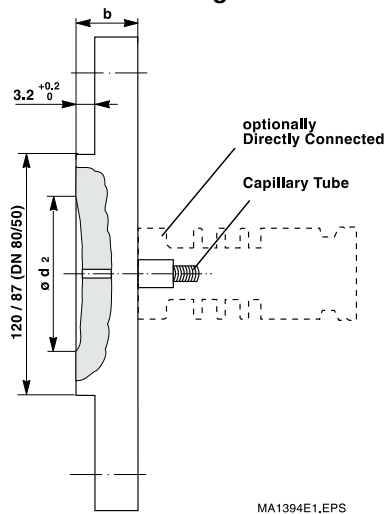
- Flush diaphragm remote seals



- Extended diaphragm remote seals



Form V13 Sealing Surface



Sealing Surfaces: Form E (DIN 2526), Form N (DIN 2512), Form RF (ANSI B16.5)

Nominal diameter DN	Pressure rating PN	ø D	ø k	Extension-ø d ₁	ø d ₂	ø d ₃	t	b	Screws	
									Number	Thread
50	PN 16/40	165	125	51	57	102	3 ± 0.5	20	4	M 16
	PN 64	180	135	51	57	102	3 ± 0.5	26	4	M 20
	PN 100	195	145	51	57	102	3 ± 0.5	28	4	M 20
80	PN 16/40	200	160	76	75	138	3 ± 0.5	24	8	M 16
	PN 64	215	170	76	75	138	3 ± 0.5	28	8	M 20
	PN 100	230	180	76	75	138	3 ± 0.5	32	8	M 24
2"	class 150	152.4	120.6	51	57	92.1	3 ± 0.5	17.4	4	M 18
	class 300	165.1	127.0	51	57	92.1	3 ± 0.5	20.6	8	M 18
	class 600	165.1	127.0	51	57	92.1	6.35	31.75	8	M 18
3"	class 150	190.5	152.4	76	75	138	3 ± 0.5	22.2	4	M 16
	class 300	209.5	168.3	76	75	138	3 ± 0.5	27.0	8	M 20
	class 600	209.5	168.3	76	75	138	6.35	38.05	8	M 20

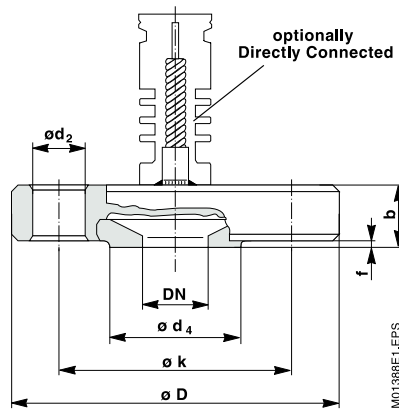
Flush Diaphragm Remote Seals DN 25 / DN 1", Miniature Remote Seals

Data Sheet
15-5.44 EN

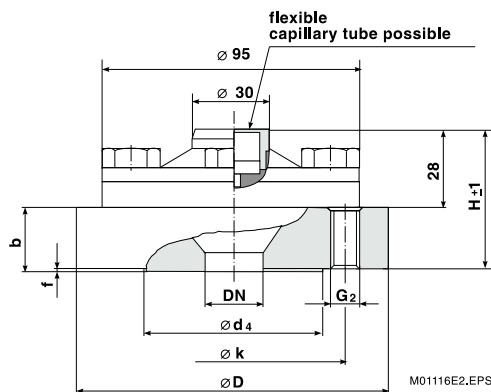
Dimensional Diagrams

Flush Diaphragm Remote Seals DN 25 / DN 1" with internal Diaphragm

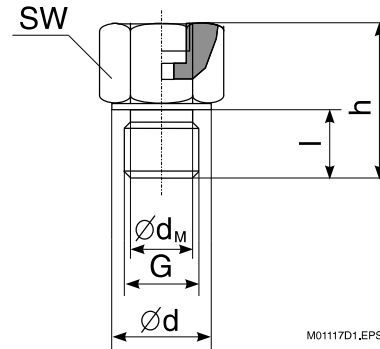
PN 10/40 or Class 150 / 300



PN 63 ... 250 or Class 600 / 1500



Miniature Remote Seals



DN (G)	PN	Dimensions in mm					Weight in kg
		d_M	SW	d	l	h	
G 1 A	600	25	41	39	28	64	0.3
G 1 1/2 A	600	40	55	60	30	50	0.5

effective diaphragm diameter = d_M
SW = width across flats

Connection acc. to DIN 2501

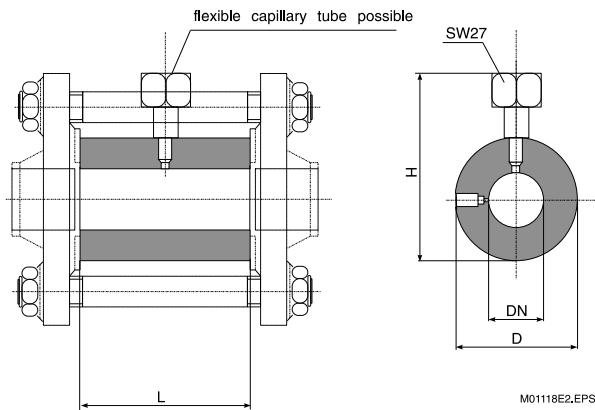
DN	PN	Dimensions in mm								Weight: in kg
		D	k	d_4	b	f	H	d_2	G_2	
25	10 / 40	115	85	68	22	2	..	14	..	1.5
25	63 / 100	140	100	68	24	2	52	..	4xM16	3.2
	160	140	100	68	24	2	52	..	4xM16	3.6
	250	150	105	68	28	2	56	..	4xM20	4.0

Connection acc. to ANSI B 16.5

DN	Class	Dimensions in mm								Weight: in kg
		D	k	d_2	d_4	b	f	H	G_2 UNC	
1"	150	110	79.5	16	51	22	2	..	..	1.4
	300	125	89	20	51	22	2	..	..	1.7
1"	600	125	89	..	51	25	7	53	4x5/8"	3.6
	1500	150	101.5	..	51	36	7	64	4x7/8"	4.0

Dimensional Diagrams

In-Line Remote Seals (without flanges)



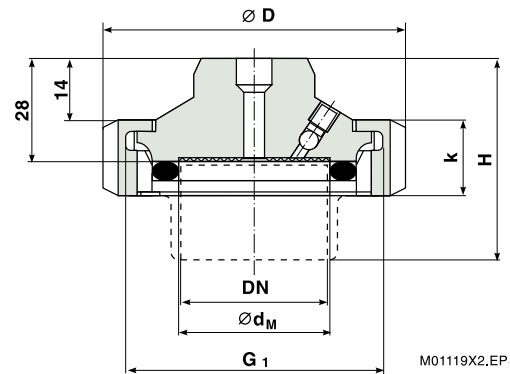
SW27 = width across flats 27mm

Connection acc. to DIN 2501 / acc. to ANSI B 16.5

DN in mm / inch	PN in bar / psi	Dimensions in mm			Weight in kg
		D	L	H	
25 / 1"	6...400 / 150...2500	63	60	110	1.4
40 / 1 1/2"	6...400 / 150...2500	85	60	132	2.2
50 / 2"	6...400 / 150...2500	95	60	187	2.5
80 / 3"	6...400 / 150...2500	130	60	222	4.0

Fast Coupled Remote Seals

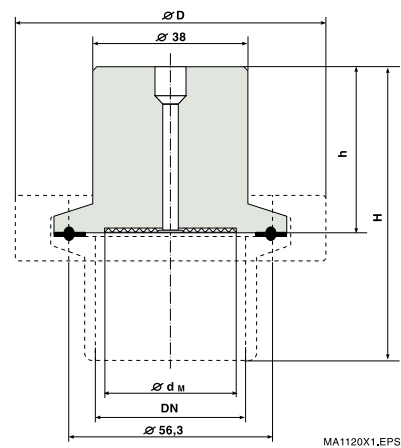
● with Running Union DN 50, PN_{max} 25



acc. to DIN 11 851

Dimensions in mm					Design	Weight in kg
d _M	D	H _{CL}	k	G ₂		
52	92	57	22	Rd 78 x1/6	Form D-F	0.8

● with Clamp-connection DN 2", PN_{max} 40



Dimensions in mm				Weight in kg
d _M	D	H _{CL}	h _{CL}	
40	75	58	35	0.75

effective diaphragm diameter = d_M

Transmitter ASD 800 / ASD 810 for Flush / Extended Diaphragm

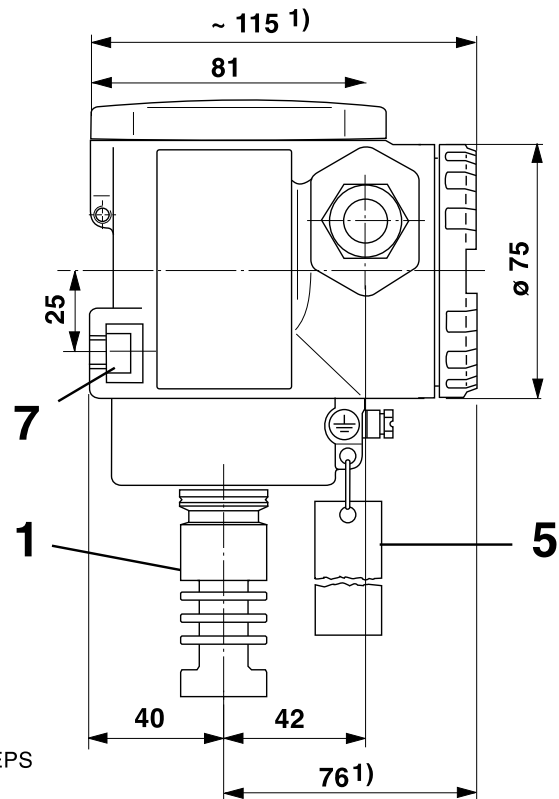
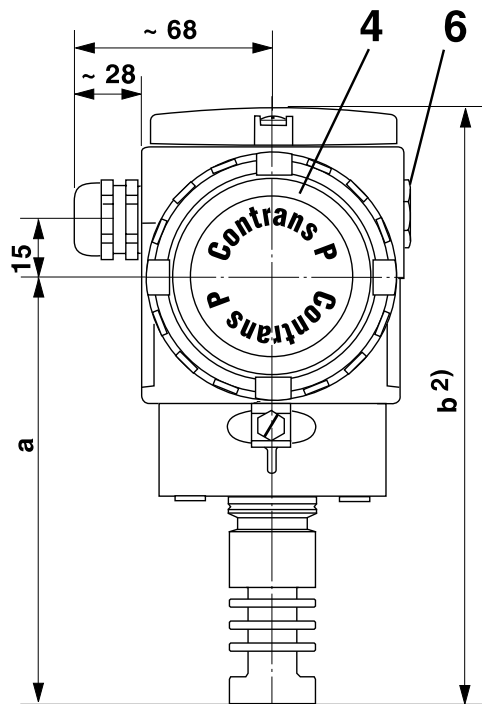
Remote Seals and Fast Coupled Remote Seals

Data Sheet

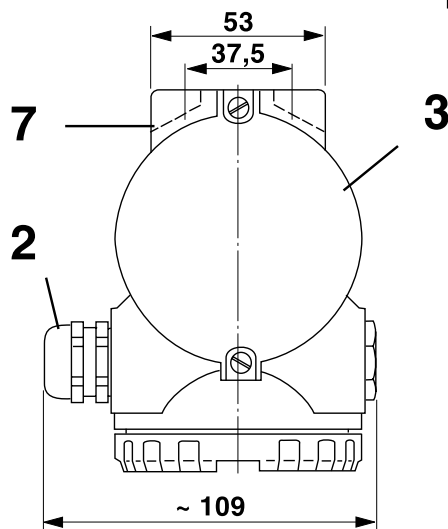
15-5.44 EN

Dimensional Diagrams

Errors and omissions excepted. All dimensions in millimeters (mm).



M01396X1.EPS



- 1 Remote seal connection
- 2 Electrical connection:
Pg 13.5 cable gland (cable- $\varnothing$: 6...12 mm) or
two cable glands, one each on the right and left or
1/2-14 NPT female threads on both sides or
one Han 8U plug.
- 3 Type plate.
- 4 Enclosure cover (electrical connection, adjustment components, connection for analogue indicating instrument).
- 5 Tie-on plate e.g. for tag number (option).
- 6 Sealing plug.
- 7 T-slot for screws when wall or pipe mounting.

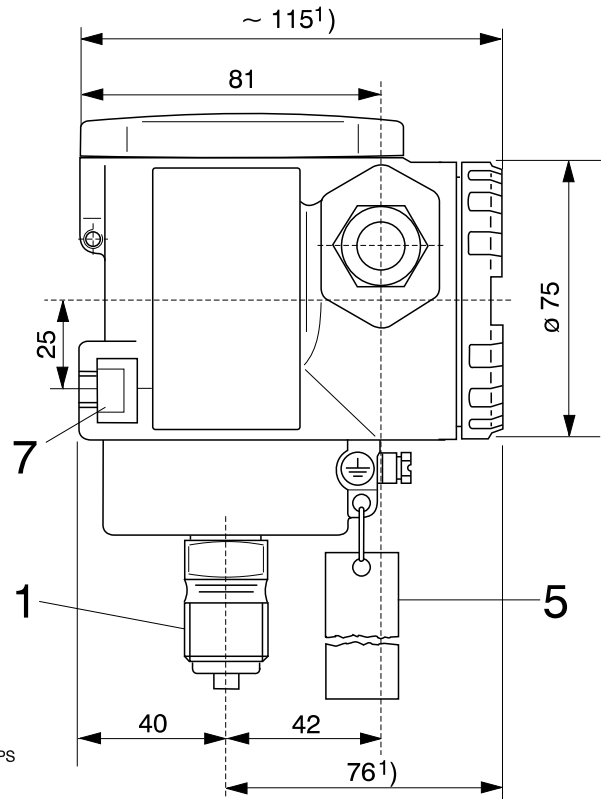
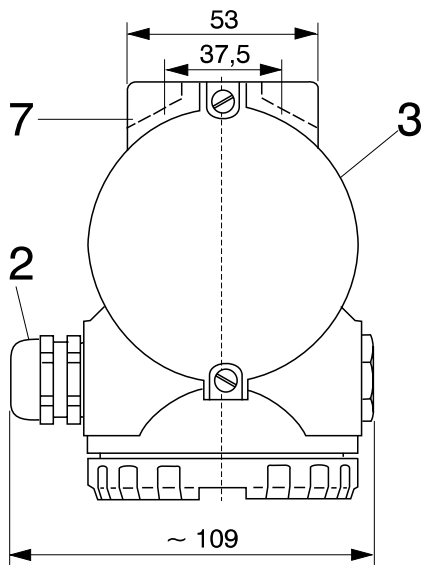
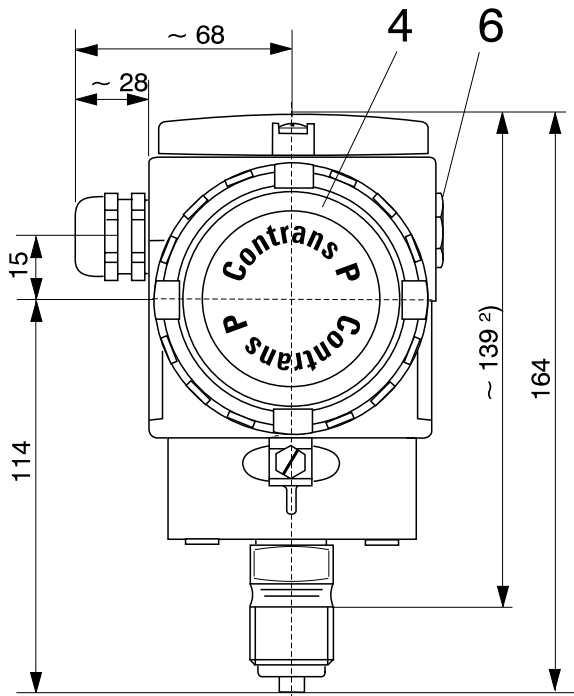
	Order No. V15556AE-... V15557AE-...	Order No. V15536AE-...
Dim. "a"	127 mm	134 mm
Dim. "b"	177 mm	184 mm

²⁾ With directly connected remote seal the length (height) of the remote seal must be added to dimensions "a" and "b" (see corresponding dimensional diagram).

¹⁾ With analogue indicating instrument plus 15 mm.

Dimensional Diagrams

Errors and omissions excepted. All dimensions in millimeters (mm).



M01177X5.EPS

- 1 Remote seal connection
- 2 Electrical connection:
Pg 13.5 cable gland (cable- $\varnothing$: 6...12 mm) or
two cable glands, one each on the right and left or
1/2-14 NPT female threads on both sides or
one Han 8U plug.
- 3 Type plate.
- 4 Enclosure cover (electrical connection, adjustment components
connection for analogue indicating instrument).
- 5 Tie-on plate e.g. for tag number (option).
- 6 Sealing plug.
- 7 T-slot for screws when wall or pipe mounting.

¹⁾ With analogue indicating instrument plus 15 mm.

²⁾ With directly connected remote seal the length (height) of the remote seal must be added to this dimension (see corresponding dimensional diagram).



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