

Foxboro® Model 8500A Magnetic Flowmeter wafer version



The 8500A magnetic flow sensor can be used with IMT30A, IMT31A and IMT33A magnetic flow converters.

- ▶ Exceptional long-term stability and accuracy
- ▶ For highly aggressive and abrasive fluids
- ▶ Full vacuum-resistant with high-tech ceramic liners

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1.1 Solution with high-tech ceramics

The **8500A** is one of the most accurate flowmeters available in the market today. This is the result of a special tube design with conical parts, optimizing the flow profile.



- ① Wafer design
- ② Ceramic liner
- ③ Cermet or Platinum electrodes

Highlights

- Excellent long-term stability and accuracy
- Unique flow tube
- Fused in-place Cermet or Platinum electrodes
- Custody transfer standard of international metrological authorities
- For highly aggressive and abrasive fluids
- Resistant to a full vacuum
- High-tech ceramic liners
- Insensitive against temperature shocks

Industries

- Chemical
- Paper & Pulp
- Water and wastewater
- Minerals & Mining
- Food & beverage
- Machinery

Applications

- Master transfer meter
- Precise volumetric dosing of additives
- Chemical injection
- For acids, alkaline, abrasive slurries and many other aggressive media

1.2 Options and variants



The 8500A wafer version is available in a diameter range of DN2.5 up to DN100 - 1/10" up to 4".

The flow sensor is offered in a large range of pressure ratings and is configurable with the IMT30A, IMT31A and IMT33A signal converter. Can be ordered in stainless steel version and is also optionally suitable in hazardous areas. Grounding rings are available in high grade alloys.

The installation of the 8500A can be simplified by choosing the virtual reference option. Grounding rings can then be omitted. This option can only be combined with the IMT33A signal converter.

1.3 Measuring principle

An electrically conductive fluid flows inside an electrically insulated pipe through a magnetic field. This magnetic field is generated by a current, flowing through a pair of field coils.

Inside of the fluid, a voltage U is generated:

$$U = v * k * B * D$$

in which:

v = mean flow velocity

k = factor correcting for geometry

B = magnetic field strength

D = inner diameter of flowmeter

The signal voltage U is picked off by electrodes and is proportional to the mean flow velocity v and thus the flow rate Q . A signal converter is used to amplify the signal voltage, filter it and convert it into signals for totalizing, recording and output processing.

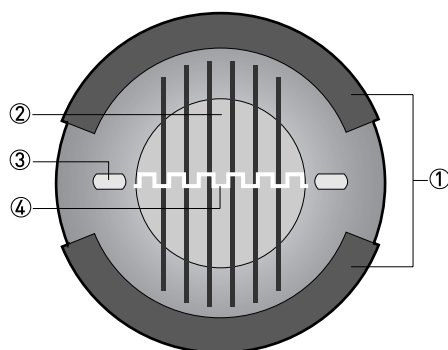


Figure 1-1: Measuring principle

- ① Field coils
- ② Magnetic field
- ③ Electrodes
- ④ Induced voltage (proportional to flow velocity)

2.1 Technical data

- *The following data is provided for general applications. If you require data that is more relevant to your specific application, please contact us or your local sales office.*
- *Additional information (certificates, special tools, software,...) and complete product documentation can be downloaded free of charge from the website.*

Measuring system

Measuring principle	Faraday's law
Application range	Electrically conductive fluids
Measured value	
Primary measured value	Flow velocity
Secondary measured value	Volume flow, mass flow, electrical conductivity, coil temperature

Design

Features	Wafer version with optimized flow tube
Modular construction	The measurement system consists of a flow sensor and a signal converter. It is available as compact and as separate version. More information about the signal converter can be found in the documentation of the signal converter.
Compact version	With IMT30A 4 converter
	With IMT31A 4 converter
	With IMT33A 4 converter DN2.5...15 / 1/10...1/2" is only available with aluminum converter housing
Remote version	In wall (W) mount version with IMT30A N converter
	In wall (W) mount version with IMT31A N converter
	In field (F) or wall (W) version with IMT33A H or IMT33A N converter
Nominal diameter	DN2.5...100 / 1/10...4"

Measuring accuracy

Maximum measuring error	IMT30A: down to 0.5% of the measured value ± 1 mm/s
	IMT31A: down to 0.3% of the measured value ± 1 mm/s
	IMT33A: down to 0.15% of the measured value ± 1 mm/s
	The maximum measuring error depends on the installation conditions.
	For detailed information refer to <i>Measuring accuracy</i> on page 12.
Repeatability	$\pm 0.1\%$ of MV, minimum 1 mm/s
Calibration	Standard: 2 point calibration by direct volume comparison.

Operating conditions

Temperature	
Process temperature	Compact version: -40...+140°C / -40... +284°F Size DN 2.5...15 / 1/10...1/2": -20...+120°C / -4... +248°F
	Remote version: -40...+180°C / -40...+356°F Size DN 2.5...15 / 1/10...1/2": -20...+180°C / -4... +356°F
	For Ex versions different temperature ranges are applicable. Please see the relevant Ex documentation for details.
Maximum temperature change (shock)	DN2.5...25 / 1/10...1": < 3 K/s DN40...100 / 1 1/2...4": < 0.2 K/s
Ambient temperature	-40...+65°C / -40...+149°F
	For Ex versions different temperature ranges are applicable. Please see the relevant Ex documentation for details.
Storage temperature	-50...+70°C / -58...+158°F
Measurement range	-12...+12 m/s / -40...+40 ft/s
Pressure	
Ambient	Atmospheric
Nominal flange pressure	
EN 1092-1	Standard:
	DN100: PN 16
	DN2.5...80: PN 40
	Option:
	DN100: PN 25
ASME B16.5	Standard:
	1/10...4": 150 lb
	Option:
	1/10...4": 300 lb
Vacuum load	0 mbar / 0 psi
Pressure ranges for secondary containment	Pressure resistant up to 40 bar / 580 psi
	Burst pressure up to ~ 160 bar / 2320 psi
Chemical properties	
Physical condition	Liquids
Electrical conductivity	Non water:
	DN25...100 / 1...4": $\geq 1 \mu\text{S/cm}$
	DN4...15 / 3/8...1/2": $\geq 5 \mu\text{S/cm}$
	DN2.5 / 1/10": $\geq 10 \mu\text{S/cm}$
	Demineralised cold water:
	DN2.5...100 / 1/10...4": $\geq 20 \mu\text{S/cm}$

Permissible gas content (volume)	≤ 5%
Permissible solid content (volume)	IMT30A: ≤ 10%
	IMT31A: ≤ 10%
	IMT33A: ≤ 70%

Installation conditions

Installation	Take care that the flow sensor is always fully filled.
	For detailed information refer to <i>Installation</i> on page 18.
Flow direction	Forward and reverse.
	Arrow on flow sensor indicates positive flow direction.
Inlet run	≥ 5 DN (without disturbing flow, after a single 90° bend)
	≥ 10 DN (after a double bend = 2 x 90°)
Outlet run	≥ 2 DN
Dimensions and weights	For detailed information refer to <i>Dimensions and weights</i> on page 14.

Materials

Sensor housing	DN2.5...15 / 1/10...1/2": stainless steel 1.4408 / 316
	DN25...100 / 1...4": stainless steel 1.4306 / 304L
Measuring tube	Ceramic
Connection box (remote versions only)	Standard:
	Polyurethane coated die-cast aluminum
	Option: Stainless steel
Grounding rings	Standard:
	Stainless steel
	Option:
	Hastelloy® C, titanium, tantalum
	Grounding rings can be omitted with virtual reference option for the IMT33A converter.
Mounting materials	Standard: rubber centering sleeves
	Option: stud bolts and nuts in stainless steel or galvanized steel
Gaskets	DN2.5...15 / 1/10...1/2"; O-rings: FKM, EPDM, FFKM
	DN25...100 / 1...4"; flat gaskets: filled PTFE, Graphite, PTFE / PF-29
Measuring electrodes	DN2.5...25 / 1/10...1": Cermet
	DN40...100 / 1 1/2...4": Platinum

Process connections

EN 1092-1	Standard:
	DN100: PN 16
	DN2.5...80: PN 40
	Option:
	DN100: PN 25
ASME	Standard:
	1/10...4": 150 lb
	Option:
	1/10...4": 300 lb
JIS	DN2.5...100: 10...20 K

Electrical connections

For more details; see the relevant documentation of the signal converter

Signal cable (remote versions only)	
Type A (DS)	In combination with the IMT31A and IMT33A signal converter Standard cable, double shielded. Max. length: 600 m / 1950 ft (depends on electrical conductivity and measuring sensor).
Type B (BTS)	Only in combination with the IMT33A signal converter Optional cable, triple shielded. Max. length: 600 m / 1950 ft (depends on electrical conductivity and measuring sensor).
I/O	For more details of I/O options, including data streams and protocols, see technical datasheet of the relevant signal converter.

Approvals and certifications

CE	
This device fulfills the statutory requirements of the EU directives. The manufacturer certifies successful testing of the product by applying the CE mark.	
	For full information of the EU directives & standards and the approved certifications, please refer to the CE declaration or the manufacturer website.
Hazardous areas	
Non-Ex	Standard
ATEX	KEMA 04 ATEX 2126 X
	ATEX II 2 GD EEx me ia IIC T6...T3
	ATEX II 2 GD EEx de ia IIC T6...T3
	For more details, see Ex documentation of flow sensor and signal converter.
FM	Class I, Div 2, groups A, B, C and D
	Class II, Div 2, groups F and G
	Class III, Div 2, groups F and G
CSA	Class I, Div 2, groups A, B, C and D
	Class II, Div 2, groups F and G
IECEX	Pending
NEPSI	GYJ15.1313X
	Ex e ia mb IIC T6...T3 and Ex d e ia IIC T6...T3
Other approvals and standards	
Custody transfer	Standard:
	Without verification
	Option:
	Cold water: MI-001 type examination for DN25...100 / 1...4"
	Liquids other than water: MI-005 type examination for DN25...100 / 1...4"
Protection category acc. to IEC 529 / EN 60529	Only in combination with the IMT33A signal converter.
	Standard:
	IP 66/67 (NEMA 4/4X/6)
	Option:
	IP 68 (NEMA 6P)
Hygiene	IP 68 is only available for remote designs and with a stainless steel connection box.
	IP 67/69 with (Stainless steel) converter
Hygiene	FDA approved materials.
Shock test	IEC 68-2-27
	30 g for 18 ms
Vibration test	IEC 68-2-64
	f = 20 - 2000 Hz, rms = 4.5 g, t = 30 min.

2.2 Measuring accuracy

Every electromagnetic flowmeter is calibrated by direct volume comparison. The wet calibration validates the performance of the flowmeter under reference conditions against accuracy limits.

The accuracy limits of electromagnetic flowmeters are typically the result of the combined effect of linearity, zero point stability and calibration uncertainty.

Reference conditions

- Medium: water
- Temperature: +5...35°C / +41...95°F
- Operating pressure: 0.1...5 barg / 1.5...72.5 psig
- Inlet section: ≥ 5 DN
- Outlet section: ≥ 2 DN

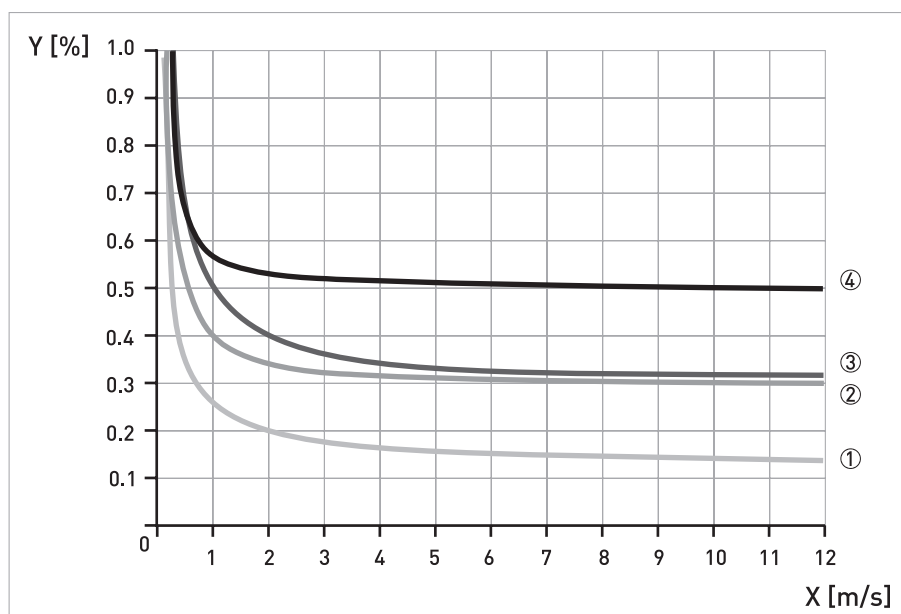


Figure 2-1:

X [m/s]: flow velocity

Y [%]: deviation from the actual measured value (mv)

In combination with the IMT33A

	Accuracy	Curve
DN2.5...6 / 1/10...1/4"	0.3% of mv + 2 mm/s	③
DN10...100 / 3/8... 4"	0.15% of mv + 1 mm/s	①

In combination with the IMT31A

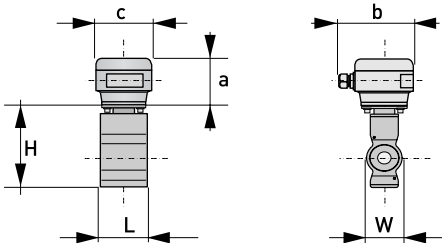
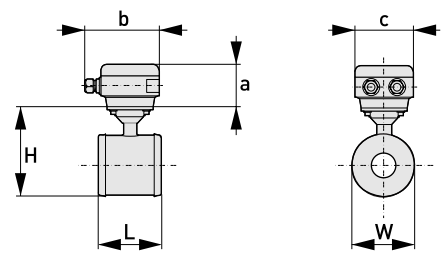
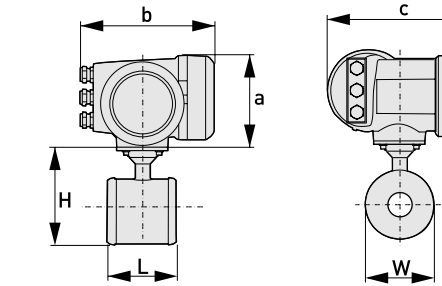
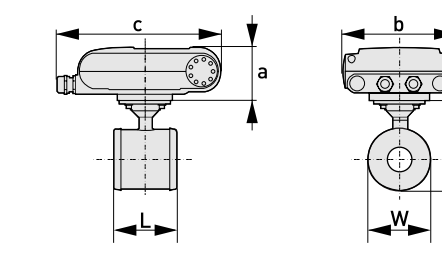
	Accuracy	Curve
DN2.5...6 / 1/10...1/4"	0.4% of mv + 1 mm/s	As ② + 0.1%
DN10...100 / 3/8...4"	0.3% of mv + 1 mm/s	②

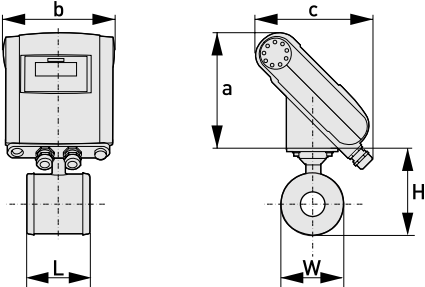
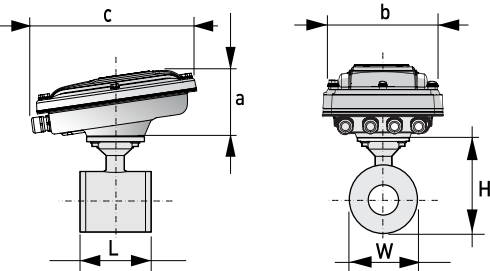
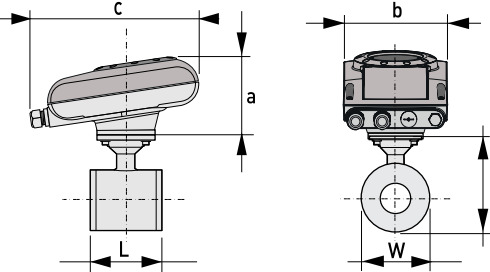
In combination with the IMT30A

	Accuracy	Curve
DN2.5...6 / 1/10...1/4"	0.5% of mv + 1 mm/s	④
DN10...100 / 3/8...4"	0.5% of mv + 1 mm/s	

*Optionally for IMT30A and IMT31A; extended calibration at 2 points for optimised accuracy.
For more details on optimised accuracy, see the concerning signal converter documentation.*

2.3 Dimensions and weights

Remote version: DN2.5...15 / 1/10...1/2"		a = 88 mm / 3.5" b = 139 mm / 5.5" ① c = 106 mm / 4.2" Total height = H + a
Remote version: DN25...100 / 1...4"		a = 88 mm / 3.5" b = 139 mm / 5.5" ① c = 106 mm / 4.2" Total height = H + a
Compact version with IMT33A		a = 155 mm / 6.1" b = 230 mm / 9.1" ① c = 260 mm / 10.2" Total height = H + a
Compact version with IMT31A (0°)		a = 82 mm / 3.2" b = 161 mm / 6.3" c = 257 mm / 10.1" ① Total height = H + a

Compact version with IMT31A (45°)		a = 186 mm / 7.3" b = 161 mm / 6.3" c = 184 mm / 2.7" ① Total height = H + a
Compact stainless steel version with IMT31A (10°)		a = 100 mm / 4" b = 187 mm / 7.36" ① c = 270 mm / 10.63" Total height = H + a
Compact version with IMT30A (10°)		a = 100mm / 4" b = 157 mm / 6.18" ① c = 260 mm / 10.24" Total height = H + a

① The value may vary depending on the used cable glands.

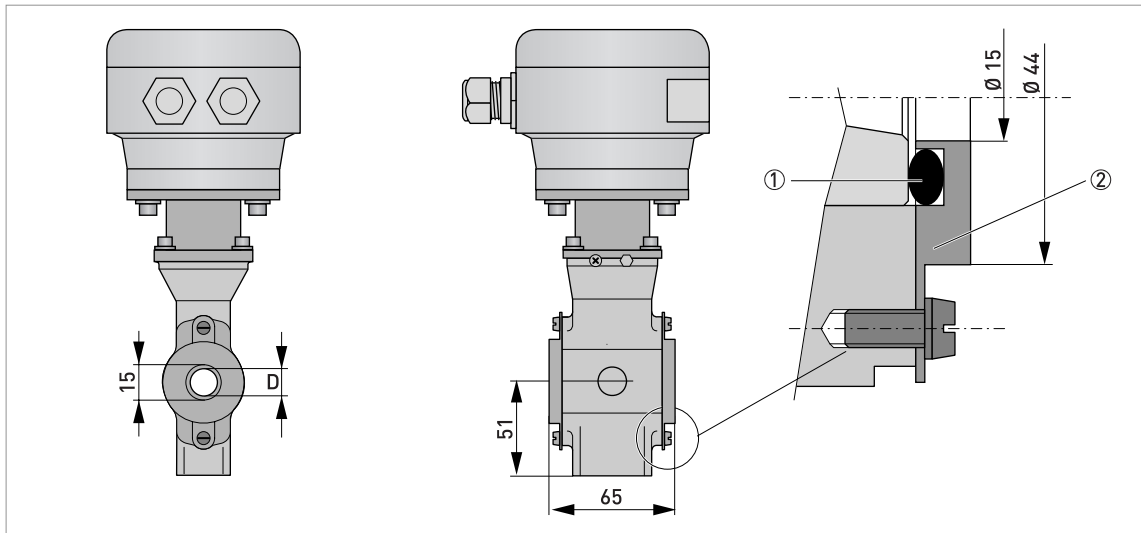


Figure 2-2: Construction details DN2.5...15 / 1/10...1/2"

- ① O-ring
- ② Grounding ring

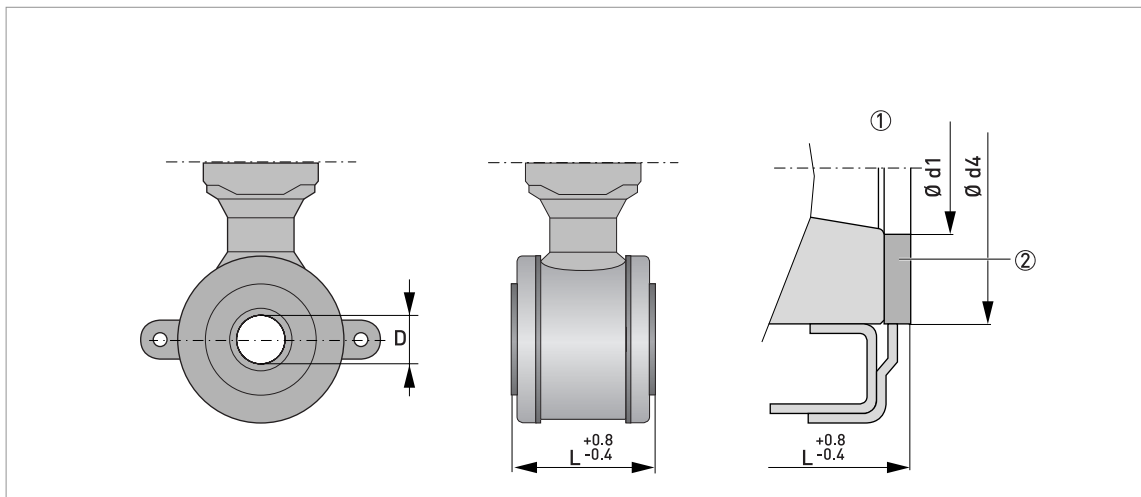


Figure 2-3: Construction details DN25...100 / 1...4"

- ① Situation without grounding rings
- ② Gasket

- All data given in the following tables are based on standard versions of the flow sensor only.
- Especially for smaller nominal sizes of the flow sensor, the signal converter can be bigger than the flow sensor.
- Note that for other pressure ratings than mentioned, the dimensions may be different.
- For full information on signal converter dimensions see relevant documentation.

Nominal size	Dimensions [mm]						Approx. weight [kg]
DN	L	H	W	D	Ød1	Ød4	
2.5	65 ①	123	44		-	-	1.6
4	65 ①	123	44		-	-	1.6
6	65 ①	123	44		-	-	1.6
10	65 ①	123	44		-	-	1.6
15	65 ①	123	44		-	-	1.6
25	58 ②	116	68	20	26	46	1.6
40	83 ②	131	83	30	39	62	2.4
50	103 ②	149	101	40	51	74	2.9
80	153 ②	181	133	60	80	106	6.4
100	203 ②	206	158	80	101	133	8.8

① Total fitting length of flowmeter with integrated rings: dimension L + 2 x gasket thickness.

② Total fitting length of flowmeter without rings: dimension L only.

Nominal size	Dimensions [inches]						Approx. weight [lb]
ASME	L	H	W	D	Ød1	Ød4	
1/10"	2.56 ①	4.84	1.73		-	-	3.53
1/8"	2.56 ①	4.84	1.73		-	-	3.53
1/4"	2.56 ①	4.84	1.73		-	-	3.53
3/8"	2.56 ①	4.84	1.73		-	-	3.53
1/2"	2.56 ①	4.84	1.73		-	-	3.53
1"	2.28 ②	4.57	2.68	0.79	1.02	1.81	3.53
1½"	3.27 ②	5.16	3.27	1.18	1.54	2.44	5.29
2"	4.06 ②	5.87	3.98	1.57	2.01	2.91	6.39
3"	6.02 ②	7.13	5.24	2.36	3.15	4.17	14.11
4"	7.99 ②	8.11	6.22	3.15	3.98	5.24	19.40

① Total fitting length of flowmeter with integrated rings: dimension L + 2 x gasket thickness.

② Total fitting length of flowmeter without rings: dimension L only.

3.1 Intended use

Responsibility for the use of the measuring devices with regard to suitability, intended use and corrosion resistance of the used materials against the measured fluid lies solely with the operator.

The manufacturer is not liable for any damage resulting from improper use or use for other than the intended purpose.

The **8500A** flowmeter measures the volumetric flow rate of electrically conductive liquids, acids, alkaline solutions, pastes and slurries, also with very high solid contents.

3.2 General notes on installation

Inspect the packaging carefully for damages or signs of rough handling. Report damage to the carrier and to the local office of the manufacturer.

Do a check of the packing list to make sure that you have all the elements given in the order.

Look at the device nameplate to ensure that the device is delivered according to your order. Check for the correct supply voltage printed on the nameplate.

3.2.1 Vibration

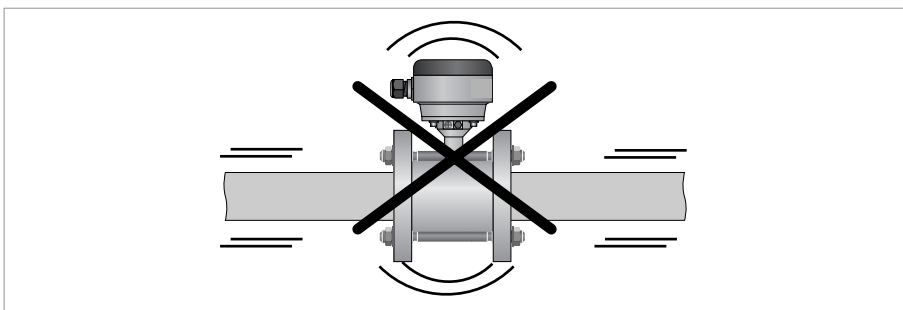


Figure 3-1: Avoid vibrations

3.2.2 Magnetic field

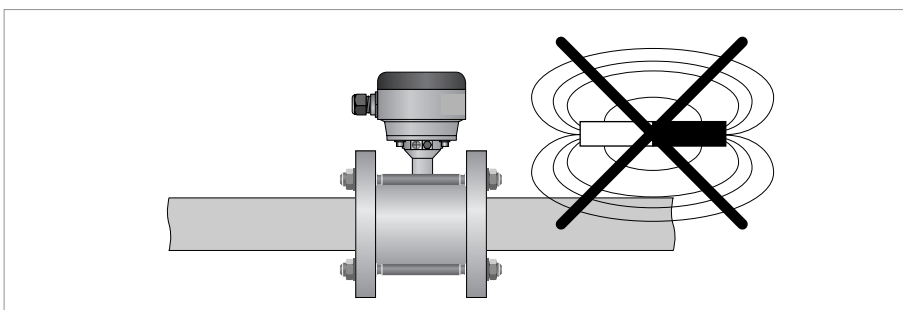


Figure 3-2: Avoid magnetic fields

3.3 Installation conditions

3.3.1 Inlet and outlet

Use straight inlet and outlet pipe sections to prevent flow distortion or swirl, caused by bends and T-sections.

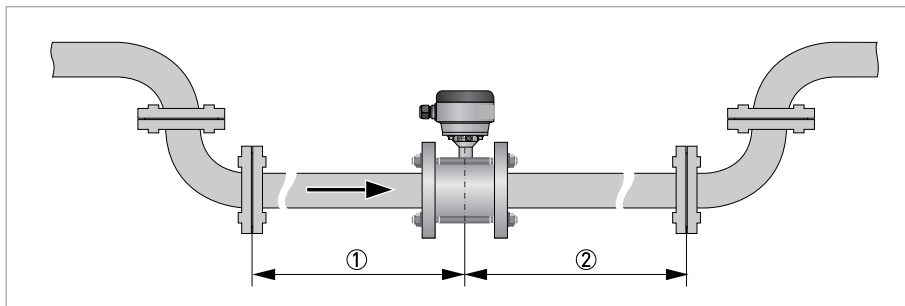


Figure 3-3: Recommended inlet and outlet section

- ① Refer to chapter "Bends in 2 or 3 dimensions"
- ② ≥ 2 DN

3.3.2 Bends in 2 or 3 dimensions

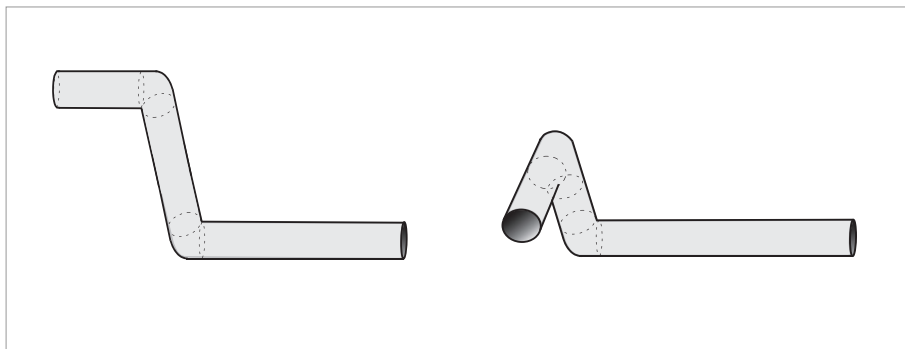


Figure 3-4: Inlet when using 2 and/or 3 dimensional bends upstream of the flowmeter

Inlet length: using bends in 2 dimensions: ≥ 5 DN; when having bends in 3 dimensions: ≥ 10 DN

*2 Dimensional bends occur in a vertical plane only, while 3 Dimensional bends occur in both vertical **and** horizontal plane.*

3.3.3 T-section

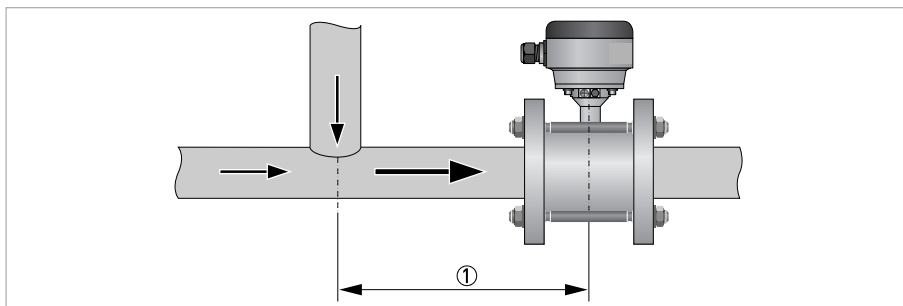
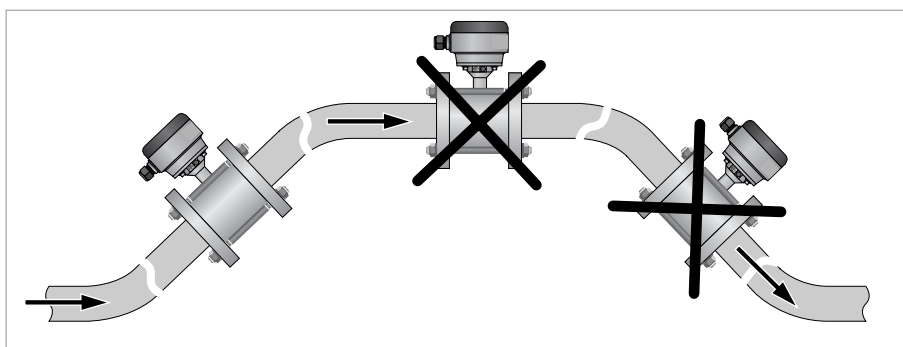
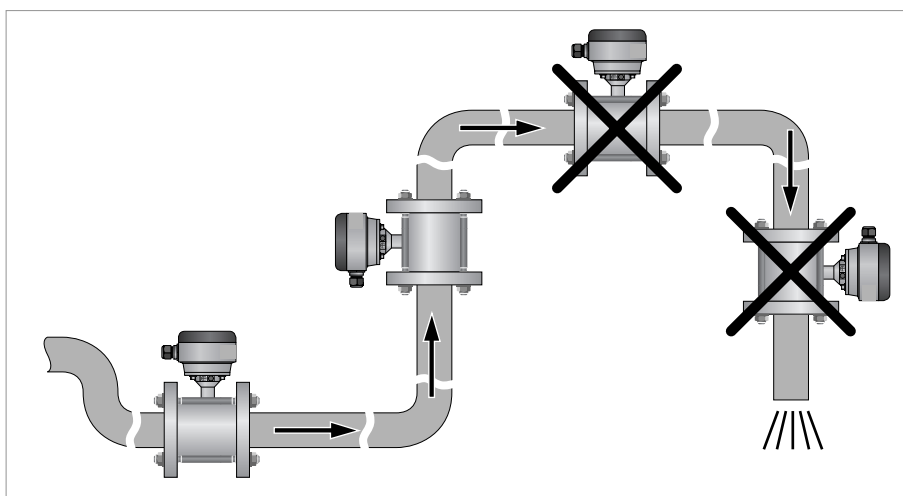


Figure 3-5: Distance behind a T-section

① ≥ 10 DN

3.3.4 Bends

*Avoid draining or partial filling of the flow sensor*

3.4 Open feed or discharge

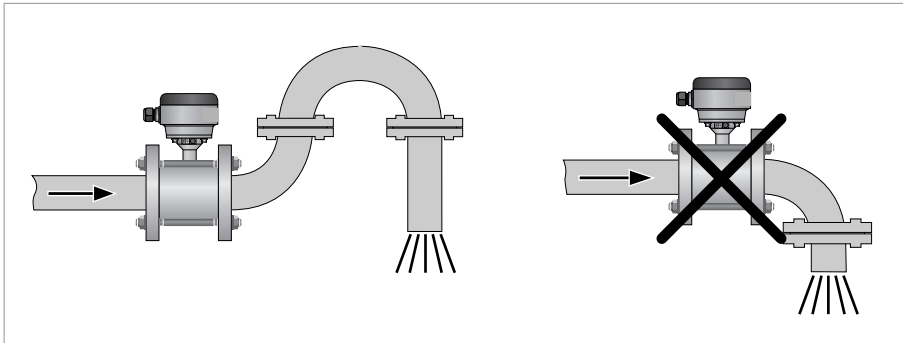


Figure 3-6: Installation in front of an open discharge

3.5 Flange deviation

Max. permissible deviation of pipe flange faces:

$$L_{max} - L_{min} \leq 0.5 \text{ mm} / 0.02''$$

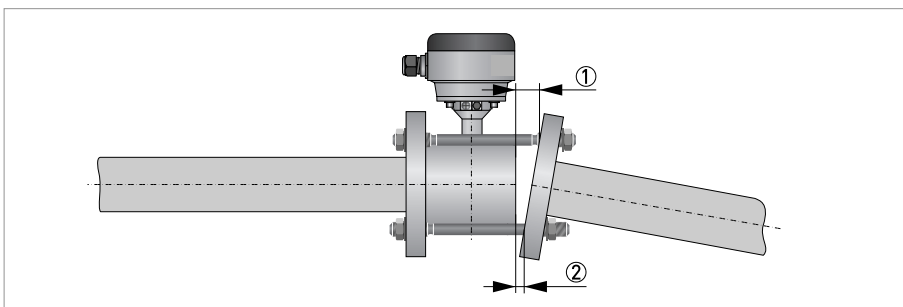


Figure 3-7: Flange deviation

- ① L_{max}
- ② L_{min}

3.6 Pump

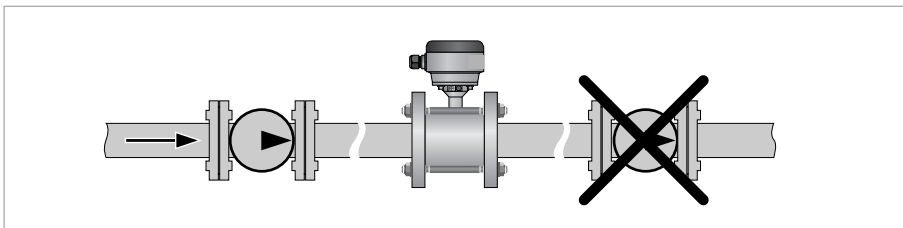


Figure 3-8: Installation behind a pump

3.7 Control valve

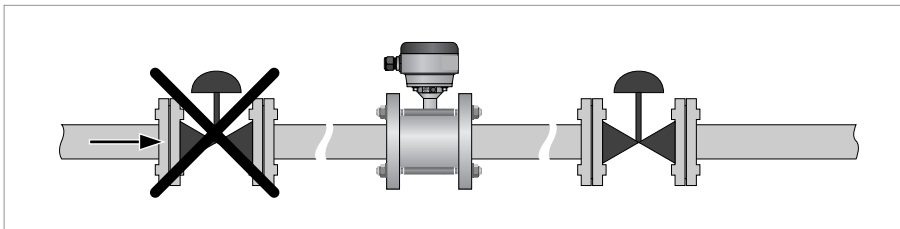


Figure 3-9: Installation in front of a control valve

3.8 Air venting and vacuum forces

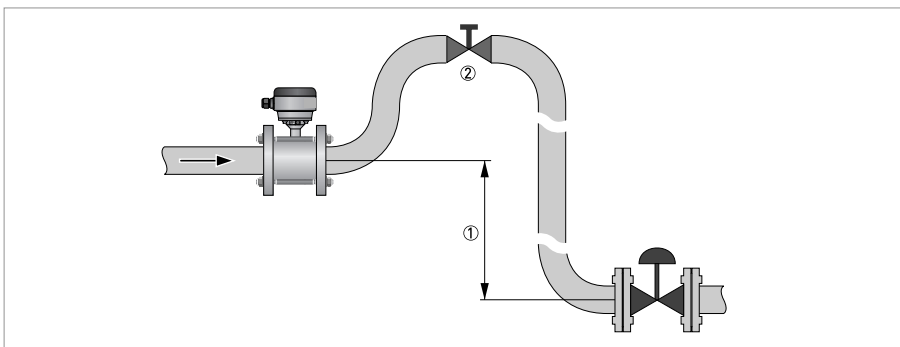


Figure 3-10: Air venting

① $\geq 5 \text{ m} / 17 \text{ ft}$

② Air ventilation point

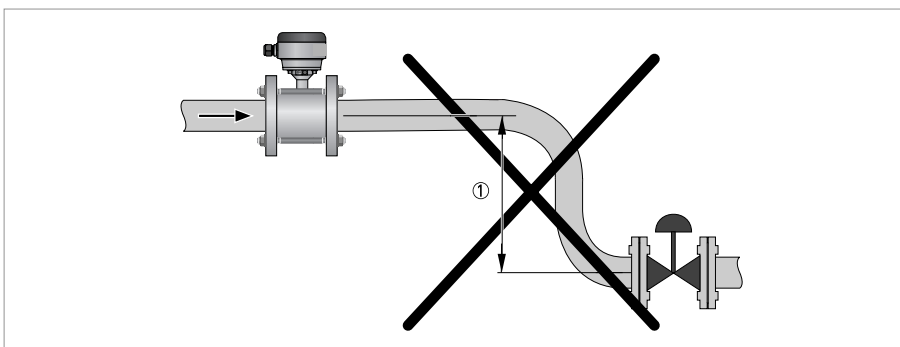


Figure 3-11: Vacuum

① $\geq 5 \text{ m} / 17 \text{ ft}$

3.9 Mounting position

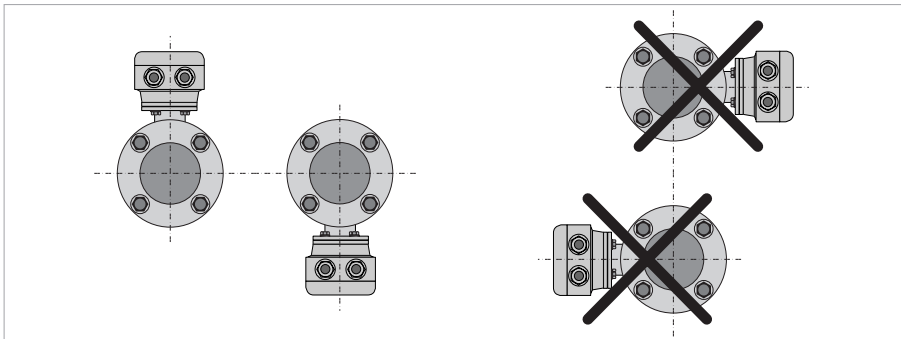


Figure 3-12: Mounting position

- Mount flow sensor either with signal converter aligned upwards or downwards.
- Install flow sensor in line with the pipe axis.
- Pipe flange faces must be parallel to each other.

3.10 Mounting

Please take care to use the proper gasket to prevent damaging the liner of the flowmeter. In general, the use of spiral wound gaskets is not advised, as it could severely damage the liner of the flowmeter.

3.10.1 Torques and pressure

- Please use stainless steel A2 / 6.9 class bolts.
- Make sure the connecting flanges are of type raised face (RF).

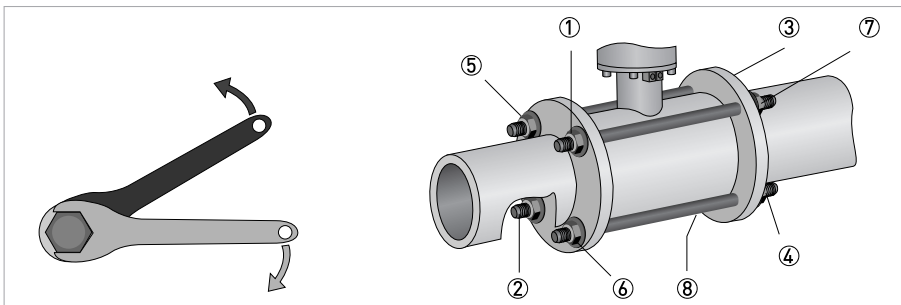


Figure 3-13: Tighten the bolts in fixed order, see picture.

Max. torque:

- Step 1: approx. 50% of max. torque
- Step 2: approx. 80% of max. torque
- Step 3: 100% of max. torque given in tables

EN 1092-1

Nominal size DN [mm]	Pressure rating	Max. allowable operating pressure [bar]
2.5...80	PN 40	40
100	PN 16	16
100	PN 25	25

ASME B 16.5

Nominal size [inch]	Pressure rating	Max. allowable operating pressure [psig]
1/10...4"	150 lb	230
1/10...3"	300 lb	580

- Pressures at 20°C / 68°F.
- For higher temperatures, the pressure and temperature ratings are as per ASME B16.5.

The specified torque values are dependent on variables (temperature, bolt material, gasket material, lubricants, etc.) which are not within the control of the manufacturer. Therefore the values should be regarded as indicative only.

EN 1092-1

Nominal size DN [mm]	Counter flanges & bolts		Max. allowable torque					
			Gasket: Filled PTFE / PTFE / PF29		Gasket: Graphite		O-ring	
	Rating	Size	Nm	ft-lb	Nm	ft-lb	Nm	ft-lb
2.5...10	PN 40	M12 x 141	-	-	-	-	32	24
15	PN 40	M12 x 141	-	-	-	-	36	27
25	PN 40	M12 x 141	22	16	32	24	-	-
40	PN 40	M16 x 176	47	35	66	49	-	-
50	PN 40	M16 x 203	58	43	82	60	-	-
80	PN 40	M16 x 261	48	35	69	51	-	-
100	PN 16	M16 x 303	75	55	106	78	-	-
100	PN 25	M20 x 176	94	69	133	98	-	-

ASME B 16.5

Nominal size [inch]	Counter flanges & bolts		Max. allowable torque					
			Gaskets: Filled PTFE/ PTFE / PF29		Gaskets: Graphite		O-ring	
	Rating	Size	Nm	ft-lb	Nm	ft-lb	Nm	ft-lb
1/10...3/8 "	150 lb	1/2"UNC x 142	-	-	-	-	35	26
1/2"	150 lb	1/2"UNC x 142	-	-	-	-	35	26
1"	150 lb	1/2"UNC x 142	24	18	33	24	-	-
1 1/2"	150 lb	1/2"UNC x 174	38	28	54	40	-	-
2"	150 lb	5/8"UNC x 215	58	43	83	61	-	-
3"	150 lb	5/8"UNC x 268	98	72	138	102	-	-
4"	150 lb	5/8"UNC x 318	75	55	108	80	-	-

4.1 Safety instructions

*All work on the electrical connections may only be carried out with the power disconnected.
Take note of the voltage data on the nameplate!*

Observe the national regulations for electrical installations!

For devices used in hazardous areas, additional safety notes apply; please refer to the Ex documentation.

Observe without fail the local occupational health and safety regulations. Any work done on the electrical components of the measuring device may only be carried out by properly trained specialists.

*Look at the device nameplate to ensure that the device is delivered according to your order.
Check for the correct supply voltage printed on the nameplate.*

4.2 Grounding

The device must be grounded in accordance with regulations in order to protect personnel against electric shocks.

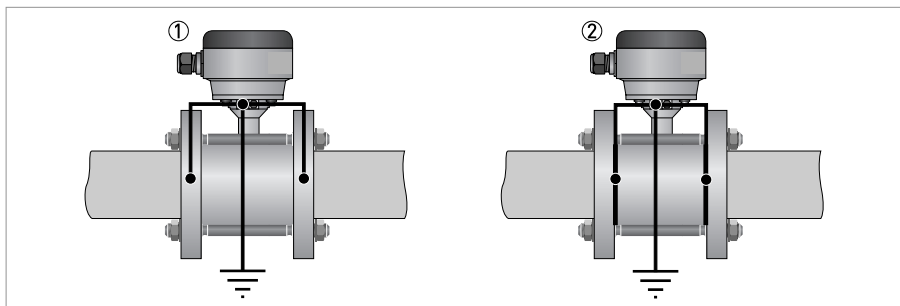


Figure 4-1: Grounding

- ① Metal pipelines, not internally coated. Grounding without grounding rings!
- ② Metal pipelines with internal coating and non-conductive pipelines. Grounding with grounding rings!

For diameter DN10 / 3/8" and DN15 / 1/2", grounding rings are integrated as standard in the flow sensor construction.

Grounding rings



Figure 4-2: Grounding ring number 1

Grounding ring number 1 (optional for DN25...150 / 1...6"): Thickness: 3 mm / 0.1" (tantalum: 0.5 mm / 0.02")

4.3 Virtual reference for IMT33A (4, N and H version)

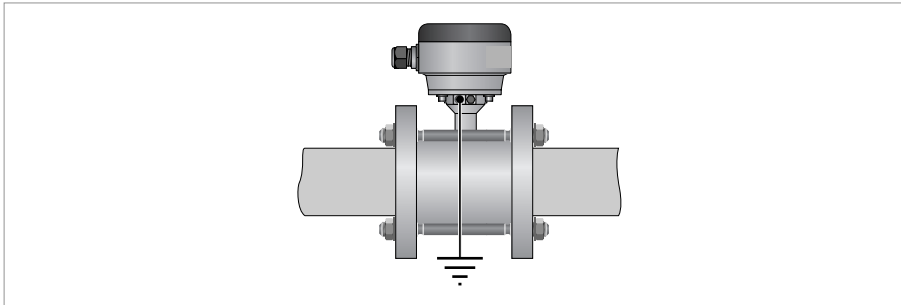


Figure 4-3: Virtual reference

Minimum requirements:

- Size: \geq DN10 / 3/8"
- Electrical conductivity: $\geq 200 \mu\text{S/cm}$
- Signal cable: max. 50 m / 164 ft, type DS

Model	Description, check www.BuyAutomation.com for availability
	Foxboro® Model 8500A Magnetic Flow Sensor
850TA 850SA 850QA 853EA 85HAA 8501A 851HA 8502A 8503A 8504A	Nominal diameter and liner DN 2.5...1/10" - Ceramic - Mounts between DN15 / 1/2" flanges DN 4...1/8" - Ceramic - Mounts between DN15 / 1/2" flanges DN 6... 1/4" - Ceramic - Mounts between DN15 / 1/2" flanges DN 10...3/8" - Ceramic - Mounts between DN15 / 1/2" flanges DN 15...1/2" - Ceramic DN 25...1 - Ceramic DN 40...1 1/2" - Ceramic DN 50...2" - Ceramic DN 80...3" - Ceramic DN 100...4" - Ceramic
3 4 5 A B M N	Nominal pressure (centering for) PN 16 EN 1092-1 (DN 100) PN 25 EN 1092-1 (DN 100) PN 40 EN 1092-1 (DN 100) 150 lbs RF ASME B 16.5 (1/10"...4") 300 lbs RF ASME B 16.5 (1/10"...4") JIS 20 K (DN 2,5 ...100) JIS 10 K (DN 50...100)
0 1 3 5 A C D	Approval Non Ex Ex Zone 1 (for IMT33A Compact and Field & IMT31A Wall only) Ex Zone 2 (for IMT33A Compact and Field only) FM Class I DIV 2 (for IMT33A Compact and Field only) cCSAus OL (IMT33A compact and field & IMT31A Compact and Wall only) CSA Class I DIV 2 (for IMT33A Compact and Field) NEPSI Zone 1 (for IMT33A Compact and Field only)
1 2 4 5 6 A B C	System design - Cable connection Compact (=Integral) with Aluminum Converter Housing - At the transmitter Compact (=Integral) with Stainless Steel Converter Housing - At the transmitter Separate with Aluminum Connection box / 1/2" NPT Separate with Aluminum Connection box / PF 1/2 Separate with Aluminum Connection box / M20 x 1.5 Separate with Stainless Steel Connection box / 1/2" NPT Separate with Stainless Steel Connection box / PF 1/2 Separate with Stainless Steel Connection box / M20 x 1.5
0 3 4 C D K L	Converter model Without IMT31A (Compact /Integral Design) IMT31A (Wall Mount Version) IMT33A (Compact /Integral Design) IMT33A (Field Mount Version) IMT30A (Compact /Integral Design) IMT30A (Wall Mount Version)
1 2 3	Mounting Material Steel, galvanized / Rubber sleeves Stainless Steel A2 / Rubber sleeves Rubber sleeves

Model	Description, check www.BuyAutomation.com for availability
3* T 6 7 8 B C D E F* H G R P S	Grounding ring material - Sealing St. steel DIN 1.4404 316 - O-ring FPM FKM (DN 2,5...15 1/10"...1/2") St. steel DIN 1.4404 316 - O-ring EPDM (DN 2,5...15 1/10"...1/2") Titanium - O-ring EPDM (DN 2,5...15 - 1/10"...1/2") Hastelloy C22 - O-ring EPDM (DN 2,5...15 - 1/10"...1/2") Hastelloy C22 - O-ring FPM FKM (DN 2,5...15 - 1/10"...1/2") Titanium - O-ring PFFM FFKM (DN 2,5...15 - 1/10"...1/2") Tantalum - Seal PTFE / PF 29 (DN 2,5...15 - 1/10"...1/2") Hastelloy C22 - O-ring PFFM FFKM (DN 2,5...15 - 1/10"...1/2") Without - Gasket graphite (DN 25...100 / 1"...4") Without - Gasket filled PTFE (DN 25...100 / 1"...4") Hastelloy C22 - Gasket filled PTFE (DN 25...100 / 1"...4") St. steel DIN 1.4571 316 Ti - Gasket filled PTFE (DN 25...100 / 1"...4") St. steel DIN 1.4571 316 Ti - Gasket graphite (DN 25...100 / 1"...4") Tantalum - Seal PTFE / PF 29 (DN 25...100 / 1"...4") Hastelloy C22 - Gasket graphite (DN 25...100 / 1"...4")
0* 7	Electrodes Standard, Platinum Cermet - Platinum
0* 1 2	Protection class / dimension (face-to-face) IP 66 67 & Standard IP 68 Field & Standard (with stainless steel connection box) IP 68 Factory & Standard (with stainless steel connection box)
0* 1 2 Y	Cable Compact (none) - Separate (remote) DS Separate BTS Separate LIYCY (only for FM / CSA Class 1 DIV 2 with IP68 and IMT33A) Without
0 1 2 3 4 5 6 7 8 Y	Cable length Compact - None - Separate - 5 m - 15 ft 10 m - 30 ft 15 m - 45 ft 20 m - 60 ft 25 m - 75 ft 30 m - 90 ft 40 m - 120 ft 50 m - 150 ft 100 m - 300 ft Without
0 2 3 A C D	Calibration Standard 316/1.4401 Tag plate (120 x 46 mm) 316/1.4401 Tag plate (67 x 25 mm) Custody transfer CT + 316 / 1.4401 Tag plate (120 x 46 mm) CT + 316 / 1.4401 Tag plate (67 x 25 mm)
0	Special Standard
H	Version Standard
0	Construction requirements Standard
0	QA / QC requirements Standard
0	Ratio of CT-calibration Standard, R=80

Model	Description, check www.BuyAutomation.com for availability
0	Warranty Standard
0	Instruction language Standard



ORDERING INSTRUCTIONS

1. Model Number.
2. Flow Data:
 - a. Maximum, minimum, and normal flow rate.
 - b. Fluid composition and viscosity at operating temperatures.
 - c. Fluid density or relative density (specific gravity).
 - d. Maximum, minimum and normal operating temperatures.
 - e. Maximum, minimum and normal operating pressures.
 - f. Mating pipe schedule.
 - g. Type and location (distance) of upstream disturbance.
3. Calibration Information (analog output only); maximum flow rate 20 mA output.
4. Electric Classification.
5. Optional Selections and Accessories.
6. Customer Tag Data.

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