



OPTIMASS 6000 **Technical Datasheet**

Sensor for mass flow

- The high performance meter for process industries
- Cryogenic, high temperature and high pressure options
- Supreme liquid and gas performance with CT approval



The documentation is only complete when used in combination with the relevant documentation for the signal converter.

1	Product features	3
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1.1	The solution for extended temperature applications	3
1.2	Features and options.....	5
1.3	Meter / converter combinations.....	6
1.4	Measuring principle (twin tube)	6
2	Technical data	8
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2.1	Technical data.....	8
2.2	Measuring accuracy	14
2.3	Guidelines for maximum operating pressure.....	15
2.4	Dimensions and weights	20
2.4.1	Flanged versions.....	20
2.4.2	NAMUR dimensions	31
2.4.3	Hygienic versions	32
2.4.4	Heating jacket version	35
2.4.5	Purge port option	36
3	Installation	37
<hr/>		
3.1	Intended use	37
3.2	Mounting restrictions	37
3.2.1	General installation principles	37
4	Electrical connections	39
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4.1	Safety instructions.....	39
4.2	Electrical and I/O connections	39

1.1 The solution for extended temperature applications

A high level of performance, together with a wide operating temperature range up to 400°C / 752°F, makes the OPTIMASS 6000 the ideal choice for mass flow measurement in a wide variety of applications.

Designed to meet the requirements of general purpose liquid and gas applications, the extended low temperature range of -200°C / -328°F also makes the 6000 suitable for Liquid Natural Gas (LNG) and cryogenic applications.

Combined with the power of the MFC 400, the OPTIMASS 6000 will provide accurate measurement of volume, mass, density and concentration.



- ① Standard flange process connections available.
- ② Modular electronics with a range of output options.
- ③ Comprehensive diagnostic capabilities.



- ① Remote terminal box

Features:

- Innovative twin U-tube design
- Temperature range -200°C to +400°C
- Optional insulation / heating jacket
- Compact envelope
- Optimised flow divider for minimum pressure loss
- Modular electronics concept: electronics and sensor are easy to replace
- Self draining when mounted vertically

Industries:

- Fresh and waste water
- Chemical
- Oil and gas
- Food and beverage
- Pharmaceutical
- Fresh Water
- General industry
- Supercritical gases

Applications:

- Crystallising, solidifying and cryogenic products
- Tanker loading
- General purpose applications
- CIP and SIP >130°C
- Liquid Natural Gas (LNG)

1.2 Features and options

Features



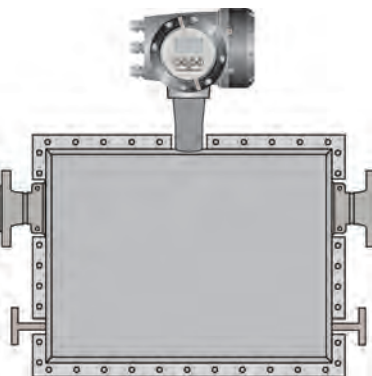
- Available as compact or remote.
- Nominal flow rates up to 325,000 kg/h / 11940 lb/min.
- Self draining, when mounted vertically.

Connection options



- Standard flanges with ratings up to 1500 lb / PN160.
- Supports a wide range of industry standard hygienic connections.
- Optional sealing faces.
- NAMUR NE132 flange lengths

Heating jacket and purge port



Heating jacket

- For use with temperature dependant products.
- Prevents solidification of process product.
- The heating case can also be used as a cryogenic insulation case.

Purge port

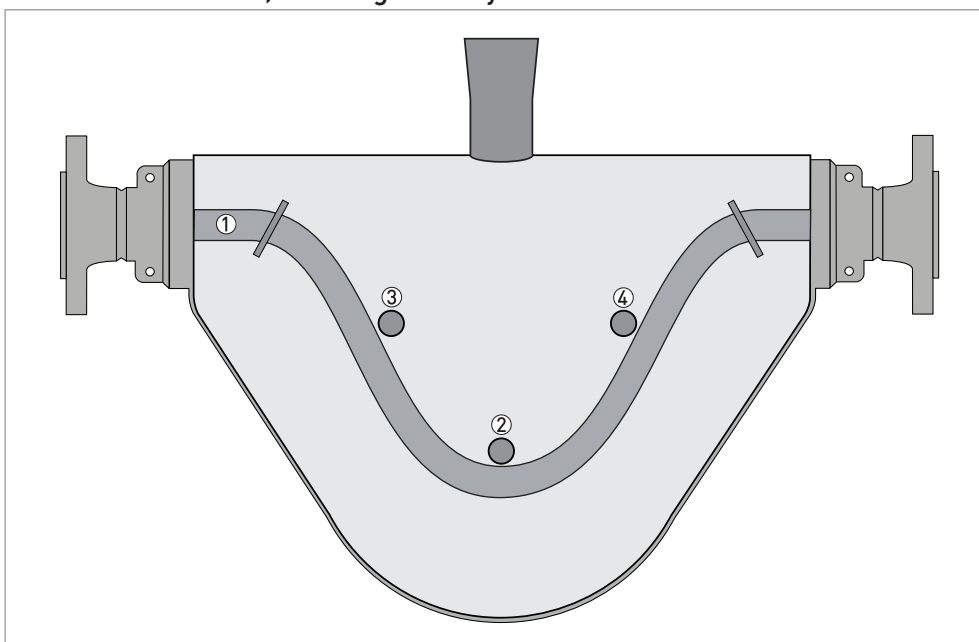
- Allows hazardous chemicals to be drained away safely.

1.3 Meter / converter combinations

Converter	MFC 400		
Configuration	Compact	Remote field	Remote wall
OPTIMASS 6000	6400C	6400F	6400W

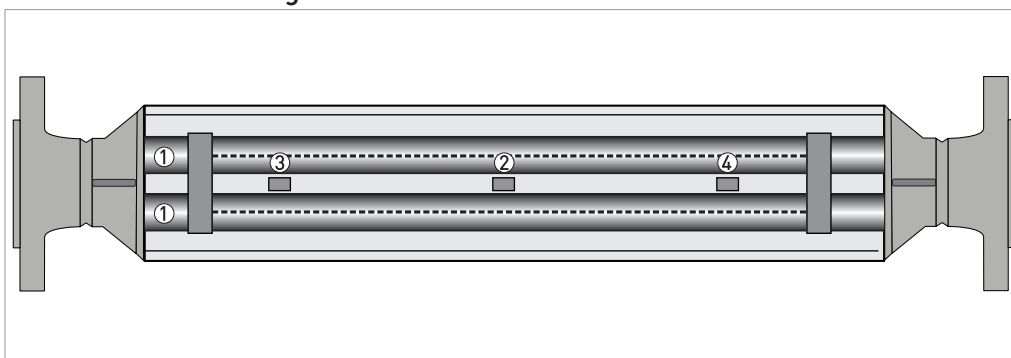
1.4 Measuring principle (twin tube)

Meter from the side, showing tube layout



- ① Measuring tubes
- ② Drive coil
- ③ Sensor 1
- ④ Sensor 2

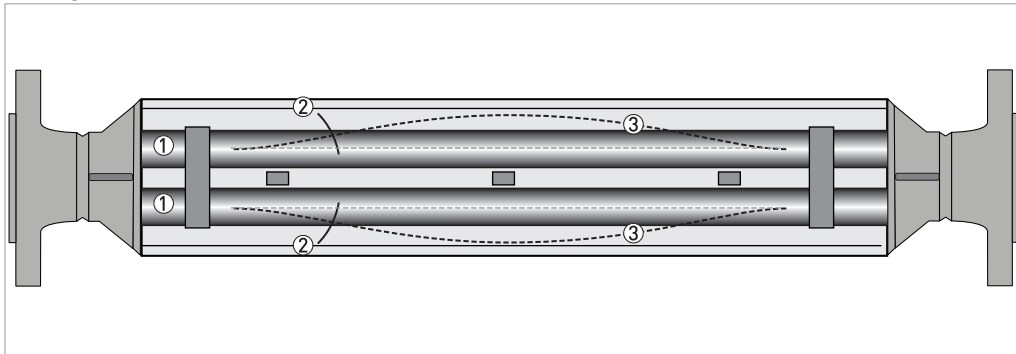
Static meter not energised and with no flow



- ① Measuring tubes
- ② Drive coil
- ③ Sensor 1
- ④ Sensor 2

A Coriolis twin tube mass flowmeter consists of two measuring tubes ① a drive coil ② and two sensors (③ and ④) that are positioned either side of the drive coil.

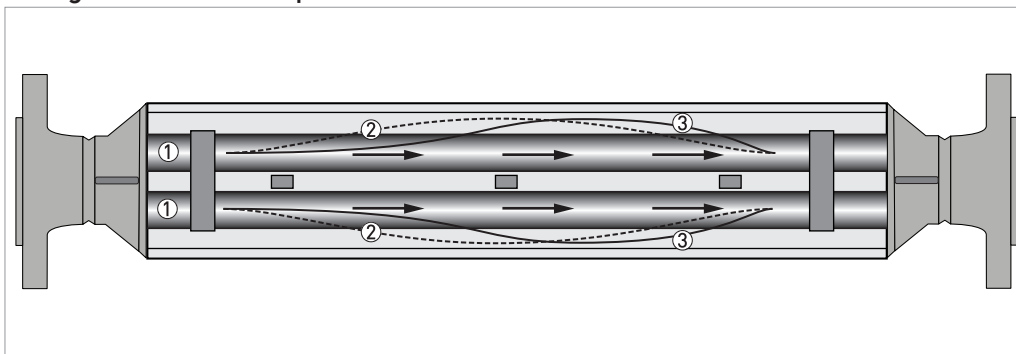
Energised meter



- ① Measuring tubes
- ② Direction of oscillation
- ③ Sine wave

When the meter is energised, the drive coil vibrates the measuring tubes causing them to oscillate and produce a sine wave ③. The sine wave is monitored by the two sensors.

Energised meter with process flow



- ① Process flow
- ② Sine wave
- ③ Phase shift

When a fluid or gas passes through the tubes, the coriolis effect causes a phase shift in the sine wave that is detected by the two sensors. This phase shift is directly proportional to the mass flow.

Density measurement is made by evaluation of the frequency of vibration and temperature measurement is made using a Pt500 sensor.

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 representative.
- Additional information (certificates, special tools, software,...) and complete product documentation can be downloaded free of charge from the website (Download Center).

Measuring system

Measuring principle	Coriolis mass flow
Application range	Mass flow and density measurement of fluids, gases and solids
Measured values	Mass, density, temperature
Calculated values	Volume, referred density, concentration, velocity
Sensor model range	
Stainless Steel 316L 08...250	Compact / remote 100 barg @ 20°C / 1450 psig @ 68°F, temp. range -70°C...+230°C / -94°F...+446°F
	Remote only 100 barg @ 20°C / 1450 psig @ 68°F, temp. range -50°C...+400°C / -58°F...+752°F
	Remote only 100 barg @ 20°C / 1450 psig @ 68°F, temp. range -200°C...+40°C / -364°F...+104°F
Hastelloy® 08...50	Compact / remote 200 barg @ 20°C / 2900 psig @ 68°F, temp. range -70°C...+230°C / -58°F...+446°F
Duplex Stainless Steel 80...150	Compact / remote 200 barg @ 20°C / 2900 psig @ 68°F, temp. range -50°C...+230°C / -58°F...+446°F

Design

Basic	System consists of a measuring sensor and a converter to process the output signal
Features	Fully welded maintenance free sensor with twin V-shaped measuring tube
Variants	
Compact version	Integral converter
Remote version	Available with field or wall versions of the converter
Modbus version	Sensor with integral electronics. Modbus output for connection to a PLC

Measuring accuracy

Mass (standard)	
Liquid (≥ 20:1 of nominal flow rate)	±0.1% of actual measured flow rate
Liquid (< 20:1 of nominal flow rate)	± zero stability (see zero stability below)
Gas	±0.35% of actual measured flow rate + zero stability
Mass (optional)	
Liquid (≥ 10:1 of nominal flow rate)	±0.05% of actual measured flow rate
Liquid (< 10:1 of nominal flow rate)	± zero stability (see zero stability below)
Repeatability	
Liquid	Better than 0.05% plus zero stability (includes the combined effects of repeatability, linearity and hysteresis)
Gas	Better than 0.2% plus zero stability (includes the combined effects of repeatability, linearity and hysteresis)
Zero stability	
08	< 0.03 kg/h

10	< 0.06 kg/h
15	< 0.19 kg/h
25	< 0.95 kg/h
50	< 1.8 kg/h
80	< 3.9 kg/h
100	< 8.8 kg/h
150	< 16 kg/h
200	< 30 kg/h
250	< 50 kg/h
Reference conditions	
Product	Water
Temperature	+20°C / +68°F
Operating pressure	1 barg / 14.5 psig
Effect on sensor zero point caused by a shift in process temperature	
All materials	0.00075% of nominal flow per 1°C / 0.00042% of nominal flow per 1°F
Pressure effect on mass flow rate	
All materials sizes 08...50	0.005% per 1 barg / 0.00034 % per 1 psig
All materials sizes 80...100	0.0055% per 1 barg / 0.00038 % per 1 psig
All materials sizes 150...250	0.008% per 1 barg / 0.00055 % per 1 psig
Density	
Measuring range	100...3000 kg/m ³ / 6...187 lbs/ft ³
Accuracy	±1 kg/m ³ / ±0.06 lbs/ft ³
On site calibration	±0.2 kg/m ³ / ±0.012 lbs/ft ³
Temperature	
Accuracy	± 0.5°C / ±0.9°F (± 0.5% of reading)

Operating conditions

Nominal flow rates (1 barg / 14.5 psig pressure drop)	
08	600 kg/h / 22 lbs/min
10	1200 kg/h / 44 lbs/min
15	3800 kg/h / 139 lbs/min
25	19000 kg/h / 698 lbs/min
50	35000 kg/h / 1286 lbs/min
80	78000 kg/h / 2866 lbs/min
100	175000 kg/h / 6430 lbs/min
150	320000 kg/h / 11758 lbs/min
200	550000 kg/h / 20209 lbs/min
250	1000000 kg/h / 36743 lbs/min
Assumes operating density 1000 kg/m ³ / 62.4 lb/ft ³	
For Hastelloy® meters, assume a pressure drop of 1.15 barg	
Maximum flow rates	
All meters	150% of nominal flow rate
Ambient temperature	
Compact version with Aluminium converter	Standard temperature range: -40...+65C / -40...+149°F
	Cryogenic temperature range: -25...+40°C / -13...+104°F

Compact version with Stainless Steel converter	Standard temperature range: -40...+55°C / -40...+131°F	
	Cryogenic temperature range: -25...+40°C / -13...+104°F	
Remote versions	Standard temperature range: -40...+65°C / -40...+149°F	
	Cryogenic temperature range: -20...+65°C / -4...+149°F	
Hazardous Area versions	Refer to temperature limits	
Process temperatures		
Standard temperature range (flange connections)		
Safe area	-70...+230°C / -94...+446°F	
Hazardous area	-50...+230°C / -58...+446°F	
High temperature range	-50...+400°C / -58...+752°F	
Cryogenic temperature range	-200...+40°C / -328...+104°F	
Standard temperature range (hygienic connections)		
Safe area	-70...+150°C / -94...+302°F	
Hazardous area	-50...+150°C / -58...+302°F	
Nominal pressure at 20°C / 68°F		
Measuring tube	SS 316 / 316L	Hastelloy® C22 / S31803
FM / PED 97/23/EC	-1...100 barg / -14.5...1450 psig	-1...200 barg / -14.5...2900 psig
CRN / ASME B31.3	-1...100 barg / -14.5...1450 psig	Pending
Fluid properties		
Permissible physical condition	Liquids, gases, slurries	
Permissible gas content (volume)	Contact manufacturer for information.	
Permissible solid content (volume)	Contact manufacturer for information.	
Protection category (acc. to EN 60529)	IP 67, NEMA 4X	
Installation conditions		
Inlet / outlet runs	None required	

Materials

Stainless Steel (316 / 316L) meter	
Measuring tubes / spigots	Stainless Steel AISI 316 / 316L (1.4401 / 1.4404) dual certified
Flanges	Stainless Steel AISI 316 / 316L (1.4401 / 1.4404) dual certified
Bridge	Stainless Steel AISI 304 / 304L (1.4301 / 1.4307) dual certified or AISI 316 / 316L (1.4401 / 1.4404) dual certified
Outer casing	Stainless Steel AISI 316 / 316L (1.4401 / 1.4404) dual certified
Stainless Steel (S31803) meter	
Measuring tubes / spigots	Stainless Steel UNS 31803 (1.4462)
Flanges	Stainless Steel UNS 31803 (1.4462)
Bridge	Stainless Steel AISI 304 / 304L (1.4301 / 1.4307) dual certified or AISI 316 / 316L (1.4401 / 1.4404) dual certified
Outer casing	Stainless Steel AISI 316 / 316L (1.4401 / 1.4404) dual certified
Hastelloy® C22 meter	
Measuring tubes / raised face	Hastelloy® C22
(Backing) flanges	Stainless Steel AISI 316 / 316L (1.4401 / 1.4404) dual certified
Bridge	Stainless Steel AISI 316 / 316L (1.4401 / 1.4404) dual certified
Outer Casing	Stainless Steel AISI 316L (1.404) dual certified
Heating jacket version	
Heating loop and insulation jacket	Stainless Steel AISI 316 (1.4401)

All versions	
Junction box (remote version)	Die cast Aluminium (polyurethane coating) Optional Stainless Steel 316 (1.4401)

Process connections

Flange	
DIN (EN 1092-1 2007)	DN10...300 / PN16...160
ASME (B616.5)	½...12" / ASME 150...1500
JIS (2220 2001)	10A...300A / 10...20K (10K maximum allowable temperature 300°C / 572°F)
Hygienic (08...50 only)	
Tri-clover	¾...3"
Tri-clamp DIN 32676	DN15..80
Tri-clamp ISO 2852	1...3"
DIN 11864-2 Form A	DN15...80
Male thread DIN 11851	DN15...80
Male thread SMS	1...3"

Electrical connections

Electrical connections	For full details, including: power supply, power consumption etc., see technical data for the relevant converter.
I/O	For full details of I/O options, including data streams and protocols, see technical data for the relevant converter.

Approvals

Mechanical	
Electromagnetic compatibility (EMC) acc. to CE	Namur NE 21/5.95
	2004/108/EC (EMC)
	2006/95/EC (Low Voltage Directive)
European Pressure Equipment Directive	PED 97-23 EC (acc. to EN13445-3)
CRN	acc. to ASME B31.3 (pending)
ATEX (acc. 94/9/EC)	
OPTIMASS 6400C non Ex i signal outputs	
Ex d connection compartment	II 1/2 G Ex d ia IIC T6...T1 Ga/Gb
	II 2 D Ex tb IIIC T270°C Db
Ex e connection compartment	II 1/2 G Ex de ia IIC T6...T1 Ga/Gb
	II 2 D Ex tb IIIC T270°C Db
OPTIMASS 6400C Ex i signal outputs	
Ex d connection compartment	II 1/2(1) G Ex d ia [ia Ga] IIC T6...T1 Ga/Gb
	II 2(1) D Ex tb [ia Da] IIIC T270°C Db
Ex e connection compartment	II 1/2(1) G Ex de ia [ia Ga] IIC T6...T1 Ga/Gb
	II 2(1) D Ex tb [ia Da] IIIC T270°C Db
OPTIMASS 6000 / 6000F	
	II 1 G Ex ia IIC T6...T1 Ga
	II 1 D Ex ia IIIC T270°C Da
	II 1 D Ex ia IIIC T440°C Da

ATEX (acc. 94/9/EC) temperature limits

OPTIMASS 6000 / 6000F with or without heating jacket / insulation.			
Ambient temp. T_{amb} °C	Medium temp. T_m °C	Temp. class	Max. Surface temp. °C
-40...40	-50...40	T6	T80
	-50...150	T3	T190
	-50...230	T2-T1	T270
-40...55	-50...40	T6	T80
	-50...150	T3	T190
	-50...230	T2-T1	T270
-40...65	-50...40	T6	T80
	-50...150	T3	T190
	-50...230	T2-T1	T270
Cryogenic version			
-20...65	-200...40	T6-T1	T80
OPTIMASS 6400C with aluminium converter housing, with or without heating jacket / insulation			
-40...40	-50...40	T6	T80
	-50...150	T3	T190
	-50...230	T2-T1	T270
-40...50	-50...40	T6	T80
	-50...150	T3	T190
	-50...230	T2-T1	T270
-40...65	-50...65	T4-T1	T105
Cryogenic version			
-40...65	-200...40	T6-T1	T80
OPTIMASS 6400C with SS converter housing, with or without heating jacket / insulation.			
-40...40	-50...40	T6	T80
	-50...150	T3	T190
	-50...230	T2-T1	T270
-40...50	-50...40	T6	T80
	-50...150	T3	T190
	-50...230	T2-T1	T270
-40...60	-50...60	T4-T1	T100
Cryogenic version			
-25...+60	-200...40	T6-T1	T80
High temperature versions			
OPTIMASS 6000F - HT with aluminium junction box, heating jacket and insulation			
-40...40	-50...40	T6	T80
	-50...230	T2	T270
	-50...400	T1	T440
-40...55	-50...40	T6	T80
	-50...230	T2	T270
	-50...400	T1	T440

-40...60	-50...40	T6	T80
	-50...230	T2	T270
	-50...400	T1	T440
-40...65	-50...350	T1	T390
OPTIMASS 6000F - HT with SS junction box, heating jacket and insulation			
-40...40	-50...40	T6	T80
	-50...230	T2	T270
	-50...400	T1	T440
-40...50	-50...40	T6	T80
	-50...230	T2	T270
	-50...400	T1	T440
-40...55	-50...40	T6	T80
	-50...230	T2	T270
	-50...400	T1	T440
-40...60	-50...350	T1	T390
OPTIMASS 6000F - HT with aluminium or SS junction box, insulation but no heating jacket			
-40...40	-50...40	T6	T80
	-50...230	T2	T270
	-50...400	T1	T440
-40...55	-50...40	T6	T80
	-50...230	T2	T270
	-50...400	T1	T440
-40...65	-50...40	T6	T80
	-50...230	T2	T270
	-50...400	T1	T440

Maximum end loadings (Stainless Steel 316 / 316L)

		S08 / S10	S15	S25	S50	S80	S100	S150	S200	S250
Flanges										
20°C	40 barg	15 kN	25 kN	38 kN	48 kN	99 kN	130 kN	250 kN	300 kN	350 kN
	100 barg	12 kN	17 kN	19 kN	15 kN	20 kN	100 kN	150 kN	150 kN	200 kN
230°C	32 barg	7 kN	12 kN	18 kN	25 kN	45 kN	60 kN	150 kN	200 kN	250 kN
	60 barg	5 kN					20 kN			
400°C	27.4 barg	5 kN	6 kN	10 kN	12 kN	20 kN	50 kN	80 kN	100 kN	150 kN
	40 barg	4 kN	5 kN				20 kN			
Hygienic (all connections)										
150°C	10 barg	5 kN	9 kN	12 kN	12 kN	18 kN	N/A	N/A	N/A	N/A

Maximum end loadings (Hastelloy® and Stainless Steel UNS S31803)

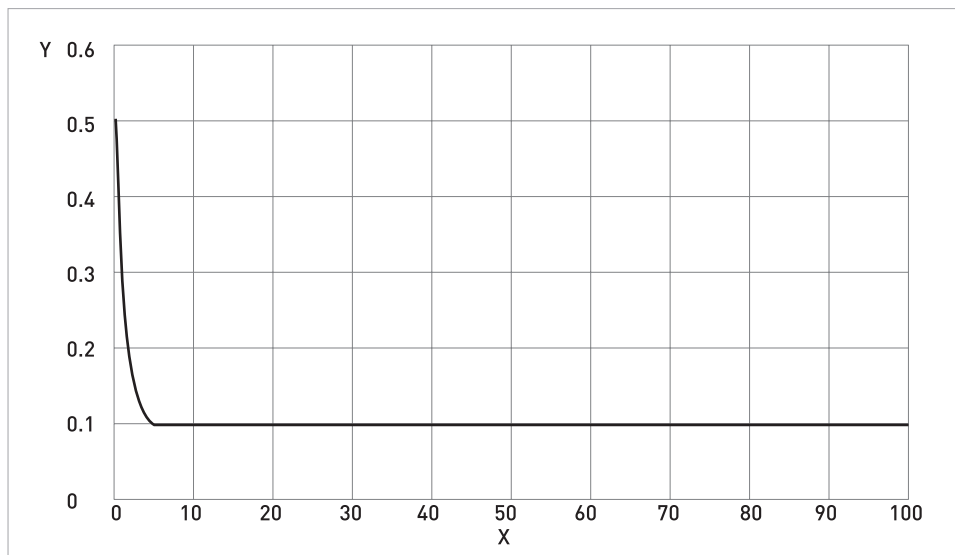
		H08 / H10	H15	H25	H50	H80	D100	D150	D200
Flanges (not including CRN)									
20°C	200 barg	12 kN	17 kN	19 kN	15 kN	20 kN	100 kN	150 kN	
230°C	145 barg	5 kN				20 kN			
Flanges (CRN regions)									
20°C	200 barg ①	12 kN	17 kN	19 kN	15 kN	20 kN	60 kN	30 kN	10 kN
230°C	145 barg ②	5 kN				20 kN			

① D200 limited to 180 barg at 20°C

② D100 and D150 limited to 120 barg at 230°C. D200 limited to 110 barg at 230°C

- DN08...50 (axial) loads have been calculated, based on 316L schedule 40 process pipework, where un-radiographed butt welds have been used in pipe joints.
- DN80...250 (axial) loads have been calculated, based on 316L schedule 80 process pipework, where un-radiographed butt welds have been used in pipe joints.
- The loads shown are the maximum permitted static load. If loads are cycling (between tension and compression) these loads should be reduced. For advice, consult the manufacturer.

2.2 Measuring accuracy



X nominal flow rate [%]
Y measuring error [%]

Measuring error

The measuring error is obtained from the combined effects of accuracy and zero stability.

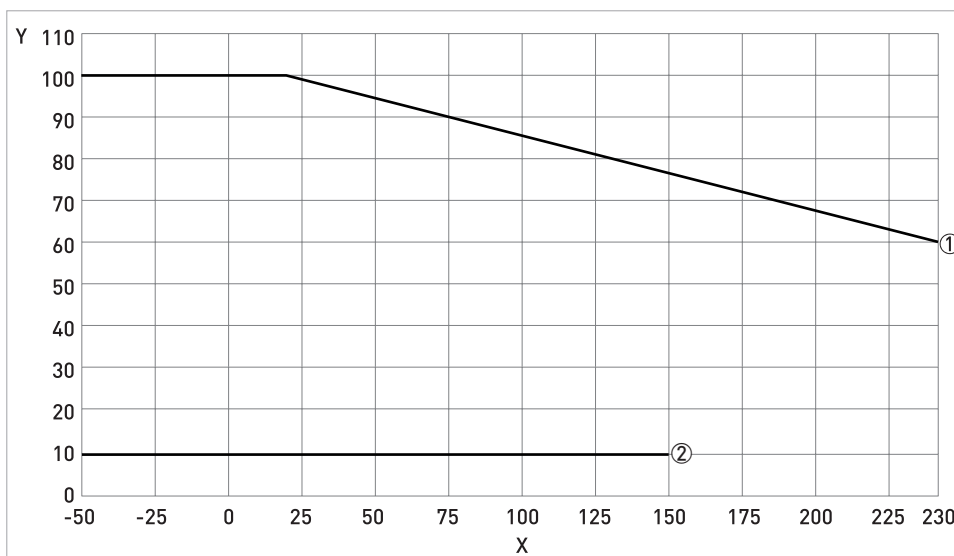
Reference conditions

Product	Water
Temperature	+20°C / +68°F
Operating pressure	1 barg / 14.5 psig

2.3 Guidelines for maximum operating pressure**Notes:**

- Ensure that the meter is used within its operating limits
- All hygienic process connections have a maximum operating rating of 10 barg at 150°C / 145 psig at 302°F

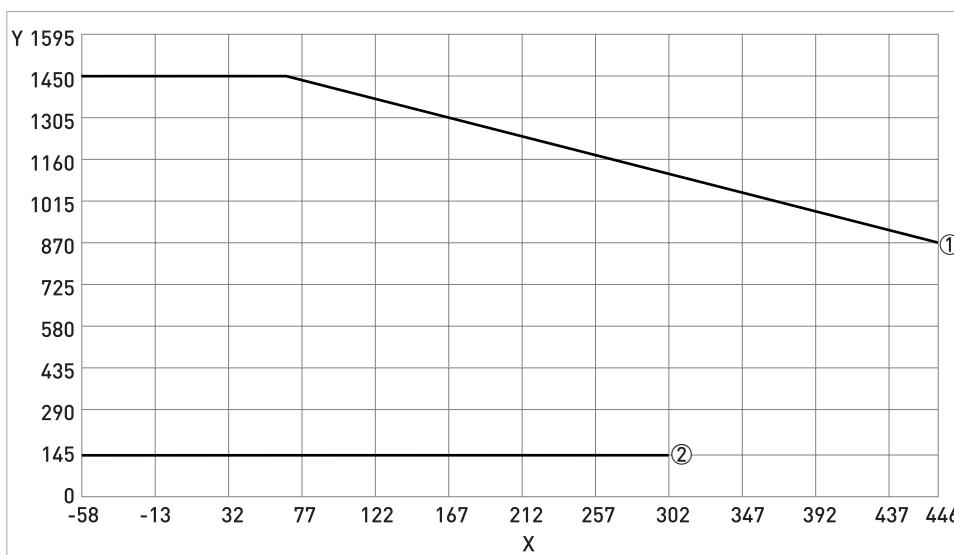
Pressure / temperature de-rating (metric) for meters with SS 316 measuring tubes. Standard temperature range.



X temperature [°C]
Y pressure [barg]

- ① Measuring tube PED certification
- ② Hygienic connection

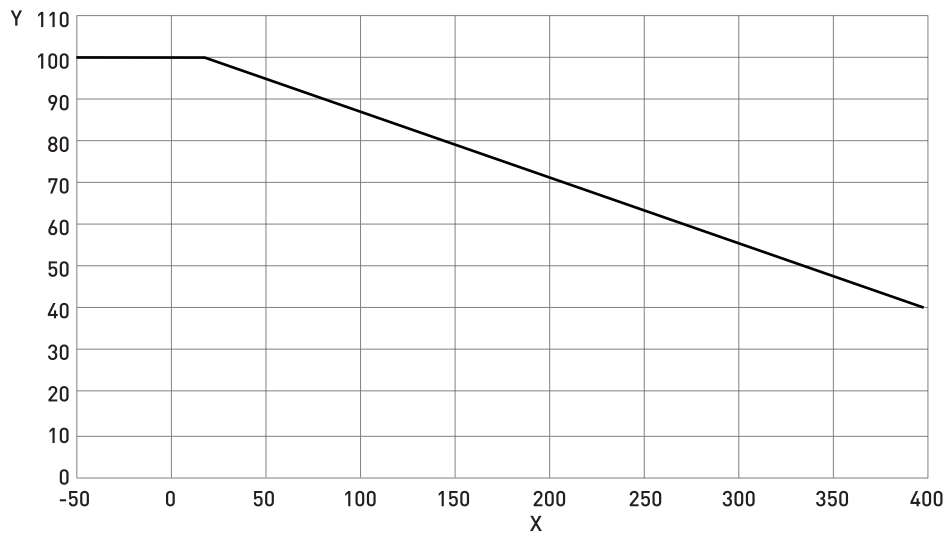
Pressure / temperature de-rating (imperial) for meters with SS 316 measuring tubes. Standard temperature range.



X temperature [°F]
Y pressure [psig]

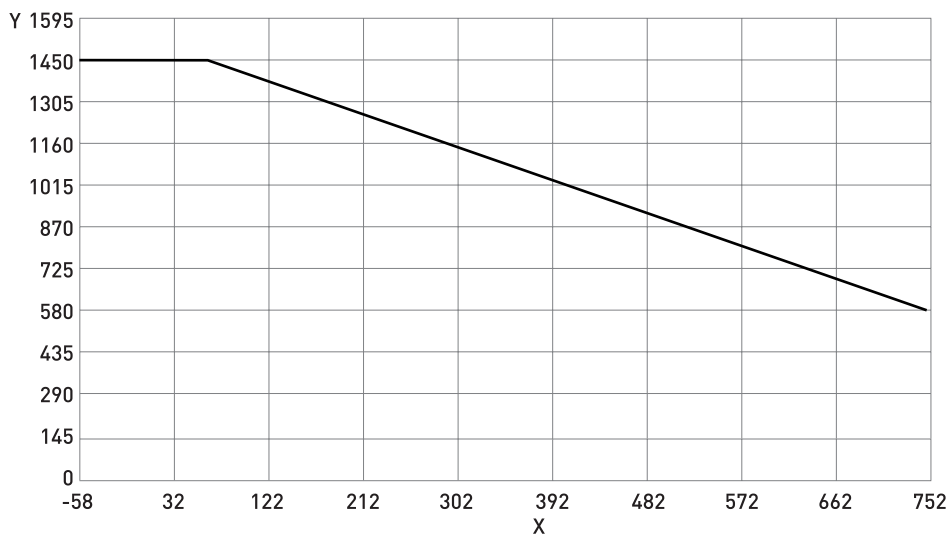
- ① Measuring Tube PED certification
- ② Hygienic connection

Pressure / temperature de-rating (metric) for meters with SS 316, PED certified measuring tubes. High temperature range.



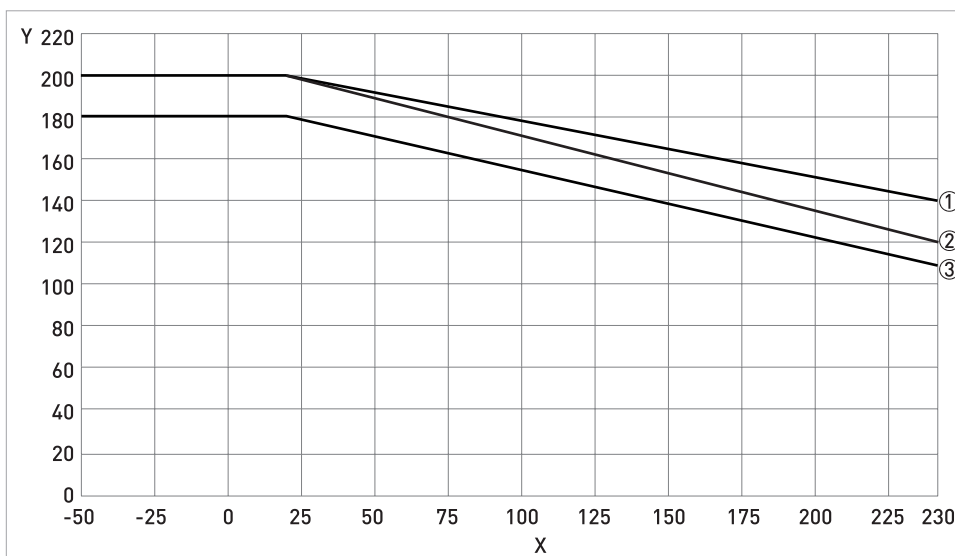
X temperature [°C]
Y pressure [barg]

Pressure / temperature de-rating (imperial) for meters with SS 316, PED certified measuring tubes. High temperature range.



X temperature [°F]
Y pressure [psig]

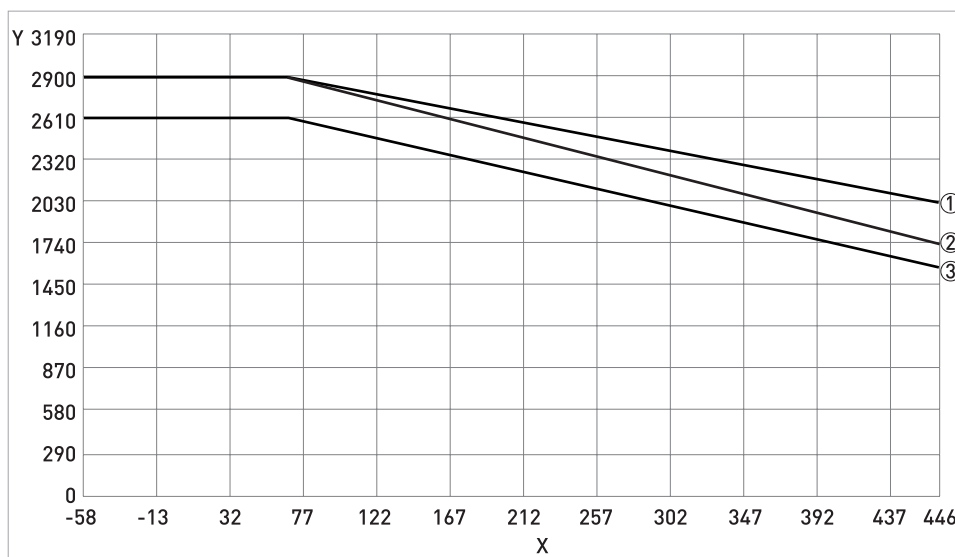
Pressure / temperature de-rating (metric) for meters with SS 31803 and Hastelloy® C22, PED certified measuring tubes. Standard temperature range



X temperature [°C]
Y pressure [barg]

- ① PED / CRN H08...80
- ② CRN D100...150
- ③ CRN D200

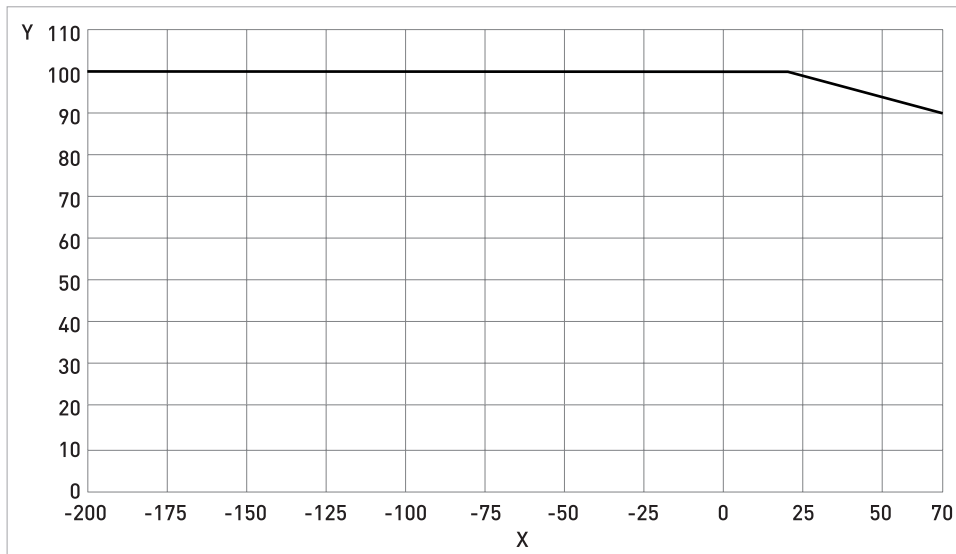
Pressure / temperature de-rating (imperial) for meters with SS 31803 and Hastelloy® C22, PED certified measuring tubes. Standard temperature range.



X temperature [°F]
Y pressure [psig]

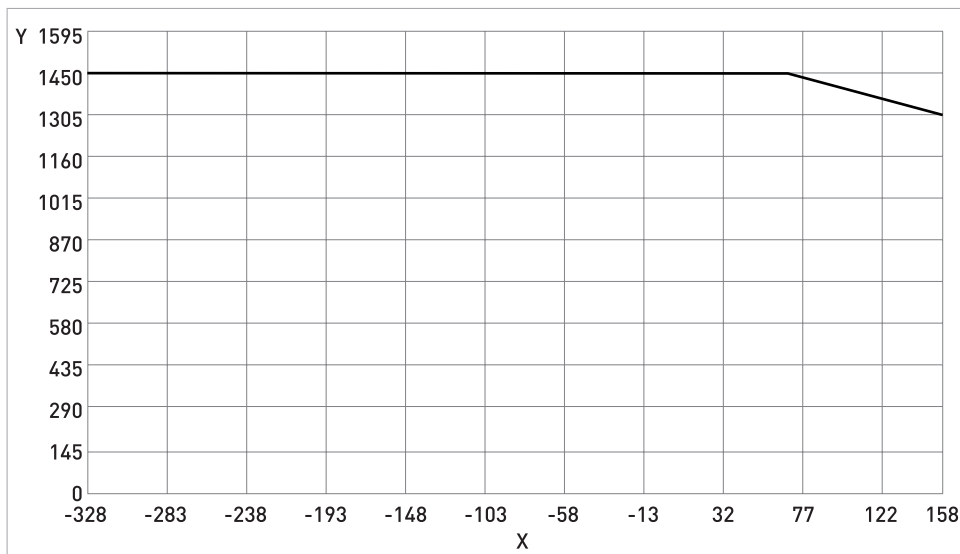
- ① PED / CRN H08...80
- ② CRN D100...150
- ③ CRN D200

Pressure / temperature de-rating (metric) for meters with SS 316, PED certified measuring tubes. Cryogenic temperature range.



X temperature [°C]
Y pressure [barg]

Pressure / temperature de-rating (imperial) for meters with SS 316 measuring tubes PED certified. Cryogenic temperature range.



X temperature [°F]
Y pressure [psig]

Flanges

- DIN flange ratings are based on EN 1092-1 2007 table G.4.1 material group 14E0
- ASME flange ratings are based on ASME B16.5 2003 table 2 material group 2.2
- JIS flange ratings are based on JIS 2220: 2001 table 1 division 1 material group 022a
- JIS 10K flanges are limited to a maximum temperature of 300°C / 572°F

Notes

- The maximum operating pressure will be either the flange rating or the measuring tube rating, **WHICHEVER IS THE LOWER!**
- The manufacturer recommends that the seals are replaced at regular intervals. This will maintain the hygienic integrity of the connection.

2.4 Dimensions and weights

2.4.1 Flanged versions

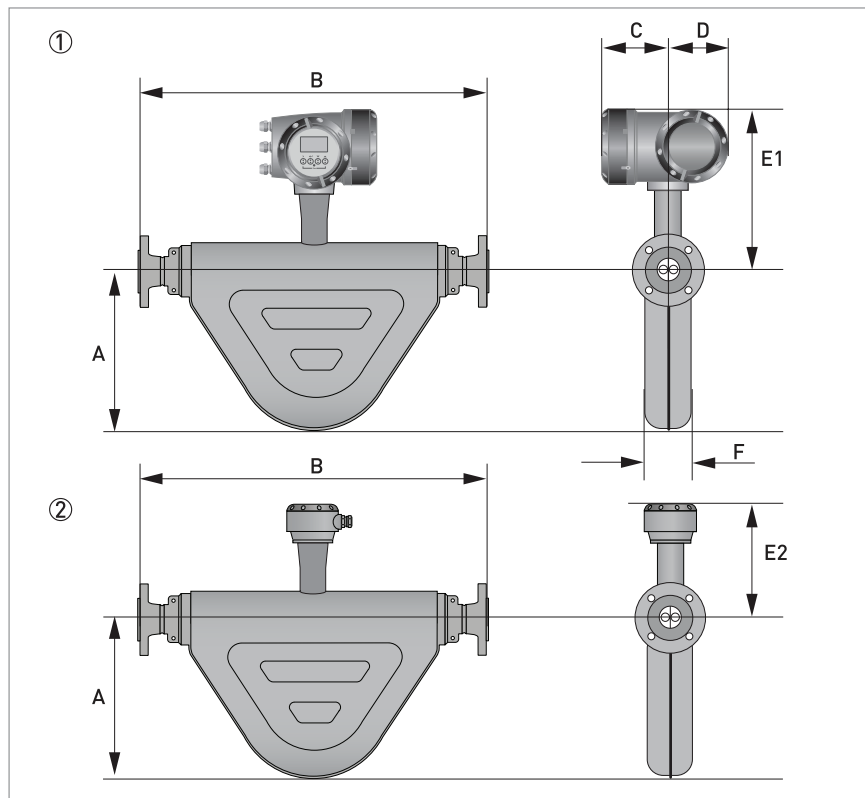
Meter weights

	kg									
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
Aluminium (compact)	9.3	10.1	12.9	23.5	29.4	58.9	94.3	193.6	443.6	911.2
Stainless Steel (compact)	15.2	16	18.8	29.4	35.3	64.8	100.2	199.5	449.5	461.3
Aluminium (remote)	5.8	6.6	9.4	19.9	25.9	55.4	90.8	190.1	440	907.6
Stainless Steel (remote)	6.5	7.35	10.1	20.65	26.6	56.1	57.6	190.8	440.7	908.3
Heating jacket add	3.1		4.5	7	7.9	12.7	15.7	27.6	N/A	

	lbs									
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
Aluminium (compact)	20.5	22.3	28.4	51.8	64.8	129.8	207.9	426.8	978	2008.8
Stainless Steel (compact)	33.5	35.3	41.4	64.8	77.8	142.9	220.9	440.7	991	1017
Aluminium (remote)	12.8	14.5	20.7	43.9	57.1	122.1	200.2	419.1	970	2001
Stainless Steel (remote)	14.3	16.2	22.3	45.5	58.6	123.7	127	420.6	971.6	2002.5
Heating jacket add	6.8		9.9	15.4	17.4	28	34.6	60.8	N/A	

The weights shown are for meters fitted with PN40 flanges. Smaller or larger flange sizes will affect the overall weight. For further information, please contact the manufacturer.

Meter dimensions



- ① Compact version
② Remote version

General dimensions

	mm									
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
A ±3	156		186	282	326	411	547	555	675	805
C	123.5									
D	137									
E1 ±3 (compact)	375		376	393		428	455	480	522	598
E2 ±3 (remote 250°C)	295		296	316		348	375	400	442	518
E2 ±3 (remote 400°C)	335		336	353		388	415	440	482	558
F ±2	81			118	130	188	243	275	355	508

	inches									
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
A ±0.11	6.14		7.3	11.1	326	12.8	21.5	21.8	26.6	31.7
C	4.9									
D	5.4									
E1 ±0.12 (compact)	14.8		14.8	15.5		16.8	17.9	18.9	20.5	23.5
E2 ±0.12 (remote 482°F)	11.6		11.6	12.4		13.7	14.8	15.7	17.4	20.4

	inches									
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
E2 ±0.12 (remote 752°F)	13.2		13.2	13.9		15.3	16.3	17.3	19	22
F ±0.08	3.2			4.6	5.1	7.4	9.6	10.8	14	20

Dimension B for meters with Stainless Steel measuring tubes

mm (±5)										
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
PN16										
DN80	-	-	-	-	-	-	970	-	-	-
DN100	-	-	-	-	-	-	1000	1154	-	-
DN150	-	-	-	-	-	-	-	1200	1572	-
DN200	-	-	-	-	-	-	-	-	1586	-
DN250	-	-	-	-	-	-	-	-	-	2010
DN300	-	-	-	-	-	-	-	-	-	2026
PN40										
DN10	335	347	-	-	-	-	-	-	-	-
DN15	341	353	510	-	-	-	-	-	-	-
DN25	-	-	514	600	-	-	-	-	-	-
DN40	-	-	-	610	709	-	-	-	-	-
DN50	-	-	-	-	715	895	-	-	-	-
DN80	-	-	-	-	-	915	986	-	-	-
DN100	-	-	-	-	-	-	1000	1180	-	-
DN150	-	-	-	-	-	-	-	1200	1612	-
DN200	-	-	-	-	-	-	-	-	1638	-
DN250	-	-	-	-	-	-	-	-	-	2080
DN300	-	-	-	-	-	-	-	-	-	2100
PN63										
DN50	-	-	-	-	743	923	-	-	-	-
DN80	-	-	-	-	-	943	1014	-	-	-
DN100	-	-	-	-	-	-	1026	1206	-	-
DN150	-	-	-	-	-	-	-	1240	1652	-
DN200	-	-	-	-	-	-	-	-	1682	-
DN250	-	-	-	-	-	-	-	-	-	2120
DN300	-	-	-	-	-	-	-	-	-	2150
PN100										
DN10	355	367	-	-	-	-	-	-	-	-
DN15	355	367	524	-	-	-	-	-	-	-
DN25	-	-	550	636	-	-	-	-	-	-
DN40	-	-	-	644	743	-	-	-	-	-
DN50	-	-	-	-	755	935	-	-	-	-
DN80	-	-	-	-	-	955	1026	-	-	-
DN100	-	-	-	-	-	-	1050	1230	-	-

mm (±5)										
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
DN150	-	-	-	-	-	-	-	1280	1692	-
DN200	-	-	-	-	-	-	-	-	1722	-
DN250	-	-	-	-	-	-	-	-	-	2184
DN300	-	-	-	-	-	-	-	-	-	2210
ASME 150										
½"	361	373	530	-	-	-	-	-	-	-
¾"	-	-	540	-	-	-	-	-	-	-
1"	-	-	546	632	-	-	-	-	-	-
1½"	-	-	-	644	743	-	-	-	-	-
2"	-	-	-	-	747	926	-	-	-	-
3"	-	-	-	-	-	939	1010	-	-	-
4"	-	-	-	-	-	-	1022	1202	-	-
6"	-	-	-	-	-	-	-	1228	1640	-
8"	-	-	-	-	-	-	-	-	1666	-
10"	-	-	-	-	-	-	-	-	-	2074
12"	-	-	-	-	-	-	-	-	-	2100
ASME 300										
½"	371	383	540	-	-	-	-	-	-	-
¾"	-	-	550	-	-	-	-	-	-	-
1"	-	-	558	644	-	-	-	-	-	-
1½"	-	-	-	658	757	-	-	-	-	-
2"	-	-	-	-	759	939	-	-	-	-
3"	-	-	-	-	-	957	1028	-	-	-
4"	-	-	-	-	-	-	1042	1222	-	-
6"	-	-	-	-	-	-	-	1246	1658	-
8"	-	-	-	-	-	-	-	-	1686	-
10"	-	-	-	-	-	-	-	-	-	2106
12"	-	-	-	-	-	-	-	-	-	2132
ASME 600										
½"	383	395	552	-	-	-	-	-	-	-
¾"	-	-	562	-	-	-	-	-	-	-
1"	-	-	572	658	-	-	-	-	-	-
1½"	-	-	-	674	778	-	-	-	-	-
2"	-	-	-	-	779	959	-	-	-	-
3"	-	-	-	-	-	977	1048	-	-	-
4"	-	-	-	-	-	-	1086	1266	-	-
6"	-	-	-	-	-	-	-	1298	1710	-
8"	-	-	-	-	-	-	-	-	1742	-
10"	-	-	-	-	-	-	-	-	-	2186
12"	-	-	-	-	-	-	-	-	-	2194

mm (± 5)										
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
JIS 10K										
50A	-	-	-	-	715	895	-	-	-	-
80A	-	-	-	-	-	915	986	-	-	-
100A	-	-	-	-	-	-	1022	1202	-	-
150A	-	-	-	-	-	-	-	1202	1652	-
200A	-	-	-	-	-	-	-	-	1666	-
250A	-	-	-	-	-	-	-	-	-	2106
300A	-	-	-	-	-	-	-	-	-	2124
JIS 20K										
10A	341	353	-	-	-	-	-	-	-	-
15A	341	353	510	-	-	-	-	-	-	-
25A	-	-	514	600	-	-	-	-	-	-
40A	-	-	-	610	709	-	-	-	-	-
50A	-	-	-	-	715	895	-	-	-	-
80A	-	-	-	-	-	915	986	-	-	-
100A	-	-	-	-	-	-	1022	1240	-	-
150A	-	-	-	-	-	-	-	1240	1652	-
200A	-	-	-	-	-	-	-	-	1666	-
250A	-	-	-	-	-	-	-	-	-	2106
300A	-	-	-	-	-	-	-	-	-	2124

inches (± 0.2)										
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
PN16										
DN80	-	-	-	-	-	-	38.2	-	-	-
DN100	-	-	-	-	-	-	39.3	45.4	-	-
DN150	-	-	-	-	-	-	-	47.2	61.9	-
DN200	-	-	-	-	-	-	-	-	62.4	-
DN250	-	-	-	-	-	-	-	-	-	82.7
DN300	-	-	-	-	-	-	-	-	-	79.8
PN40										
DN10	13.2	13.7	-	-	-	-	-	-	-	-
DN15	13.4	13.9	20.1	-	-	-	-	-	-	-
DN25	-	-	20.2	23.6	-	-	-	-	-	-
DN40	-	-	-	24	27.9	-	-	-	-	-
DN50	-	-	-	-	28.1	35.2	-	-	-	-
DN80	-	-	-	-	-	36	38.8	-	-	-
DN100	-	-	-	-	-	-	39.4	46.4	-	-
DN150	-	-	-	-	-	-	-	47.2	63.5	-
DN200	-	-	-	-	-	-	-	-	64.5	-

inches (± 0.2)										
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
DN250	-	-	-	-	-	-	-	-	-	81.9
DN300	-	-	-	-	-	-	-	-	-	82.7
PN63										
DN50	-	-	-	-	29.2	36.3	-	-	-	-
DN80	-	-	-	-	-	37.1	39.9	-	-	-
DN100	-	-	-	-	-	-	40.4	47.5	-	-
DN150	-	-	-	-	-	-	-	48.8	65	-
DN200	-	-	-	-	-	-	-	-	66.2	-
DN250	-	-	-	-	-	-	-	-	-	83.5
DN300	-	-	-	-	-	-	-	-	-	84.6
PN100										
DN10	14	14.4	-	-	-	-	-	-	-	-
DN15	14	14.4	20.6	-	-	-	-	-	-	-
DN25	-	-	21.6	25	-	-	-	-	-	-
DN40	-	-	-	25.3	29.2	-	-	-	-	-
DN50	-	-	-	-	29.7	36.8	-	-	-	-
DN80	-	-	-	-	-	37.6	40.4	-	-	-
DN100	-	-	-	-	-	-	41.3	48.4	-	-
DN150	-	-	-	-	-	-	-	50.4	66.6	-
DN200	-	-	-	-	-	-	-	-	67.8	-
DN250	-	-	-	-	-	-	-	-	-	85.9
DN300	-	-	-	-	-	-	-	-	-	87
ASME 150										
½"	14.2	14.7	20.9	-	-	-	-	-	-	-
¾"	-	-	21.2	-	-	-	-	-	-	-
1"	-	-	21.5	24.9	-	-	-	-	-	-
1½"	-	-	-	25.3	29.2	-	-	-	-	-
2"	-	-	-	-	29.4	36.5	-	-	-	-
3"	-	-	-	-	-	37	39.8	-	-	-
4"	-	-	-	-	-	-	40.2	47.3	-	-
6"	-	-	-	-	-	-	-	48.3	64.6	-
8"	-	-	-	-	-	-	-	-	65.6	-
10"	-	-	-	-	-	-	-	-	-	81.6
12"	-	-	-	-	-	-	-	-	-	82.7
ASME 300										
½"	14.6	15.1	21.2	-	-	-	-	-	-	-
¾"	-	-	21.6	-	-	-	-	-	-	-
1"	-	-	22	25.3	-	-	-	-	-	-
1½"	-	-	-	25.9	29.8	-	-	-	-	-
2"	-	-	-	-	30	37	-	-	-	-
3"	-	-	-	-	-	37.7	40.5	-	-	-

inches (± 0.2)										
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
4"	-	-	-	-	-	-	41	48.1	-	-
6"	-	-	-	-	-	-	-	49	65.3	-
8"	-	-	-	-	-	-	-	-	66.4	-
10"	-	-	-	-	-	-	-	-	-	82.9
12"	-	-	-	-	-	-	-	-	-	83.9
ASME 600										
½"	15.1	15.5	21.7	-	-	-	-	-	-	-
¾"	-	-	22.1	-	-	-	-	-	-	-
1"	-	-	22.5	25.9	-	-	-	-	-	-
1½"	-	-	-	26.5	30.4	-	-	-	-	-
2"	-	-	-	-	30.7	37.7	-	-	-	-
3"	-	-	-	-	-	38.5	41.2	-	-	-
4"	-	-	-	-	-	-	42.8	49.8	-	-
6"	-	-	-	-	-	-	-	51.1	67.3	-
8"	-	-	-	-	-	-	-	-	68.6	-
10"	-	-	-	-	-	-	-	-	-	86
12"	-	-	-	-	-	-	-	-	-	86.4
JIS 10K										
50A	-	-	-	-	28.2	35.2	-	-	-	-
80A	-	-	-	-	-	36	38.8	-	-	-
100A	-	-	-	-	-	-	40.2	47.3	-	-
150A	-	-	-	-	-	-	-	47.3	65	-
200A	-	-	-	-	-	-	-	-	65.5	-
250A	-	-	-	-	-	-	-	-	-	82.9
300A	-	-	-	-	-	-	-	-	-	83.6
JIS 20K										
10A	13.4	13.9	-	-	-	-	-	-	-	-
15A	13.4	13.9	20	-	-	-	-	-	-	-
25A	-	-	20.2	23.6	-	-	-	-	-	-
40A	-	-	-	24	27.9	-	-	-	-	-
50A	-	-	-	-	28.2	35.2	-	-	-	-
80A	-	-	-	-	-	36	38.8	-	-	-
100A	-	-	-	-	-	-	40.2	48.8	-	-
150A	-	-	-	-	-	-	-	48.8	65	-
200A	-	-	-	-	-	-	-	-	62.6	-
250A	-	-	-	-	-	-	-	-	-	82.9
300A	-	-	-	-	-	-	-	-	-	83.6

Dimension B for meters with Hastelloy® and Stainless Steel (UNS S31803) measuring tubes

mm									
	H08	H10	H15	H25	H50	H80	D100	D150	D200
PN40									
DN15	328	353	-	-	-	-	-	-	-
DN25	-	-	510	-	-	-	-	-	-
DN40	-	-	-	600	-	-	-	-	-
DN50	-	-	-	-	715	-	-	-	-
DN80	-	-	-	-	-	915	-	-	-
PN63									
DN50	-	-	-	-	715	-	-	-	-
DN80	-	-	-	-	-	915	-	-	-
PN100									
DN15	328	353	-	-	-	-	-	-	-
DN25	-	-	510	-	-	-	-	-	-
DN40	-	-	-	600	-	-	-	-	-
DN50	-	-	-	-	715	-	-	-	-
DN80	-	-	-	-	-	915	-	-	-
PN160									
DN15	328	353	-	-	-	-	-	-	-
DN25	-	-	510	-	-	-	-	-	-
DN40	-	-	-	600	-	-	-	-	-
DN50	-	-	-	-	715	-	-	-	-
DN80	-	-	-	-	-	915	1042	-	-
DN100	-	-	-	-	-	-	1070	1250	-
DN150	-	-	-	-	-	-	-	1306	1718
DN200	-	-	-	-	-	-	-	-	1742
ASME 150									
½"	328	353	-	-	-	-	-	-	-
1"	-	-	510	-	-	-	-	-	-
1½"	-	-	-	600	-	-	-	-	-
2"	-	-	-	-	715	-	-	-	-
3"	-	-	-	-	-	915	-	-	-
ASME 300									
½"	328	353	-	-	-	-	-	-	-
1"	-	-	510	-	-	-	-	-	-
1½"	-	-	-	600	-	-	-	-	-
2"	-	-	-	-	715	-	-	-	-
3"	-	-	-	-	-	915	-	-	-
ASME 600									
½"	328	353	-	-	-	-	-	-	-
1"	-	-	510	-	-	-	-	-	-
1½"	-	-	-	600	-	-	-	-	-

mm									
	H08	H10	H15	H25	H50	H80	D100	D150	D200
2"	-	-	-	-	715	-	-	-	-
3"	-	-	-	-	-	915	-	-	-
ASME 900									
1½"	-	-	-	600	-	-	-	-	-
2"	-	-	-	-	715	-	-	-	-
3"	-	-	-	-	-	915	1086	-	-
4"	-	-	-	-	-	-	1112	1292	-
6"	-	-	-	-	-	-	-	1342	1754
8"	-	-	-	-	-	-	-	-	1798
ASME 1500									
½"	328	353	-	-	-	-	-	-	-
1"	-	-	510	-	-	-	-	-	-
1½"	-	-	-	600	-	-	-	-	-
2"	-	-	-	-	715	-	-	-	-
3"	-	-	-	-	-	915	1118	-	-
4"	-	-	-	-	-	-	1130	1310	-
6"	-	-	-	-	-	-	-	1406	1818
8"	-	-	-	-	-	-	-	-	1900
JIS 10K									
50A	-	-	-	-	715	-	-	-	-
80A	-	-	-	-	-	915	-	-	-
JIS 20K									
15A	328	353	-	-	-	-	-	-	-
25A	-	-	510	-	-	-	-	-	-
40A	-	-	-	600	-	-	-	-	-
50A	-	-	-	-	715	-	-	-	-
80A	-	-	-	-	-	915	-	-	-

inches									
	H08	H10	H15	H25	H50	H80	D100	D150	D200
PN40									
DN15	12.9	13.9	-	-	-	-	-	-	-
DN25	-	-	20.1	-	-	-	-	-	-
DN40	-	-	-	23.6	-	-	-	-	-
DN50	-	-	-	-	28.1	-	-	-	-
DN80	-	-	-	-	-	36	-	-	-
PN63									
DN50	-	-	-	-	28.1	-	-	-	-
DN80	-	-	-	-	-	36	-	-	-

inches									
	H08	H10	H15	H25	H50	H80	D100	D150	D200
PN100									
DN15	12.9	13.9	-	-	-	-	-	-	-
DN25	-	-	20.1	-	-	-	-	-	-
DN40	-	-	-	23.6	-	-	-	-	-
DN50	-	-	-	-	28.1	-	-	-	-
DN80	-	-	-	-	-	36	-	-	-
PN160									
DN15	12.9	13.9	-	-	-	-	-	-	-
DN25	-	-	20.1	-	-	-	-	-	-
DN40	-	-	-	23.6	-	-	-	-	-
DN50	-	-	-	-	28.1	-	-	-	-
DN80	-	-	-	-	-	36	41	-	-
DN100	-	-	-	-	-	-	42.1	49.2	-
DN150	-	-	-	-	-	-	-	51.4	67.6
DN200	-	-	-	-	-	-	-	-	68.6
ASME 150									
½"	12.9	13.9	-	-	-	-	-	-	-
1"	-	-	20.1	-	-	-	-	-	-
1½"	-	-	-	23.6	-	-	-	-	-
2"	-	-	-	-	28.1	-	-	-	-
3"	-	-	-	-	-	36	-	-	-
ASME 300									
½"	12.9	13.9	-	-	-	-	-	-	-
1"	-	-	20.1	-	-	-	-	-	-
1½"	-	-	-	23.6	-	-	-	-	-
2"	-	-	-	-	28.1	-	-	-	-
3"	-	-	-	-	-	36	-	-	-
ASME 600									
½"	12.9	13.9	-	-	-	-	-	-	-
1"	-	-	20.1	-	-	-	-	-	-
1½"	-	-	-	23.6	-	-	-	-	-
2"	-	-	-	-	28.1	-	-	-	-
3"	-	-	-	-	-	36	-	-	-
ASME 900									
1½"	-	-	-	23.6	-	-	-	-	-
2"	-	-	-	-	28.1	-	-	-	-
3"	-	-	-	-	-	36	42.7	-	-
4"	-	-	-	-	-	-	43.7	50.9	-
6"	-	-	-	-	-	-	-	52.7	69
8"	-	-	-	-	-	-	-	-	70.8

inches									
	H08	H10	H15	H25	H50	H80	D100	D150	D200
ASME 1500									
½"	12.9	13.9	-	-	-	-	-	-	-
1"	-	-	20.1	-	-	-	-	-	-
1½"	-	-	-	23.6	-	-	-	-	-
2"	-	-	-	-	28.1	-	-	-	-
3"	-	-	-	-	-	36	44	-	-
4"	-	-	-	-	-	-	44.5	51.6	-
6"	-	-	-	-	-	-	-	55.3	71.6
8"	-	-	-	-	-	-	-	-	74.8
JIS 10K									
50A	-	-	-	-	28.1	-	-	-	-
80A	-	-	-	-	-	36	-	-	-
JIS 20K									
15A	12.9	13.9	-	-	-	-	-	-	-
25A	-	-	20.1	-	-	-	-	-	-
40A	-	-	-	23.6	-	-	-	-	-
50A	-	-	-	-	28.1	-	-	-	-
80A	-	-	-	-	-	36	-	-	-

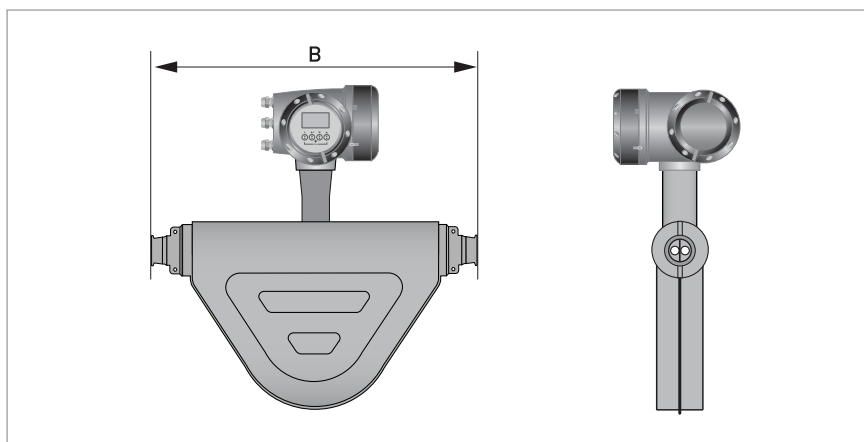
2.4.2 NAMUR dimensions

The following face to face dimensions comply with NAMUR NE132

mm (± 3)							
	S15	S25	S50	S80	S100	S150	S250
PN10							
DN250	-	-	-	-	-	-	2100
PN16							
DN100	-	-	-	-	1000	-	-
DN150	-	-	-	-	-	1200	-
DN200	-	-	-	-	-	-	2100
PN40							
DN 15	510	-	-	-	-	-	-
DN 25	-	600	-	-	-	-	-
DN 50	-	-	715	-	-	-	-
DN 80	-	-	-	915	-	-	-

inches (± 0.12)							
	S15	S25	S50	S80	S100	S150	S250
PN10							
DN250	-	-	-	-	-	-	82.7
PN16							
DN100	-	-	-	-	39.4	-	-
DN150	-	-	-	-	-	47.2	-
DN200	-	-	-	-	-	-	82.7
PN40							
DN 15	20.1	-	-	-	-	-	-
DN 25	-	23.6	-	-	-	-	-
DN 50	-	-	28.1	-	-	-	-
DN 80	-	-	-	36	-	-	-

2.4.3 Hygienic versions



Dimension B for meters with Stainless Steel measuring tubes

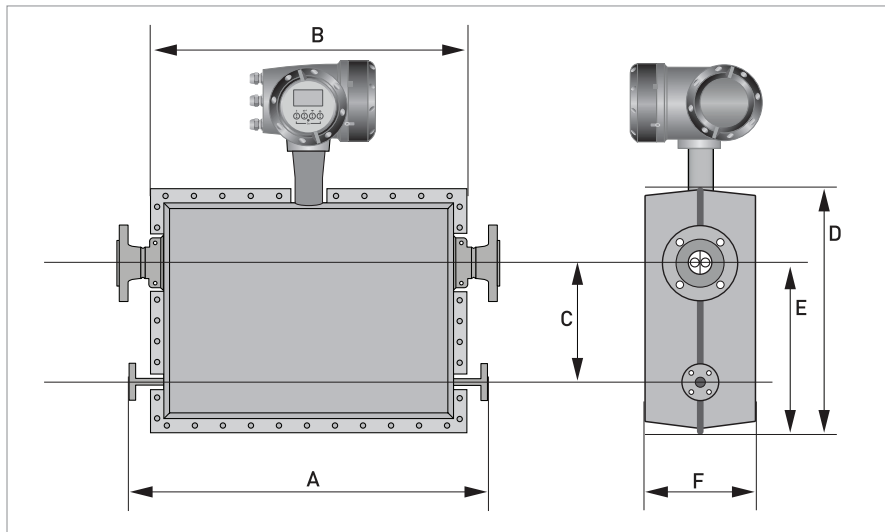
	mm (±5)					
	S08	S10	S15	S25	S50	S80
Tri-clover						
½"	308	320	-	-	-	-
1"	-	-	477	-	-	-
1½"	-	-	-	563	-	-
2"	-	-	-	-	662	-
3"	-	-	-	-	-	842
Tri-clamp DIN 32676						
DN15	301	313	-	-	-	-
DN25	-	-	477	-	-	-
DN40	-	-	-	563	-	-
DN50	-	-	-	-	662	-
DN80	-	-	-	-	-	855
Tri-clamp ISO 2852						
1"	-	-	483	-	-	-
1½"	-	-	-	569	-	-
2"	-	-	-	-	668	-
3"	-	-	-	-	-	848
DIN 11864-2 Form A (female)						
DN15	345	357	-	-	-	-
DN25	-	-	514	-	-	-
DN40	-	-	-	610	-	-
DN50	-	-	-	-	709	-
DN80	-	-	-	-	-	915
Male thread DIN 11851						
DN15	307	319	-	-	-	-
DN25	-	-	492	-	-	-

	mm (±5)					
	S08	S10	S15	S25	S50	S80
DN40	-	-	-	586	-	-
DN50	-	-	-	-	689	-
DN80	-	-	-	-	-	889
Male thread SMS						
1"	-	-	464	-	-	-
1½"	-	-	-	566	-	-
2"	-	-	-	-	665	-
3"	-	-	-	-	-	847

	inches (±0.2)					
	S08	S10	S15	S25	S50	S80
Tri-clover						
½"	12.1	12.6	-	-	-	-
1"	-	-	18.8	-	-	-
1½"	-	-	-	22.2	-	-
2"	-	-	-	-	26	-
3"	-	-	-	-	-	33.1
Tri-clamp DIN 32676						
DN15	11.8	12.3	-	-	-	-
DN25	-	-	18.8	-	-	-
DN40	-	-	-	22.2	-	-
DN50	-	-	-	-	26	-
DN80	-	-	-	-	-	33.7
Tri-clamp ISO 2852						
1"	-	-	19	-	-	-
1½"	-	-	-	22.4	-	-
2"	-	-	-	-	26.3	-
3"	-	-	-	-	-	33.4
DIN 11864-2 Form A (female)						
DN15	13.6	14	-	-	-	-
DN25	-	-	20.2	-	-	-
DN40	-	-	-	24	-	-
DN50	-	-	-	-	27.9	-
DN80	-	-	-	-	-	36
Male thread DIN 11851						
DN15	12	12.5	-	-	-	-
DN25	-	-	19.4	-	-	-
DN40	-	-	-	23	-	-
DN50	-	-	-	-	27.1	-
DN80	-	-	-	-	-	35

	inches (± 0.2)					
	S08	S10	S15	S25	S50	S80
Male thread SMS						
1"	-	-	18.3	-	-	-
1½"	-	-	-	22.3	-	-
2"	-	-	-	-	26.2	-
3"	-	-	-	-	-	33.3

2.4.4 Heating jacket version

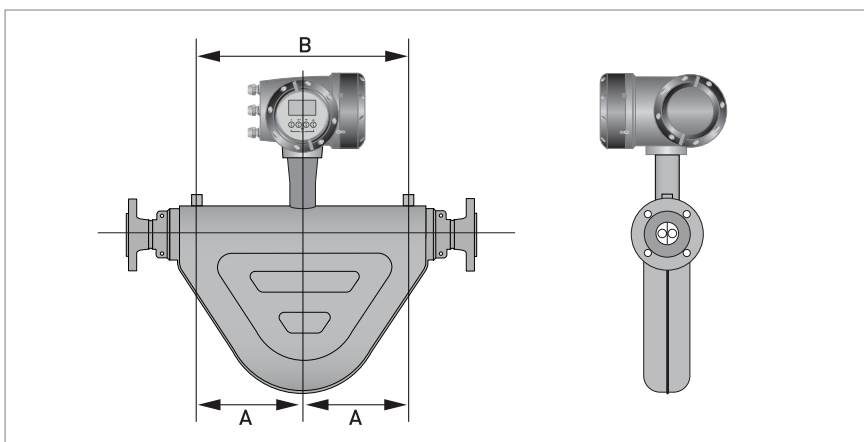


General dimensions

	mm									
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
Heating connection size: PN40 DN15 or ASME 150 ½"										
A ±5.0	435	590	692	715	891	956	1139	TBA	TBA	
B ±3.0	283	440	542	565	741	806	989	TBA	TBA	
C ±3.0	100	130	210	230	320	340	450	TBA	TBA	
D ±3.0	315	344	453	499	622	682	844	TBA	TBA	
E ±3.0	198	221	316	356	451	486	617	TBA	TBA	
F ±3.0	232	226	254	266	322	372	428	TBA	TBA	

	inches									
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
Heating connection size: PN40 DN15 or ASME 150 ½"										
A ±0.2	17.1	23.2	27.2	28.1	35.1	37.6	44.8	TBA	TBA	
B ±0.12	11.1	17.3	21.3	22.2	29.2	31.7	38.9	TBA	TBA	
C ±0.12	3.9	5.1	8.3	9	12.6	13.4	17.7	TBA	TBA	
D ±0.12	12.4	13.5	17.8	19.6	24.5	26.8	33.2	TBA	TBA	
E ±0.12	7.8	8.7	12.4	14	17.7	19.1	24.3	TBA	TBA	
F ±0.12	9.1	8.9	10	10.5	12.7	14.6	16.8	TBA	TBA	

2.4.5 Purge port option



Dimensions

	mm									
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
A	80		150	200	215	300	305	380	600	800
B	160		300	400	430	600	610	720	1200	1600

	inches									
	S08	S10	S15	S25	S50	S80	S100	S150	S200	S250
A	3.1		5.9	7.9	8.5	11.8	12	15	23.6	31.5
B	6.3		11.8	15.7	16.9	23.6	24	28.3	47.2	63

3.1 Intended use

This mass flowmeter is designed for the direct measurement of mass flow rate, product density and product temperature. Indirectly, it also enables the measurement of parameters like total mass, concentration of dissolved substances and the volume flow. For use in hazardous areas, special codes and regulations are also applicable and these are specified in a separate documentation.

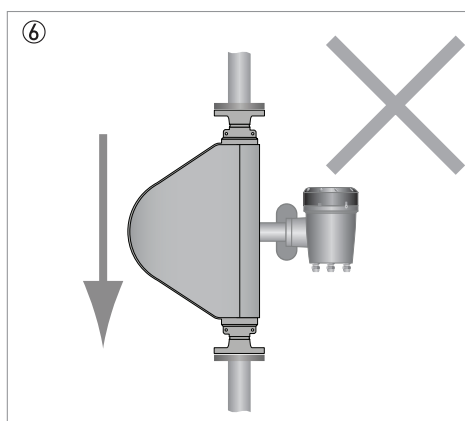
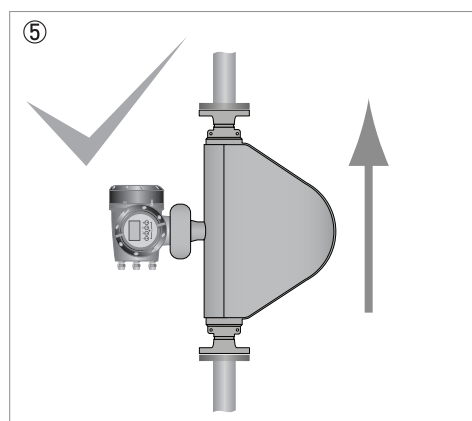
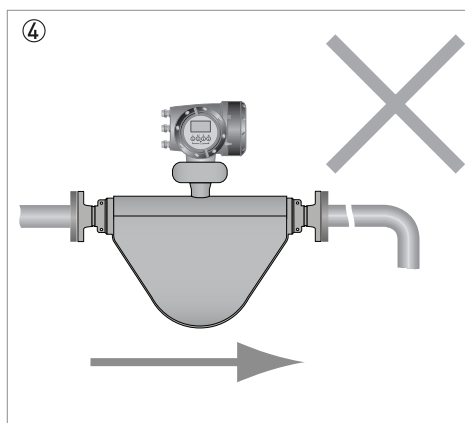
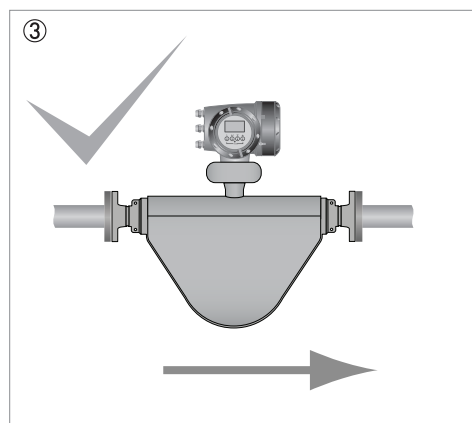
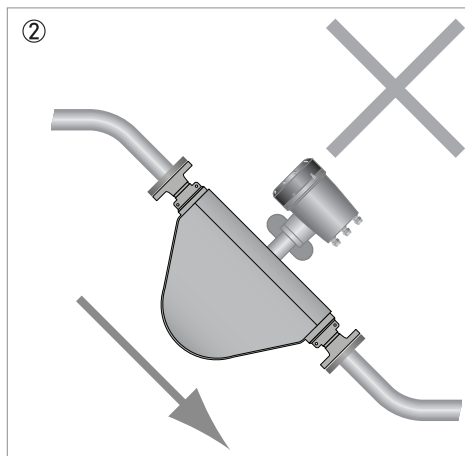
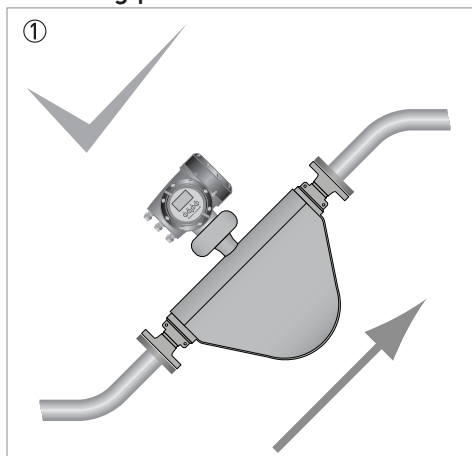
3.2 Mounting restrictions

3.2.1 General installation principles

There are no special installation requirements but you should note the following points:

- Support the weight of the meter as close to the meter body as possible.
- Mount the meter in such a way to avoid the build up of gas or liquid in the measuring tube.
- No straight runs are required.
- The use of reducers and other fittings at flanges, including flexible hoses, is allowed but you should take care to avoid cavitation.
- Avoid extreme pipe size reductions.
- Meters are not affected by crosstalk and can be mounted in series or in parallel.
- Avoid mounting the meter at the highest point in the pipeline where air / gas can collect.

Mounting positions



- ① The meter can be mounted at an angle but it is recommended that the flow is uphill.
- ② Avoid mounting the meter with the flow running downhill because it can cause siphoning. If the meter has to be mounted with the flow running downhill, install an orifice plate or control valve downstream of the meter to maintain backpressure.
- ③ Horizontal mounting with flow running left to right.
- ④ Avoid mounting meter with long vertical runs after the meter as it can cause cavitation. Where the installation includes a vertical run after the meter, install an orifice plate or control valve downstream to maintain backpressure.
- ⑤ The meter can be mounted vertically but it is recommended that the flow is uphill.
- ⑥ Avoid mounting the meter vertically with the flow running downhill. This can cause siphoning. If the meter has to be installed this way, install an orifice plate or control valve downstream to maintain backpressure.

Comprehensive installation guidance is provided in the Handbook

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!

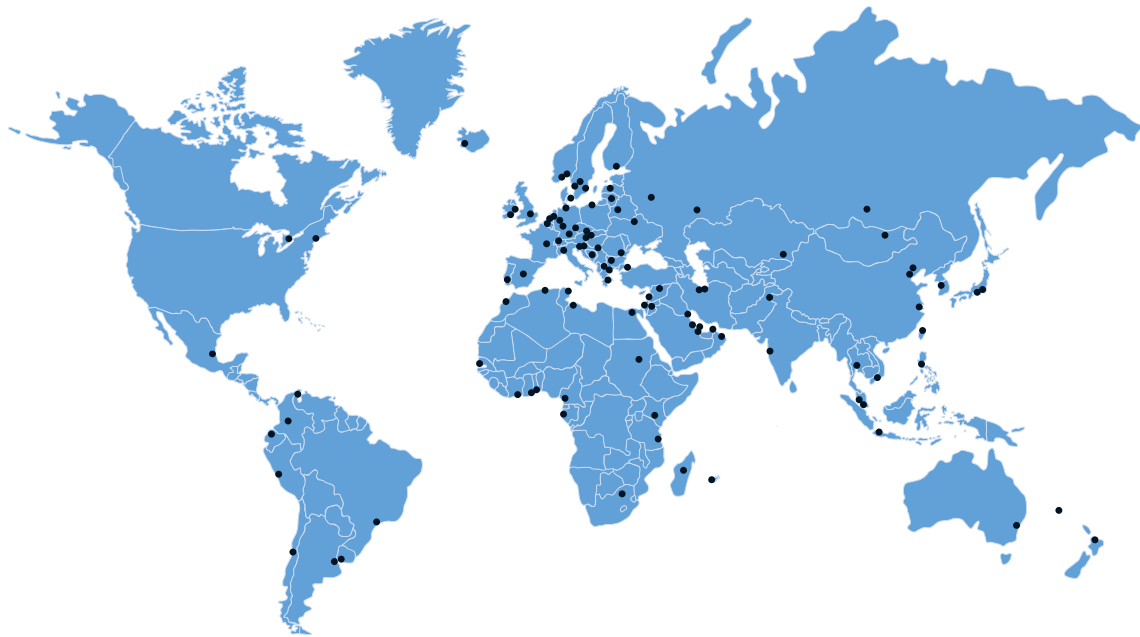
For devices used in hazardous areas, additional safety notes apply; please refer to the Ex documentation.

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 Electrical and I/O connections

For information regarding electrical and I/O connections, please refer to the handbook for the relevant signal converter.



KROHNE product overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Ultrasonic flowmeters
- Mass flowmeters
- Vortex flowmeters
- Flow controllers
- Level meters
- Temperature meters
- Pressure meters
- Analysis products
- Products and systems for the oil & gas industry
- Measuring systems for the marine industry

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