Technical Information
Proline Promag 50E
Electromagnetic flowmeter

The economical flowmeter with a modular electronic concept

Application
- The measuring principle is virtually independent of pressure, density, temperature and viscosity
- Fully suitable for basic applications in the chemical and process industry

Device properties
- Nominal diameter: max. DN 600 (24")
- Ex approvals for Zone 2
- Liner made of PTFE
- 2-line backlit display with push buttons
- Device in compact or remote version
- HART, PROFIBUS DP/PA

Your benefits
- Cost-effective sensor – ideal solution for basic requirements
- Energy-saving flow measurement – no pressure loss due to cross-section constriction
- Maintenance-free – no moving parts
- Fast commissioning – application-specific Quick Setups
- Safe operation – display provides easy readable process information
- Fully industry compliant – IEC/EN/NAMUR

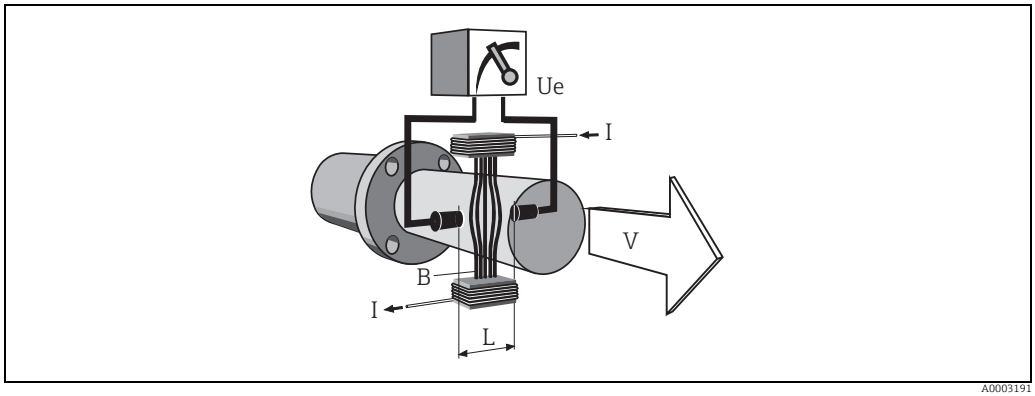
Endress+Hauser
People for Process Automation

Table of contents

Function and system design

Measuring principle

Following *Faraday's law of magnetic induction*, a voltage is induced in a conductor moving through a magnetic field.
In the electromagnetic measuring principle, the flowing medium is the moving conductor.
The voltage induced is proportional to the flow velocity and is supplied to the amplifier by means of two measuring electrodes. The flow volume is calculated by means of the pipe cross-sectional area.
The DC magnetic field is created through a switched direct current of alternating polarity.



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$Ue = B \cdot L \cdot v$
$Q = A \cdot v$

Ue	*Induced voltage*
B	*Magnetic induction (magnetic field)*
L	*Electrode spacing*
v	*Flow velocity*
Q	*Volume flow*
A	*Pipe cross-section*
I	*Current strength*

Measuring system

The measuring system consists of a transmitter and a sensor.
Two versions are available:
- Compact version: Transmitter and sensor form a mechanical unit.
- Remote version: Sensor is mounted separate from the transmitter.

Transmitter:
- User interface with push buttons for operation, two-line display, illuminated

Sensor:
- DN 15 to 600 (½ to 24")

Input

Measured variable

Flow velocity (proportional to induced voltage)

Measuring ranges

Measuring ranges for liquids
Typically v = 0.01 to 10 m/s (0.03 to 33 ft/s) with the specified accuracy

Operable flow range

Over 1000 : 1

Input signal

Status input (auxiliary input)
- U = 3 to 30 V DC, R_i = 5 kΩ, galvanically isolated
- Configurable for: totalizer(s) reset, measured value suppression, error-message reset

Status input (auxiliary input) with PROFIBUS DP and Modbus RS485
- U = 3 to 30 V DC, R_i = 3 kΩ, galvanically isolated
- Switching level: 3 to 30 V DC, independent of polarity
- Configurable for: totalizer(s) reset, measured value suppression, error-message reset, batching start/stop (optional), batch totalizer reset (optional)

Output

Output signal

Current output
Active/passive selectable, galvanically isolated, time constant selectable (0.01 to 100 s), full scale value selectable, temperature coefficient: typ. 0.005% o.r./°C (o.r. = of reading), resolution: 0.5 mA
- Active: 0/4 to 20 mA, R_L < 700 Ω (HART: $R_L \geq 250$ Ω)
- Passive: 4 to 20 mA, operating voltage V_S: 18 to 30 V DC, $R_i \geq 150$ Ω

Pulse/frequency output
Passive, open collector, 30 V DC, 250 mA, galvanically isolated
- Frequency output: full scale frequency 2 to 1000 Hz (f_{max} = 1250 Hz), on/off ratio 1:1, pulse width max. 10s
- Pulse output: pulse value and pulse polarity selectable, max. pulse width configurable (0.5 to 2000 ms)

PROFIBUS DP interface
- Transmission technology (Physical Layer): RS485 in accordance with ASME/TIA/EIA-485-A: 1998, galvanically isolated
- Profil version 3.0
- Data transmission rate: 9,6 kBaud to 12 MBaud
- Automatic data transmission rate recognition
- Function blocks: 1 × analog Input, 1 × totalizer
- Output data: volume flow, totalizer
- Input data: positive zero return (ON/OFF), totalizer control, value for local display
- Cyclic data transmission compatible with previous model Promag 33
- Bus address adjustable via miniature switches or local display (optional) at the measuring device

PROFIBUS PA interface
- Transmission technology (Physical Layer): IEC 61158-2 (MBP), galvanically isolated
- Profil version 3.0
- Current consumption: 11 mA
- Permissible supply voltage: 9 to 32 V
- Bus connection with integrated reverse polarity protection
- Error current FDE (Fault Disconnection Electronic): 0 mA
- Function blocks: 1 × analog input, 2 × totalizer
- Output data: volume flow, totalizer
- Input data: positive zero return (ON/OFF), control totalizer, value for local display
- Cyclic data transmission compatible with previous model Promag 33
- Bus address adjustable via miniature switches or local display (optional) at the measuring device

Signal on alarm	▪ Current output ® failure response selectable (e.g. in accordance with NAMUR recommendation NE 43) ▪ Pulse/frequency output ® failure response selectable ▪ Status output ® non-conductive by fault or power supply failure
Load	See "Output signal"
Low flow cutoff	Switch points for low flow cutoff are selectable.
Galvanic isolation	All circuits for inputs, outputs and power supply are galvanically isolated from each other.
Switching output	**Status output** Open collector, max. 30 V DC / 250 mA, galvanically isolated. Configurable for: error messages, Empty Pipe Detection (EPD), flow direction, limit values.

Power supply

Terminal assignment

Order code for "Input / Output"	Terminal No. (inputs/outputs)			
	20 (+) / 21 (–)	22 (+) / 23 (–)	24 (+) / 25 (–)	26 (+) / 27 (–)
W	–	–	–	Current output HART
A	–	–	Frequency output	Current output HART
D	Status input	Status output	Frequency output	Current output HART
H	–	–	–	PROFIBUS PA
J	–	–	+5 V (external termination)	PROFIBUS DP
S	–	–	Frequency output, Ex i, passive	Current output, Ex i, passive, HART
T	–	–	Frequency output, Ex i, passive	Current output, Ex i, passive, HART

Ground terminal → 🖹 7

Supply voltage

- 16 to 62 V DC
- 20 to 55 V AC, 45 to 65 Hz
- 85 to 260 V AC, 45 to 65 Hz

PROFIBUS PA and FOUNDATION Fieldbus
- Non-Ex: 9 to 32 V DC
- Ex i: 9 to 24 V DC
- Ex d: 9 to 32 V DC

Power consumption

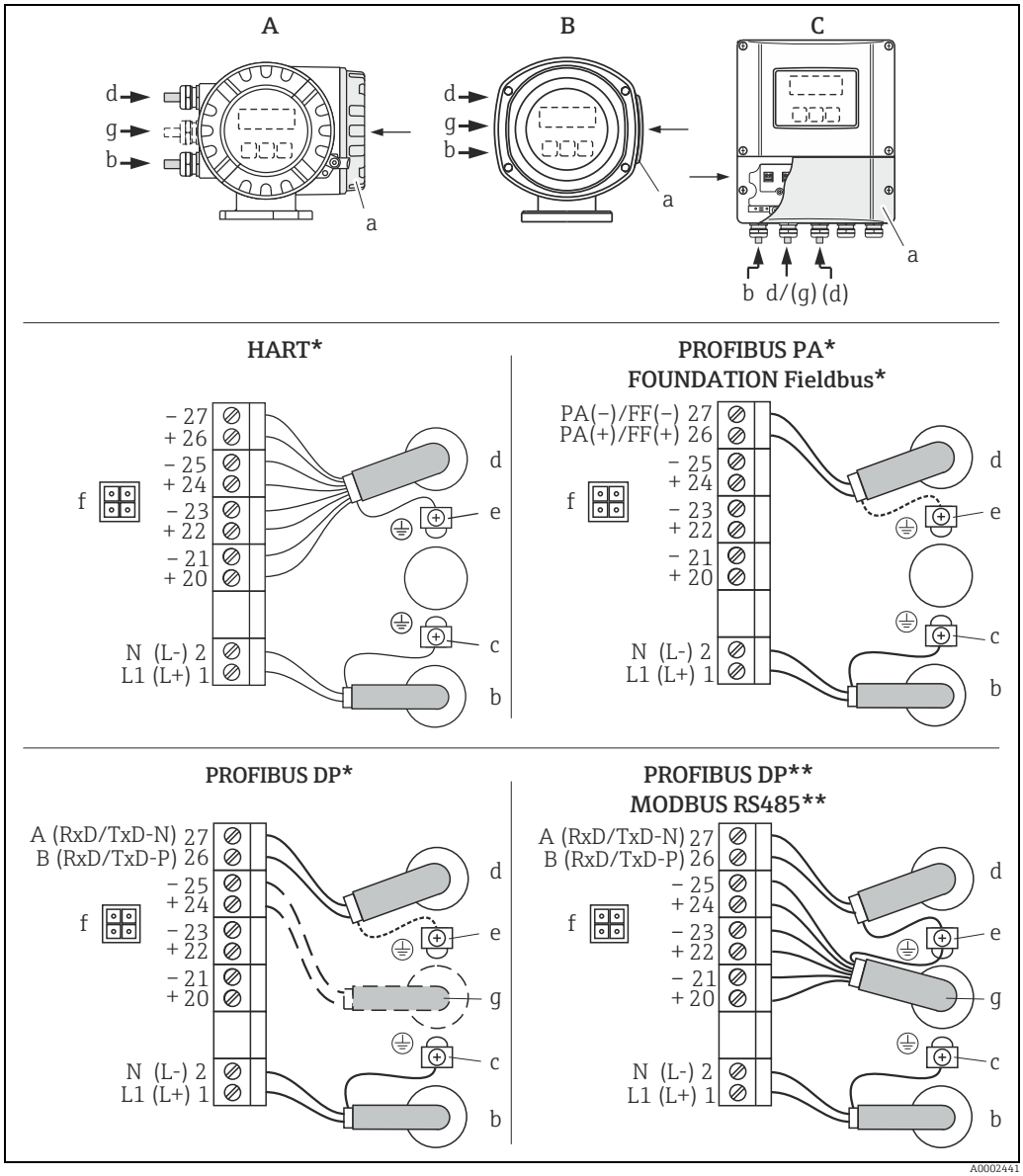
- AC: < 15 VA (incl. sensor)
- DC: < 15 W (incl. sensor)

Switch-on current:
- Max. 3 A (< 5 ms) for 260 V AC
- Max. 13.5 A (< 50 ms) for 24 V DC

Power supply failure

Lasting min. ½ cycle frequency: EEPROM saves measuring system data
- EEPROM retains the measuring system data in the event of a power supply failure
- S-DAT: exchangeable data storage chip which stores the data of the sensor (nominal diameter, serial number, calibration factor, zero point etc.)

Electrical connection, measuring unit



Connecting the transmitter, cable cross-section max. 2.5 mm² (14 AWG)

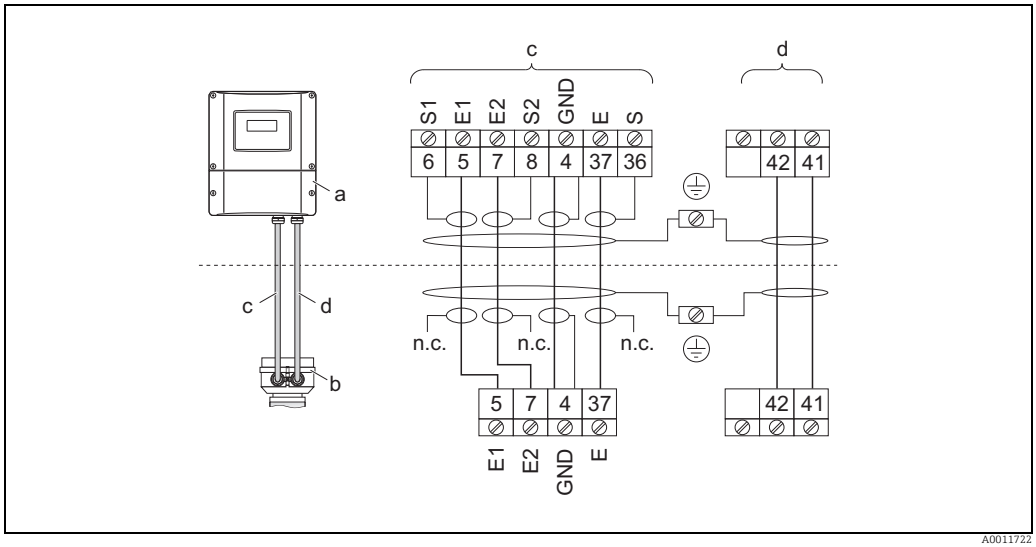
A View A (field housing)
B View B (stainless steel field housing)
C View C (wall-mount housing)

**)* fixed communication boards
***)* flexible communication boards
a Connection compartment cover
b Cable for power supply: 85 to 260 V AC / 20 to 55 V AC / 16 to 62 V DC
- Terminal No. 1: L1 for AC, L+ for DC
- Terminal No. 2: N for AC, L– for DC

c Ground terminal for protective conductor
d Electrode cable: see "Electrical connection, terminal assignment" → 🖹 6
Fieldbus cable:
- Terminal No. 26: DP (B) / PA + / FF + / Modbus RS485 (B) / (PA, FF: with polarity protection)
- Terminal No. 27: DP (A) / PA – / FF – / Modbus RS485 (A) / (PA, FF: with polarity protection)

e Ground terminal for electrode cable shield / Fieldbus cable / RS485 line
f Service adapter for connecting service interface FXA193 (Fieldcheck, FieldCare)
g Electrode cable: see "Electrical connection, terminal assignment" → 🖹 6
Cable for external termination (only for PROFIBUS DP with fixed assignment communication board):
- Terminal No. 24: +5 V
- Terminal No. 25: DGND

Electrical connection, remote version



Connecting the remote version

a Wall-mount housing connection compartment
b Sensor connection housing cover
c Electrode cable
d Coil current cable
n.c. Not connected, insulated cable shields
Terminal no. and cable colors: 6/5 = brown; 7/8 = white; 4 = green; 36/37 = yellow

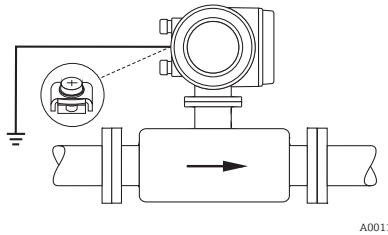
Potential equalization

Note!
The measuring system must be included in the potential equalization.

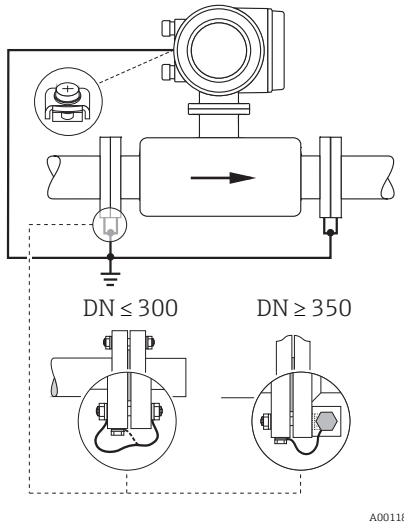
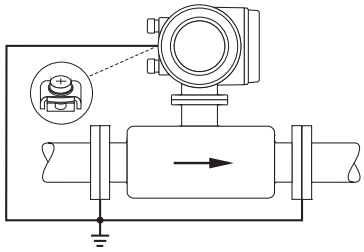
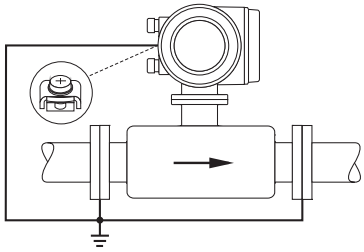
Perfect measurement is only ensured when the fluid and the sensor have the same electrical potential. This is ensured by the reference electrode integrated in the sensor as standard.

The following should also be taken into consideration for potential equalization:
- Internal grounding concepts in the company
- Operating conditions, such as the material/ grounding of the pipes (see table)

Standard situation

Operating conditions	Potential equalization
When using the measuring device in a: ▪ Metal, grounded pipe Potential equalization takes place via the ground terminal of the transmitter. Note! When installing in metal pipes, we recommend you connect the ground terminal of the transmitter housing with the piping.	 A0011892 *Via the ground terminal of the transmitter*

Special situations

Operating conditions	Potential equalization
When using the measuring device in a: ▪ Metal pipe that is not grounded This connection method also applies in situations where: ▪ Customary potential equalization cannot be ensured. ▪ Excessively high equalizing currents can be expected. Both sensor flanges are connected to the pipe flange by means of a ground cable (copper wire, at least 6 mm² / 0.0093 in²) and grounded. Connect the transmitter or sensor connection housing, as applicable, to ground potential by means of the ground terminal provided for the purpose. ▪ DN ≤ 300 (12"): the ground cable is mounted directly on the conductive flange coating with the flange screws. ▪ DN ≥ 350 (14"): the ground cable is mounted directly on the transportation metal support. ✎ Note! The ground cable for flange-to-flange connections can be ordered separately as an accessory from Endress+Hauser.	 *Via the ground terminal of the transmitter and the flanges of the pipe*
When using the measuring device in a: ▪ Plastic pipe ▪ Pipe with insulating lining This connection method also applies in situations where: ▪ Customary potential equalization cannot be ensured. ▪ Excessively high equalizing currents can be expected. Potential equalization takes place using additional ground disks, which are connected to the ground terminal via a ground cable (copper wire, at least 6 mm² / 0.0093 in²). When installing the ground disks, please comply with the enclosed Installation Instructions.	 *Via the ground terminal of the transmitter and the optionally available ground disks*
When using the measuring device in a: ▪ Pipe with a cathodic protection unit The device is installed potential-free in the pipe. Only the two flanges of the pipe are connected with a ground cable (copper wire, at least 6 mm² / 0.0093 in²). Here, the ground cable is mounted directly on the conductive flange coating with flange screws. Note the following when installing: ▪ The applicable regulations regarding potential-free installation must be observed. ▪ There should be **no** electrically conductive connection between the pipe and the device. ▪ The mounting material must withstand the applicable torques.	 *Potential equalization and cathodic protection* *1 Power supply isolation transformer* *2 Electrically isolated*

Cable entries

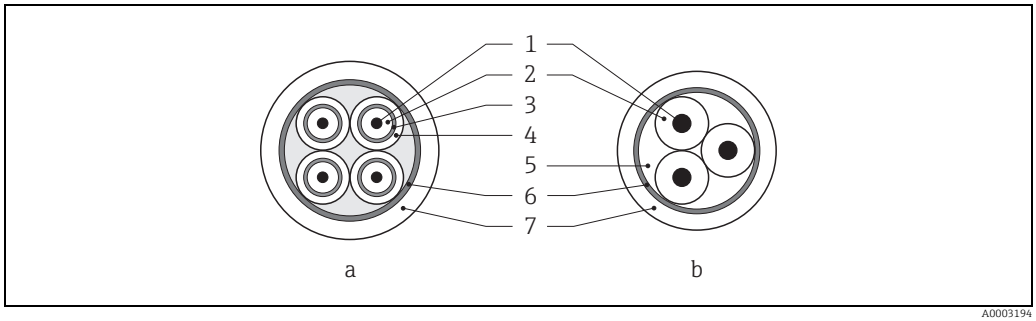
Power supply and electrode cables (inputs/ outputs):
- Cable entry M20 × 1.5 (8 to 12 mm / 0.31 to 0.47")
- Sensor cable entry for armoured cables M20 × 1.5 (9.5 to 16 mm / 0.37 to 0.63")
- Thread for cable entries, ½" NPT, G ½"

Connecting cable for remote version:
- Cable entry M20 × 1.5 (8 to 12 mm / 0.31 to 0.47")
- Sensor cable entry for armoured cables M20 × 1.5 (9.5 to 16 mm / 0.37 to 0.63")
- Thread for cable entries, ½" NPT, G ½"

Cable specifications, remote version

Coil current cable
- 2 × 0.75 mm² (18 AWG) PVC cable with common, braided copper shield (∅ ~ 7 mm / 0.28")
- Conductor resistance: ≤ 37 Ω/km (≤ 0.011 Ω/ft)
- Capacitance core/core, shield grounded: ≤ 120 pF/m (≤ 37 pF/ft)
- Operating temperature: –20 to +80 °C (–68 to +176 °F)
- Cable cross-section: max. 2.5 mm² (14 AWG)
- Test voltage for cable insulation: ≤ 1433 AC r.m.s. 50/60 Hz or ≥ 2026 V DC

Electrode cable
- 3 × 0.38 mm² (20 AWG) PVC cable with common, braided copper shield (∅ ~ 7 mm / 0.28") and individual shielded cores
- With empty pipe detection (EPD): 4 × 0.38 mm² (20 AWG) PVC cable with common, braided copper shield (∅ ~ 7 mm / 0.28") and individual shielded cores
- Conductor resistance: ≤ 50 Ω/km (≤ 0.015 Ω/ft)
- Capacitance core/shield: ≤ 420 pF/m (≤ 128 pF/ft)
- Operating temperature: –20 to +80 °C (–68 to +176 °F)
- Cable cross-section: max. 2.5 mm² (14 AWG)



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a Electrode cable
b Coil current cable

1 Core
2 Core insulation
3 Core shield
4 Core jacket
5 Core reinforcement
6 Cable shield
7 Outer jacket

Operation in zones of severe electrical interference
The measuring device complies with the general safety requirements in accordance with EN 61010 and the EMC requirements of IEC/EN 61326 and NAMUR recommendation NE 21.

Note!
Grounding is by means of the ground terminals provided for the purpose inside the connection housing. Ensure that the stripped and twisted lengths of cable shield to the ground terminal are as short as possible.

Performance characteristics

Reference operating conditions

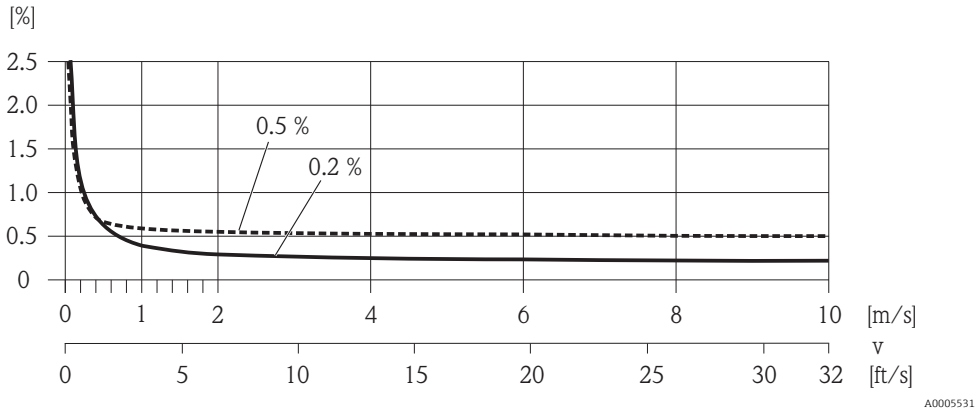
As per DIN EN 29104 and VDI/VDE 2641:
- Fluid temperature: +28 °C ± 2 K (+82 °F ± 2 K)
- Ambient temperature: +22 °C ±2 K (+72 °F ± 2 K)
- Warm-up period: 30 minutes

Installation conditions:
- Inlet run > 10 × DN
- Outlet run > 5 × DN
- Sensor and transmitter grounded.
- The sensor is centered in the pipe.

Maximum measured error

- Current output: also typically ± 5 µA
- Pulse output: ±0.5% o.r. ± 1 mm/s (±0.5% o.r. ± 0.04 in/s)
  optional: ±0.2% o.r. ± 2 mm/s (±0.2% o.r. ± 0.08 in/s) (o.r. = of reading)

Fluctuations in the supply voltage do not have any effect within the specified range.



Max. measured error in % of reading

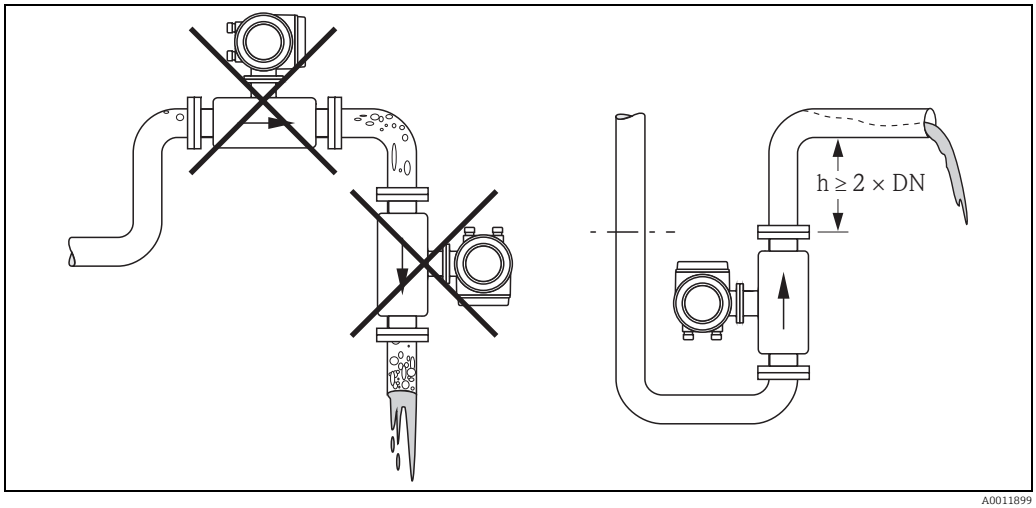
Repeatability

Max. ±0.1% o.r. ± 0.5 mm/s (±0.1% o.r. ± 0.02 in/s) (o.r. = of reading)

Installation

Mounting location

Entrained air or gas bubble formation in the measuring tube can result in an increase in measuring errors.
Avoid the following installation locations in the pipe:
- Highest point of a pipeline. Risk of air accumulating!
- Directly upstream from a free pipe outlet in a vertical pipeline.



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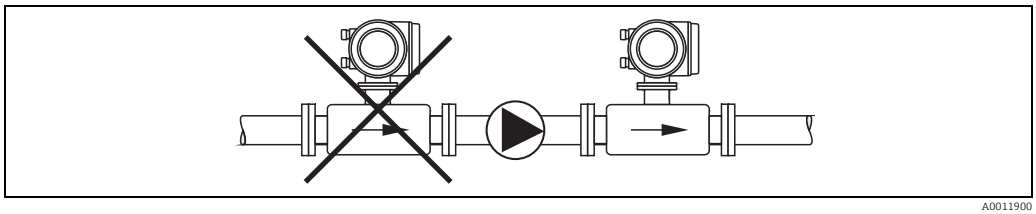
Installation of pumps
Sensors may not be installed on the pump suction side. This precaution is to avoid low pressure and the consequent risk of damage to the lining of the measuring tube. Information on the pressure tightness of the measuring tube lining → 19, Section "Pressure tightness".
Pulsation dampers may be needed when using piston pumps, piston diaphragm pumps or hose pumps. Information on the shock and vibration resistance of the measuring system → 16, Section "Shock and vibration resistance".



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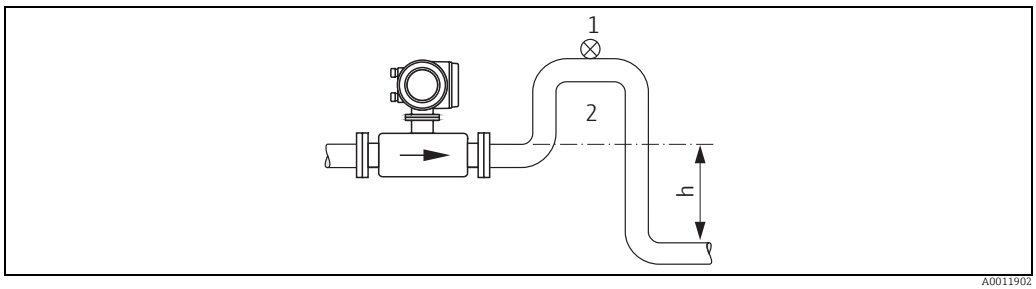
Installation in down pipes
Install a siphon or a vent valve downstream of the sensor in down pipes h ≥ 5 m (16.4 ft). This precaution is to avoid low pressure and the consequent risk of damage to the lining of the measuring tube. This measure also prevents the liquid current stopping in the pipe which could cause air locks. Information on the pressure tightness of the measuring tube lining → 19, Section "Pressure tightness".



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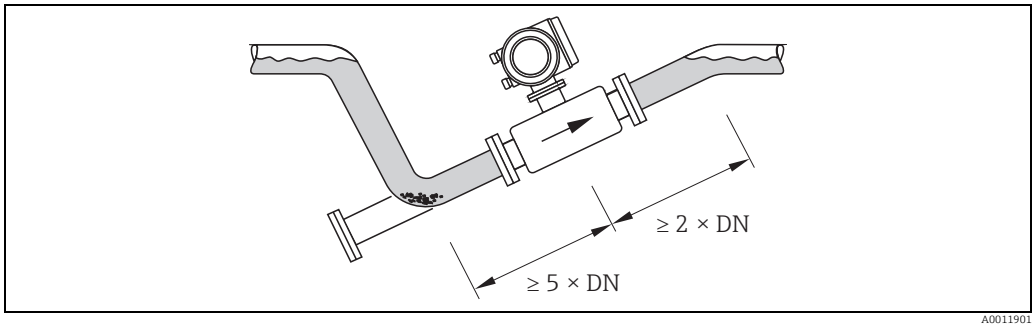
Installation measures for vertical pipes

1 Vent valve
2 Pipe siphon
h Length of the down pipe

Installation in partially filled pipes
Partially filled pipes with gradients necessitate a drain-type configuration. The empty pipe detection function (EPD) provides additional security in detecting empty or partially filled pipes.

Note!
Risk of solids accumulating. Do not install the sensor at the lowest point in the drain. It is advisable to install a cleaning valve.



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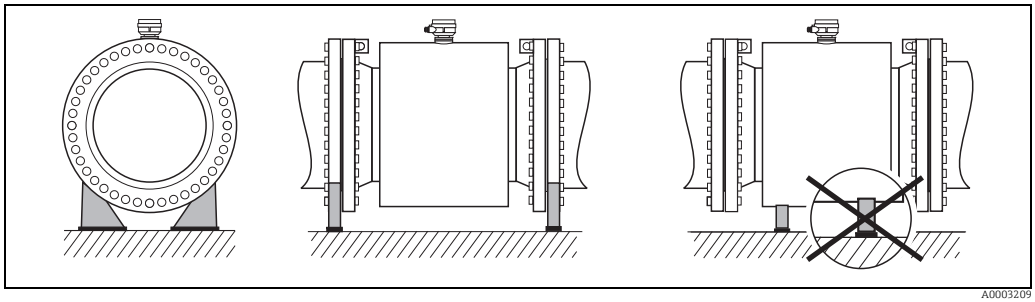
Installation with partially filled pipes

For very heavy sensors
If the nominal diameter is DN ≥ 350 (14"), mount the transmitter on a foundation of adequate load-bearing strength.

Note!
Do not allow the casing to take the weight of the sensor. This would buckle the casing and damage the internal magnetic coils.



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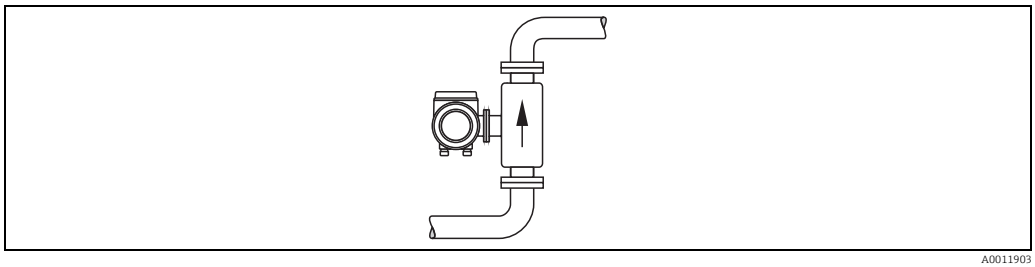
Orientation

An optimum orientation helps avoid gas and air accumulations and deposits in the measuring tube. However, the measuring device also offers the additional function of empty pipe detection (EPD) for detecting partially filled measuring tubes or if outgassing fluids or fluctuating operating pressures are present.

Vertical orientation
This is the ideal orientation for self-emptying piping systems and for use in conjunction with empty pipe detection.



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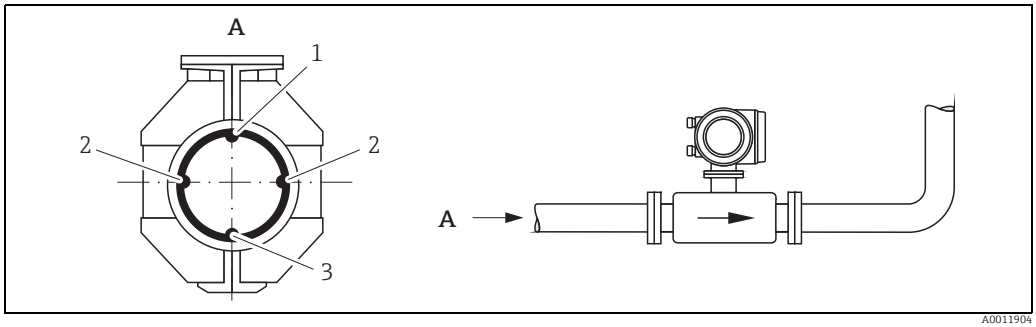
Horizontal orientation

The measuring electrode axis should be horizontal. This prevents brief insulation of the two measuring electrodes by entrained air bubbles.

Note!
Empty pipe detection only works correctly with horizontal orientation if the transmitter housing is facing upwards. Otherwise there is no guarantee that empty pipe detection will respond if the measuring tube is only partially filled or empty.



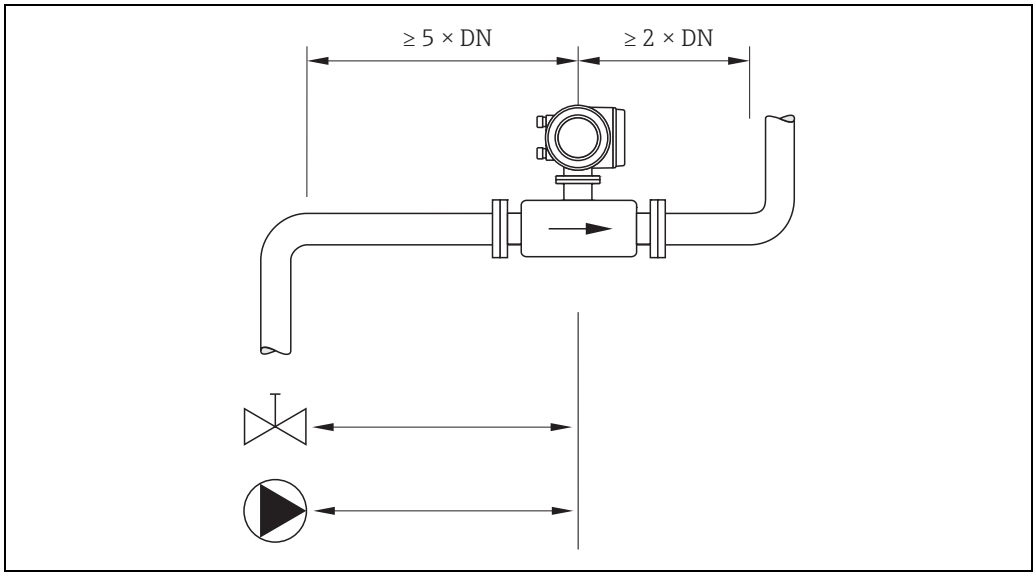
Horizontal orientation

1 EPD electrode for empty pipe detection
2 Measuring electrodes for signal detection
3 Reference electrode for potential equalization

Inlet and outlet run

If possible, install the sensor well clear of assemblies such as valves, T-pieces, elbows etc.

Note the following inlet and outlet runs to comply with measuring accuracy specifications:
- Inlet run: ≥ 5 × DN
- Outlet run: ≥ 2 × DN

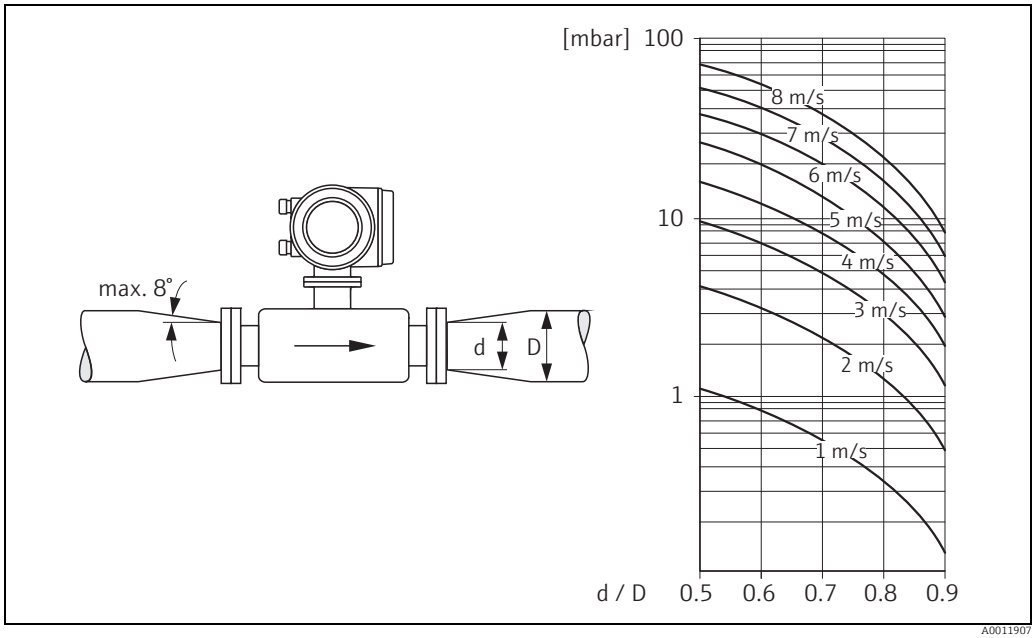


Adapters

Suitable adapters to DIN EN 545 (double-flange reducers) can be used to install the sensor in larger-diameter pipes. The resultant increase in the rate of flow improves measuring accuracy with very slow-moving fluids. The nomogram shown here can be used to calculate the pressure loss caused by reducers and expanders.

Note!
The nomogram only applies to liquids of viscosity similar to water.

1. Calculate the ratio of the diameters d/D.
2. From the nomogram read off the pressure loss as a function of flow velocity (downstream from the reduction) and the d/D ratio.

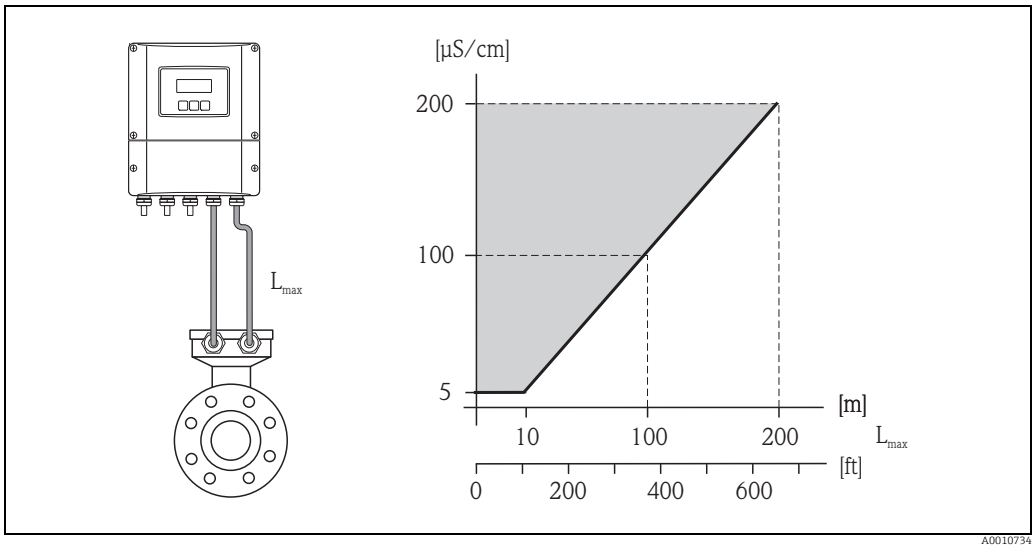


Pressure loss due to adapters

Length of connecting cable

When mounting the remote version, please note the following to achieve correct measuring results:

- Fix cable run or lay in armored conduit. Cable movements can falsify the measuring signal especially in the case of low fluid conductivities.
- Route the cable well clear of electrical machines and switching elements.
- If necessary, ensure potential equalization between sensor and transmitter.
- The permitted cable length L_{max} is determined by the fluid conductivity. A minimum conductivity of 20 µS/cm is required for measuring demineralized water.
- When the empty pipe detection function is switched on (EPD), the maximum connecting cable length is 10 m (33 ft).



Permitted length of connecting cable for remote version
Area marked in gray = permitted range; L_{max} = length of connecting cable in [m] ([ft]); fluid conductivity in [µS/cm]

Environment

Ambient temperature range

Transmitter
- Standard: −20 to +60 °C (−4 to +140 °F)
- Optional: −40 to +60 °C (−40 to +140 °F)

Note!
At ambient temperatures below −20 °C (−4 °F) the readability of the display may be impaired.

Sensor
- Flange material carbon steel: −10 to +60 °C (+14 to +140 °F)

Note!
The permitted temperature range of the measuring tube lining may not be undershot or overshot → 17, Section "Medium temperature range".

Please note the following points:
- Install the device in a shady location. Avoid direct sunlight, particularly in warm climatic regions.
- The transmitter must be mounted separate from the sensor if both the ambient and fluid temperatures are high.

Storage temperature

The storage temperature corresponds to the operating temperature range of the measuring transmitter and the appropriate measuring sensors.

Note!
- The measuring device must be protected against direct sunlight during storage in order to avoid unacceptably high surface temperatures.
- A storage location must be selected where moisture does not collect in the measuring device. This will help prevent fungus and bacteria infestation which can damage the liner.
- Do not remove the protective plates or caps on the process connections until the device is ready to install.

Degree of protection

Standard: IP 67 (NEMA 4X) for transmitter and sensor.

Shock and vibration resistance

Acceleration up to 2 g following IEC 600 68-2-6

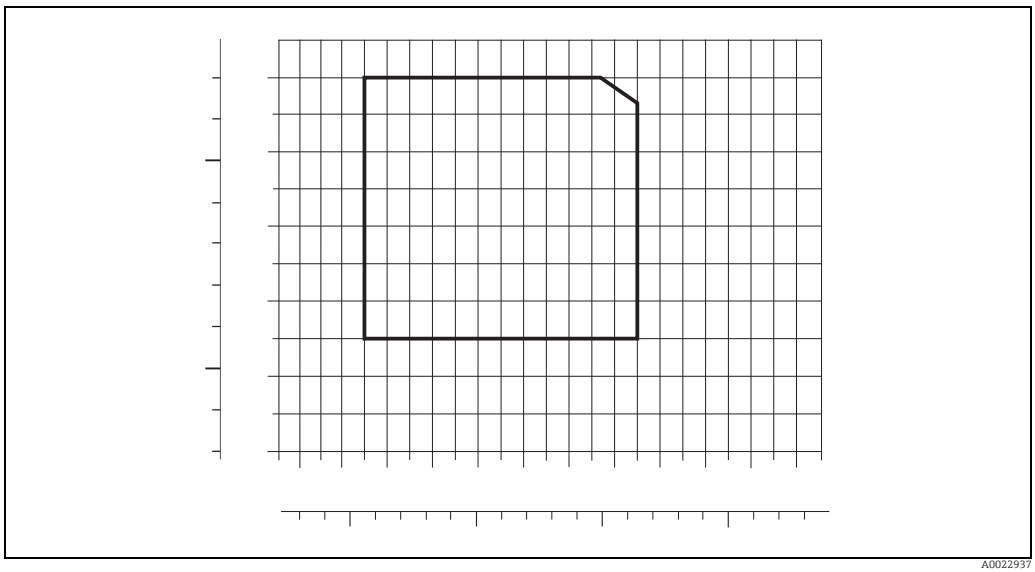
Electromagnetic compatibility (EMC)

As per IEC/EN 61326 and NAMUR recommendation NE 21.

Process

Medium temperature range

PTFE: −10 to +110 °C (+14 to +230 °F)



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Compact and remote version (T_A = Ambient temperature, T_F = Fluid temperature)

Conductivity

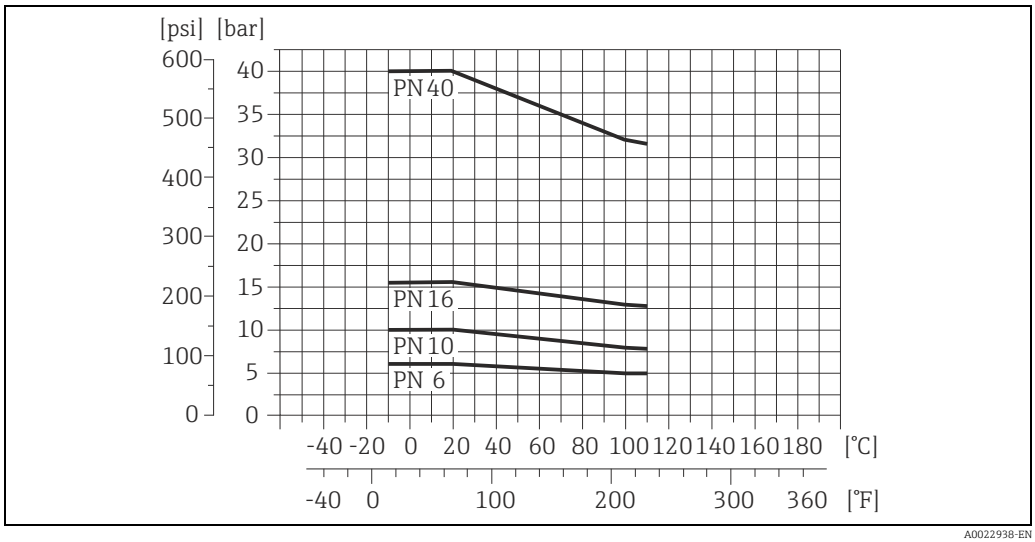
The minimum conductivity is:
- ≥ 5 µS/cm for fluids generally
- ≥ 20 µS/cm for demineralized water

Note!
In the remote version, the necessary minimum conductivity also depends on the cable length (→ 15, Section "Length of connecting cable").

Pressure-temperature ratings

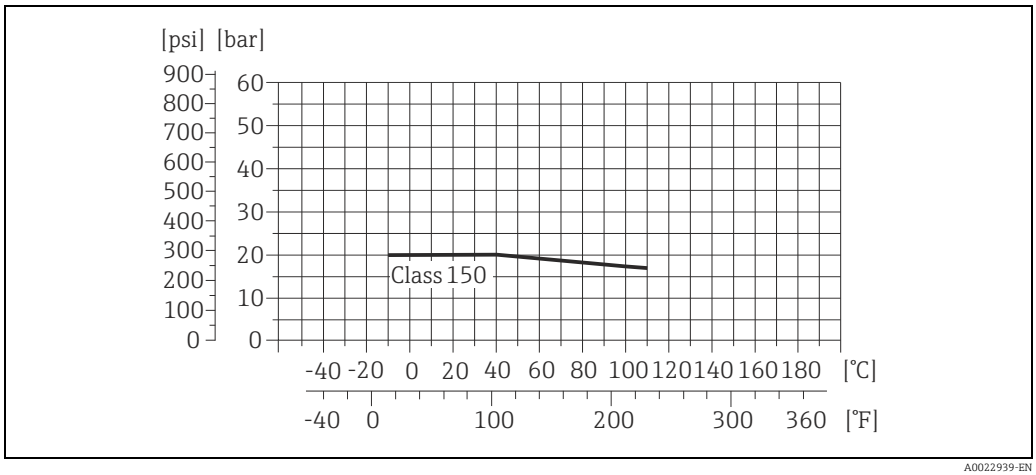
Note!
The following diagrams contain material load diagrams (reference curves) for flange materials with regard to the medium temperature. However, the maximum medium temperatures permitted always depend on the lining material of the sensor and/or the sealing material (→ 17).

Process connection: flange to EN 1092-1 (DIN 2501)
Material process connection: S235JRG2, S235JR+N, P250GH, P245GH, E250C, A105



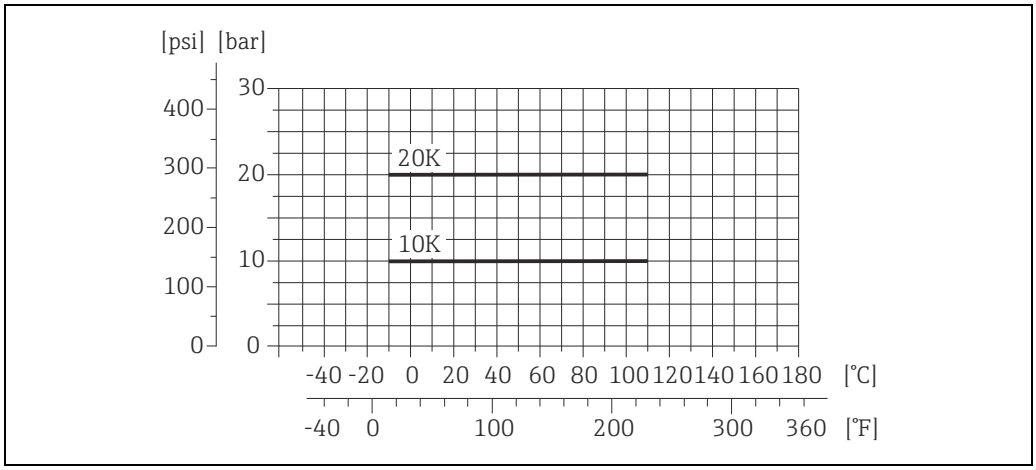
A0022938-EN

Process connection: flange to ASME B16.5
Material process connection: A105



A0022939-EN

Process connection: flange to JIS B2220
Material process connection: A105, A350 LF2, F316L



A0022940-EN

Medium pressure range (nominal pressure)

- EN 1092-1 (DIN 2501)
  - PN 6 (DN 350 to 600 / 14 to 24")
  - PN 10 (DN 200 to 600 / 8 to 24")
  - PN 16 (DN 65 to 600 / 3 to 24")
  - PN 40 (DN 15 to 50 / ½ to 2")
- ASME B 16.5
  - Class 150 (DN ½ to 24")
- JIS B2220
  - 10K (DN 50 to 300 / 2 to 12")
  - 20K (DN 15 to 40 / ½ to 1½")

Pressure tightness

Nominal diameter		Limit values for abs. pressure [mbar] ([psi]) at fluid temperatures:							
		25 °C (77 °F)		80 °C (176 °F)		100 °C (212 °F)		110 °C (230 °F)	
[mm]	[inch]	[mbar]	[psi]	[mbar]	[psi]	[mbar]	[psi]	[mbar]	[psi]
15	½"	0	0	0	0	0	0	100	1.45
25	1"	0	0	0	0	0	0	100	1.45
32	–	0	0	0	0	0	0	100	1.45
40	1½"	0	0	0	0	0	0	100	1.45
50	2"	0	0	0	0	0	0	100	1.45
65	–	0	0	*	*	40	0.58	130	1.89
80	3"	0	0	*	*	40	0.58	130	1.89
100	4"	0	0	*	*	135	1.96	170	2.47
125	–	135	1.96	*	*	240	3.48	385	5.58
150	6"	135	1.96	*	*	240	3.48	385	5.58
200	8"	200	2.90	*	*	290	4.21	410	5.95
250	10"	330	4.79	*	*	400	5.80	530	7.69
300	12"	400	5.80	*	*	500	7.25	630	9.14
350	14"	470	6.82	*	*	600	8.70	730	10.6
400	16"	540	7.83	*	*	670	9.72	800	11.6
450	18"	Partial vacuum is impermissible!							
500	20"								
600	24"								

* No value can be specified.

Limiting flow

The diameter of the pipe and the flow rate determine the nominal diameter of the sensor.
The optimum flow velocity is between 2 to 3 m/s (6.5 to 9.8 ft/s). The velocity of flow (v), moreover, has to be matched to the physical properties of the fluid:

- v < 2 m/s (6.5 ft/s): for abrasive fluids such as potter's clay, lime milk, ore slurry etc.
- v > 2 m/s (6.5 ft/s): for fluids causing build-up such as wastewater sludges etc.

Flow characteristic values (SI units)					
Diameter		Recommended flow rate	Factory settings		
[mm]	[inch]	Min./max. full scale value (v ~ 0.3 or 10 m/s)	Full scale value, current output (v ~ 2.5 m/s)	Pulse value (~ 2 pulses/s)	Low flow cut off (v ~ 0.04 m/s)
15	½"	4 to 100 dm³/min	25 dm³/min	0.20 dm³	0.50 dm³/min
25	1"	9 to 300 dm³/min	75 dm³/min	0.50 dm³	1.00 dm³/min
32	–	15 to 500 dm³/min	125 dm³/min	1.00 dm³	2.00 dm³/min
40	1½"	25 to 700 dm³/min	200 dm³/min	1.50 dm³	3.00 dm³/min
50	2"	35 to 1100 dm³/min	300 dm³/min	2.50 dm³	5.00 dm³/min
65	–	60 to 2000 dm³/min	500 dm³/min	5.00 dm³	8.00 dm³/min
80	3"	90 to 3000 dm³/min	750 dm³/min	5.00 dm³	12.0 dm³/min
100	4"	145 to 4700 dm³/min	1200 dm³/min	10.0 dm³	20.0 dm³/min
125	–	220 to 7500 dm³/min	1850 dm³/min	15.0 dm³	30.0 dm³/min
150	6"	20 to 600 m³/h	150 m³/h	0.03 m³	2.50 m³/h
200	8"	35 to 1100 m³/h	300 m³/h	0.05 m³	5.00 m³/h
250	10"	55 to 1700 m³/h	500 m³/h	0.05 m³	7.50 m³/h
300	12"	80 to 2400 m³/h	750 m³/h	0.10 m³	10.0 m³/h
350	14"	110 to 3300 m³/h	1000 m³/h	0.10 m³	15.0 m³/h

Flow characteristic values (SI units)					
Diameter		Recommended flow rate	Factory settings		
[mm]	[inch]	Min./max. full scale value (v ~ 0.3 or 10 m/s)	Full scale value, current output (v ~ 2.5 m/s)	Pulse value (~ 2 pulses/s)	Low flow cut off (v ~ 0.04 m/s)
400	16"	140 to 4200 m^3/h	1200 m^3/h	0.15 m^3	20.0 m^3/h
450	18"	180 to 5400 m^3/h	1500 m^3/h	0.25 m^3	25.0 m^3/h
500	20"	220 to 6600 m^3/h	2000 m^3/h	0.25 m^3	30.0 m^3/h
600	24"	310 to 9600 m^3/h	2500 m^3/h	0.30 m^3	40.0 m^3/h

Flow characteristic values (US units)					
Diameter		Recommended flow rate	Factory settings		
[inch]	[mm]	Min./max. full scale value (v ~ 0.3 or 10 m/s)	Full scale value, current output (v ~ 2.5 m/s)	Pulse value (~ 2 pulses/s)	Low flow cut off (v ~ 0.04 m/s)
½"	15	1.0 to 26 gal/min	6 gal/min	0.10 gal	0.15 gal/min
1"	25	2.5 to 80 gal/min	18 gal/min	0.20 gal	0.25 gal/min
1½"	40	7 to 190 gal/min	50 gal/min	0.50 gal	0.75 gal/min
2"	50	10 to 300 gal/min	75 gal/min	0.50 gal	1.25 gal/min
3"	80	24 to 800 gal/min	200 gal/min	2.00 gal	2.50 gal/min
4"	100	40 to 1250 gal/min	300 gal/min	2.00 gal	4.00 gal/min
6"	150	90 to 2650 gal/min	600 gal/min	5.00 gal	12.0 gal/min
8"	200	155 to 4850 gal/min	1200 gal/min	10.0 gal	15.0 gal/min
10"	250	250 to 7500 gal/min	1500 gal/min	15.0 gal	30.0 gal/min
12"	300	350 to 10600 gal/min	2400 gal/min	25.0 gal	45.0 gal/min
14"	350	500 to 15000 gal/min	3600 gal/min	30.0 gal	60.0 gal/min
16"	400	600 to 19000 gal/min	4800 gal/min	50.0 gal	60.0 gal/min
18"	450	800 to 24000 gal/min	6000 gal/min	50.0 gal	90.0 gal/min
20"	500	1000 to 30000 gal/min	7500 gal/min	75.0 gal	120.0 gal/min
24"	600	1400 to 44000 gal/min	10500 gal/min	100.0 gal	180.0 gal/min

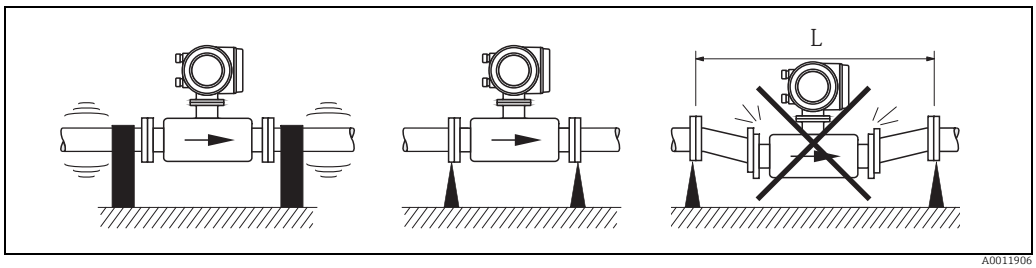
Pressure loss

- No pressure loss if the sensor is installed in a pipe with the same nominal diameter.
- Pressure losses for configurations incorporating adapters according to DIN EN 545 (→ 🖹 14, Section "Adapters").

Vibrations

Secure the piping and the sensor if vibration is severe.

Note!
If vibrations are too severe, we recommend the sensor and transmitter be mounted separately. Information on the permitted shock and vibration resistance → 🖹 16, Section "Shock and vibration resistance".



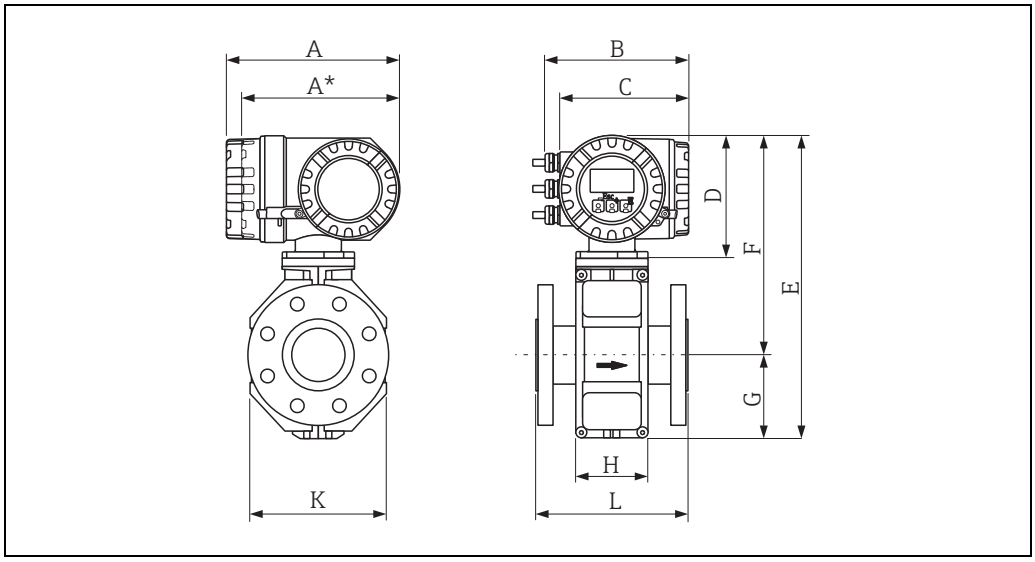
Measures to prevent vibration of the measuring device

L > 10 m (33 ft)

Mechanical construction

Design, dimensions

Compact version DN 15 to 300 (½ to 12")



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Dimensions (SI units)

DN EN (DIN) / JIS	L[1)]	A	A*	B	C	D	E	F	G	H	K
15	200	227	207	187	168	160	341	257	84	94	120
25	200						341	257	84	94	120
32	200						341	257	84	94	120
40	200						341	257	84	94	120
50	200						341	257	84	94	120
65	200						391	282	109	94	180
80	200						391	282	109	94	180
100	250						391	282	109	94	180
125	250						472	322	150	140	260
150	300						472	322	150	140	260
200	350						527	347	180	156	324
250	450						577	372	205	166	400
300	500						627	397	230	166	460

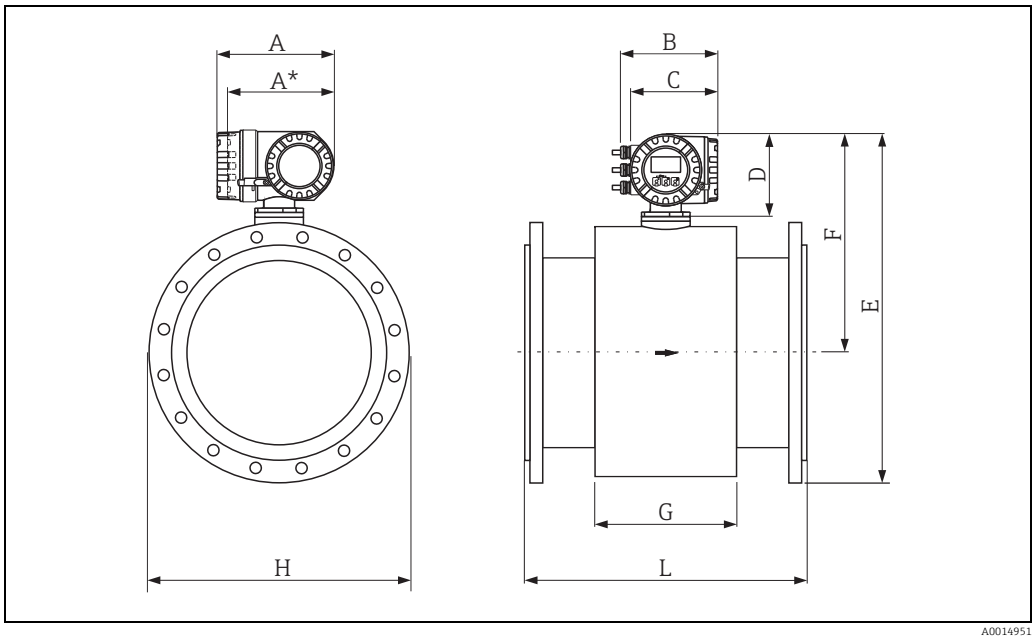
[1)] The length is regardless of the pressure rating selected. Fitting length to DVGW.
All dimensions in [mm]

Dimensions (US units)

DN ASME	L[1)]	A	A*	B	C	D	E	F	G	H	K
½"	7.87	8.94	8.15	7.36	6.61	6.30	13.4	10.1	3.31	3.70	4.72
1"	7.87						13.4	10.1	3.31	3.70	4.72
1½"	7.87						13.4	10.1	3.31	3.70	4.72
2"	7.87						13.4	10.1	3.31	3.70	4.72
3"	7.87						15.4	11.1	4.29	3.70	7.09
4"	9.84						15.4	11.1	4.29	3.70	7.09
6"	11.8						18.6	12.7	5.91	5.51	10.2
8"	13.8						20.8	13.7	7.09	6.14	12.8
10"	17.7						22.7	14.7	8.07	6.54	15.8
12"	19.7						24.7	15.6	9.06	6.54	18.1

[1)] The length is regardless of the pressure rating selected. Fitting length to DVGW.
All dimensions in [inch]

Compact version DN 350 to 600 (14 to 24")



A0014951

Dimensions (SI units)

DN	L	A	A*	B	C	D	F	G
350	550	227	207	187	168	160	411	290
400	600						437	290
450	600						465	290
500	600						490	290
600	600						531	290

All dimensions in [mm]

DN	E at pressure rating				H at pressure rating			
	PN 6	PN 10	PN 16	ASME	PN 6	PN 10	PN 16	ASME
350	656	663	671	677	490	505	520	533
400	707	719	727	735	540	565	580	597
450	762	772	785	782	595	615	640	635
500	812	825	847	839	645	670	715	699
600	908	921	951	937	755	780	840	813

All dimensions in [mm]

Dimensions (US units)

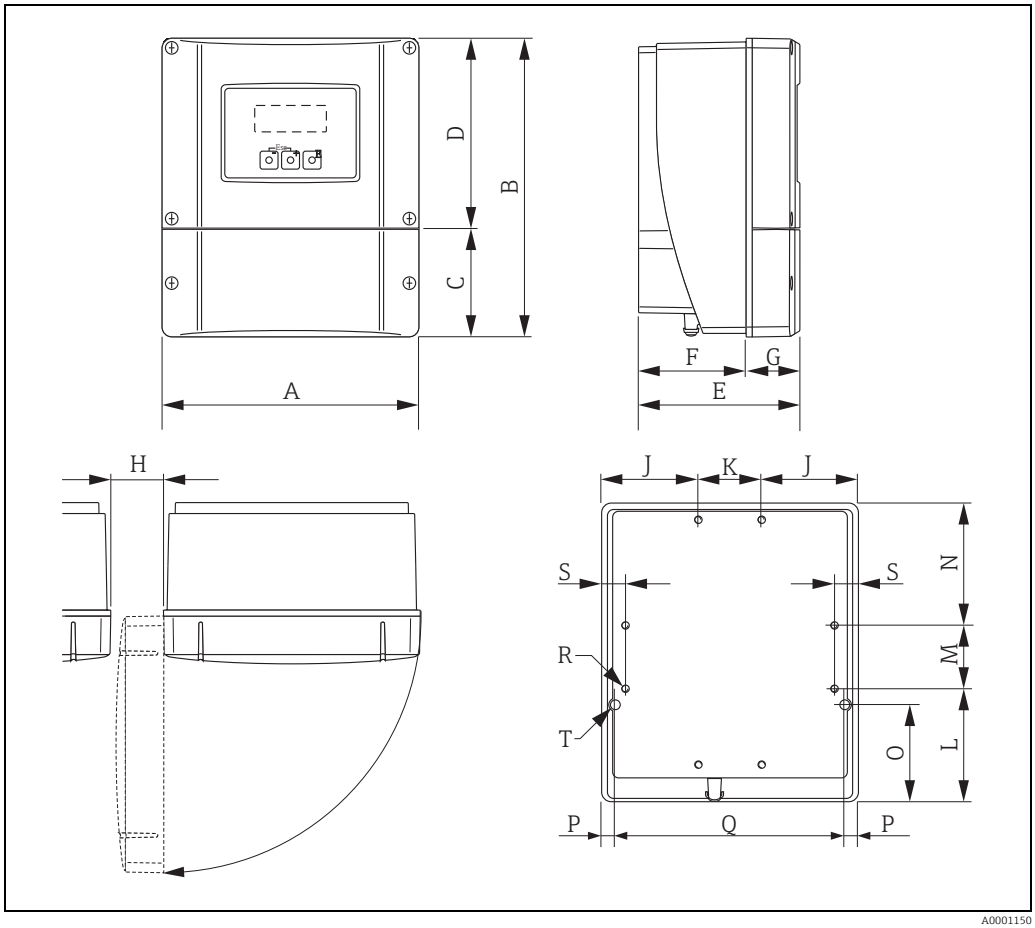
DN	L	A	A*	B	C	D	F	G
14"	21.6	8.94	8.15	7.36	6.61	6.30	16.2	11.4
16"	23.6						17.2	11.4
18"	23.6						18.3	11.4
20"	23.6						19.3	11.4
24"	23.6						20.9	11.4

All dimensions in [inch]

DN	E at pressure rating				H at pressure rating			
	PN 6	PN 10	PN 16	ASME	PN 6	PN 10	PN 16	ASME
14"	25.8	26.1	26.4	26.7	19.3	19.9	20.5	21.0
16"	27.8	28.3	28.6	28.9	21.3	22.2	22.8	23.5
18"	23.0	30.4	30.9	30.8	23.4	24.2	25.2	25.0
20"	32.0	32.5	33.4	33.0	25.4	26.4	28.2	27.5
24"	35.8	36.3	37.5	36.9	29.7	30.7	33.1	32.0

All dimensions in [inch]

Transmitter remote version, wall-mount housing (non Ex-zone and II3G/Zone 2)



Dimensions (SI units)

A	B	C	D	E	F	G	H	J
215	250	90.5	159.5	135	90	45	> 50	81
K	L	M	N	O	P	Q	R	S
53	95	53	102	81.5	11.5	192	8 × M5	20

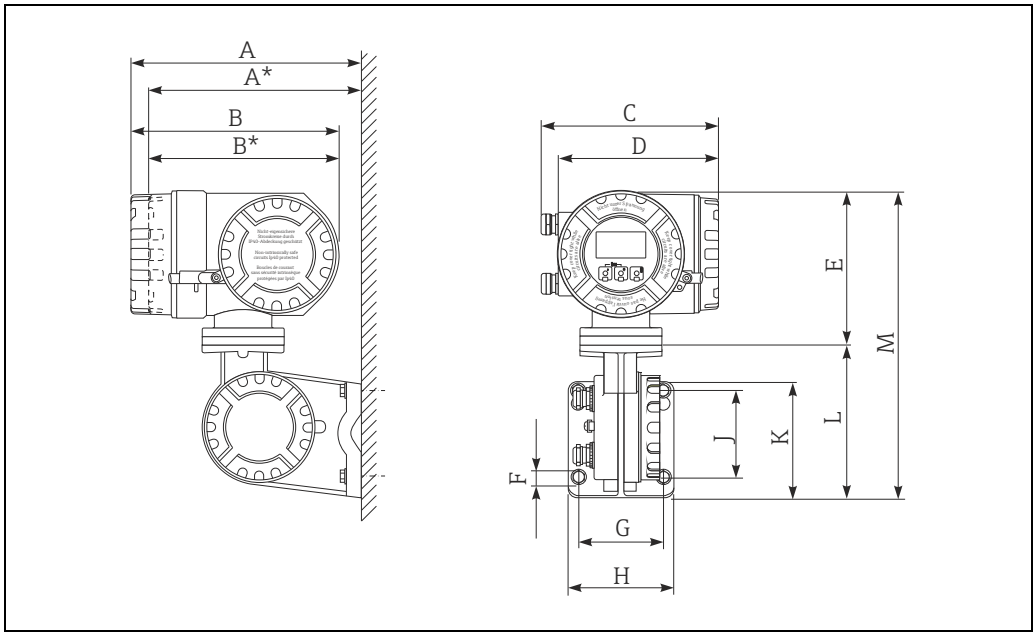
All dimensions in [mm]

Dimensions (US units)

A	B	C	D	E	F	G	H	J
8.46	9.84	3.56	6.27	5.31	3.54	1.77	> 1.97	3.18
K	L	M	N	O	P	Q	R	S
2.08	3.74	2.08	4.01	3.20	0.45	7.55	8 × M5	0.79

All dimensions in [inch]

Transmitter remote version, connection housing (II2GD)



A0002128

Dimensions (SI units)

A	A*	B	B*	C	D	E	Ø F	G	H	J	K	L	M
265	242	240	217	206	186	178	8.6 (M8)	100	130	100	144	170	355

All dimensions in [mm]

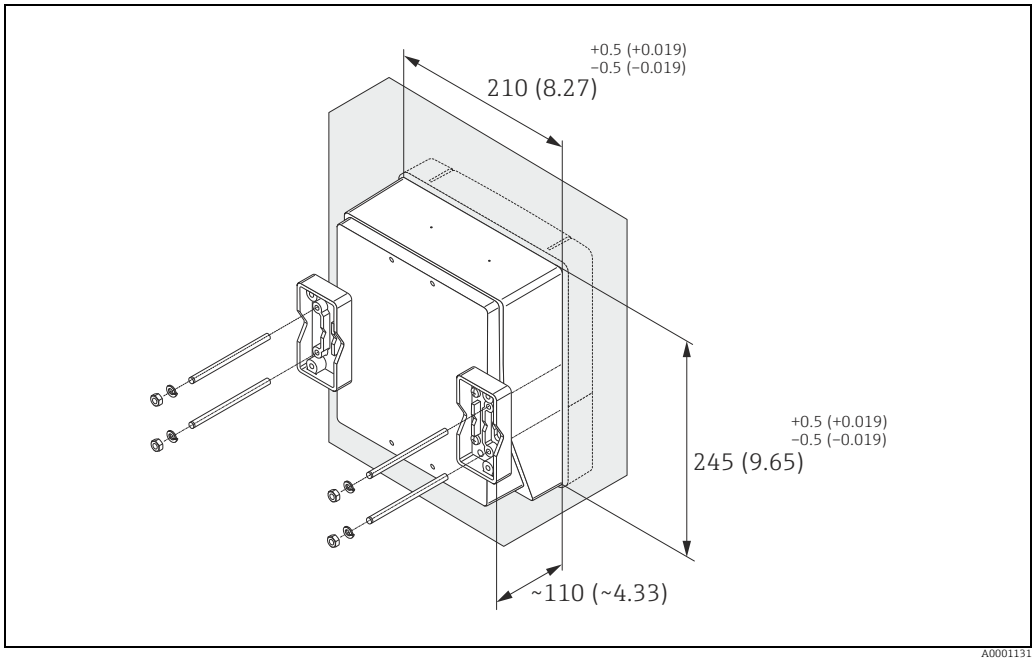
Dimensions (US units)

A	A*	B	B*	C	D	E	Ø F	G	H	J	K	L	M
10.4	9.53	9.45	8.54	8.11	7.32	7.01	0.34 (M8)	3.94	5.12	3.94	5.67	6.69	14.0

All dimensions in [inch]

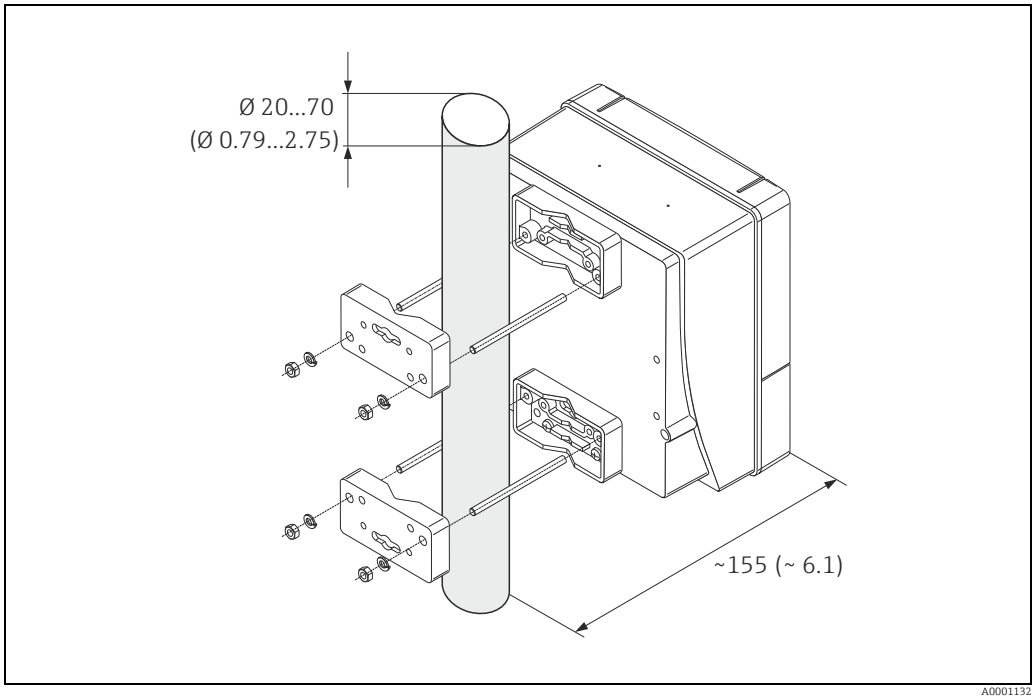
There is a separate mounting kit for the wall-mounted housing. It can be ordered from Endress+Hauser as an accessory. The following installation variants are possible:
- Panel-mounted installation
- Pipe mounting

Installation in control panel



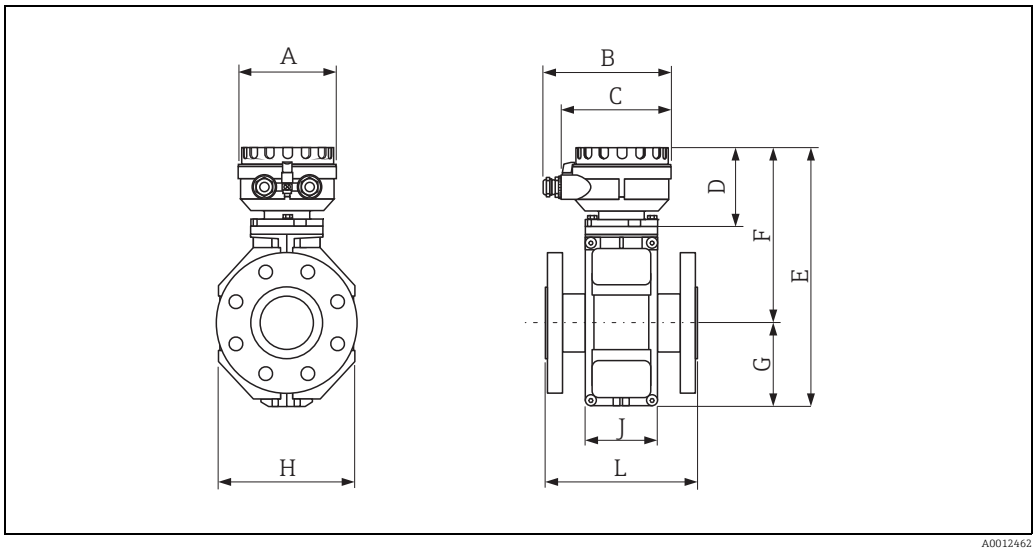
Engineering unit mm (in)

Pipe mounting



Engineering unit mm (in)

Sensor, remote version DN 15 to 300 (½ to 12")



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Dimensions (SI units)

DN EN (DIN) / JIS	L[1)]	A	B	C	D	E	F	G	H	J
15	200	129	163	143	102	286	202	84	120	94
25	200					286	202	84	120	94
32	200					286	202	84	120	94
40	200					286	202	84	120	94
50	200					286	202	84	120	94
65	200					336	227	109	180	94
80	200					336	227	109	180	94
100	250					336	227	109	180	94
125	250					417	267	150	260	140
150	300					417	267	150	260	140
200	350					472	292	180	324	156
250	450					522	317	205	400	166
300	500					572	342	230	460	166

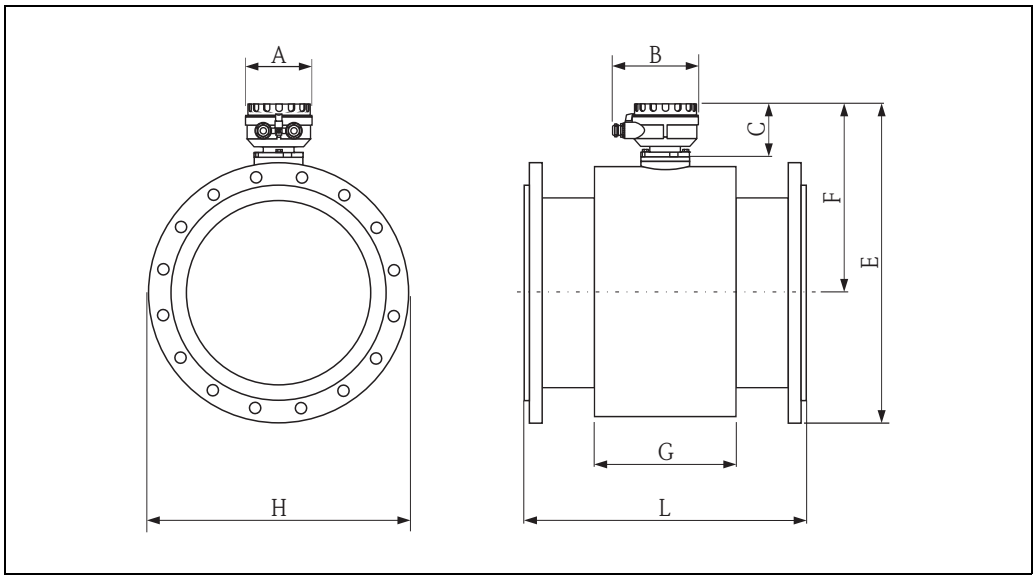
[1)] The length is regardless of the pressure rating selected. Fitting length to DVGW.
All dimensions in [mm]

Dimensions (US units)

DN ASME	L[1)]	A	B	C	D	E	F	G	H	J
½"	7.87	5.08	6.42	5.63	4.02	11.3	7.95	3.31	4.72	3.70
1"	7.87					11.3	7.95	3.31	4.72	3.70
1½"	7.87					11.3	7.95	3.31	4.72	3.70
2"	7.87					11.3	7.95	3.31	4.72	3.70
3"	7.87					13.2	8.94	4.29	7.09	3.70
4"	9.84					13.2	8.94	4.29	7.09	3.70
6"	11.8					16.4	10.5	5.91	10.2	5.51
8"	13.8					18.6	11.5	7.08	12.8	6.14
10"	17.7					20.6	12.5	8.07	15.8	6.54
12"	19.7					22.5	13.5	9.06	18.1	6.54

[1)] The length is regardless of the pressure rating selected. Fitting length to DVGW.
All dimensions in [inch]

Sensor, remote version DN 350 to 600 (14 to 24")



A0014987

Dimensions (SI units)

DN	L	A	B	C	F	G
350	550	129	163	102	353	290
400	600				379	290
450	600				407	290
500	600				432	290
600	600				473	290

All dimensions in [mm]

DN	E at pressure rating				H at pressure rating			
	PN 6	PN 10	PN 16	ASME	PN 6	PN 10	PN 16	ASME
350	598	605	613	619	490	505	520	533
400	649	661	669	677	540	565	580	597
450	704	714	727	724	595	615	640	635
500	754	767	789	781	645	670	715	699
600	850	863	893	879	755	780	840	813

All dimensions in [mm]

Dimensions (US units)

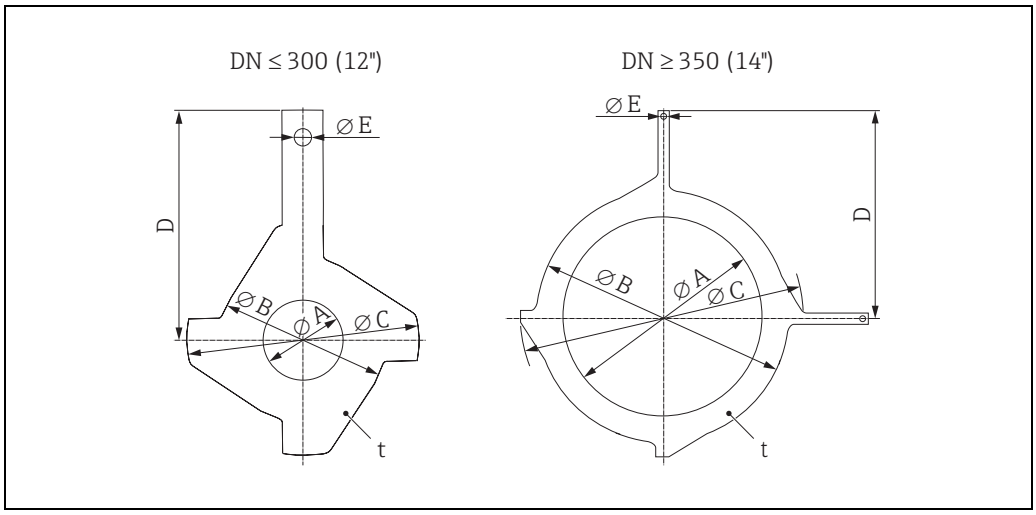
DN	L	A	A*	B	C	D	F	G
14"	21.6	5.08	6.42	4.02	13.9	11.4	21.6	5.08
16"	23.6				14.9	11.4	23.6	
18"	23.6				16.0	11.4	23.6	
20"	23.6				17.0	11.4	23.6	
24"	23.6				18.6	11.4	23.6	

All dimensions in [inch]

DN	E at pressure rating				H at pressure rating			
	PN 6	PN 10	PN 16	ASME	PN 6	PN 10	PN 16	ASME
14"	23.5	23.8	24.1	24.4	19.93	19.9	20.5	21.0
16"	25.6	26.0	26.3	26.7	21.3	22.2	22.8	23.5
18"	27.7	28.1	28.6	28.5	23.4	24.2	25.2	25.0
20"	29.7	30.2	31.1	30.7	25.4	26.4	28.1	27.5
24"	33.5	34.0	35.2	34.6	29.7	30.7	33.1	32.0

All dimensions in [inch]

Ground disk for flange connections



A0003221

Dimensions (SI units)

DN[1)] EN (DIN) / JIS	A PTFE	B	C	D	E	t
15	16	43	761.5	73.0	6.5	2
25	26	62	77.5	87.5		
32	35	80	87.5	94.5		
40	41	82	101	103		
50	52	101	115.5	108		
65	68	121	131.5	118		
80	80	131	154.5	135		
100	104	156	186.5	153		
125	130	187	206.5	160		
150	158	217	256	184		
200	206	267	288	205		
250	260	328	359	240		
300[2)]	312	375	413	273		
300[3)]	310	375	404	268		
350[2)]	343	420	479	365		
400[2)]	393	470	542	395		
450[2)]	439	525	583	417	9.0	
500[2)]	493	575	650	460		
600[2)]	593	676	766	522		

[1)] Ground disks at DN 15 to 250 (½ to 10") can be used for all flange standards/pressure ratings.
[2)] PN 10/16
[3)] JIS 10K
All dimensions in [mm]

Dimensions (US units)

DN[1)] ASME	A PTFE	B	C	D	E	t
½"	0.63	1.69	2.42	2.87	0.26	0.08
1"	1.02	2.44	3.05	3.44		
1½"	1.61	3.23	3.98	4.06		
2"	2.05	3.98	4.55	4.25		
3"	3.15	5.16	6.08	5.31		
4"	4.09	6.14	7.34	6.02		
6"	6.22	8.54	10.1	7.24		
8"	8.11	10.5	11.3	8.07		
10"	10.2	12.9	14.1	9.45		
12"	12.3	14.8	16.3	10.8		
14"	13.5	16.5	18.9	14.4	0.35	
16"	15.5	18.5	21.3	15.6		
18"	17.3	20.7	23.0	16.4		
20"	19.4	22.6	25.6	18.1		
24"	23.4	26.6	30.2	20.6		

[1)] Ground disks can be used for all flange standards/pressure ratings.
All dimensions in [inch]

Weight

Weight in SI units

Weight data in kg							
Nominal diameter		Compact version					
		EN (DIN)				ASME	JIS
[mm]	[inch]	PN 6	PN 10	PN 16	PN 40	Class 150	10K
15	½"	–	–	–	6.5	6.5	6.5
25	1"	–	–	–	7.3	7.3	7.3
32	–	–	–	–	8.0	–	7.3
40	1½"	–	–	–	9.4	9.4	8.3
50	2"	–	–	–	10.6	10.6	9.3
65	–	–	–	12.0	–	–	11.1
80	3"	–	–	14.0	–	14.0	12.5
100	4"	–	–	16.0	–	16.0	14.7
125	–	–	–	21.5	–	–	21.0
150	6"	–	–	25.5	–	25.5	24.5
200	8"	–	45.0	46.0	–	45.0	41.9
250	10"	–	65.0	70.0	–	75.0	69.4
300	12"	–	70.0	81.0	–	110	72.3
350	14"	77.4	88.4	104	–	137	–
400	16"	89.4	104	125	–	168	–
450	18"	103	118	149	–	193	–
500	20"	115	132	190	–	228	–
600	24"	155.4	181	300	–	329	–

- Transmitter (compact version): 1.8 kg
- Weight data without packaging material

Weight data in kg								
Nominal diameter		Remote version (without cable)						Transmitter
		Sensor						
		EN (DIN)				ASME	JIS	
[mm]	[inch]	PN 6	PN 10	PN 16	PN 40	Class 150	10K	Wall-mount housing
15	½"	–	–	–	4.5	4.5	4.5	6.0
25	1"	–	–	–	5.3	5.3	5.3	
32	–	–	–	–	6.0	–	5.3	
40	1½"	–	–	–	7.4	7.4	6.3	
50	2"	–	–	–	8.6	8.6	7.3	
65	–	–	–	10.0	–	–	9.1	
80	3"	–	–	12.0	–	12.0	10.5	
100	4"	–	–	14.0	–	14.0	12.7	
125	–	–	–	19.5	–	–	19.0	
150	6"	–	–	23.5	–	23.5	22.5	
200	8"	–	43.0	44.0	–	43.0	39.9	
250	10"	–	63.0	68.0	–	73.0	67.4	
300	12"	–	68.0	79.0	–	108.0	70.3	
350	14"	73.1	84.1	100	–	133	–	
400	16"	85.1	100	121	–	164	–	
450	18"	99	114	145	–	189	–	
500	20"	111	128	186	–	224	–	
600	24"	158	177	296	–	325	–	

- Transmitter (remote version): 3.1 kg
- Weight data without packaging material

Weight in US units (ASME only)

Weight data in lbs				
Nominal diameter		Compact version	Remote version (without cable)	
			Sensor	Transmitter
		ASME	ASME	
[mm]	[inch]	Class 150	Class 150	Wall-mount housing
15	½"	14.3	9.92	13.2
25	1"	16.1	11.7	
40	1½"	20.7	16.3	
50	2"	23.4	19.0	
80	3"	30.9	26.5	
100	4"	35.3	30.9	
150	6"	56.2	51.8	
200	8"	99.2	94.8	
250	10"	165	161	
300	12"	243	238	
350	14"	303	294	
400	16"	371	362	
450	18"	424	417	
500	20"	504	494	
600	24"	725	717	

- Transmitter: 4.0 lbs (compact version); 6.8 lbs (remote version)
- Weight data without packaging material

Measuring tube specifications

Diameter		Pressure rating			Internal diameter	
		EN (DIN)	ASME	JIS	PTFE	
[mm]	[inch]	[bar]	[lbs]		[mm]	[inch]
15	½"	PN 40	Cl. 150	20K	14	0.55
25	1"	PN 40	Cl. 150	20K	26	1.02
32	–	PN 40	–	20K	34	1.34
40	1½"	PN 40	Cl. 150	20K	40	1.57
50	2"	PN 40	Cl. 150	10K	51	2.01
65	–	PN 16	–	10K	67	2.64
80	3"	PN 16	Cl. 150	10K	79	3.11
100	4"	PN 16	Cl. 150	10K	103	4.06
125	–	PN 16	–	10K	128	5.04
150	6"	PN 16	Cl. 150	10K	155	6.10
200	8"	PN 10/16	Cl. 150	10K	203	7.99
250	10"	PN 10	–	–	257	10.1
250	10"	PN 16	Cl. 150	10K	255	10.0
300	12"	PN 16	Cl. 150	10K	302	11.9
350	14"	PN 6/10	–	–	338	13.3
350	14"	PN 16	Cl. 150	10K	336	13.2
400	16"	PN 6/10	–	–	388	15.3
400	16"	PN 16	–	–	386	15.2
400	16"	–	Cl. 150	10K	384	15.1
450	18"	PN 6/10	–	–	440	17.3
450	18"	PN 16	–	–	438	17.2
450	18"	–	Cl. 150	10K	436	17.2
500	20"	PN 6/10	–	–	491	19.3
500	20"	PN 16	–	–	487	19.2
500	20"	–	Cl. 150	10K	485	19.1
600	24"	PN 6	–	–	592	23.3
600	24"	PN 10	–	–	590	23.2
600	24"	PN 16	–	–	588	23.2
600	24"	–	Cl. 150	10K	586	23.1

Material

- Transmitter housing
  - Compact housing: powder-coated die-cast aluminum
  - Wall-mount housing: powder-coated die-cast aluminum
- Sensor housing
  - DN 25 to 300 (1 to 12"): powder-coated die-cast aluminum
  - DN 350 to 600 (14 to 24"): with protective lacquering
- Measuring tube
  - DN ≤ 300 (12"): stainless steel 1.4301 (304) or 1.4306 (304L) (with Al/Zn protective coating)
  - DN ≥ 350 (14"): stainless steel 1.4301 (304) or 1.4306 (304L) (with protective lacquering)
- Electrodes: 1.4435 (316, 316L), Alloy C22, tantalum
- Flanges (with protective lacquering)
  - EN 1092-1 (DIN2501): carbon steel, S235JRG2, S235JR+N, P250GH, P245GH, E250C
  - ASME B16.5: carbon steel, A105
  - JIS B2220: carbon steel, A105, A350 LF2
- Seals: to DIN EN 1514-1 form IBC
- Ground disks: 1.4435 (316, 316L) or Alloy C22

Fitted electrodes

Measuring electrodes, reference electrodes and empty pipe detection electrodes:
- Standard available with 1.4435 (316, 316L), Alloy C22, tantalum

Process connections

Flange connection:
- EN 1092-1 (DIN 2501), DN ≤ 300 (12") form A, DN ≥ 350 (14") form B
  (Dimensions to DIN 2501, DN 65 PN 16 and DN 600 (24") PN 16 exclusively to EN 1092-1)
- ASME B16.5
- JIS B2220
- AS 2129
- AS 4087

Surface roughness

Electrodes with 1.4435 (316, 316L), Alloy C22: ≤ 0.3 to 0.5 µm (11.8 to 19.7 µin)
(All data refer to parts in contact with medium)

Operability

Local operation

Display elements

- Liquid crystal display: backlit, two lines with 16 characters per line
- Custom configurations for presenting different measured-value and status variables
- 2 Totalizer

Operating elements

Unified operation concept for both types of transmitter:

- Local operation via three keys (⊟⊞Ⓔ)
- Quick Setup menus for straightforward commissioning

Language groups

Language groups available for operation in different countries:

- Western Europe and America (WEA):
  English, German, Spanish, Italian, French, Dutch, Portuguese
- Eastern Europe and Scandinavia (EES):
  English, Russian, Polish, Norwegian, Finnish, Swedish, Czech
- South and east Asia (SEA):
  English, Japanese, Indonesian

You can change the language group via the operating program "FieldCare".

Remote operation

Remote control via HART, PROFIBUS DP/PA

Certificates and approvals

CE mark

The measuring system is in conformity with the statutory requirements of the EC Directives. Endress+Hauser confirms successful testing of the device by affixing to it the CE mark.

C-tick symbol

The measuring system meets the EMC requirements of the "Australian Communications and Media Authority (ACMA)".

Pressure measuring device approval

The devices can be ordered with or without a PED approval. If a device with a PED approval is required, this must be explicitly stated in the order. For devices with nominal diameters less than or equal to DN 25 (1"), this is neither possible nor necessary.

- With the PED/G1/x (x = category) marking on the sensor nameplate, Endress+Hauser confirms compliance with the "Essential Safety Requirements" specified in Annex I of the Pressure Equipment Directive 2014/68/EU.
- Devices bearing this marking (PED) are suitable for the following types of medium: Media in Group 1 and 2 with a vapor pressure greater than, or smaller and equal to 0.5 bar (7.3 psi)
- Devices not bearing this marking (PED) are designed and manufactured according to good engineering practice. They meet the requirements of Art.4 Section 3 of the Pressure Equipment Directive 2014/68/EU. The range of application is indicated in tables 6 to 9 in Annex II of the Pressure Equipment Directive 2014/68/EU.

Ex approval

Information about currently available Ex versions (ATEX, IECEx, FM, CSA, NEPSI) can be supplied by your Endress+Hauser Sales Center on request. All explosion protection data are given in a separate documentation which is available upon request.

Other standards and guidelines

- EN 60529
  Degrees of protection by housing (IP code)
- EN 61010
  Protection Measures for Electrical Equipment for Measurement, Control, Regulation and Laboratory Procedures.
- IEC/EN 61326
  "Emission in accordance with requirements for Class A".
  Electromagnetic compatibility (EMC requirements)
- NAMUR NE 21:
  Electromagnetic compatibility (EMC) of industrial process and laboratory control equipment.
- NAMUR NE 43:
  Standardization of the signal level for the breakdown information of digital transmitters with analog output signal.
- NAMUR NE 53:
  Software of field devices and signal-processing devices with digital electronics.
- ANSI/ISA-S82.01
  Safety Standard for Electrical and Electronic Test, Measuring, Controlling and related Equipment - General Requirements Pollution degree 2, Installation Category II.
- CAN/CSA-C22.2 No. 1010.1-92
  Safety requirements for Electrical Equipment for Measurement and Control and Laboratory Use. Pollution degree 2, Installation Category II

PROFIBUS DP/PA certification

The flow device has successfully passed all the test procedures carried out and is certified and registered by the PNO (PROFIBUS User Organisation). The device thus meets all the requirements of the following specifications:

- Certified to PROFIBUS PA, profile version 3.0 (device certification number: on request)
- The device can also be operated with certified devices of other manufacturers (interoperability)

Ordering information

Detailed ordering information is available from the following sources:
- In the Product Configurator on the Endress+Hauser website: www.endress.com → Select country → Instruments → Select device → Product page function: Configure this product
- From your Endress+Hauser Sales Center: www.endress.com/worldwide

Note!
Product Configurator - the tool for individual product configuration
- Up-to-the-minute configuration data
- Depending on the device: Direct input of measuring point-specific information such as measuring range or operating language
- Automatic verification of exclusion criteria
- Automatic creation of the order code and its breakdown in PDF or Excel output format
- Ability to order directly in the Endress+Hauser Online Shop

Accessories

Various accessories, which can be ordered separately from Endress+Hauser, are available for the transmitter and the sensor. Your Endress+Hauser service organization can provide detailed information on the order codes in question.

Documentation

- Flow Measurement (FA00005D/06)
- Operating Instructions:
  - HART: BA00046D/06, BA00049D/06
  - PROFIBUS DP/PA: BA00055D/06, BA00056D/06
- Supplementary documentation on Ex-ratings: ATEX, IECEx

Registered trademarks

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