

ABB MEASUREMENT & ANALYTICS | DATA SHEET | DS/FEX620-EN REV. D

ProcessMaster

FER620, FET620 and FEW620

ENGINEERED
TO OUTFIT



Redefining Electromagnetic Flow- Meters

Seamlessly merging high performance, modularity and IOT connectivity

ABB common look and feel

- Easy set-up function
- Simple and intuitive configuration
- Backlit, integrated four-direction rotatable LCD display
- Configurable display pages

Sensor Memory technology

- Secure storage of calibration — and application — specific data
- Quick change-out of transmitter without reprogramming

Verification and online diagnostic

- Easy to check based on fingerprint technology — the reference signature of the device
- Service interval monitoring. Message at end of service interval
- Function and simulation routines for all outputs

Easy-to-understand diagnostic messages

- Continuous monitoring of sensor and transmitter integrity and process conditions
- Text in help menu in response to diagnostic results for fast and efficient error handling

One single transmitter fits all design types

- Integral mount design or remote mount design
- Universal AC/DC power supply

Easily customizable output signals

- One HART®/4 to 20 mA current output
- Two fully configurable digital output cumulant and alarm status
- Optional MODBUS® module for rich outputs

Features and functions

On-board health check

ProcessMaster's in-built fingerprint technology helps to ensure integrity without the need to remove the flowmeter from the process. The check provides a pass/fail result based on a comparison of the current flowmeter status to a set of reference data.

Benefits:

- Easy to operate
- No additional equipment required
- No training necessary
- Quick check of flowmeter integrity

Diagnostics for real-life situations

Detecting critical process conditions at an early stage helps reduce unscheduled downtime and maintenance. Clear text messages simplify troubleshooting.

Device diagnostic information can be accessed without any intervention — either through the HMI or bus communication.

Benefits:

- Peace-of mind that flowmeter is operating within its specification
- Prioritized alarms to correct most important alarm first

Verify the Installation is correct — from day one

Improving quality and reducing cost can be a challenge if the flow measurement is unstable. A proper grounding is fundamental to an accurate electromagnetic flow measurement. ProcessMaster's in-built noise/grounding check helps getting the wiring/grounding right from day one without the need for further tools.

Overview - models



Figure 1 Designs

Flowmeter sensor	
Model	ProcessMaster FEW621, FEW622, FET622, FER621, FER622
Housing	Integral mount design, remote mount design
Measuring accuracy for liquids	0.4% of the measured value, option for 0.3%/±2mm/s, 0.2%/±2mm/s, and MCERT CL1 of the measured value
Permissible measuring medium temperature T medium	-5 to 80°C (-4 to 176 °F)
Minimum conductivity	>20 µS/cm (20 µS/cm for demineralized water)
Nominal pressure rating	PN 10 to 40; ASME CL 150, 300; JIS 10K AS4087 PN16+35, AS2129 tab D+E, AWWA C207 CL B+D+E+F
Nominal diameter	FEW DN 25 to 3000 FER from DN40-DN600*
Process connection	Flange according to DIN, ASME, JIS
Process connection material	Steel, stainless steel
Liner material	Rubber (FEW DN 25 to 3000) Elastomer (FER DN40 to DN600)*
Electrode material	Alloy C-4, Alloy C-22, Stainless steel 316L(1.4571), Stainless steel 316Ti(1.4571), Super Austenitic Steel
IP rating	Integral mount design: IP66/67 Remote mount design: IP66/IP67/IP68 (sensor only)

Approvals

Further approvals	At www.abb.com/flow or on request
-------------------	---

Transmitter

Model	FET622
Housing	Remote mount design
IP rating	IP66/IP67
Cable length	Maximum 200 m (656 ft), remote mount design only
Power supply	100 to 240 V AC (-15/+10 %), 24 to 48 V DC (-10 %/+10 %)
Outputs	HART: 4 to 20 mA, active Digital output 1: passive, configurable as pulse, frequency or switch output formatting Digital output 2: passive, configurable as pulse or switch output Optional MODBUS RTU output module RS485, two sets of terminals
Communication	HART 7.9 Option: Modbus RTU
Local display	Configurable graphical display

Approvals

Further approvals	At www.abb.com/flow or on request
-------------------	---

*DN350 to DN600 in preparation

Measuring principle

Measurements performed by the electromagnetic flowmeter are based on Faraday’s law of induction. A voltage is generated in a conductor when it moves through a magnetic field.

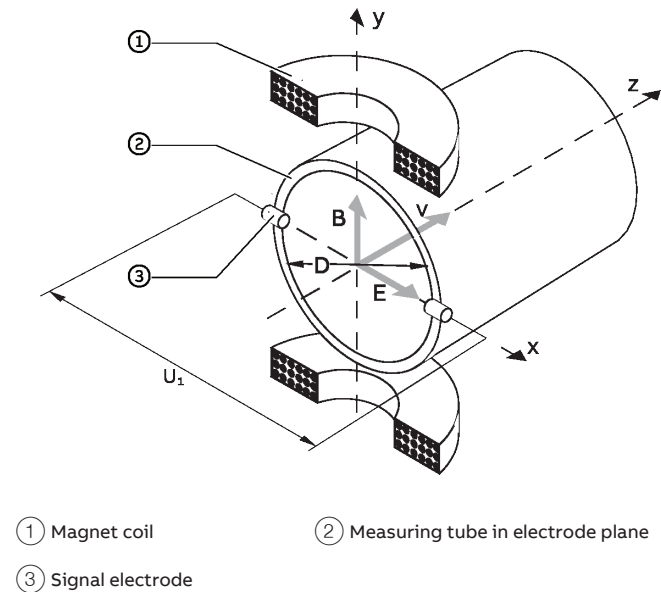


Figure 2 Electromagnetic flowmeter schematic

$$U_1 \sim B \times D \times v$$

U_1 Signal voltage

$$qv = \frac{D^2 \times \pi}{4} \times v$$

qv Average flow velocity

$$U_1 \sim qv$$

v Volume flow

D Electrode spacing

This principle is applied to a conductive fluid in the measuring tube through which a magnetic field is generated perpendicular to the flow direction (see Figure 2). The voltage induced in the fluid is measured by two electrodes located diametrically opposite each other. This signal voltage is proportional to the magnetic induction, the electrode spacing and the average flow velocity. Considering that the magnetic induction and the electrode spacing are constant values, a proportionality exists between the signal voltage U_1 and the average flow velocity. From the equation for calculating the volume flowrate, it follows that the signal voltage is linearly proportional to the volume flowrate. The induced voltage is converted by the transmitter to standardized, analog and digital signals.

Flowmeter sensor

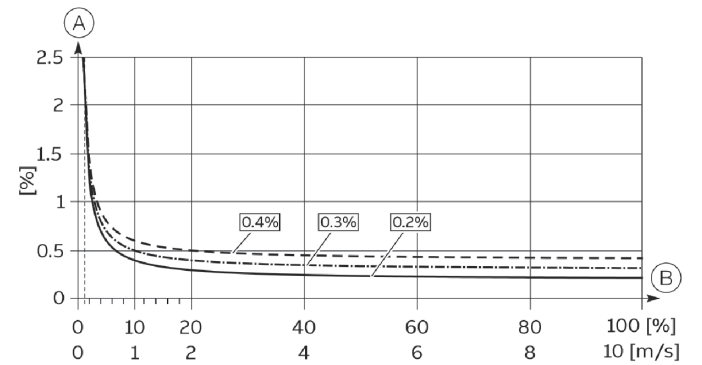
Measuring accuracy

Reference conditions

According to EN 29104	
Measuring medium temperature	20 °C (68 °F) ±2 K
Ambient temperature	20 °C (68 °F) ±2 K
Power supply	Nominal voltage according to name plate U = ±1 %, frequency f = ±1 %
Warm-up phase	30 min

Measuring error and repeatability

Measuring error



A Accuracy ± of measured value in %
B Flow velocity v in m/s, Q / Q_{max} DN in %

Figure 3 Measuring error

Pulse Outputs
±0.4 % of measured value, ±2 mm/s
Optional 0.4% of measured value, +/- 1mm/s, 0.3% +/- 2mm/s ; 0.2% +/- 2mm/s ²⁾
Optional MCERTS Class1 ³⁾

- 1) DN700 and above 0.4% +/- 4 mm/s
- 2) DN600 and below PAC (Pattern Approval of China)
- 3) Certification link



Repeatability, response time

Repeatability	≤ 0.11 % of measured value, t _{meas} = 100 s, v = 0.5 to 10 m/s
Response time1)	As step function 0 to 99 % 5τ ≥ 200 ms at 25 Hz excitation frequency 5τ ≥ 400 ms at 12.5 Hz excitation frequency 5τ ≥ 500 ms at 6.25 Hz excitation frequency

1) Of current output with damping of 0.04 seconds.

Permitted pipe vibration

In accordance with EN 60068-2-6.

Applicable to sensors in remote mount design and sensors in integral mount design.

- Maximum deflection: 0.15 mm (0.006 in) in the 10 to 58 Hz range
- Maximum acceleration: 2 g, in the 58 to 150 Hz range

IP rating

- IP66/67 in accordance with EN 60529
- IP 68 in accordance with EN 60529 (for remote mount design only)
- Test conditions for IP68 to EN60529:
Continuous submergence for 14 days (2 weeks) at 7 m (23 ft) depth

Temperature data

Storage temperature range
-40 to 70°C (-40 to 158 °F)

The temperature range offered by the device is dependent on a number of different factors.

These factors include the measuring medium temperature T_{medium}, the ambient temperature T_{amb}, the operating pressure P_{medium}, the liner material and the approvals for the explosion protection.

Signal cable length and preamplifier

A preamplifier is required for cables > 50 m (164 ft). Maximum signal cable length between flowmeter sensor and transmitter

Preamplifier	Signal cable length
Without	Max. 50 m (164 ft)
With	Max. 200 m (656 ft)

FEW620 Sensor Ambient temperature as a function of measuring medium temperature

Liner material	Flange material	Ambient temperature range (T _{amb})		Measuring medium temperature range (T _{medium})	
		Minimum	Maximum	Minimum	Maximum
Hard rubber	Steel	-10 °C (14 °F)	60 °C (140 °F)	-5 °C (23 °F)	80 °C (176 °F)
Hard rubber	Stainless steel	-15 °C (5 °F)	60 °C (140 °F)	-5 °C (23 °F)	80 °C (176 °F)

FEW620 Sensor Potable water approvals for model FEW6XX

Size range	Liner	NSF-61	WRAS 23 °C	AZ/NZS4020	ACS
DN 40 (1.5) in to DN 2400 (96 in)	Hard rubber	Yes ²⁾	Yes ¹⁾	Yes ¹⁾	Yes ²⁾

1) Liner approval

2) Product approval

Specification - Reduced Bore Sensors**Wetted parts****Screw-end meters**

Stainless steel 316L and super-austenitic steel

Flanged meters

Electrodes - stainless steel 316L

Potable water approvals

WRAS Listed	NSF Approved	ACS	AS / NZS 4020	Lining material
√	in preparation x	√ ACS for FER from UK factory only (DN40 to 600 only)	√	Elastomer

FER Sensor allowed media temperature: Min -6 degC, Max 70 degC

Pressure limitations

As flange rating

PN25 Max Process Temp 50 °C (122 °F)

PN40 Max Process Temp 40 °C (104 °F)

UL Fire Service approved meters 285 psi

Pressure equipment directive 97/23/EC

This product is applicable in networks for the supply, distribution and discharge of water and associated equipment and is therefore exempt.

Environmental protection (FER sensor only)**IP rating**

IP68 (NEMA 6) to 10 m (33 ft.)

Non-wetted parts**Flange material**

Carbon steel DN40 to DN600 (1 ½ to 24 in. NB)

Cable gland material

Plastic

Terminal box material

Polycarbonate, Stainless steel

Paint specification**Housing body and flange**

Carbon steel or SG iron coated with light grey 2-pack epoxy (RAL9002)

- Primer - Interpon PZ663 zinc-based system, 70 microns thick
- Top coat - Interpon 610 light grey polyester powder coating (RAL 9002), up to 150 microns thick
- As a special requirement - 2-pack epoxy primer / finish @ 300pm DFT

Burial

Mechanical strength is verified for the meter to withstand external loads at burial depths from 0.6 m to 10 m under conditions including heavy construction vehicles, main road traffic, and field installations.

Measuring range table

The flow range end value can be set between $0.02 \times Q_{\max}$ DN and $2 \times Q_{\max}$ DN.

Nominal diameter		Lower range value	$Q_{\max}$ DN	Upper range value
DN	in	$0.02 \times Q_{\max}$ DN		$2 \times Q_{\max}$ DN
25	1	4 L/min (1.06 US gal/min)	200 L/min (52.8 US gal/min)	400 L/min (106 US gal/min)
32	1 1/4	8 L/min (2.11 US gal/min)	400 L/min (106 US gal/min)	800 L/min (211 US gal/min)
40	1 1/2	12 L/min (3.17 US gal/min)	600 L/min (159 US gal/min)	1200 L/min (317 US gal/min)
50	2	1.2 m³/h (5.28 US gal/min)	60 m³/h (264 US gal/min)	120 m³/h (528 US gal/min)
65	2 1/2	2.4 m³/h (10.57 US gal/min)	120 m³/h (528 US gal/min)	240 m³/h (1057 US gal/min)
80	3	3.6 m³/h (15.9 US gal/min)	180 m³/h (793 US gal/min)	360 m³/h (1585 US gal/min)
100	4	4.8 m³/h (21.1 US gal/min)	240 m³/h (1057 US gal/min)	480 m³/h (2113 US gal/min)
125	5	8.4 m³/h (37 US gal/min)	420 m³/h (1849 US gal/min)	840 m³/h (3698 US gal/min)
150	6	12 m³/h (52.8 US gal/min)	600 m³/h (2642 US gal/min)	1200 m³/h (5283 US gal/min)
200	8	21.6 m³/h (95.1 US gal/min)	1080 m³/h (4755 US gal/min)	2160 m³/h (9510 US gal/min)
250	10	36 m³/h (159 US gal/min)	1800 m³/h (7925 US gal/min)	3600 m³/h (15850 US gal/min)
300	12	48 m³/h (211 US gal/min)	2400 m³/h (10567 US gal/min)	4800 m³/h (21134 US gal/min)
350	14	66 m³/h (291 US gal/min)	3300 m³/h (14529 US gal/min)	6600 m³/h (29059 US gal/min)
400	16	90 m³/h (396 US gal/min)	4500 m³/h (19813 US gal/min)	9000 m³/h (39626 US gal/min)
450	18	120 m³/h (528 US gal/min)	6000 m³/h (26417 US gal/min)	12000 m³/h (52834 US gal/min)
500	20	132 m³/h (581 US gal/min)	6600 m³/h (29059 US gal/min)	13200 m³/h (58117 US gal/min)
600	24	192 m³/h (845 US gal/min)	9600 m³/h (42268 US gal/min)	19200 m³/h (84535 US gal/min)
700	28	264 m³/h (1162 US gal/min)	13200 m³/h (58118 US gal/min)	26400 m³/h (116236 US gal/min)
750	30	312 m³/h (1374 US gal/min)	15600 m³/h (68685 US gal/min)	31200 m³/h (137369 US gal/min)
800	32	360 m³/h (1585 US gal/min)	18000 m³/h (79252 US gal/min)	36000 m³/h (158503 US gal/min)
900	36	480 m³/h (2113 US gal/min)	24000 m³/h (105669 US gal/min)	48000 m³/h (211337 US gal/min)
1000	40	540 m³/h (2378 US gal/min)	27000 m³/h (118877 US gal/min)	54000 m³/h (237754 US gal/min)
1050	42	616 m³/h (2712 US gal/min)	30800 m³/h (135608 US gal/min)	61600 m³/h (271217 US gal/min)
1100	44	690 m³/h (3038 US gal/min)	34500 m³/h (151899 US gal/min)	69000 m³/h (290589 US gal/min)
1200	48	840 m³/h (3698 US gal/min)	42000 m³/h (184920 US gal/min)	84000 m³/h (369841 US gal/min)
1350	54	1020 m³/h (4491 US gal/min)	51000 m³/h (224546 US gal/min)	102000 m³/h (449092 US gal/min)
1400	54	1080 m³/h (4755 US gal/min)	54000 m³/h (237755 US gal/min)	108000 m³/h (475510 US gal/min)
1500	60	1260 m³/h (5548 US gal/min)	63000 m³/h (277381 US gal/min)	126000 m³/h (554761 US gal/min)
1600	66	1440 m³/h (6340 US gal/min)	72000 m³/h (317006 US gal/min)	144000 m³/h (634013 US gal/min)
1650	66	1512 m³/h (6657 US gal/min)	75600 m³/h (332856 US gal/min)	151200 m³/h (665712 US gal/min)
1800	72	1800 m³/h (7925 US gal/min)	90000 m³/h (396258 US gal/min)	180000 m³/h (792516 US gal/min)
2000	80	2280 m³/h (10039 US gal/min)	114000 m³/h (501927 US gal/min)	228000 m³/h (1003853 US gal/min)
2100	84	2520 m³/h (11095 US gal/min)	126000 m³/h (554760 US gal/min)	252000 m³/h (1109520 US gal/min)
2200	88	2760 m³/h (12152 US gal/min)	138000 m³/h (607594 US gal/min)	276000 m³/h (1215188 US gal/min)
2300	92	3000 m³/h (13209 US gal/min)	150000 m³/h (660429 US gal/min)	300000 m³/h (1320858 US gal/min)
2400	96	3240 m³/h (14265 US gal/min)	162000 m³/h (713263 US gal/min)	324000 m³/h (1426526 US gal/min)
2600	104	3820 m³/h (16819 US gal/min)	191000 m³/h (840946 US gal/min)	382000 m³/h (1681892 US gal/min)
2800	112	4440 m³/h (19549 US gal/min)	222000 m³/h (977434 US gal/min)	444000 m³/h (1954868 US gal/min)
3000	120	5080 m³/h (22367 US gal/min)	254000 m³/h (1118326 US gal/min)	508000 m³/h (2236652 US gal/min)

FEW620 Process connection

For an overview of the available process connection variants, see **Overview — models** on page 4.

Materials

Wetted parts		
Part	Standard	Option
Liner material	Hard rubber	—
Measurement and grounding electrode for liner material		
Hard rubber	SST 1.4571 (AISI 316Ti)	Hastelloy® C-22, Hastelloy® C-4 (2.4610) Others: on request
Grounding ring	Stainless steel	On request
Non-wetted parts (process connection)		
DN	Standard	Option
DN25 to 400 (1 to 16 in)	Steel (galvanized)	Stainless steel
DN 450 to 3000 (18 to 120 in)	Steel (painted)	—
EN Material number	ASTM Grade	GB Material
1.4301	F304	06Cr19Ni10
1.4404	F316L	022Cr17Ni12Mo2
1.4401	F316	06Cr17Ni12Mo2
1.4435	F317L	—
1.4541	F321	06Cr18Ni11Ti
EN Material number	ASTM Grade	GB Material
1.0432	SA105	—
—	A537 Cl1	20#

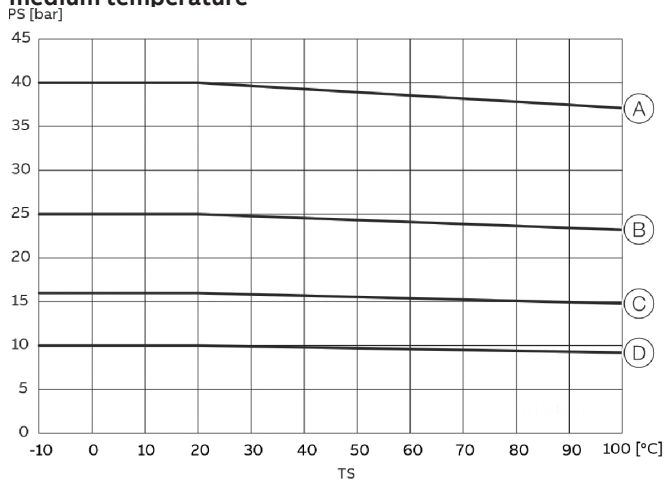
Sensor housing	
Part/DN	Material
Housing	
DN 25 to 400 (1 to 16 in)	Cast aluminum (painted) Paint coat: ≥80 µm thick, RAL 9002
DN 450 to 3000 (18 to 120 in)	Welded steel design (painted) Paint coat: ≥80 µm thick, RAL 9002
Meter tube	Stainless steel
Terminal box	Plastic, gray white, Sabic GY8B430
Cable gland ¹⁾	Polyamide

EN Material number	ASTM Grade	GB Material
1.4301	F304	06Cr19Ni10
1.4404	F316L	022Cr17Ni12Mo2
1.4401	F316	06Cr17Ni12Mo2
1.4435	F317L	—
1.4541	F321	06Cr18Ni11Ti
1.4571	TP316Ti	—

1) Cable gland with M 20 x 1.5 or NPT thread, to be selected via the order number.

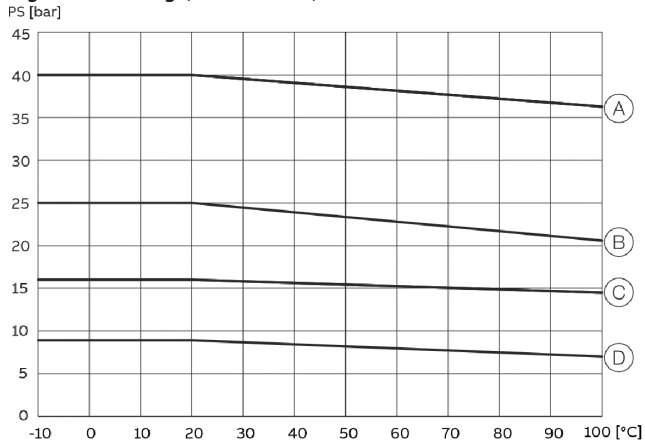
Material

Maximum permissible operating pressure depending on medium temperature



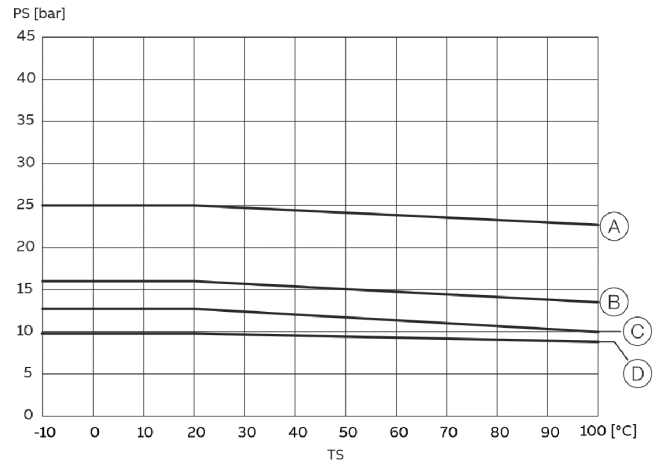
- (A) DN 25-80, PN 10-40, DN 100-150, PN 25-40, DN 200-600, PN 40
(B) DN 100-150, PN 10-16, DN 200-600, PN 16
(C) DN 200-600, PN 25
(D) DN 200-600, PN 16

Figure 4 DIN flange, carbon steel, DN 25-600



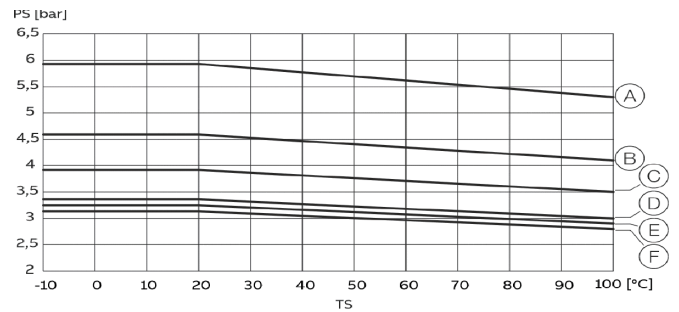
- (A) DN 200-600, PN 40
(B) DN 600, PN 25
(C) DN 200-400, PN 16
(D) DN 25-40, PN 10-40

Figure 5 DIN flange, stainless steel, DN 25-600



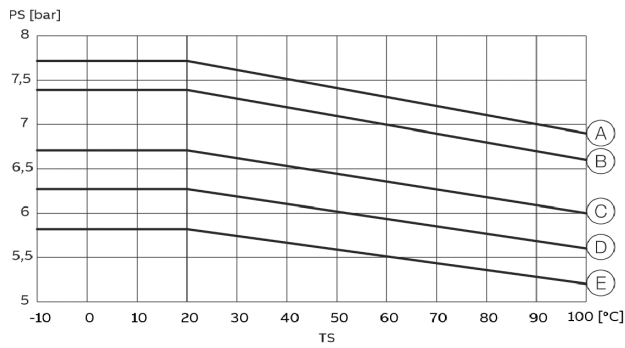
- (A) DN 200-500, PN 25
(B) DN 450-500, PN 16
(C) DN 600, PN 16
(D) DN 200-500, PN 10

Figure 6 DIN flange, stainless steel, DN 200-600



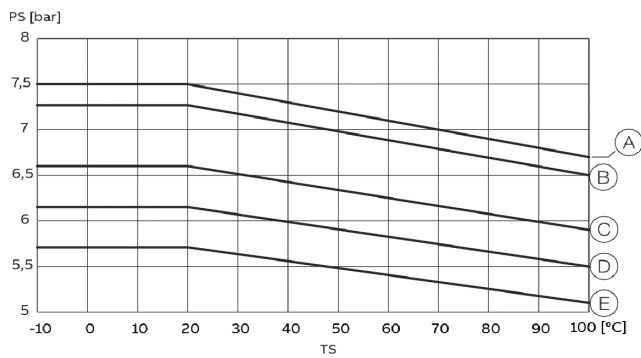
- (A) DN 700, PN 6
(B) DN 800-1200, PN 6
(C) DN 900-1400, PN 6 DIN flange, carbon steel, DN 25-600
(D) DN 2200-2400, PN 6
(E) DN 1000-1600, PN 6
(F) DN 1800-2000, PN 6

Figure 7 DIN flange, carbon steel, DN 700-2400, PN 6, 1 x DN lay length



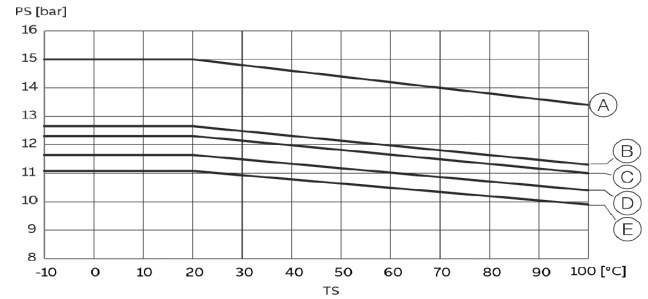
- | | |
|-------------------------|--------------------|
| (A) DN 1200-1400, PN 10 | (D) DN 2400, PN 10 |
| (B) DN 700, PN 10 | (E) DN 2200, PN 10 |
| (C) DN 1600, PN 10 | |

Figure 8 DIN flange, carbon steel, DN 700-2400, PN 10, 1 x DN lay length



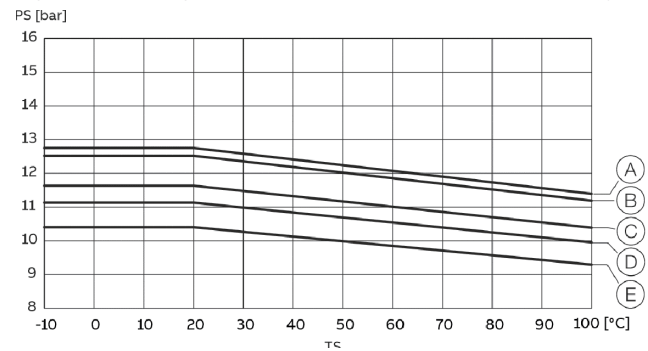
- | | |
|--------------------|--------------------|
| (A) DN 800, PN 10 | (D) DN 1800, PN 10 |
| (B) DN 900, PN 10 | (E) DN 1000, PN 10 |
| (C) DN 2000, PN 10 | |

Figure 9 DIN flange, carbon steel, DN 800-2000, PN 10, 1 x DN lay length



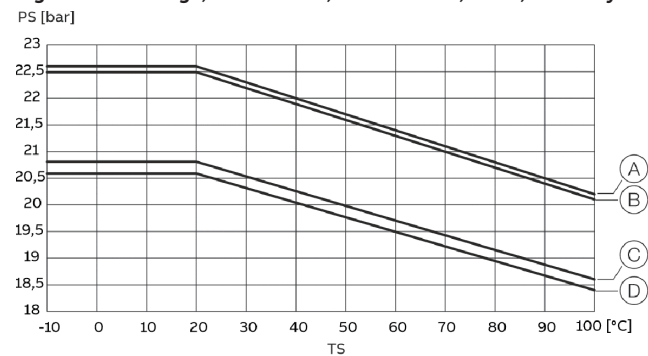
- | | |
|--------------------|--------------------|
| (A) DN 700, PN 16 | (D) DN 1600, PN 16 |
| (B) DN 800, PN 16 | (E) DN 1800, PN 16 |
| (C) DN 1400, PN 16 | |

Figure 10 DIN flange, carbon steel, DN 700-1800, PN 16, 1 x DN lay length



- | | |
|--------------------|--------------------|
| (A) DN 1200, PN 16 | (D) DN 1000, PN 16 |
| (B) DN 900, PN 16 | (E) DN 2000, PN 16 |
| (C) DN 1600, PN 16 | |

Figure 11 DIN flange, carbon steel, DN 700-2000, PN 16, 1 x DN lay length



- | | |
|-------------------|--------------------|
| (A) DN 700, PN 25 | (C) DN 900, PN 25 |
| (B) DN 800, PN 25 | (D) DN 1000, PN 25 |

Figure 12 DIN flange, carbon steel, DN 700-2400, PN 25, 1 x DN lay length

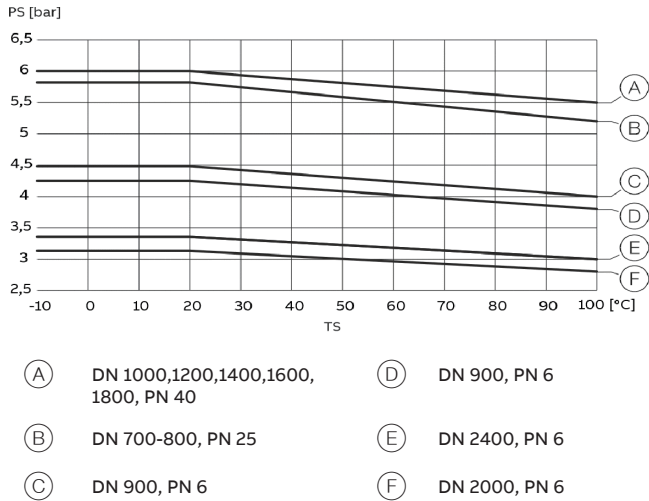


Figure 13 DIN flange, carbon steel, DN 25-600

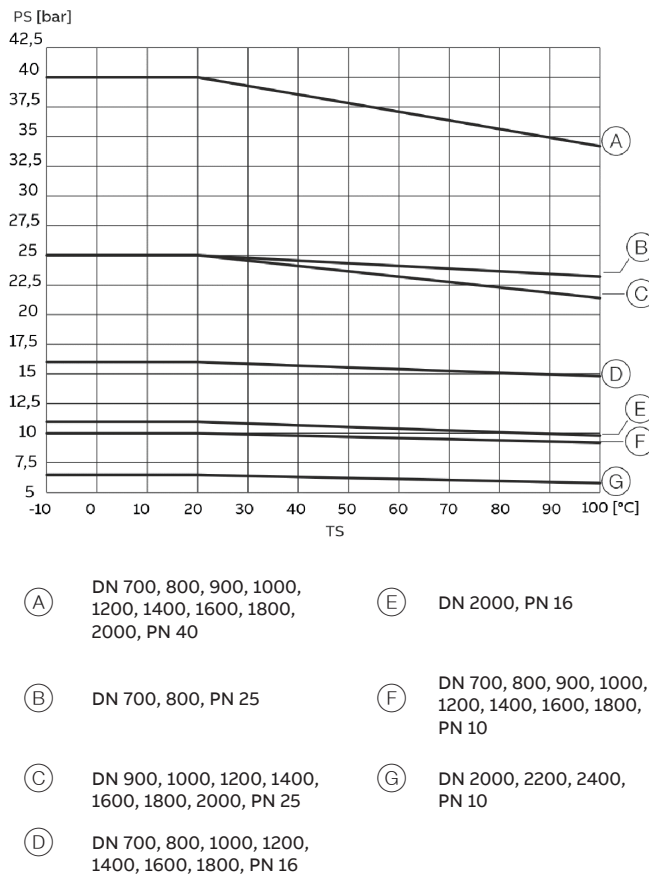


Figure 14 DIN flange, carbon steel, DN 700-2400, PN 10,16,25,40, 1.3 x DN lay length

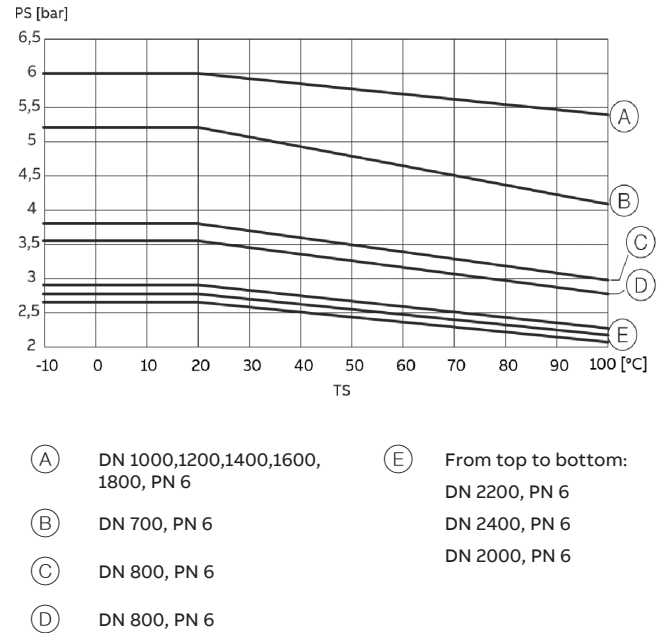


Figure 15 DIN flange, stainless steel, DN 700-2400, PN 6, 1.3 x DN lay length

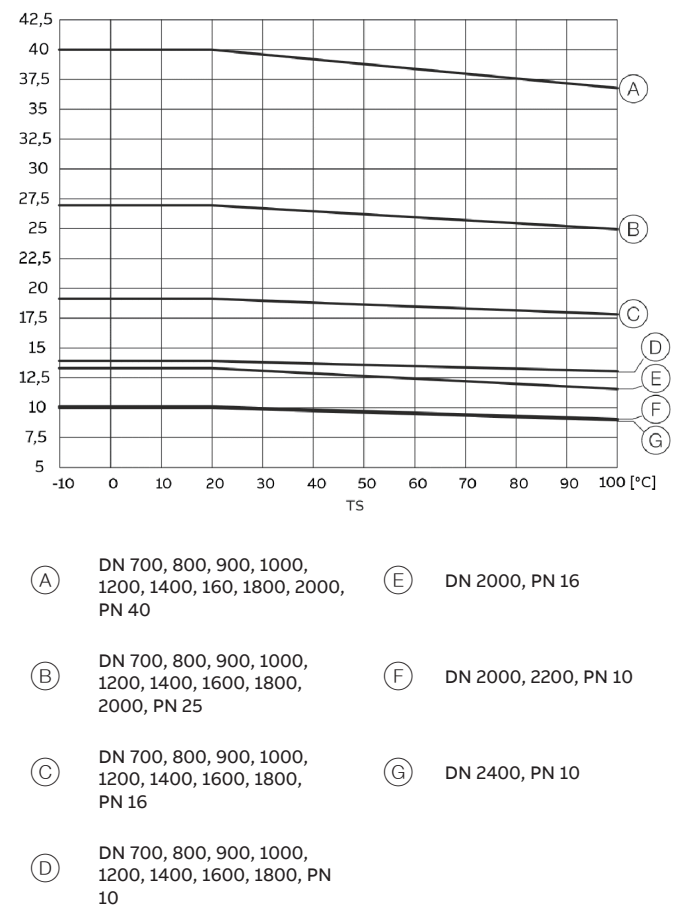


Figure 16 DIN flange, stainless steel, DN 700-2400, PN 10-40, 1.3 x DN lay length

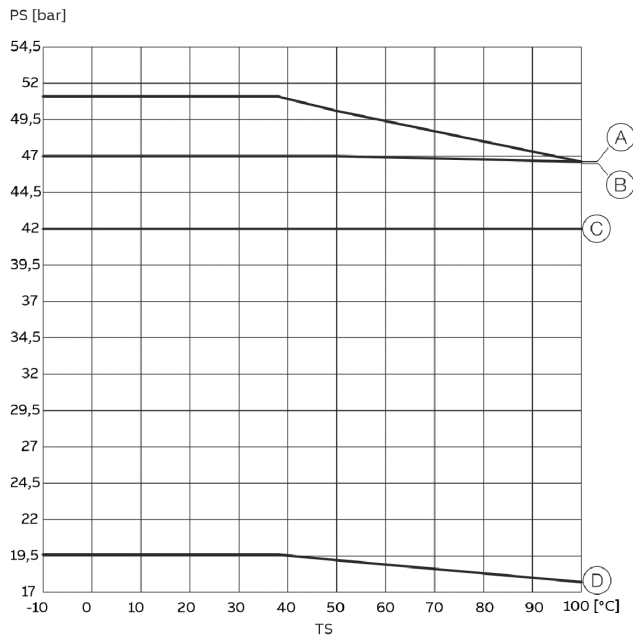


Figure 17 B16.5 ASME flange, carbon steel, DN25-600

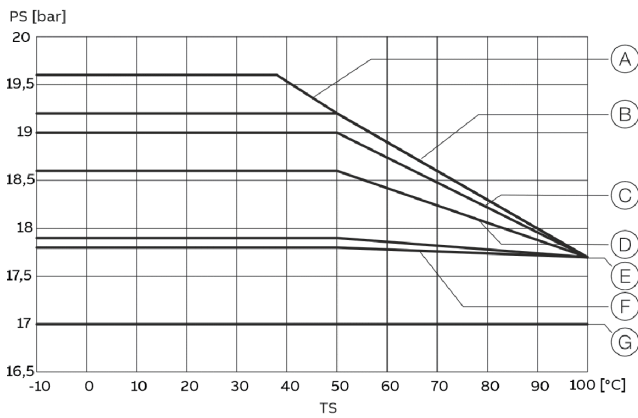


Figure 18 ASME flange, carbon steel, DN 700-1500, CI 150, B16.47 Series A, 1 x DN Lay Length

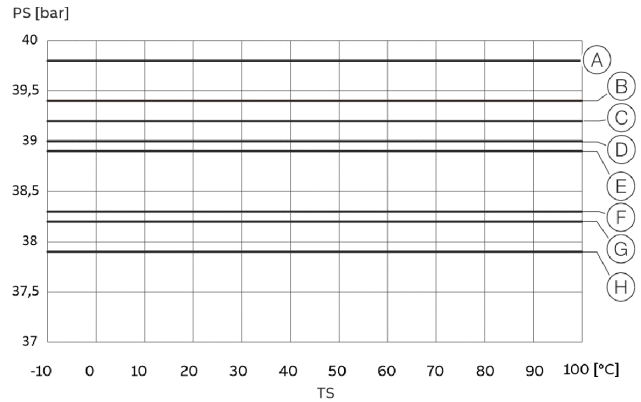


Figure 19 ASME flange, carbon steel, DN 700-1500, CI 300, B16.47 Series A, 1 x DN Lay Length

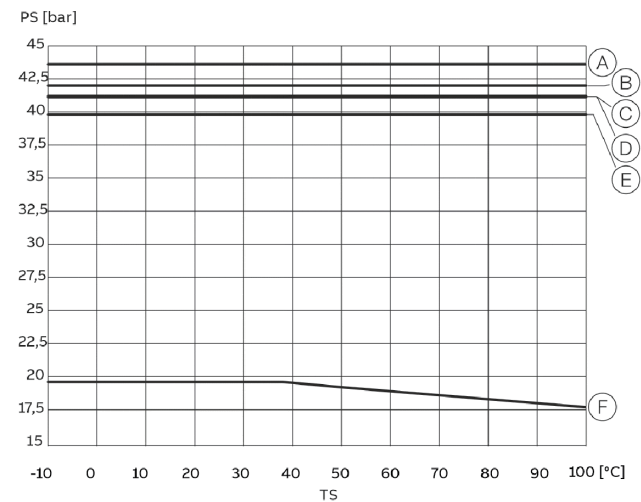
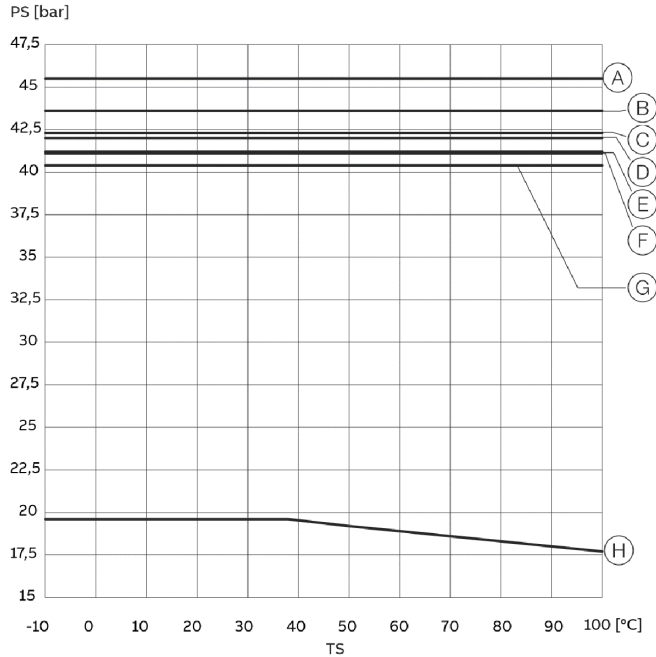
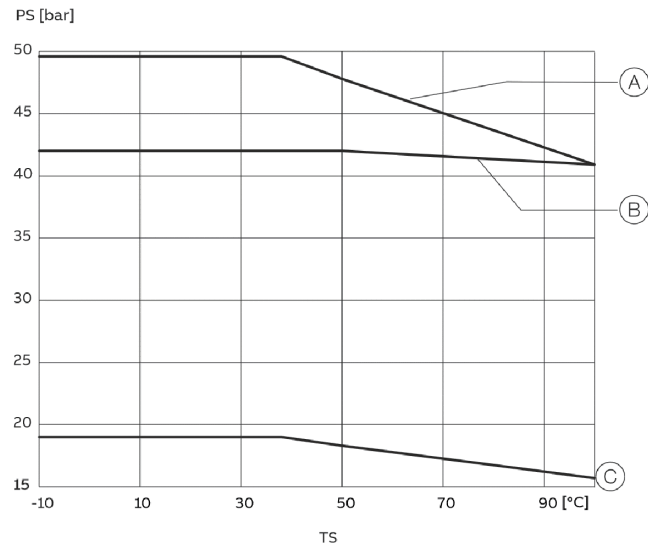


Figure 20 B16.47 Series A, ASME flange, carbon steel, DN 700-1500, 1.3 x DN lay length



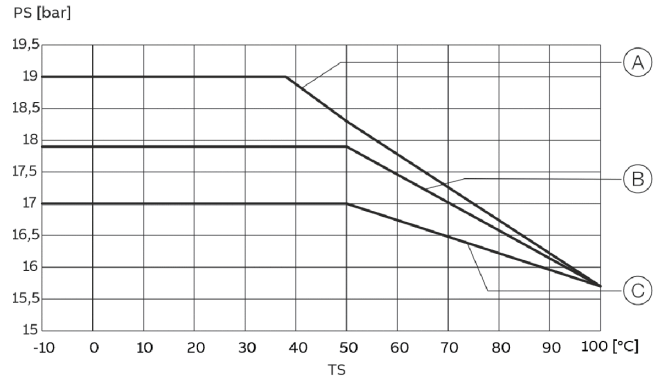
- | | |
|---------------------------|---|
| (A) DN 700, 800, CI 300 | (E) DN 1000, CI 300 |
| (B) DN 1050, CI 300 | (F) DN 1400, CI 300 |
| (C) DN 750, CI 300 | (G) DN 900, CI 300 |
| (D) DN 1200, 1500, CI 300 | (H) DN 700, 750, 800, 900, 1000, 1050, 1200, 1400, 1500, CI 150 |

Figure 21 B16.47 Series B, ASME flange, carbon steel, DN 700-1500, 1.3 x DN lay length



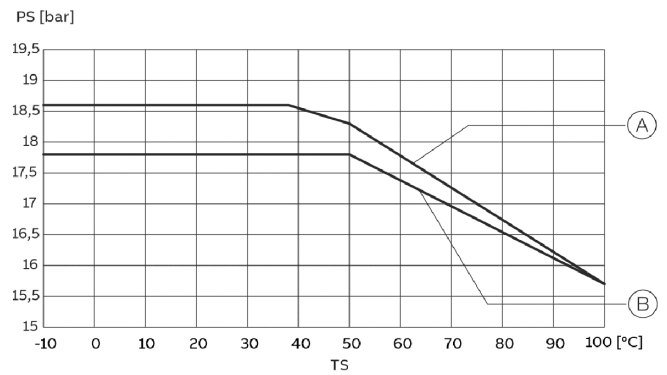
- | | |
|---|-----------------------|
| (A) DN 25, 32, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, CI 300 | (C) DN 25-600, CI 150 |
| (B) DN 600, CI 300 | |

Figure 22 ASME flange B16.5, stainless steel, DN 25-600



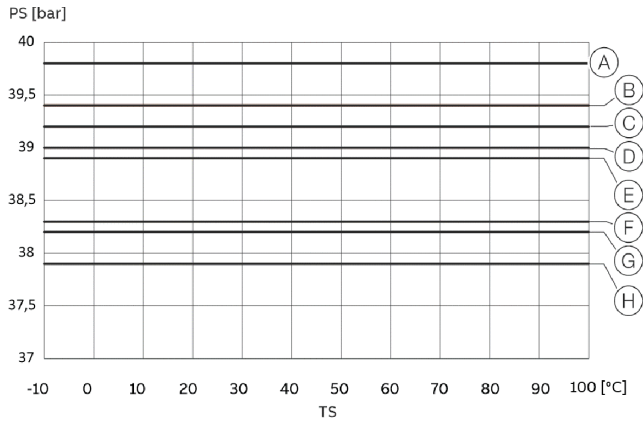
- | | |
|--|--------------------|
| (A) DN 700, 800, 900, 1050, 1400, CI 150 | (C) DN 750, CI 150 |
| (B) DN 1500, CI 150 | |

Figure 23 ASME flange, stainless steel, DN 700-1500, CI 150, B16.47 Series A, 1 x DN lay length



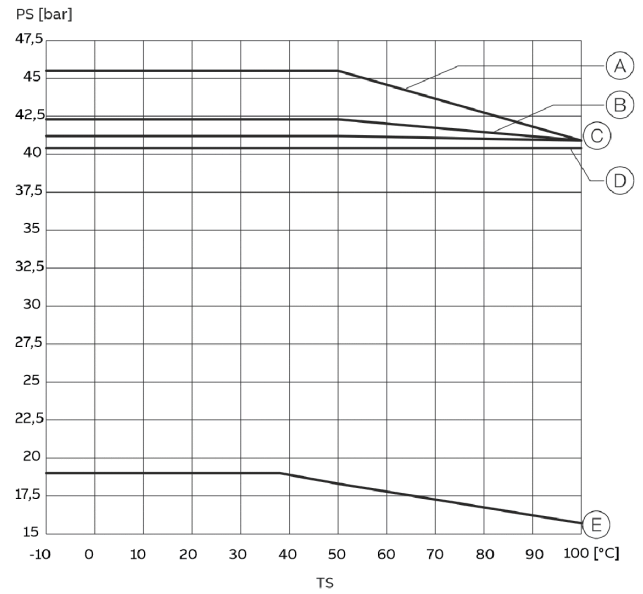
- | | |
|---------------------|---------------------|
| (A) DN 1200, CI 150 | (B) DN 1000, CI 150 |
|---------------------|---------------------|

Figure 24 ASME flange, stainless steel, DN 1000-1200, CI 150, B16.47 Series A, 1 x DN lay length



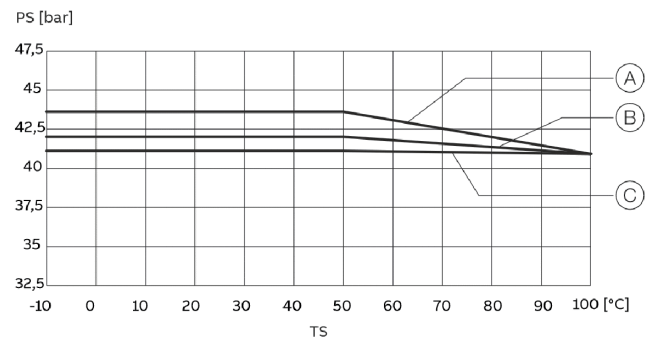
- | | |
|--------------------------|---------------------|
| (A) DN 800, CI 300 | (E) DN 1000, CI 300 |
| (B) DN 750, 1400, CI 300 | (F) DN 1500, CI 300 |
| (C) DN 1050, CI 300 | (G) DN 1200, CI 300 |
| (D) DN 700, CI 300 | (H) DN 900, CI 300 |

Figure 25 ASME flange, stainless steel, DN 700-1500, CI 300, B16.47 Series A, 1 x DN lay length



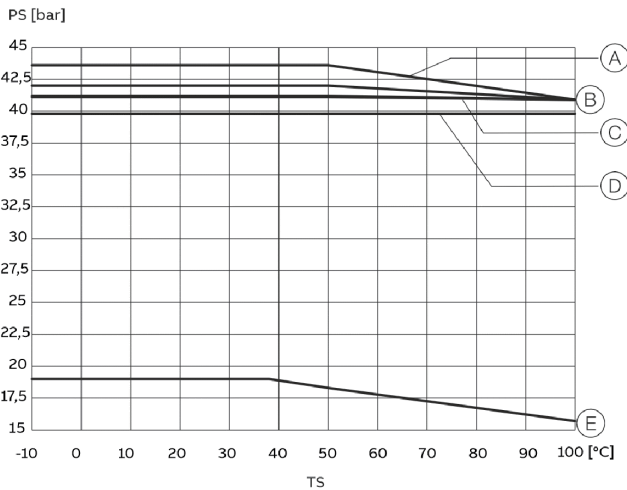
- | | |
|------------------------|-------------------------|
| (A) DN 700,800, CI 300 | (D) DN 900, CI 300 |
| (B) DN 750, CI 300 | (E) DN 700-1500, CI 150 |
| (C) DN 1000, CI 300 | |

Figure 27 B16.47 Series B, ASME flange, stainless steel, DN 700-1500, 1.3 x DN lay length



- | | |
|--------------------------|---------------------|
| (A) DN 1050, CI 300 | (C) DN 1400, CI 300 |
| (B) DN 1200,1500, CI 300 | |

Figure 28 B16.47 Series B, ASME flange, stainless steel, DN 700-1500, 1.3 x DN lay length



- | | |
|-------------------------|-------------------------|
| (A) DN 1050, CI 300 | (E) DN 1500, CI 300 |
| (B) DN 1200, CI 300 | (F) DN 700-1500, CI 150 |
| (C) DN 700, CI 150 | |
| (D) DN 1000,1400 CI 300 | |

Figure 26 B16.47 Series A, ASME flange, stainless steel, DN 700-1500, 1.3 x DN lay length

Installation conditions

General

- The following points must be observed during installation:
- The flow direction must correspond to the marking, if present.
- The maximum torque for all flange screws must be complied with.
- Secure flange screws and nuts against pipe vibration.
- The devices must be installed without mechanical tension (torsion, bending).
- Use gaskets made from a material that is compatible with the measuring medium and measuring medium temperature.
- Gaskets must not extend into the flow area, since possible turbulence could influence the accuracy of the device.
- The piping may not exert any inadmissible forces or torques on the device.
- Make sure that the temperature limits are not upscaled during operation of the device.
- Make sure cavitation (e.g. caused by Valves) does not occur within the Flowmeter tube.
- Do not remove the sealing plugs in the cable glands until you are ready to install the electrical cable.
- Make sure the gaskets for the housing cover are seated correctly. Carefully seal the cover. Tighten the cover fittings.
- The transmitter with a remote mount design must be installed at a largely vibration-free location.
- Do not expose the transmitter and sensor to direct sunlight. Provide appropriate sun protection as necessary. When installing the transmitter in a control cabinet, make sure adequate cooling is provided.

NOTE

Potential damage to device!

Improperly placed support structures can result in a deformed housing and damage to the inner solenoids. Place the support structures at the edge of the transmitter housing (see arrows in **Figure 29**).

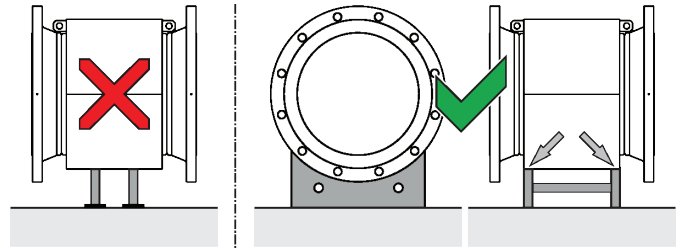


Figure 29 Support for meter sizes larger than DN 400

Devices with nominal diameters larger than DN 400 must be mounted on a sufficiently strong foundation with support.

Gaskets

The following points must be observed when installing gaskets:

- To achieve the best results, make sure that the gaskets and meter tube fit concentrically.
- To make sure that the flow profile is not distorted, the gaskets may not intrude in the piping cross-section.
- The use of graphite with the flange or process connection gaskets is prohibited. This is because, in some instances, an electrically conductive coating may form on the inside of the meter tube.

Flow direction

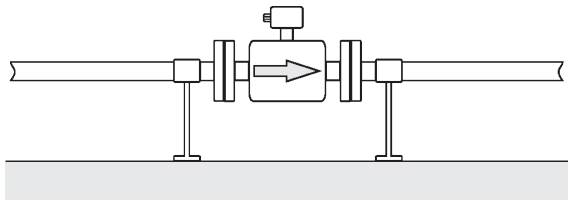


Figure 30 Flow direction

The device measures the flow rate in both flow directions. Forward flow is the factory setting, as shown in Figure 30.

Electrode axis

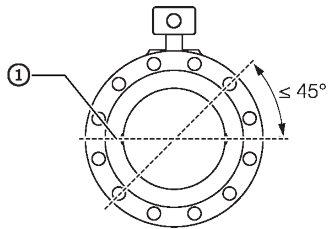


Figure 31 Orientation of the electrode axis

The electrode axis should be horizontal if at all possible or no more than 45° from horizontal.

Mounting position

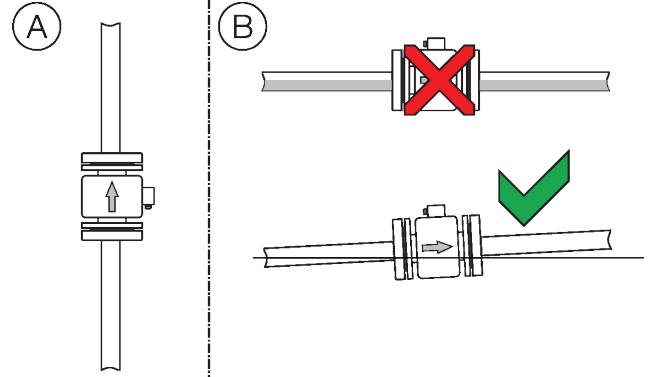
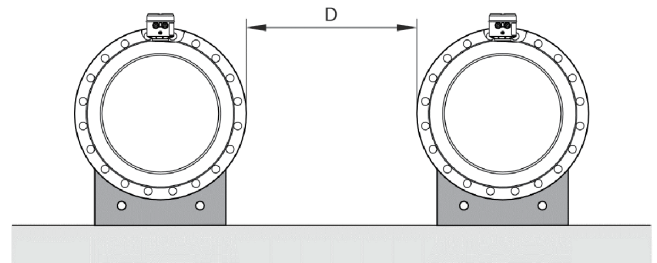


Figure 32 Mounting position

- (A) Vertical installation for measuring abrasive materials, preferably with flow in upward direction.
- (B) For a horizontal installation, the meter tube must always be completely filled with the measuring medium. Provide for a slight incline of the connection for degassing.

Minimum spacing of the devices

ProcessMaster



Spacing D: ≥ 1.0 m (3.3 ft) for Design Level 'A'

Figure 33 Minimum spacing of the devices

- In order to prevent the devices from interfering with each other, a minimum distance as presented in **Figure 29** on **page 16** must be maintained between the devices.
- The sensor must not be operated in the vicinity of powerful electromagnetic fields, e.g., motors, pumps, transformers, etc. A minimum spacing of approx. 1 m (3.28 ft) must be maintained.
- For installation on or to steel parts (e.g. steel brackets), a minimum spacing of 100 mm (3.94 in) must be maintained (based on IEC801-2 and IECTC77B).

Inlet and outlet sections

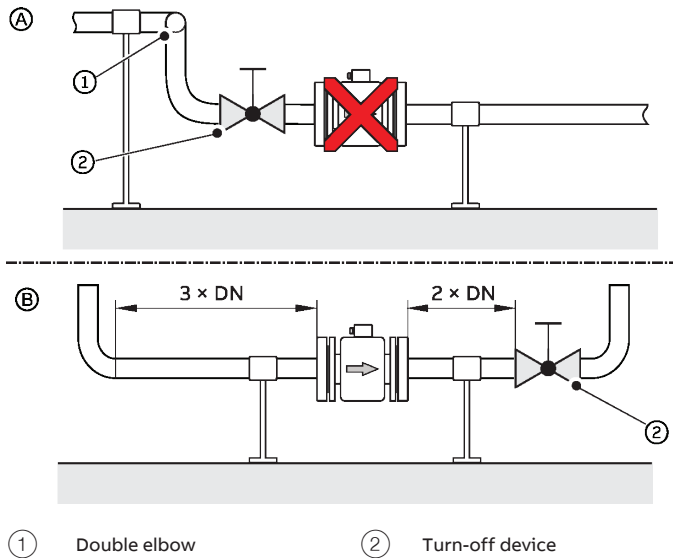


Figure 34 Inlet and outlet section, turn-off devices

The measuring principle is independent of the flow profile as long as standing eddies do not extend into the measured value formation, such as may for example occur after double elbows, in the event of tangential inflow, or where half-open gate valves are located upstream of the sensor. In such cases, measures must be put in place to normalize the flow profile.

- Ⓐ Do not install fittings, manifolds, valves, etc., right before the flowmeter sensor.
- Ⓑ Inlet / outlet sections: length of the straight piping upstream and downstream on the sensor.
Experience has shown that, in most installations, straight inlet sections $3 \times \text{DN}$ long and straight outlet sections $2 \times \text{DN}$ long are sufficient (DN = nominal diameter of the flowmeter sensor).
For test stands, the reference conditions of $10 \times \text{DN}$ straight inlet and $5 \times \text{DN}$ straight outlet must be provided, in accordance with EN 29104 / ISO 9104.
Valves or other turn-off devices should be installed in the outlet section.
Valve flaps must be installed so that the valve damper plate does not extend into the flowmeter sensor.
Butterfly Valves should not be installed upstream of the Flowmeter.

Free inlet or outlet

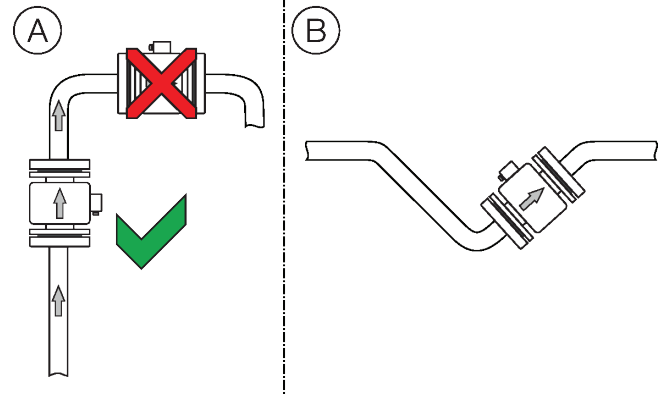


Figure 35 Free inlet or outlet

- Ⓐ For a free outflow, do not install flowmeter at the highest point of the piping or on its outflow side, since the measuring tube may run empty, creating air bubbles.
- Ⓑ For free inflow/outflow, provide an invert to make sure that the piping is always full

Mounting with heavily contaminated measuring media

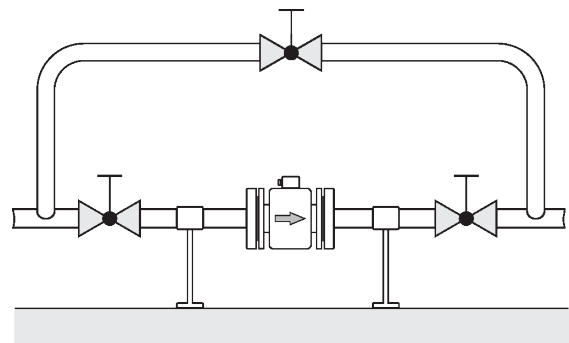


Figure 36 Bypass line

For strongly contaminated measuring media, a bypass line in accordance with the figure is recommended so that operation of the system can continue to run without interruption during mechanical cleaning.

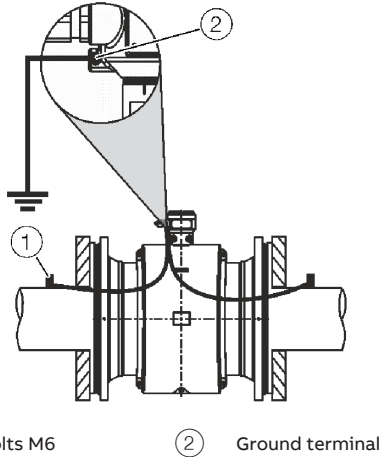
Grounding

The flowmeter sensor must be connected to ground potential. For technical reasons, this potential must be identical to the potential of the measuring medium.

For plastic or insulated lined pipelines, the measuring medium is grounded by installing grounding rings.

When there are stray potentials present in the pipeline, a grounding ring is recommended on both ends of the flowmeter sensor.

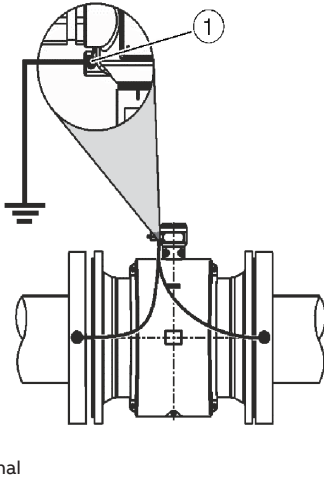
Metal pipe with lose flanges



- ① Threaded bolts M6 ② Ground terminal

Figure 37 Metal pipe, without liner

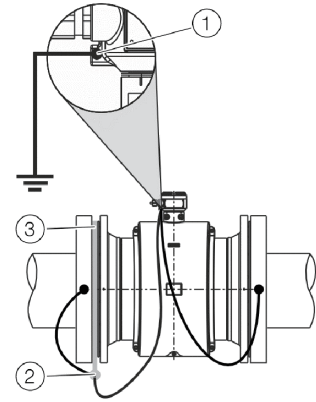
Metal pipe with fixed flanges



- ① Ground terminal

Figure 38 Metal pipe, without liner

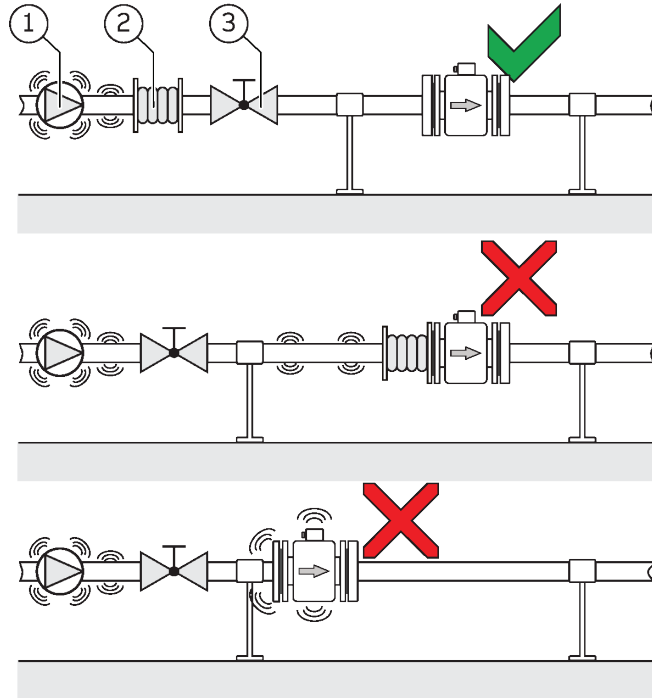
Plastic pipes, non-metallic pipe liner



- ① Ground terminal ③ Grounding ring
② Terminal lug

Figure 39 Plastic pipe, non-metallic pipe liner

Installation in the vicinity of pumps



- [illegible]

Figure 40 Vibration damping

Strong vibrations in the pipeline must be damped using flexible damping devices.

The damping devices must be installed beyond the supported flowmeter section and outside of the section between the shut-off devices.

Do not connect flexible damping devices directly to the flowmeter sensor.

Installation in pipelines with larger nominal diameters

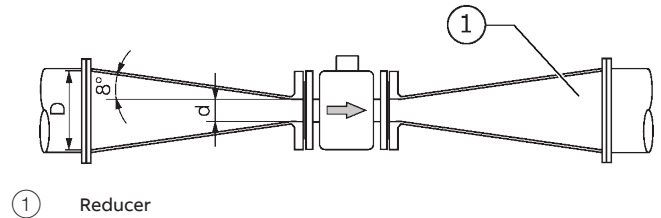


Figure 41 Using reducers

Determine the resulting pressure loss when using reducers:

1. Determine diameter ratios d/D .
2. Determine the flow velocity based on the flow rate nomogram (Figure 42).
3. Read the pressure loss on the Y-axis in Figure 42.

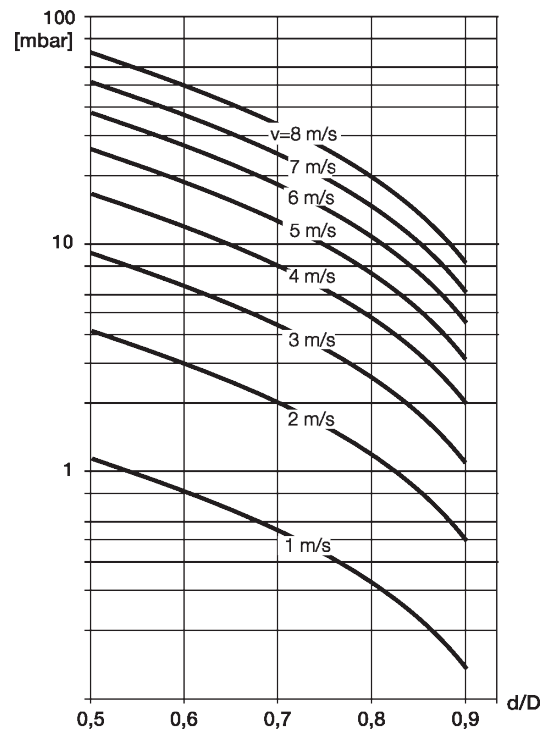
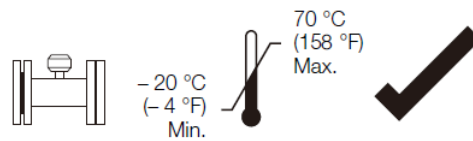


Figure 42 Flow rate nomogram for flange transition piece at $\alpha/2 = 8^\circ$

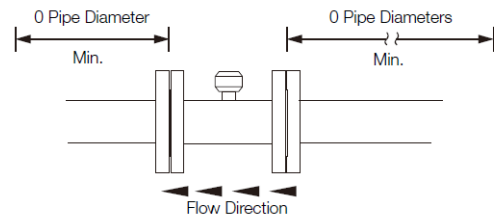
FER620 installation

CAUTION

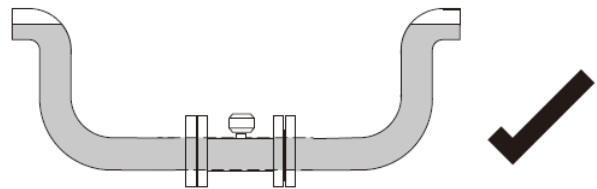
Do NOT exceed the maximum working pressure marked on the equipment.



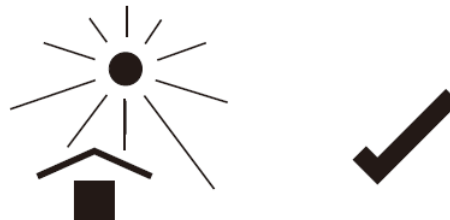
Within Temperature Limits



Straight Pipe Requirements



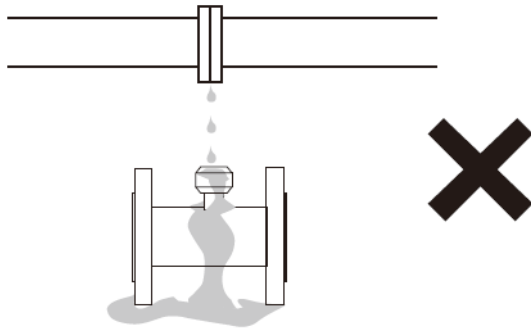
Fluid Level



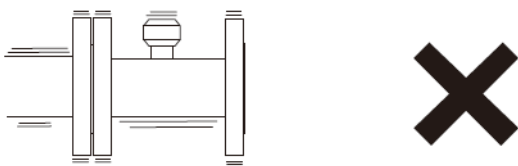
Shade



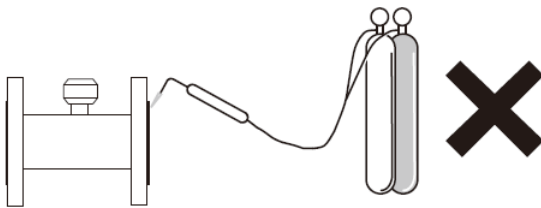
Above Ground



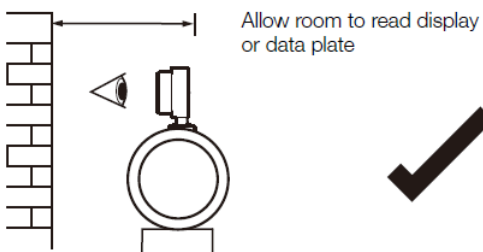
Spillage



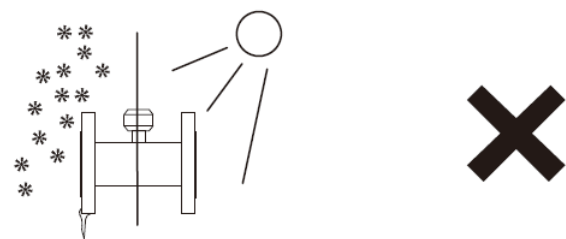
Vibration



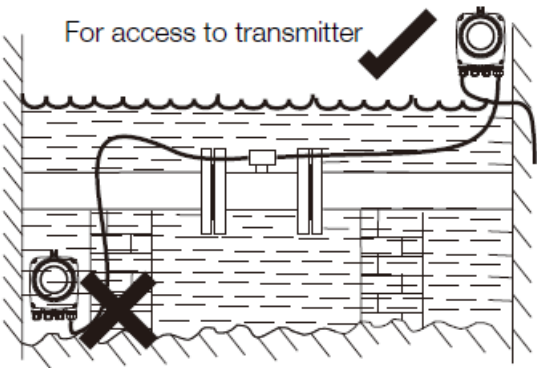
Localized Heat



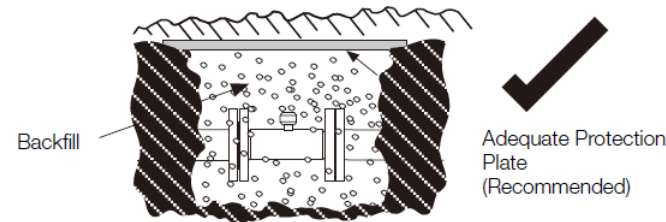
Siting



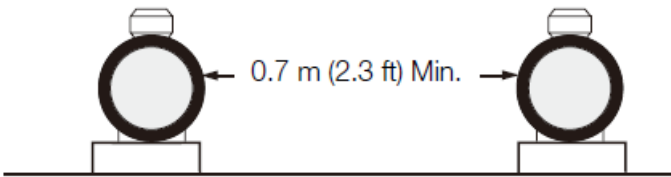
Temperature Difference



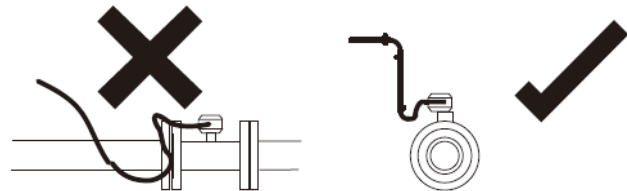
Access to Transmitter



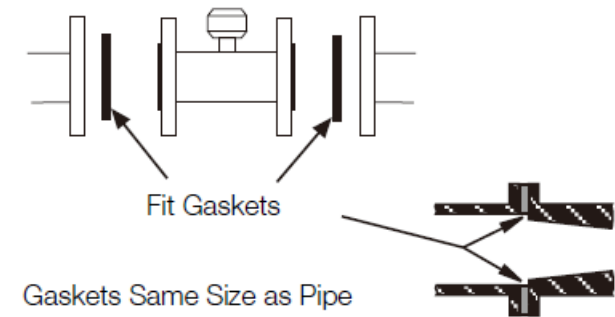
Underground



Separation of Sensors



Cable Routing



Gasket Fitting

FEW620 Dimensions

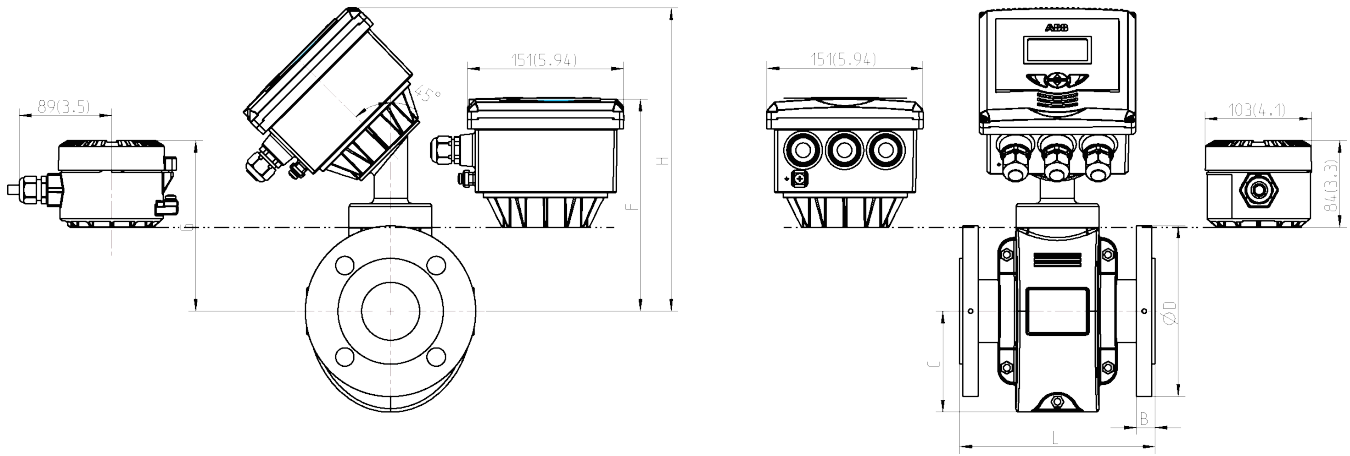


Figure 43

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN25 (1 in)	EN1092-1 PN6	100(3.94)	17(0.67)							
	EN1092-1 PN10-40	115 (4.53)	21(0.83)							
	JIS5K	95 (3.74)	13(0.51)							
	JIS10K	125 (4.88)	17(0.67)	200 (7.87)	82 (3.23)	194 (7.64)	282 (11.1)	154 (6.06)	8 (17.6)	7 (15.4)
	ASME B16.5 CL300	125 (4.88)	20.5(0.81)							
	ASME B16.5 CL150	108 (4.25)	17.2(0.68)							
	AS2129 Table D&E	115(4.53)	15(0.59)							
DN32 (1¼ in)	EN1092-1 PN6	120(4.72)	19(0.75)							
	EN1092-1 PN10-40	140 (5.51)	21(0.83)							
	JIS5K	115(4.53)	15(0.67)							
	JIS10K	135 (5.31)	19(0.75)	200 (7.87)	92 (3.62)	201 (7.91)	289 (11.37)	161 (6.34)	9 (19.8)	8 (17.6)
	ASME B16.5 CL300	135 (5.31)	22.1(0.87)							
	ASME B16.5 CL150	117 (4.61)	18.7(0.74)							
	AS2129 Table D&E	120(4.72)	15(0.59)							
D N40 (1½ in)	EN1092-1 PN6	130(5.12)	19(0.75)							
	EN1092-1 PN10-40	150(5.91)	21(0.83)							
	JIS5K	120(4.72)	15(0.67)							
	JIS10K	140 (5.51)	19(0.75)	200 (7.87)	92 (3.62)	201 (7.91)	289 (11.37)	161 (6.34)	10 (22.0)	9 (19.8)
	ASME B16.5 CL300	155(6.10)	23.6(0.93)							
	ASME B16.5 CL150	127 (5.00)	20.5(0.81)							
	AS2129 Table D&E	135(5.31)	15(0.59)							

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN50 (2 in)	EN1092-1 PN6	140 (5.51)	17(0.67)	200 (7.87)	97 (3.82)	207 (8.15)	295 (11.61)	167 (6.57)	11 (24.3)	10 (22.0)
	EN1092-1 PN10-40	165 (6.5)	23(0.91)							
	JIS5K	130(5.12)	19(0.75)							
	JIS10K	155 (6.10)	19(0.75)							
	AS4087 PN16	150 (5.91)	14(0.55)							
	AS4087 PN35	165(6.50)	22(0.87)							
	ASME B16.5 CL150	152 (5.98)	22.1(0.87)							
	ASME B16.5 CL300	165(6.50)	25.4(1.0)							
	AS2129 Table D&E	150(5.91)	15(0.59)							
DN65 (2½ in)	EN1092-1 PN6	160(6.30)	17(0.67)	200 (7.87)	108 (4.25)	218 (8.58)	306 (12.04)	178 (7.0)	12(26.5)	11 (24.3)
	EN1092-1 PN10-16	185 (7.28)	22(0.87)							
	EN1092-1 PN25-40	185 (7.28)	26(1.02)							
	JIS5K	155 (6.10)	19(0.75)							
	JIS10K	175 (6.89)	21(0.83)							
	AS4087 PN16	165 (6.50)	14(0.55)							
	AS4087 PN35	185 (7.28)	22(0.87)							
	ASME B16.5 CL150	178(7.01)	25.4(1.0)							
	ASME B16.5 CL300	190 (7.48)	28.4(1.12)							
	AS2129 Table D&E	165(6.50)	15(0.59)							
DN80 (3 in)	EN1092-1 PN6	180(7.09)	17(0.67)	200 (7.87)	108 (4.25)	218 (8.58)	306 (12.04)	178 (7.0)	16 (35.3)	15 (33.1)
	EN1092-1 PN10-40	200 (7.87)	27(1.1)							
	JIS5K	180(7.09)	21(0.83)							
	JIS10K	185(7.28)	21(0.83)							
	AS4087 PN16	185 (7.28)	14(0.55)							
	AS4087 PN35	205(8.07)	27(1.06)							
	ASME B16.5 CL150	190 (7.48)	26.9(1.06)							
	ASME B16.5 CL300	210(8.28)	31.4(1.24)							
	AS2129 Table D&E	185(7.28)	15(0.59)							
DN100 (4 in)	EN1092-1 PN6	210(8.28)	19(0.75)	250 (9.84)	122 (4.8)	240 (9.45)	328 (12.91)	200 (7.87)	18 (39.7)	17 (37.5)
	EN1092-1 PN10-16	220 (8.66)	24(0.96)							
	EN1092-1 PN25-40	235(9.25)	28(1.1)							
	JIS5K	200(7.87)	21(0.83)							
	JIS10K	210 (8.27)	21(0.83)							
	AS4087 PN16	215 (8.46)	16(0.63)							
	AS4087 PN35	230(9.06)	27(1.06)							
	ASME B16.5 CL300	255(1.04)	35.8(1.41)							
	ASME B16.5 CL150	229 (9.00)	27.4(1.08)							
	AS2129 Table D&E	215(8.46)	16(0.63)							

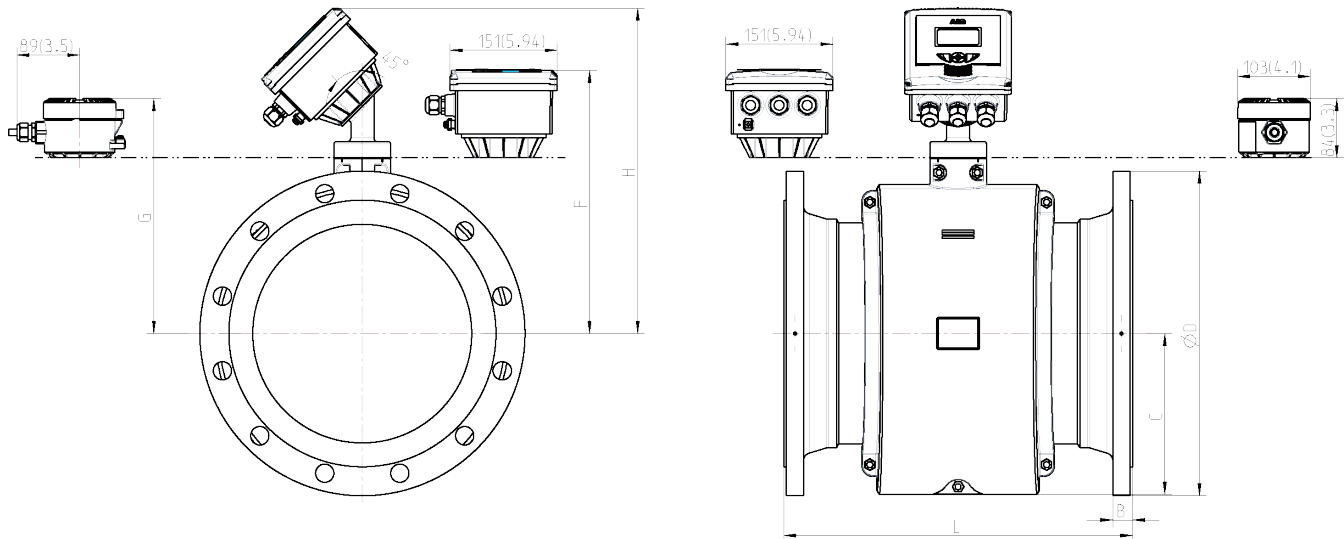


Figure 44

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN250 (10 in)	PN6	375(14.76)	27(1.06)						60 (131.3)	59 (130.1)
	PN10	395 (15.55)	30(1.18)							
	PN16	405 (15.94)	30(1.18)						64 (141.1)	63 (138.9)
	PN25	425(16.73)	36(1.42)						83 (183.0)	82 (180.8)
	EN1092-1 PN40	450(17.72)	42(1.65)						94 (207.2)	93 (205.0)
	AS4087 PN16	405 (15.94)	22(0.87)						64 (141.1)	63 (138.9)
	AS4087 PN35	430(16.93)	41(1.61)	450 (17.72)	198 (7.80)	352 (13.86)	440 (17.32)	312 (12.28)	94 (207.2)	93 (205.0)
	JIS5K	385(15.16)	25(0.98)						64 (141.1)	63 (138.9)
	JIS10K	400 (15.75)	37(1.46)							
	ASME B16.5 CL300	445 (17.52)	52.8(2.08)						104 (229.3)	103 (227.1)
	ASME B16.5 CL150	405 (15.94)	35.2(1.39)						69 (152.1)	68 (149.9)
	AS2129 Table D	405(15.94)	20(0.79)						69 (152.1)	68 (149.9)
DN300 (12 in)	AS2129 Table E		26(1.02)						73 (160.9)	72(158.7)
	EN1092-1 PN6	440(17.32)	27(1.06)						73 (160.9)	72 (158.7)
	EN1092-1 PN10	445 (17.52)	31(1.22)							
	EN1092-1 PN16	460 (18.11)	33(1.3)						79 (174.2)	78 (172.0)
	EN1092-1 PN25	485(19.09)	39(1.54)						99 (218.3)	98 (216.1)
	JIS5K	430(16.93)	25(0.98)	500 (19.69)						
	JIS10K	445(17.52)	40(1.57)						79 (174.2)	78 (172.0)
	AS4087 PN16	455 (17.91)	26(1.02)		228(8.98)	375 (14.76)	463 (18.22)	335 (13.19)		
	AS4087 PN35	490(19.29)	41(16.1)						129 (284.4)	128 (282.2)
	ASME B16.5 CL300	520 (20.47)	40.1(1.58)						149 (328.5)	148 (326.3)
	ASME B16.5 CL150	485 (19.09)	36.8(1.45)						104 (229.3)	103 (227.1)
	EN1092-1 PN40	515(20.28)	47(1.85)	600 (23.62)					129 (284.4)	128 (282.2)
DN350 (14 in)	AS2129 Table D	455(17.91)	23(0.91)	500 (19.69)					84(185.2)	83(183.0)
	AS2129 Table E		29(1.14)						103(227.1)	102(224.9)
	EN1092-1 PN6	490 (19.29)	29(1.14)						99 (218.3)	98 (216.1)
	EN1092-1 PN10	505 (19.88)	31(1.22)						94 (207.2)	93 (205.0)
	EN1092-1 PN16	520 (20.47)	35(1.38)						109 (240.3)	108 (238.1)
	EN1092-1 PN25	555(21.85)	43(1.69)						144 (317.5)	143 (315.3)
	JIS5K	480 (18.90)	27(1.06)	550 (21.65)					94 (207.2)	93 (205.0)
	JIS10K	490 (19.29)	27(1.06)							
	AS4087 PN16	525 (20.67)	33(1.30)		265 (10.43)	390 (15.35)	478 (18.81)	350 (13.78)	129 (284.4)	128 (282.2)
	AS4087 PN35	550 (21.65)	51(2.01)						184 (405.6)	183 (403.4)
	ASME B16.5 CL300	585 (23.03)	58.8(2.31)						139 (306.4)	138 (304.2)
	ASME B16.5 CL150	535 (21.06)	40.1(1.58)						104 (229.2)	103 (227.1)
	EN1092-1 PN40	580(22.83)	49(1.93)	650 (25.59)					194 (427.7)	193 (425.5)
	AS2129 Table D	525(20.67)	26(1.02)	550 (21.65)					97(213.8)	96(211.6)
	AS2129 Table E		33(1.30)						121(266.8)	120(264.6)

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)		
		D	B	L	C	F	H	G	Integral	Remote	
DN400 (16 in)	EN1092-1 PN6	540(21.26)	31(1.22)	600 (23.62)	265 (10.43)	432 (17.0)	520 (20.46)	392 (15.39)	108 (238.1)	107 (235.9)	
	EN1092-1 PN10	565 (22.24)	31(1.22)						102 (224.9)	101 (222.7)	
	EN1092-1 PN16	580 (22.83)	37(1.46)						125 (276.6)	124 (273.4)	
	EN1092-1 PN25	620(24.41)	45(1.77)						169 (372.6)	168 (370.4)	
	JIS5K	540 (21.26)	27(1.06)						102 (224.9)	101 (222.7)	
	JIS10K	560 (22.05)	31(1.22)						115 (253.5)	114 (251.3)	
	AS4087 PN16	580 (22.83)	33(1.30)	600 (23.62)	265 (10.43)	432 (17.0)	520 (20.46)	392 (15.39)	153 (337.3)	152 (335.1)	
	AS4087 PN35	610(24.02)	51(2.01)						301 (663.6)	300 (661.4)	
	ASME B16.5 CL300	650 (25.59)	62.2(2.45)						264 (582.0)	263 (579.8)	
	ASME B16.5 CL150	600 (23.62)	41.6(1.64)						174 (383.6)	173 (381.4)	
	EN1092-1 PN40	660(25.98)	53(2.09)						257 (566.6)	256 (564.4)	
	AS2129 Table D	580(22.83)	26(1.02)						600 (23.62)	119(262.3)	118(260.1)
	AS2129 Table E		36(1.42)							177(390.2)	176(388.0)

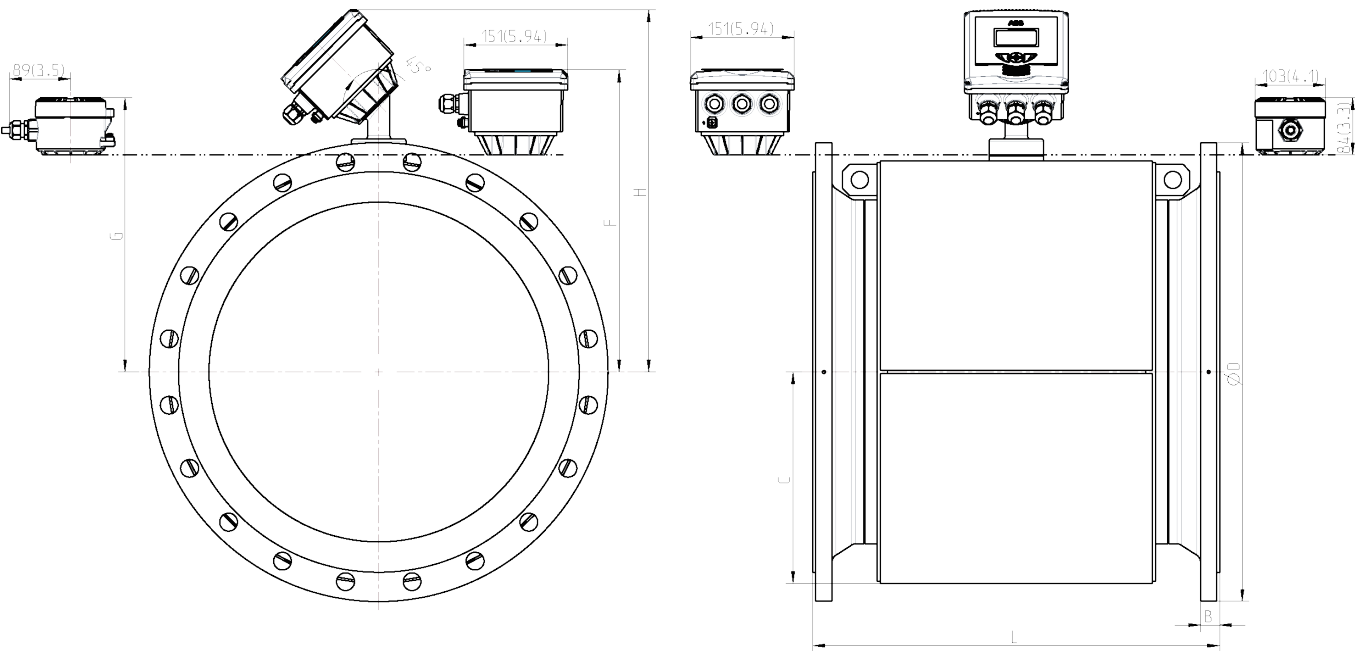


Figure 45

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN450 (18 in)	EN1092-1 PN6	595(23.43)	33(1.30)	600 (23.62)	310 (12.2)	350 (13.78)	438 (17.24)	400 (15.75)	172 (379.2)	171 (377.0)
	EN1092-1 PN10	615 (24.21)	31(1.22)							
	EN1092-1 PN16	640 (25.20)	37(1.46)						187 (412.3)	186 (410.0)
	JIS5K	605(23.82)	27(1.06)						164 (361.6)	163 (359.3)
	JIS10K	620 (24.41)	33(1.30)						176 (388.0)	175 (385.8)
	AS4087 PN16	640 (25.20)	33(1.30)	686 (27.01)					231 (509.3)	230 (507.1)
	AS4087 PN35	675(26.57)	61(2.4)						327 (720.9)	326 (718.7)
	ASME B16.5 CL300	710 (27.95)	71.7(2.82)						367 (809.1)	366 (806.9)
	ASME B16.5 CL150	635 (25.00)	44.6(1.76)						249 (548.9)	248 (546.7)
	EN1092-1 PN25	670 (26.38)	45(1.77)						244 (537.9)	243 (535.7)
EN1092-1 PN40	685(26.97)	53(2.09)	314 (692.2)	313 (690.0)						
DN500 (20 in)	EN1092-1 PN6	645(25.39)	33(1.30)	600 (23.62)	310 (12.2)	350 (13.78)	438 (17.24)	400 (15.75)	189 (416.7)	188 (414.5)
	EN1092-1 PN10	670 (26.38)	31(1.22)							
	EN1092-1 PN16	715 (28.15)	39(1.54)						239 (526.9)	238 (524.7)
	JIS5K	655 (25.79)	27(1.06)						189 (416.7)	188 (414.5)
	JIS10K	675 (26.57)	33(1.30)							
	AS4087 PN16	705 (27.76)	41(1.61)	762 (30.0)					289 (637.1)	288 (634.9)
	AS4087 PN35	735(28.94)	61(2.4)						434 (956.8)	433 (954.6)
	ASME B16.5 CL150	700 (27.56)	47.9(1.89)						299 (659.2)	298 (657.0)
	ASME B16.5 CL300	775 (30.51)	74.9(2.95)						489 (1078.0)	488 (1075.8)
	EN1092-1 PN25	730 (28.74)	39(1.54)						700 (27.56)	299 (659.2)
EN1092-1 PN40	755(29.72)	55(2.17)	762 (30.00)	391 (862.0)	390 (860.0)					

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN600 (24 in)	EN1092-1 PN6	755 (29.72)	35(1.38)	800 (31.5)	361 (14.2)	401 (15.79)	489 (19.25)	451 (17.76)	283 (623.9)	282 (621.7)
	EN1092-1 PN10	780 (30.71)	33(1.30)						245 (540.1)	244 (537.9)
	EN1092-1 PN16	840 (33.07)	41(1.61)						317 (698.9)	316 (696.7)
	EN1092-1 PN25	845 (33.27)	43(1.69)						459 (1011.9)	458 (1009.7)
	JIS5K	770 (30.31)	29(1.14)						274 (604.1)	273 (601.9)
	JIS10K	795 (31.30)	35(1.38)						305 (672.4)	304 (670.2)
	AS4087 PN16	825 (32.48)	51(2.01)						381 (840.0)	380 (837.7)
	AS4087 PN35	850(33.46)	71(2.80)						451 (994.3)	450 (992.1)
	ASME B16.5 CL300	915 (36.02)	81.2(3.20)						549 (1210.3)	548 (1208.1)
	ASME B16.5 CL150	815 (32.09)	52.8(2.08)						424 (934.8)	423 (932.5)
DN700 (28 in) Code: JH (1.0D)	EN1092-1 PN40	890(35.04)	75(2.95)	890 (35.04)					599 (1320.6)	598 (1318.4)
	JIS 5K	875(34.45)	31(1.22)						212(467.4)	211(465.2)
	JIS 7.5K	928(36.54)	37(1.46)						265(584.2)	264(582.0)
	JIS 10k	905(35.63)	39(1.54)						250(551.2)	249(548.9)
	EN1092-1 PN6	860(33.86)	29(1.14)	700 (27.6)					186(410.1)	185(407.9)
	EN1092-1 PN10	895(35.24)	35.4(1.39)		233(513.7)	233(513.7)				
	EN1092-1 PN16	910(35.85)	36(1.42)		269(593.0)	268(590.8)				
	AWWA C207 CLASS B 927(36.50)	927(36.50)	30.4(1.20)		246(542.3)	245(540.1)				
	AWWA C207 CLASS D 927(36.50)	927(36.50)	30.4(1.20)		269(593.0)	268(590.8)				
	AS4087 PN16	910(35.85)	61(2.40)		403 (15.9)	534 (20.87)	622 (24.49)	494 (19.45)	355(782.6)	354(780.4)
	AS2129 TABLE-E	910(35.85)	56(2.20)						273(601.9)	272(599.7)
	EN1092-1 PN25	960(37.80)	51(2.01)	800(31.5)					418(921.5)	417(919.3)
	AWWA C207 CLASS E	927(36.50)	57(2.24)	762(30.0)					433(954.6)	432(952.4)
	AWWA C207 CLASS F	1035(40.75)	84.5(3.33)		673(1483.7)	672(1481.5)				
	ASME CL150 SERIES A	925(36.42)	74.9(2.95)	790(31.1)					453(998.7)	452(996.5)
ASME CL300 SERIES A	1035(40.75)	89.2(3.51)	940(37.0)					1001(2206.8)	1000(2204.6)	
DN750 (30 in) Code: JH (1.0D)	JIS 5K	945(37.20)	31(1.22)						244(537.9)	243(535.7)
	JIS 10k	970(38.19)	41(1.61)						316(696.7)	315(694.4)
	AWWA C207 CLASS B	984(38.74)	30.4(1.20)	762(30.0)					267(588.6)	266(586.4)
	AWWA C207 CLASS D	984(38.74)	30.4(1.20)		321(707.7)	320(705.5)				
	AS4087 PN16	995(39.17)	61(2.40)		409(901.7)	408(899.5)				
	AS2129 TABLE-E	995(39.17)	59(2.32)		349(769.4)	348(767.2)				
	AWWA C207 CLASS E	984(38.74)	59(2.32)		471(1038.4)	470(1036.2)				
	AWWA C207 CLASS F	1092(43.99)	85(3.35)		429 (16.9)	560 (22.0)	648 (25.51)	520 (20.47)	754(1662.3)	753(1660.1)
	ASME CL150 SERIES A	985(38.78)	78.1(3.07)	830(32.7)					504(1111.1)	503(1108.9)
	ASME CL300 SERIES A	1090(42.91)	95.5(3.76)	975(38.4)					1001(2206.8)	1000(2204.6)

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	6	Integral	Remote
DN800 (32 in) Code: JH (1.0D)	JIS 5K	995(39.17)	31(1.22)	800(31.5)	453 (17.8)	584 (22.99)	672 (26.46)	544 (21.42)	279(615.1)	278(612.9)
	JIS 7.5K	1034(40.71)	39(1.54)						349(769.4)	348(767.2)
	JIS 10k	1020(40.16)	41(1.61)						327(720.9)	326(718.7)
	EN1092-1 PN6	975(38.39)	29(1.14)						238(524.7)	237(522.5)
	EN1092-1 PN10	1015(39.96)	38.5(1.52)						311(685.6)	310(683.4)
	EN1092-1 PN16	1025(40.35)	43(1.69)						365(804.7)	364(802.5)
	AWWA C207 CLASS B	1060(41.73)	33.5(1.32)	333(734.1)					332(731.9)	
	AWWA C207 CLASS D	1060(41.73)	33.5(1.32)	393(866.4)					392(864.2)	
	AS4087 PN16	1060(41.73)	61(2.40)	481(1060.4)					480(1058.2)	
	AS2129 TABLE-E	1060(41.73)	59(2.32)	409(901.7)					408(899.5)	
	EN1092-1 PN25	1085(42.72)	55(2.17)	950(37.4)					599(1320.6)	597(1316.2)
	AWWA C207 CLASS E	1060(41.73)	65.5(2.58)	590(1300.7)					589(1298.5)	
	AWWA C207 CLASS F	1150(45.28)	87.6(3.45)	885(1951.1)					884(1948.9)	
	ASME CL150 SERIES A	1060(41.73)	84.4(3.32)	950(37.4)					673(1483.7)	672(1481.5)
	ASME CL300 SERIES A	1150(45.28)	101.9(4.01)	1120(44.1)					1218(2685.2)	1217(2683.0)
DN900 (36 in) Code: JH (1.0D)	JIS 5K	1095(43.11)	35(1.38)	900(35.4)	504 (19.8)	635 (25.0)	723 (28.46)	595 (23.43)	346(762.8)	345(760.6)
	JIS 7.5K	1156(45.51)	41(1.61)						456(1005.3)	455(1003.1)
	JIS 10k	1120(44.09)	43(1.69)						418(921.5)	417(919.3)
	EN1092-1 PN6	1075(42.32)	31(1.22)						299(659.2)	298(657.0)
	EN1092-1 PN10	1115(43.90)	38.5(1.52)						395(870.8)	394(868.6)
	EN1092-1 PN16	1125(44.29)	45(1.77)						484(1067.0)	483(1064.8)
	AWWA C207 CLASS B	1168(45.98)	33.5(1.32)	396(873.0)					395(870.8)	
	AWWA C207 CLASS D	1168(45.98)	33.5(1.32)	435(959.0)					434(956.8)	
	AWWA C207 CLASS E	1168(45.98)	65.5(2.58)	743(1638.0)					742(1635.8)	
	AWWA C207 CLASS F	1270(50.00)	93(3.66)	1063(2343.5)					1062(2341.3)	
	AS4087 PN16	1175(46.26)	71(2.80)	685(1510.2)					684(1507.9)	
	AS2129 TABLE-E	1175(46.26)	69(2.72)	579(1276.5)					578(1274.3)	
	EN1092-1 PN25	1185(46.65)	59(2.32)	1040(40.9)					756(1666.7)	755(1664.5)
	ASME CL150 SERIES A	1170(46.06)	93.9(3.7)	1120(44.1)					932(2054.7)	931(2052.5)
	ASME CL300 SERIES A	1270(50.0)	108.2(4.26)	1180(46.5)					1532(3377.4)	1531(3375.2)

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)		
		D	B	L	C	F	H	6	Integral	Remote	
DN1000 (40 in.) Code: JH (1.0D)	JIS 5K	1195(47.05)	37(1.47)	1000(39.4)	554 (21.8)	685 (26.97)	773 (30.43)	645 (25.39)	406(895.1)	405(892.9)	
	JIS 7.5K	1262(49.69)	43(1.69)						558(1230.2)	557(1228.0)	
	JIS 10k	1235(48.62)	45(1.77)						504(1111.1)	503(1108.9)	
	EN1092-1 PN6	1175(46.26)	57(2.24)						347(765.0)	346(762.8)	
	EN1092-1 PN10	1230(48.43)	38.5(1.52)						468(1031.8)	467(1029.5)	
	EN1092-1 PN16	1255(49.91)	47(1.85)						612(1349.2)	611(1347.0)	
	AWWA C207 CLASS B	1289(50.75)	33.5(1.32)						473(1042.8)	472(1040.6)	
	AWWA C207 CLASS D	1289(50.75)	33.5(1.32)						617(1360.2)	616(1358.0)	
	AWWA C207 CLASS E	1289(50.75)	69(2.72)						921(2030.4)	920(2028.2)	
	AWWA C207 CLASS F	1378(54.25)	98(3.86)						1299(2863.8)	1298(2861.6)	
	AS4087 PN16	1255(49.41)	71(2.80)						739(1629.2)	738(1627.0)	
	AS2129 TABLE-E	1255(49.41)	72(2.83)						651(1435.2)	650(1433.0)	
	EN1092-1 PN25	1320(51.97)	63(2.48)						1170(46.1)	1003(2211.2)	1002(2209.0)
	ASME CL150 SERIES A	1290(48.82)	93.9(3.7)						1090(42.9)	1033(2277.4)	1032(2275.1)
ASME CL300 SERIES A	1240(48.82)	117.8(4.64)	1150(45.3)	1286(2835.1)	1285(2832.9)						
DN1050 (42 in.) Code: JH (1.0D)	AWWA C207 CLASS B	1346(52.99)	37(1.47)	1067(42.0)	608 (23.9)	739 (29.9)	827 (32.56)	699 (27.52)	558(1230.2)	557(1228.0)	
	AWWA C207 CLASS D	1346(52.99)	37(1.47)						613(1351.4)	612(1349.2)	
	AWWA C207 CLASS E	1346(52.99)	72(2.83)						1101(2427.3)	1100(2425.1)	
	AWWA C207 CLASS F	1448(57.01)	102(4.02)						1521(3353.2)	1520(3351.0)	
	ASME CL150 SERIES A	1345(59.25)	100.3(3.95)						1199(2643.3)	1198(2641.1)	
	ASME CL300 SERIES A	1290(50.79)	122.5(4.82)	1170(46.1)					1431(3154.8)	1430(3152.6)	
DN1100 (44 in.) Code: JH (1.0D)	JIS 5K	1305(51.38)	37(1.47)	1118(44.0)					477(1051.6)	476(1049.4)	
	JIS 10k	1345(52.95)	47(1.85)						678(1494.7)	677(1492.5)	
	AWWA C207 CLASS B	1403(55.24)	37(1.47)						604(1331.6)	603(1329.4)	
	AWWA C207 CLASS D	1403(55.24)	37(1.47)						694(1530.0)	693(1527.8)	
	AWWA C207 CLASS E	1404(55.26)	72(2.83)						1131(2493.4)	1130(2491.2)	
	AWWA C207 CLASS F	1505(53.25)	107(4.21)						1639(3613.3)	1638(3611.1)	

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	6	Integral	Remote
DN1200 (48 in) Code: JH (1.0D)	JIS 5K	1420 (55.91)	39(1.54)	1200(47.2)	659 (25.9)	790 (31.10)	878 (34.57)	750 (29.53)	652(1437.4)	651(1435.2)
	JIS 7.5K	1470 (57.87)	48(1.89)						870(1918.0)	869(1915.8)
	JIS 10k	1465 (57.68)	49(1.93)						818(1803.4)	817(1801.2)
	EN1092-1 PN6	1405 (55.31)	65(2.56)						537(1183.9)	536(1181.7)
	EN1092-1 PN10	1455 (57.28)	45(1.77)						752(1657.9)	751(1655.7)
	EN1092-1 PN16	1485 (58.46)	53(2.09)						980(2160.5)	979(2158.3)
	AWWA C207 CLASS B	1511(59.49)	40(1.57)						745(1642.4)	744(1640.2)
	AWWA C207 CLASS D	1511 (59.49)	40(1.57)						885(1951.1)	884(1948.9)
	AWWA C207 CLASS E	1511 (59.49)	75(2.95)						1388(3060.0)	1387(3057.8)
	AWWA C207 CLASS F	1651 (65.00)	119.5((4.70)						2299(5068.4)	2298(5066.2)
	AS4087 PN16	1490 (58.66)	81(3.19)						1206(2658.7)	1205(2656.5)
	AS2129 TABLE-E	1490 (58.66)	84(3.31)						1084(2389.8)	1083(2387.6)
	ASME CL150 SERIES A	1510 (59.45)	111.4(4.39)	1320(52.0)					1611(3551.6)	1610(3549.4)
ASME CL300 SERIES A	1465 (57.68)	136.8(5.39)	1400(55.1)	2050(4519.4)	2049(4517.2)					
DN1350 (54 in) Code: JH (1.0D)	AWWA C207 CLASS B	1683 (66.26)	40(1.57)	1350 (53.2)					941(2074.5)	940(2072.3)
	AWWA C207 CLASS D	1684 (66.26)	40(1.57)						1025(2259.7)	1024(2257.5)
	AWWA C207 CLASS E	1685 (66.26)	81(3.19)						1833(4041.0)	1832(4038.8)
DN1400 (56 in) Code: JH (1.0D)	EN1092-1 PN6	1630 (64.17)	77(3.03)	1400 (55.1)	754 (29.7)	885 (34.84)	973 (38.31)	845 (33.27)	773(1704.2)	772(1702.0)
	EN1092-1 PN10	1675 (65.94)	48(1.89)						1079(2378.8)	1078(2376.6)
	EN1092-1 PN16	1685 (66.34)	57(2.24)	1292(2848.3)					1291(2846.1)	
	ASME CL150 SERIES A	1745 (68.70)	127.3(5.01)	2364(5211.7)					2363(5209.5)	
	ASME CL300 SERIES A	1710 (67.32)	157.4(6.20)	1600(63.0)					3165(6977.6)	3164(6975.4)
DN1500 (60 in) Code: JH (1.0D)	JIS 5K	1730 (68.11)	41(1.61)	1524(60.0)	864 (34.0)	995 (39.17)	1083 (42.63)	956 (37.64)	1136(2504.4)	1135(2502.2)
	JIS 10k	1795 (70.67)	55(2.17)						1567(3454.6)	1566(3452.4)
	AWWA C207 CLASS B	1854 (72.99)	43(1.69)						1289(2841.7)	1288(2839.5)
	AWWA C207 CLASS D	1854 (72.99)							1568(3456.8)	1567(3454.6)
	AWWA C207 CLASS E	1854 (72.99)	84.5(3.33)						2496(5502.7)	2495(5500.5)
	ASME CL150 SERIES A	1855 (73.03)	135.2(5.32)						2846(6274.3)	2845(6272.1)
	ASME CL300 SERIES A	1810 (71.26)	167(6.57)						1640(64.6)	3716(8192.3)

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN1600 (64 in.) Code: JH (1.0D)	EN1092-1 PN6	1830 (72.05)	85(3.35)	1600 (63.0)	865 (34.1)	996 (39.21)	1084 (42.68)	956 (37.64)	1032(2275.1)	1031(2272.9)
	EN1092-1 PN10	1915 (75.39)	48(1.89)						1508(3324.5)	1507(3322.3)
	EN1092-1 PN16	1930 (75.98)	63(2.48)						1954(4307.8)	1953(4305.6)
	JIS7.5K	1915(75.39)	58(2.28)						1770(3902.1)	1769(3899.9)
DN1650 (66 in.) Code: JH (1.0D)	AWWA C207 CLASS B	2032 (80.00)	43(1.69)	1650(65.0)	915 (36.0)	1046 (41.18)	1134 (44.65)	1006 (39.61)	1496(3298.1)	1495(3295.9)
	AWWA C207 CLASS D	2033 (80.00)	43(1.69)						1762(3884.5)	1761(3882.3)
	AWWA C207 CLASS E	2032((80)	91(3.58)						3043(6708.6)	3042(6706.4)
DN1800 (72 in.) Code: JH (1.0D)	EN1092-1 PN6	2045 (80.51)	93(3.66)	1800(70.9)	980 (38.6)	1111 (43.74)	1199 (47.20)	1071 (42.17)	1355(2987.2)	1354(2985.0)
	EN1092-1 PN10	2115 (83.27)	55(2.17)						1948(4294.6)	1947(4292.4)
	EN1092-1 PN16	2130 (83.86)	67(2.64)						2523(5562.2)	2522(5560.0)
	JIS7.5K	2115(83.27)	60(2.36)						2189(4825.9)	2188(4823.7)
	AWWA C207 CLASS B	2197 (86.50)	43(1.69)						1832(4038.8)	1831(4036.6)
	AWWA C207 CLASS D	2197(86.50)	43(1.69)						2146(4731.1)	2145(4728.9)
	AWWA C207 CLASS E	2197(86.50)	94(3.70)						3841(8467.9)	3840(8465.7)
DN1950 (78 in.) Code: JH (1.0D)	AWWA C207 CLASS B	2362 (92.99)	49.5(1.95)	1950(76.8)					2311(5094.8)	2310(5092.6)
	AWWA C207 CLASS D	2362 (92.99)	49.5(1.95)						2683(5914.9)	2682(5912.7)
	AWWA C207 CLASS E	2362(93.0)	103(4.06)						4561(10055.2)	4560(10053.0)
DN2000(80 in.) Code: JH (1.0D)	EN1092-1 PN6	2265 (91.54)	43(1.69)	2000(78.7)	1090 (42.9)	1221 (48.07)	1309 (51.54)	1181 (46.50)	1780(3924.2)	1779(3922.0)
	EN1092-1 PN10	2325 (91.54)	59(2.32)						2579(5685.7)	2578(5683.5)
	EN1092-1 PN16	2345 (92.32)	71(2.80)						3229(7118.7)	3228(7116.4)
	JIS7.5K	2325(91.54)	63(2.48)						2752(6067.1)	2751(6064.9)
DN2100(84 in.) Code: JH (1.0D)	AWWA C207 CLASS B	2534(99.76)	49.5(1.95)	2100(82.68)					2569(5663.6)	2568(5661.4)
	AWWA C207 CLASS D	2534(99.76)	49.5(1.95)						2941(6483.7)	2940(6481.5)
	AWWA C207 CLASS E	2534(99.76)	103(4.06)						5099(11241.3)	5098(11239.1)
DN2200 (88 in.) Code: JH (1.0D)	EN1092-1 PN6	2475 (97.44)	47(1.85)	2200(86.6)	1194 (47.01)	1325 (52.17)	1413 (55.63)	1285 (50.59)	2445(5390.2)	2444(5388.0)
	EN1092-1 PN10	2550(100.39)	63(2.48)						3201(7056.9)	3200(7054.7)
	JIS7.5K	2550(100.39)	66(2.60)						3516(7751.4)	3515(7749.2)
DN2250(90 in.) Code: JH (1.0D)	AWWA C207 CLASS B	2705(106.5)	55.8(2.2)	2250(88.6)					3101(6836.5)	3100(6834.3)
	AWWA C207 CLASS D	2705(106.5)	55.8(2.2)						3854(8496.5)	3853(8494.3)
	AWWA C207 CLASS E	2705(106.5)	113(4.45)						6668(14700.3)	6667(14698.1)

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN2400 (96 in) Code: JH (1.0D)	EN1092-1 PN6	2685 (105.71)	49(1.93)						2845(6272.1)	2844(6269.9)
	EN1092-1 PN10	2760 (108.66)	67(2.64)						4110(9060.9)	4109(9058.7)
	JIS7.5K	2760(108.66)	69(2.72)	2400	1294	1425	1513	1385	4292(9462.1)	4291(9459.9)
	AWWA C207 CLASS B	2876(113.23)	55.8(2.2)	(94.5)	(50.9)	(56.10)	(59.57)	(54.53)	3740(8245.2)	3739(8243.0)
	AWWA C207 CLASS D	2876(113.23)	55.8(2.2)						4579(10094.9)	4578(10092.7)
DN 700 (28 in) Code: J6 (1.3D)	AWWA C207 CLASS E	2876(113.23)	113(4.45)						7840(17284.1)	7839(17281.9)
	JIS 5K	875 (34.45)	31(1.22)						260 (573)	259 (570)
	JIS 10K	905 (35.63)	39(1.54)						325 (717)	324 (713)
	PN 6	860 (33.86)	29(1.14)						231 (509)	230 (506)
	PN 10	895 (35.24)	55(2.17)						319 (703)	318 (700)
	PN 16	910 (35.83)	45(1.77)						439 (968)	438 (964)
	AWWA C207 CLASS B	927 (36.50)	30.4(1.2)						295 (650)	294 (647)
	AWWA C207 CLASS D	927 (36.50)	30.4(1.2)						326(719)	325 (715)
	AS4087 PN 16	910 (35.83)	61(2.4)						403 (889)	402 (885)
	AS2129 TABLE-D	910 (35.83)	40(1.57)	910	403	534	622	494	307 (677)	306 (674)
	AS2129 TABLE-E	910 (35.83)	56(2.2)	(35.83)	(15.87)	(20.87)	(24.49)	(19.45)	381 (840)	380 (836)
	PN 25	960 (37.80)	55(2.17)						486(1072)	485 (1067)
	PN 40	995 (39.17)	65(2.56)						631 (1391)	630 (1386)
	AWWA C207 CLASS E	927 (36.50)	57(2.24)						518 (1142)	517 (1138)
	AWWA C207 CLASS F	1035 (40.75)	84.5(3.33)						763 (1681)	762 (1677)
	AS4087 PN 35	935 (36.80)	58(2.28)						583 (1285)	582 (1281)
	ASME CL150 SERIES A	925 (36.42)	74.9(2.95)						547 (1206)	546 (1202)
	ASME CL150 SERIES B	835 (32.87)	50(1.97)						367 (809)	366 (806)
	ASME CL300 SERIES B	920 (36.22)	94.4(3.72)						679(1496)	678 (1492)
DN 750 (30 in) Code: J6 (1.3D)	JIS 5K	945 (37.20)	33(1.3)						298 (657)	297 (654)
	JIS 10K	970 (38.19)	41(1.61)						374 (825)	373 (821)
	AWWA C207 CLASS B	984 (38.74)	30.4(1.2)						323 (712)	322 (709)
	AWWA C207 CLASS D	984 (38.74)	30.4(1.2)						394 (869)	393 (865)
	AS4087 PN 16	995 (39.17)	61(2.4)						515 (1136)	514 (1131)
	AS2129 TABLE-D	995 (39.17)	46(1.81)						389 (858)	388 (854)
	AS2129 TABLE-E	995 (39.17)	59(2.32)	990	429	560	648	520	502 (1107)	501 (1103)
	AWWA C207 CLASS E	984 (38.74)	59(2.32)	(38.98)	(16.89)	(22.0)	(25.51)	(20.47)	546 (1204)	545 (1199)
	AWWA C207 CLASS F	1092 (43.99)	85(3.35)						842 (1855)	841 (1851)
	AS4087 PN 35	1015 (39.96)	64(2.52)						712 (1569)	711 (1565)
	ASME CL150 SERIES A	985 (38.78)	78.1(3.07)						592 (1305)	591 (1301)
	ASME CL150 SERIES B	885 (34.84)	50(1.97)						367 (809)	366 (806)
	ASME CL300 SERIES B	990 (38.98)	99.1(3.9)						798(1754)	795 (1749)

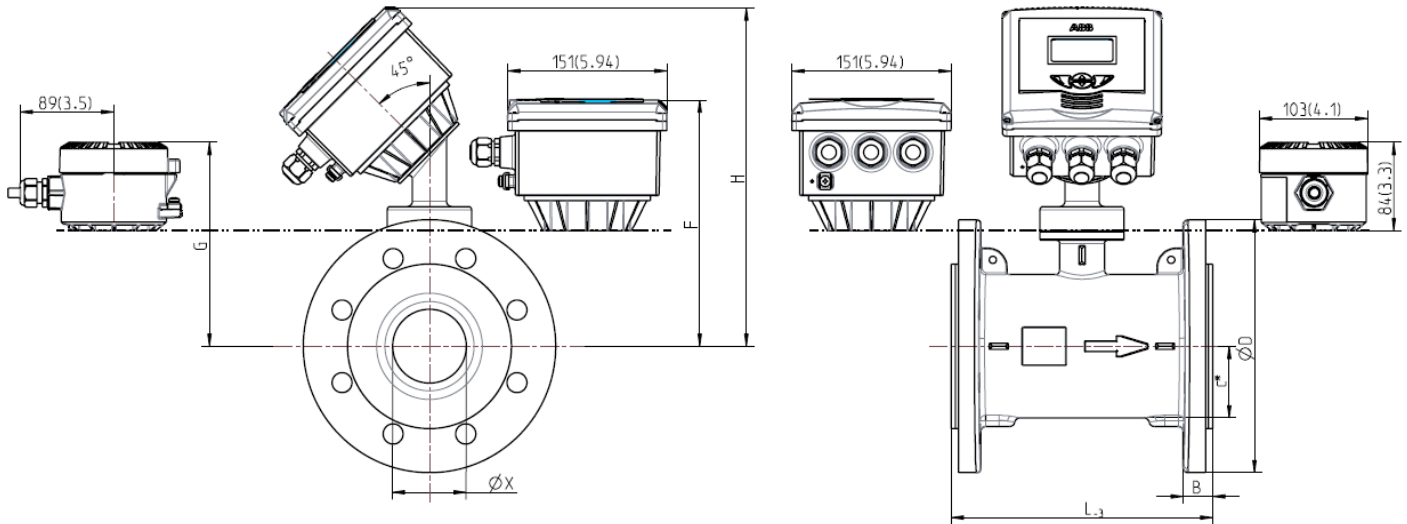
Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN 800 (32 in) Code: J6 (1.3D)	JIS 5K	995 (39.17)	33(1.3)						331 (730)	330 (726)
	JIS 10K	1020 (40.16)	41(1.61)						416(917)	415 (913)
	PN 6	975 (38.39)	29(1.14)						284 (626)	283 (623)
	PN 10	1015 (39.96)	61(2.4)						419 (924)	418 (920)
	PN 16	1025 (40.35)	46(1.81)						489 (1078)	488 (1074)
	AWWA C207 CLASS B	1060 (41.73)	33.5(1.32)						383 (845)	382 (841)
	AWWA C207 CLASS D	1060 (41.73)	33.5(1.32)						462 (1019)	461 (1015)
	AS4087 PN 16	1060 (41.73)	61(2.4)						582 (1283)	581 (1279)
	AS2129 TABLE-D	1060 (41.73)	46(1.81)	1040	453	584	672	544	439 (968)	438 (964)
	AS2129 TABLE-E	1060 (41.73)	59(2.32)	(40.04)	(17.83)	(22.99)	(26.46)	(21.42)	571 (1259)	570 (1254)
	PN 25	1085 (42.72)	58(2.28)						642 (1415)	641 (1411)
	PN 40	1140 (44.88)	73(2.87)						918 (2022)	917 (2018)
	AWWA C207 CLASS E	1060 (41.73)	62(2.44)						688 (1516)	687 (1512)
	AWWA C207 CLASS F	1150 (45.28)	87.5(3.44)						953 (2099)	952 (2095)
	AS4087 PN 35	1060 (41.73)	65(2.56)						801 (1765)	800 (1760)
	ASME CL150 SERIES A	1060 (41.73)	84.4(3.32)						750 (1653)	749 (1648)
DN 900 (36 in) Code: J6 (1.3D)	ASME CL150 SERIES B	940 (37.01)	51.6(2.03)						455 (1003)	454 (999)
	ASME CL300 SERIES B	1055 (41.54)	108.6(4.28)						984 (2167)	983 (2163)
	JIS 5K	1095 (43.11)	35(1.38)						427 (942)	426 (938)
	JIS 10K	1120 (44.09)	43(1.69)						503 (1109)	502 (1105)
	PN 6	1075 (42.32)	31(1.22)						353 (778)	352 (775)
	PN 10	1115 (43.90)	67(2.64)						504 (1111)	503 (1107)
	PN 16	1125 (44.29)	53(2.09)						589 (1298)	588 (1294)
	AWWA C207 CLASS B	1168 (45.98)	33.5(1.32)						479 (1056)	478 (1052)
	AWWA C207 CLASS D	1168 (45.98)	33.5(1.32)						555 (1224)	554 (1219)
	AWWA C207 CLASS E	1168 (45.98)	65.5(2.58)						888 (1956)	887 (1952)
	AWWA C207 CLASS F	1270 (50.00)	93(3.66)	1170	504	635	723	595	1213 (2671)	1212 (2667)
	AS4087 PN 16	1175 (46.26)	71(2.80)	(46.06)	(19.84)	(25.0)	(28.46)	(23.43)	765 (1686)	764 (1681)
	AS2129 TABLE-D	1175 (46.26)	53(2.09)						573(1263)	572 (1259)
	AS2129 TABLE-E	1175 (46.26)	69(2.72)						752 (1657)	751 (1653)
	PN 25	1185 (46.65)	59(2.32)						842 (1855)	841 (1851)
	PN 40	1250 (49.21)	79(3.11)						1218 (2682)	1217 (2678)
	AS4087 PN 35	1185 (46.65)	72(2.83)						1102 (2427)	1101 (2423)
	ASME CL150 SERIES A	1170 (46.06)	93.9(3.70)						1021 (2249)	1020 (2244)
	ASME CL150 SERIES B	1055 (41.54)	57.9(2.28)						654 (1441)	653 (1437)
	ASME CL300 SERIES B	1170 (46.06)	108.6(4.28)						1205 (2654)	1204 (2649)

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN 1000 (40 in) Code: J6 (1.3D)	JIS 5K	1195 (47.05)	37(1.46)						511 (1127)	510 (1122)
	JIS 10K	1235 (48.62)	45(1.77)						642 (1415)	641 (1411)
	PN 6	1175 (46.26)	57(2.24)						459 (1012)	458 (1008)
	PN 10	1230 (48.43)	75(2.95)						689(1518)	688 (1514)
	PN 16	1255 (49.41)	64(2.52)						849 (1870)	848 (1866)
	AWWA C207 CLASS B	1289 (50.75)	33.5(1.32)						577 (1272)	576 (1268)
	AWWA C207 CLASS D	1289 (50.75)	33.5(1.32)						734 (1617)	733 (1613)
	AWWA C207 CLASS E	1289 (50.75)	68.5(2.7)						1103 (2429)	1102 (2425)
	AWWA C207 CLASS F	1378 (54.25)	97.5(3.84)						1444 (3179)	1443 (3175)
	AS4087 PN 16	1255 (49.41)	71(2.8)	1300	554	685	773	645	902 (1987)	901 (1983)
	AS2129 TABLE-D	1255 (49.41)	56(2.2)	(51.18)	(21.81)	(26.97)	(30.43)	(25.39)	681 (1501)	680 (1496)
	AS2129 TABLE-E	1255 (49.41)	72(2.83)						904 (1991)	903 (1987)
	PN 25	1320 (51.97)	71(2.8)						1094 (2409)	1093 (2405)
	PN 40	1360 (53.54)	84(3.31)						1485 (3270)	1484 (3265)
	AS4087 PN 35	1275 (50.20)	74(2.91)						1315 (2896)	1314 (2891)
	ASME CL150 SERIES A	1290 (50.79)	93.9(3.7)						1220 (2687)	1219 (2682)
	ASME CL300 SERIES A	1240 (48.82)	117.8(4.64)						1420 (3127)	1419 (3122)
	ASME CL150 SERIES B	1175 (56.26)	61.1(2.41)						808 (1780)	807 (1776)
	ASME CL300 SERIES B	1275 (50.20)	121.3(4.78)						1559 (3432)	1558 (3428)
DN1050 (42 in) Code: J6 (1.3D)	AWWA C207 CLASS B	1346 (52.99)	37(1.46)						667 (1470)	666 (1466)
	AWWA C207 CLASS D	1346 (52.99)	37(1.46)						771 (1699)	770 (1694)
	AWWA C207 CLASS E	1346 (52.99)	71.5(2.81)						1245 (2742)	1244 (2737)
	AWWA C207 CLASS F	1448 (57.01)	102(4.02)	1365	608				1673 (3683)	1672 (3679)
	ASME CL150 SERIES B	1225 (48.23)	64.3(2.53)	(53.74)	(23.92)				909 (2002)	908 (1998)
	ASME CL150 SERIES A	1345 (59.25)	100.3(3.95)						1388 (3056)	1387 (3052)
	ASME CL300 SERIES A	1290 (50.79)	122.5(4.82)			739 (29.09)	827 (32.56)	699 (27.52)	1625 (3578)	1624 (3573)
	ASME CL300 SERIES B	1335 (52.56)	124.5(4.9)						1803 (3969)	1802 (3965)
DN1100 (44 in) Code: J6 (1.3D)	JIS 5K	1305 (51.38)	37(1.46)						589 (1298)	588 (1294)
	JIS 10K	1345 (52.95)	47(1.85)						769 (1694)	768 (1690)
	AWWA C207 CLASS B	1403 (55.24)	37(1.46)						699 (1540)	698 (1536)
	AWWA C207 CLASS D	1403 (55.24)	37(1.46)	1430 (56.30)	608 (23.92)				890 (1961)	889 (1956)
	AWWA C207 CLASS E	1403 (55.24)	71.5(2.81)						1288 (2836)	1287 (2832)
	AWWA C207 CLASS F	1505 (53.25)	107(4.21)						1805 (3974)	1804 (3969)

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN1200 (48 in) Code: J6 (1.3D)	JIS 5K	1420 (55.91)	39(1.54)						744 (1639)	743 (1635)
	JIS 10k	1465 (57.68)	49(1.93)						1060 (2335)	1059 (2330)
	PN6	1405 (55.31)	65(2.56)						699(1540)	698 (1536)
	PN10	1455 (57.28)	88(3.46)						929 (2046)	928 (2042)
	PN16	1485 (58.46)	83(3.27)						1119 (2464)	1118 (2460)
	AWWA C207 CLASS B	1511 (59.49)	40(1.57)						871 (1919)	870 (1914)
	AWWA C207 CLASS D	1511 (59.49)	40(1.57)						1098 (2418)	1097 (2414)
	AWWA C207 CLASS E	1511 (59.49)	75(2.95)						1556 (3426)	1555 (3421)
	AWWA C207 CLASS F	1651 (65.00)	119.5(4.7)						2502 (5507)	2501 (5503)
	AS4087 PN16	1490 (58.66)	81(3.19)	1560 (61.42)	659 (25.94)	790 (31.10)	878 (34.57)	750 (29.53)	1347 (2966)	1346 (2962)
	AS2129 TABLE-D	1490 (58.66)	65(2.56)						1117 (2460)	1116 (2456)
	AS2129 TABLE-E	1490 (58.66)	84(3.31)						1366 (3008)	1365 (3003)
	PN25	1530 (60.24)	64(2.52)						1653 (3639)	1652 (3635)
	PN40	1575 (62.01)	94(3.70)						2228 (4904)	2227 (4900)
	AS4087 PN35	1530 (60.24)	87(3.43)						2210 (4865)	2209 (4860)
	ASME CL150 SERIES A	1510 (59.45)	111.4(4.39)						1801 (3965)	1800 (3960)
	ASME CL300 SERIES A	1465 (57.68)	136.8(5.39)						2256 (4966)	2255 (4961)
	ASME CL150 SERIES B	1390 (54.72)	70.6(2.78)						1177 (2592)	1176 (2588)
	ASME CL300 SERIES B	1390 (54.72)	134(5.28)						1177 (2592)	1176 (2588)
DN1350 (54 in) Code: J6 (1.3D)	AWWA C207 CLASS B	1683 (66.26)	40(1.57)						1118 (2462)	1117 (2458)
	AWW A C207 CLASS D	1683 (66.26)	40(1.57)	1755 (69.09)	754 (29.69)	885 (34.84)	973 (38.31)	845 (33.27)	1349 (2970)	1348 (2966)
	AWWA C207 CLASS E	1683 (66.26)	81(3.19)						2078 (4574)	2077 (4570)
DN 1400 (56 in) Code: J6 (1.3D)	PN 6	1630 (64.17)	77(3.03)						818 (1802)	817 (1798)
	PN 10	1675 (65.94)	108(4.25)						1209 (2662)	1208 (2658)
	PN 16	1685 (66.34)	89(3.5)						1759 (3872)	1758 (3868)
	PN 25	1755 (69.09)	79(3.11)						2482 (5463)	2481 (5459)
	PN 40	1795 (70.67)	107(4.21)	1820 (71.65)	754 (29.69)	885 (34.84)	973 (38.31)	845 (33.27)	3201 (7045)	3200 (7040)
	ASME CL150 SERIES A	1745 (68.70)	127.3(5.01)						2671 (5879)	2670 (5874)
	ASME CL150 SERIES B	1600 (62.99)	78.6(3.09)						1705 (3754)	1704 (3749)
	ASME CL300 SERIES A	1710 (67.32)	157.4(6.20)						3489 (7678)	3488 (7674)
	ASME CL300 SERIES B	1765 (69.49)	159.4(6.28)						3872 (8521)	3871 (8517)
DN 1500 (60 in) Code: J6 (1.3D)	JIS 5K	1730 (68.11)	41(1.61)						1252 (2757)	1251 (2753)
	JIS 10K	1795 (70.67)	55(2.17)						1727 (3802)	1726 (3798)
	ASME CL150 SERIES B	1725 (67.91)	81.7(3.22)						2254 (4961)	2253 (4957)
	AWWA C207 CLASS B	1854 (72.99)	43(1.69)						1459 (3212)	1458 (3208)
	AWWA C207 CLASS D	1854 (72.99)	43(1.69)	1950 (76.77)	864 (34.02)	995 (39.17)	1083 (42.63)	955 (37.60)	1745 (3842)	1744 (3837)
	AWWA C207 CLASS E	1854 (72.99)	84.5(3.33)						2774 (6105)	2773 (6101)
	ASME CL150 SERIES A	1855 (73.03)	135.2(5.32)						3309 (7282)	3308 (7278)
	ASME CL300 SERIES A	1810 (71.26)	167(6.57)						4074 (8965)	4073 (8961)
	ASME CL300 SERIES B	1880 (74.02)	156.3(6.15)						4383 (9645)	4382 (9641)
DN 1600 (64 in) Code: J6 (1.3D)	PN 6	1830 (72.05)	85(3.35)						1179 (2596)	1178 (2592)
	PN 10	1915 (75.39)	126(4.96)						1629 (3586)	1628 (3582)
	PN 25	1975 (77.76)	75(2.95)	2080 (81.89)	865 (34.06)	996 (39.21)	1084 (42.68)	956 (37.64)	2149 (4730)	2148 (4726)
	PN 16	1930 (75.98)	107(4.21)						3372 (7421)	3371 (7417)
	PN 40	2025 (79.72)	118(4.65)						4547 (10006)	4546 (10002)

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	B	L	C	F	H	G	Integral	Remote
DN 1650 (66in) Code: J6 (1.3D)	AWWA C207 CLASS B	2032 (80.00)	43(1.69)	2145 (84.45)	915 (36.02)	1046 (41.18)	1134 (44.65)	1006 (39.61)	1703 (3749)	1702 (3745)
	AWWA C207 CLASS D	2032 (80.00)	43(1.69)						2224 (4895)	2223 (4891)
	PN 6	2045 (80.51)	93(3.66)						1489 (3278)	1488 (3274)
	PN 10	2115 (83.27)	140(5.51)						2229 (4906)	2228 (4902)
DN 1800 (72 in) Code: J6 (1.3D)	PN 16	2130 (83.86)	115(4.53)	2340 (92.13)	980 (38.58)	1111 (43.74)	1199 (47.20)	1071 (42.17)	2899 (6380)	2898 (6376)
	PN 25	2195 (86.42)	87(3.43)						4648 (10228)	4647 (10224)
	AWWA C207 CLASS B	2197 (86.50)	43(1.69)						2008 (4420)	2007 (4416)
	AWWA C207 CLASS D	2197 (86.50)	43(1.69)						2621 (5769)	2620 (5764)
DN 1950 (78 in) Code: J6 (1.3D)	AWWA C207 CLASS B	2362 (92.99)	49.5(1.95)	2535 (99.80)	1090 (42.91)	1221 (48.07)	1309 (51.54)	1181 (46.50)	2614 (5753)	2613(5749)
	AWWA C207 CLASS D	2362 (92.99)	49.5(1.95)						3342 (7355)	3341 (7351)
	PN 6	2265 (89.17)	43(1.69)						1849 (4070)	1848 (4066)
DN 2000 (80 in) Code: J6 (1.3D)	PN 10	2325 (91.54)	59(2.32)	2600 (102.36)	1090 (42.91)	1221 (48.07)	1309 (51.54)	1181 (46.50)	2749 (6050)	2748 (6046)
	PN 16	2345 (92.32)	73(2.87)						3499 (7700)	3498 (7696)
	PN 25	2425 (95.47)	90(3.54)						6175 (13588)	6174 (13583)
DN2100 (84 in) Code: J6 (1.3D)	AWWA C207 CLASS B	2534 (99.76)	49.5(1.95)	2730 (107.48)	1194 (47.01)	1325 (52.17)	1413 (55.63)	1285 (50.59)	3036 (6682)	3035 (6677)
	AWWA C207 CLASS D	2534 (99.76)	49.5(1.95)						3882 (8543)	3881 (8539)
DN2200 (88 in) Code: J6 (1.3D)	PN6	2475 (97.44)	47(1.85)	2860 (112.60)	1194 (47.01)	1325 (52.17)	1413 (55.63)	1285 (50.59)	2654 (5841)	2653 (5837)
	PN10	2550 (100.39)	63(2.48)						3762 (8279)	3761 (8275)
DN2400 (96 in) Code: J6 (1.3D)	PN6	2685 (105.71)	49(1.93)	3120 (122.83)	1294 (50.94)	1425 (56.10)	1513 (59.57)	1385 (54.53)	3093 (6807)	3092 (6803)
	PN10	2760 (108.66)	67(2.64)						4530 (9969)	4529 (9964)

FER620 Dimensions



Size	Mating flange type	Dimensions in mm (in)						Approx. weight in kg (lb)	
		D	L	X	F	H	G	Integral	Remote
DN40 (1.5in)	EN1092-1 PN10/16/25/40								
	ASME B16.5 CL150	150 (5.91)	174(6.85)	23.5(0.93)	174(6.85)	262(10.31)	137(5.39)	12.4 (27.3)	12.4 (27.3)
	AS2129 TABLE D/E/F								
DN50 (2 in)	EN1092-1 PN10/16/25/40								
	ASME B16.5 CL150	165 (6.50)	175(6.89)	29(1.14)	175(6.89)	263(10.35)	138(5.43)	13.75 (30.25)	13.75 (30.25)
	AS2129 TABLE D/E/F								
DN 80 (3 in)	EN1092-1 PN10/16/25/40								
	ASME B16.5 CL150	200 (7.87)	194(7.64)	47(1.85)	194(7.64)	282(11.10)	157.5(6.20)	20.2 (44.4)	20.2 (44.4)
	AS4087 PN16/21								
DN 100 (4 in)	EN1092-1 PN10/16/25/40								
	ASME B16.5 CL150	225 (8.86)	214.5(8.44)	64(2.52)	214.5(8.44)	302.5(11.91)	177.5(6.98)	26.3 (58)	26.3 (58)
	AS4087 PN16								
DN 150 (6 in)	EN1092-1 PN10/16/25/40								
	ASME B16.5 CL150	300(11.81)	247.5(9.74)	100.2(3.94)	247.5(9.74)	335.5(13.21)	210.5(8.29)	26.3 (58)	26.3 (58)
	AS4087 PN16								
DN 200 (8 in)	EN1092-1 PN10/16								
	ASME B16.5 CL150	375(11.76)	272.7(10.74)	126.7(5.00)	272.7(10.74)	360.7(14.20)	235.7(9.28)	67(147.4)	67(147.4)
	AS2129 TABLE C/D/E/F								
	AS4087 PN14/16/21								

DN40-DN200(1.5in to 8in) FER Cast iron sensor dimensions/weights.

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	L	X	F	H	C	G	Integral	Remote
DN40 (1.5in)	EN1092-1 PN10/16/25/40	150 (5.91)	200(7.87)	23.5 (0.93)	174(6.85)	262(10.31)	30.4(1.20)	138(5.43)	11 (24)	11 (24)
	ASME B16.5 CL150	127 (5.00)								
	JIS 10K	140 (5.51)								
	AS2129 TABLE C/D/E	135 (5.311)								
	AS2129 TABLE F	140 (5.51)								
	AS4087 PN14	135 (5.31)								
DN50 (2 in)	EN1092-1 PN10/16/25/40	165 (6.50)	200(7.87)	29(1.14)	184(7.24)	272(10.71)	38.3(1.51)	146(5.75)	12 (27)	12(27)
	ASME B16.5 CL150	152.4(6.00)								
	JIS 10K	155 (6.10)								
	AS4087 PN21	165 (6.50)								
	AS2129 TABLE F	165 (6.50)								
	AS2129 TABLE C/D/E	150(5.91)								
DN65(2.5in.)	EN1092-1 PN10/16/25/40	185(7.28)	200(7.87)	37(1.46)	189(7.44)	277(10.91)	45.2(1.78)	152(5.98)	13 (29)	13 (29)
	ASME B16.5 CL150	178 (7.00)								
	JIS 10K	175 (6.89)								
	AS2129 TABLE C/D/E	165 (6.50)								
	AS2129 TABLE F	185 (7.28)								
	AS4087 PN14/16	165 (6.50)								
DN 80 (3 in)	EN1092-1 PN10/16	200 (7.87)	200(7.87)	47(1.85)	194(7.64)	282(11.10)	51.5(2.03)	156(6.14)	18(40)	18(40)
	ASME B16.5 CL150	190 (7.48)								
	JIS 10K	185 (7.28)								
	AS2129 TABLE C/D/E/F	185 (7.28)								
	AS4087 PN14/16/21	185 (7.28)								
	AS2129 TABLE F	205 (8.07)								
	AS4087 PN21	205 (8.07)								

DN40-ON80(1.5in to 3in) FER Welding sensor dimensions/weights.

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	L	X	F	H	C	G	Integral	Remote
DN100 (4 in)	EN1092-1 PN10/16	220(8.66)								
	EN1092-1 PN25/40	235(9.25)								
	ASME B16.5 CL150	228.6(9.00)								
	JIS 7.5K	238(9.37)	250(9.84)	64(2.52)	234(9.21)	322(12.68)	63.75(2.51)	196.8(7.75)	25(55)	25(55)
	JIS 10K	210(8.27)								
	AS2129 TABLE C/D	215(8.46)								
	AS4087 PN14/16	215(8.46)								
	AS4087 PN21	230(9.06)								
DN125 (5 in)	EN1092-1 PN10/16	250(9.84)1								
	EN1092-1 PN25/40	270(10.63)								
	ASME B16.5 (L150	254(10.00)	250(9.84)	64(2.52)	234(9.21)	322(12.68)	63.75(2.51)	197(7.76)	31 (68)	31 (68)
	JIS 10K	250(9.84)								
	AS2129 TABLE C/D	255(10.04)								
DN150(6 in.)	EN1092-1 PN10/16	255(10.04)								
	EN1092-1 PN25/40	300(11.81)								
	ASME B16.5 CL150	279(10.98)								
	JIS 7.5K	290 (11.42)	300(11.81)	100.2(3.94)	254(10.00)	342(13.46)	84.4(3.32)	217(8.54)	48(106)	48(106)
	JIS 10K	280(11.02)								
	AS2129 TABLE C/D	280(11.02)								
	AS4087 PN14/16	280(11.02)								
	AS4087 PN21	305(12.01)								
DN 200 (8 in)	EN1092-1 PN10/16	340(13.39)								
	EN1092-1 PN25/40	360 (14.17)								
	ASME B16.5 CL150	345 (13.58)								
	JIS 7.5K	342 (13.46)	350(13.87)	126.7(4.99)	279(10.98)	370(14.57)	109.8(4.32)	243(9.57)	75(166)	75(166)
	JIS 10K	330(12.99)								
	AS2129 TABLE C/D	335 (13.19)								
	AS4087 PN14/16	335(13.19)								
	AS4087 PN21	370 (14.57)								

DN100-DN200(4in to 8in) FER Welding sensor dimensions/weights.

Size	Mating flange type	Dimensions in mm (in)							Approx. weight in kg (lb)	
		D	L	X	F	H	C	G	Integral	Remote
DN250 (10 in)	EN1092-1 PN10	395(15.55)								
	EN1092-1 PN16	405 (15.94)								
	EN1092-1 PN25	425 (16.73)								
	ASME B16.5 CL150	405 (15.94)								
	JIS 7.5K	400(15.75)	450(17.72)	153.5(6.04)	303(11.93)	391(15.39)	136.8(5.39)	268(10.55)	75(165)	75(165)
	JIS 10K	400(15.75)								
	AS2129 TABLE C/D	405(15.94)								
	AS4087 PN14/16	405(15.94)								
	AS4087 PN21	430 (16.93)								
DN300 (12 in)	EN1092-1 PN10	445 (17.52)								
	EN1092-1 PN16	460 (18.11)								
	EN1092-1 PN25	485(19.09)								
	ASME B16.5 CL150	485(19.09)	500(19.69)	203.5(8.01)	328(12.91)	416(16.38)	162.2(6.39)	294(11.57)	112 (247)	112 (247)
	JIS 10K	445 (17.52)								
	AS2129 TABLE C/D	455 (17.91)								
	AS4087 PN14/16	455 (17.91)								
	AS4087 PN21	490(19.29)								

DN250-DN300(10into12in) FER Welding sensor dimensions/weights.

Size	Mating flange type	Dimensions in mm (in)						Approx. weight in kg (lb)	
		D	L	X	F	H	G	Integral	Remote
*DN350 (14 in)	EN1092-1 PN10	505(19.88)							
	EN1092_1 PN16	520(20.47)							
	EN1092-1 PN25	555(21.85)							
	EN1092-1 PN40	580(22.83)							
	JIS 5K	480(18.90)							
	JIS 10K	490 (19.29)	550(21.65)	293(11.53)	386(15.20)	473.2(18.63)	325(12.80)	100(220)	100(220)
	AS2129 TABLE C D E	525(20.67)							
	AS2129 TABLE F	550(21.65)							
	AS4087 PN14.PN16	525(20.67)							
	AS4087 PN21	550(21.65)							
*DN 400 (16 in)	EN1092-1 PN10	565(22.24)							
	EN1092-1 PN16	580(22.83)							
	EN1092-1 PN25	620(24.41)							
	EN1092-1 PN40	660(25.98)							
	JIS 5K	540(21.26)							
	JIS 10K	560(22.05)	600(23.62)	343(13.50)	416(16.38)	503.2(19.81)	355 (13.98)	115 (253)	115(253)
	AS2129 TABLE C D E	580(22.83)							
	AS2129 TABLE F	610(24.02)							
	AS4087 PN14. PN16	580(22.83)							
	AS4087 PN21	610(24.02)							
*DN450 (18 in)	EN1092-1 PN10	615(24.21)							
	EN1092-1 PN16	640(25.20)							
	EN1092-1 PN25	670(26.38)							
	EN1092-1 PN40	685(26.97)							
	JIS 5K	605(23.82)							
	JIS 10K	620(24.41)	700(27.56)	394(15.52)	451 (17.76)	538.2(21.19)	390(15.35)	160(352)	160(352)
	AS2129 TABLE C D E	640(25.20)							
	AS2129 TABLE F	675(26.57)							
	AS4087 PN14, PN16	640(25.20)							
	AS4087 PN21	675 (26.57)							
*DN500 (20 in)	EN1092-1 PN10	670(26.38)							
	EN1092-1 PN16	715(28.15)							
	EN1092-1 PN25	730(28.74)							
	EN1092-1 PN40	755(29.72)							
	JIS 5K	655(25.79)							
	JIS 10K	675(26.57)	770(30.31)	443 (17.44)	471(18.54)	558.2(21.98)	410(16.14)	217 (477)	217 (477)
	AS2129 TABLE C D E	705(27.76)							
	AS2129 TABLE F	735(28.94)							
	AS4087 PN14, PN16	705(27.76)							
	AS4087 PN21	735(28.94)							
*DN600 (24in)	EN1092-1 PN10	780(30.71)							
	EN1092-1 PN16	840(33.07)							
	EN1092-1 PN25	845 (33.27)							
	EN1092-1 PN40	890(35.04)							
	JIS 5K	770 (30.31)							
	JIS 10K	795 (31.30)	920(36.22)	494(19.45)	516(20.31)	603.2(23.75)	455 (17.91)	315(693)	315 (693)
	AS2129 TABLE C D E	825(32.48)							
	AS2129 TABLE F	850(33.46)							
	AS4087 PN14, PN16	825(32.48)							
	AS4087 PN21	850(33.46)							

*DN350 to DN600 in preparation

Transmitter

Features

- Ability to simultaneously output active HART
- 4 to 20 mA+2 digital outputs+MODBUS 485.
- Signal cable length up to 200 m (656 ft)
- Measuring range: Can be configured between 0.02 to 2 x Q_{maxDN}.
- Operating mode for flow measurement can be configured.
- Programmable digital output. Can be configured as frequency output, pulse output or binary output.
- Damping: 0.04 to 100 s configurable (1 τ).
- Low flow cut-off: 0 to 20 % for current and pulse output.
- Empty pipe detection¹⁾
- Simulation of current and binary output (manual process execution).

- 1) Requirements for empty pipe detector function: The conductivity of the fluid must be $\geq 20 \mu\text{S/cm}$. No pre-amplifier.

HART 4 to 20 mA

- The system supports Active 4 to 20 mA loops with maximum load resistance of 600 ohms.
- Repeatability of 4 to 20 mA of measurement is $\pm 0.1\%$ or better.
- The current out linearity is same as pulse output plus $\pm (0.1\%$ of measured value + 0.01 mA).
- 4 to 20 mA current output range: $3.5 \text{ mA} \leq \text{CO} \leq 22.6 \text{ mA}$. 4 to 20 mA temperature stability: for the ambient functional temperature range, average
- $f = \pm (0.04\%$ of reading + 2 μA) per 10K.
- HART communication: The system supports HART 7.9 Communication Protocol in combination with current out loop.
- HART function meets the FCG requirements.
- HART protocol has provisions for creating a bus with up to 15 devices (the devices shall set to multi-drop mode, the current output is fixed to 4 mA).

LCD indicator

- High-contrast LCD indicator.
- Display of the current flow rate as well as the total flow rate.
- Application-specific visualizations which the user can select. Two operator pages can be configured to display multiple values in parallel.
- Plain text fault diagnostics
- Menu-guided parameterization with four buttons.
- 'Easy Set-up' function for fast commissioning.
- Parameterization of the device through the front glass with the housing closed.

IP rating

In accordance with EN 60529:

Integral mount IP66/67

Remote mounted transmitter IP66/IP67

Sensor body IP68/67

Vibration

In accordance with EN 60068-2

- Maximum deflection: 0.15 mm (0.006 in) in the 10 to 58 Hz range
- Maximum acceleration: 2 g₁ in the 58 to 150 Hz range

1) Peak load

Peak load

Ambient temperature range

-20 to 60 °C (-4 to 140 °F)

Storage temperature range

-40 to 70 °C (-22 to 158 °F)

Note

When operating below -20 °C (-4 °F), the LCD display can no longer be read and the electronics should be operated with as few vibrations as possible.

Full functionality is assured at temperatures above -20 °C (-4 °F).

Housing design

Housing Plastic, RAL 9002 (light gray)

Cable gland Polyamide

Dimensions

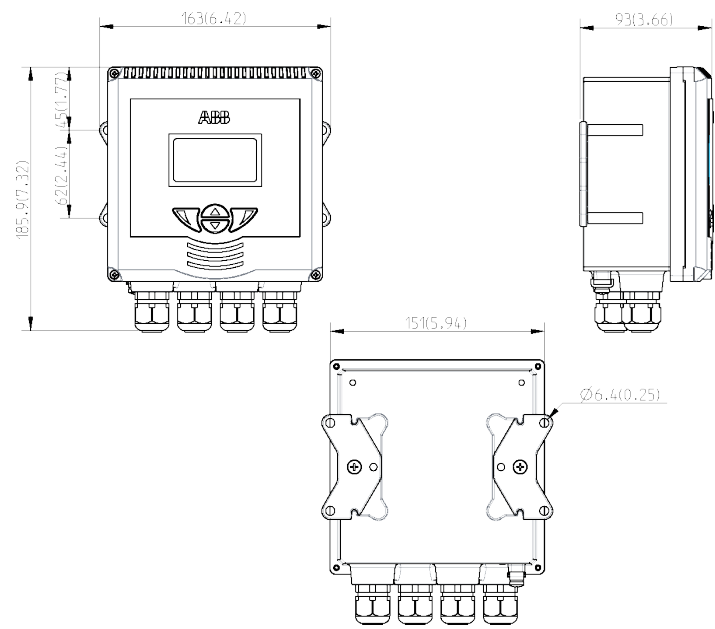
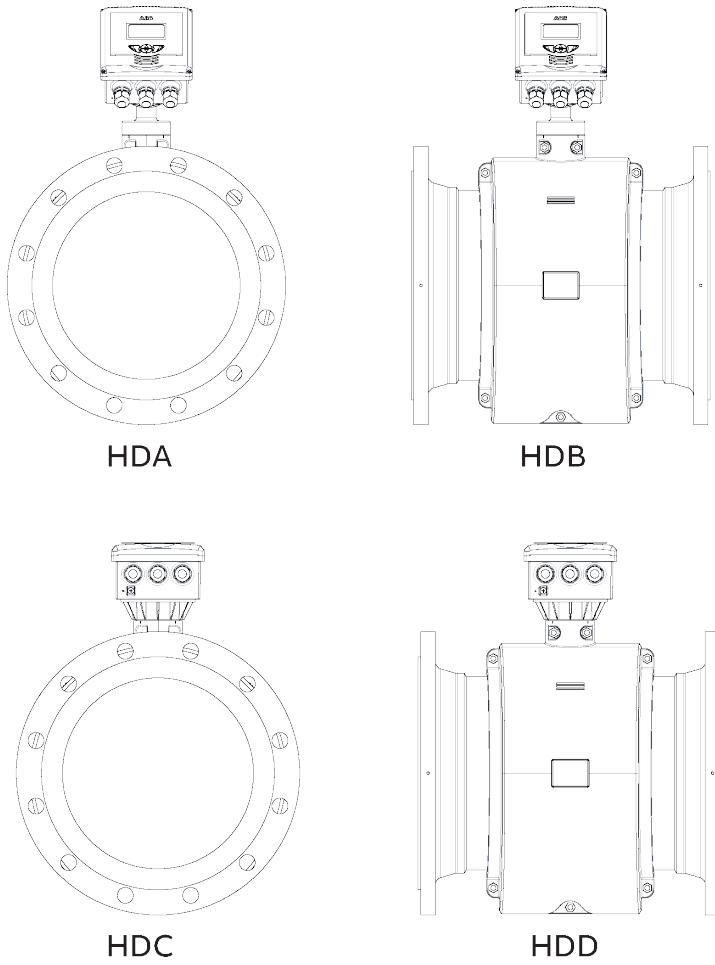


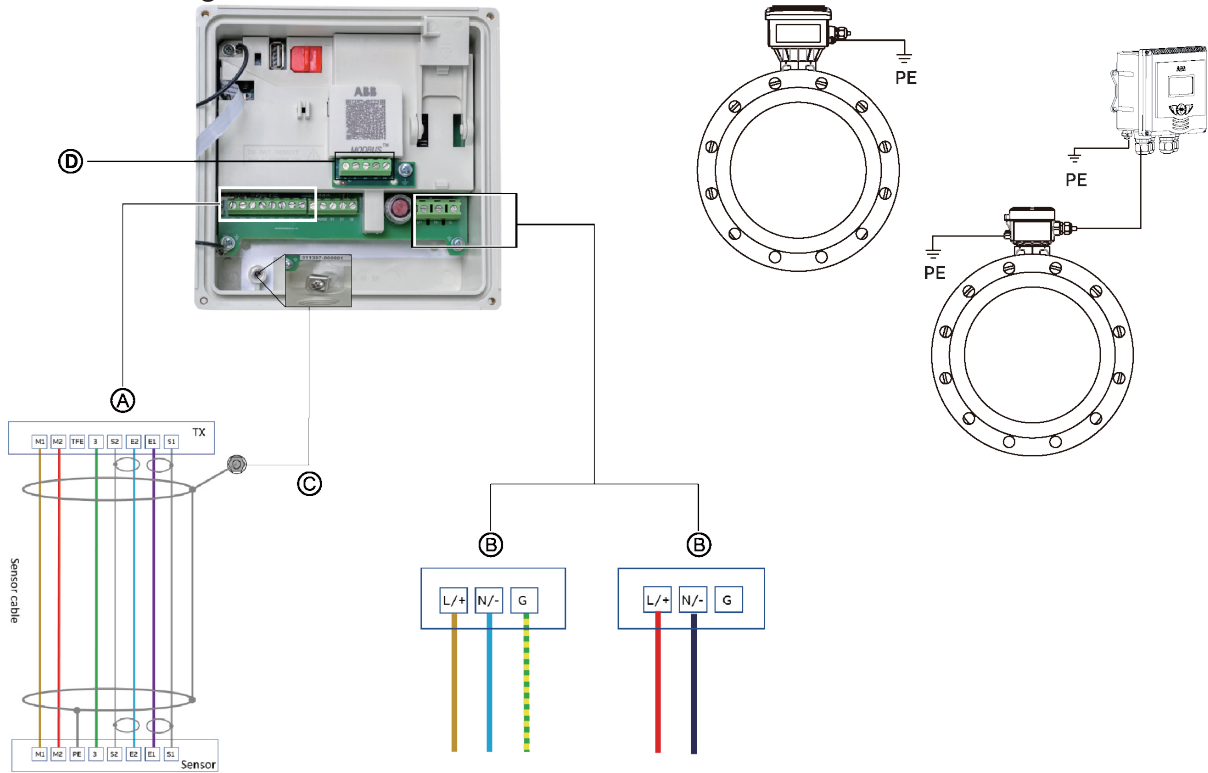
Figure 46 Mounting dimensions (remote mount design)

Integral version orientation code



Electrical connections

Connection diagram



- (A) Connections for sensor signal cable (remote mount design only)
- (B) Connections for power supply (AC power supply/DC power supply)
- (C) Grounding rod
- (D) Optional MODBUS module binding post

Figure 47 Electrical connections

NOTICE

For detailed information about grounding the transmitter and the flowmeter sensor, please refer to chapter 'Grounding' in the Commissioning Instructions or the Operating Instructions.

Connections for the power supply

AC power supply	
Terminal	Function/comments
L/+	Phase
N/-	Neutral conductor
G	Protective earth (PE)

AC power supply	
Terminal	Function/comments
L/+	+
N/-	-
G	Protective earth (PE)

AC power supply	
Terminal	Function/comments
A/B, A1/B1	Two sets of MODBUS terminals
⏏	PE

Connections for outputs

Terminal	Function/comments
31/32	Active HART+4-20mA output The current output is 'active' mode. The source to drive the 20 mA loop is in-built in the transmitter.
41/42	Passive digital output DO1 The output can be configured as a pulse output, frequency output or switch output on site.
51/52	Passive digital output DO2 The output can be configured as a pulse output or switch output on site.
⏏	PE

Connections for the signal cable

Only for remote mount design.

Terminal	Function/comments	Color
TFE	Not connected	—
3	Reference potential for measurement	Green
S2	Shield for E2	—
E2	Signal line	Blue
E1	Signal line	Violet
S1	Shield for E1	—
M1	Magnet coil	Brown
M2	Magnet coil	Red
PE	Shield	—
—	Not connected	Orange/Yellow

Electrical data for inputs and outputs

Power supply L/N, 1+ / 2-

AC power supply	
Terminal	L/N
Operating voltage	100 to 240 V AC (-15 %/+10 %), 47 to 64 Hz
Power consumption	<20 VA
Inrush current	8,8 A
DC power supply voltage	
Terminal	+/-
Operating voltage	24 ...48V DC (-10 % / +10 %)
Ripple	< 5 %
Power consumption	< 10 W
Inrush current	5,6 A

Output 31/32

Can be configured for outputting mass flow and volume flow.

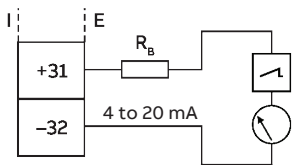


Figure 48 Connection example for active current output
³¹/₃₂ (I = internal, E = external, RB = load)

HART Communication

The HART protocol definition is shown in the following table:

Settings	Description
Protocol	HART 7.9
Device Type Code	0x1AA7
Device Revision	1
Device Address Range	0 ~ 63 Factory settings: 0
Baud rate	1200 baud
Default Primary Variable in HART	Volume Flow in %
Default Secondary Variable in HART	Mass Flow in %
Default Tertiary Variable in HART	Volume Flow Totalizer Forward
Default Quaternary Variable in HART	Volume Flow Totalizer Reverse

Modbus Communication

The Modbus protocol settings is shown in the following table:

Settings	Description
Modbus Address Range	1 ~ 247
Baud rate	2400, 4800, 9600, 19200, 38400, 56000, 57600, 115200 baud Factory settings: 9600 baud
Parity	None, even, odd Factory settings: Odd
Stop bit	One, two Factory setting: One
IEEE format	Little endian, big endian Factory setting: Little endian
Typical response time	< 100 ms
Response delay time	0 to 200 ms Factory setting: 10 ms

The function codes listed below are supported by FEX62X:

Function code	Description
0x02	Read Discrete Inputs
0x03	Read Holding Registers
0x04	Read Input Registers
0x06	Write Single Register
0x08	Diagnostics
0x10	Write Multiple Registers
0x11	Report Slave ID

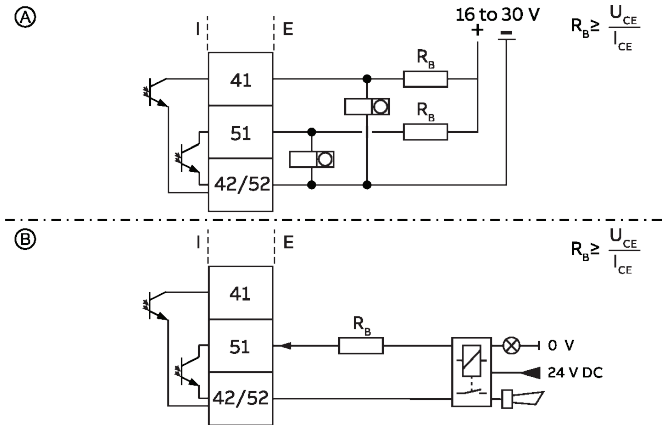
...Electrical connections

The following table is an overview of register tables categorized by type:

Table name	Table type	Data type	Start index	End index
Unsigned Integer 8bit ReadOnly dynamic U8ROD	Single	TUSIGN8	1	32
Float 32bit ReadOnly F32RO	Single	TFLOAT	2200	2248
ReadOnly 16bit unsigned integer U16RO	Single	TUSIGN16	2100	2112
ReadWrite 32bit float F32RW	Single	TFLOAT	5000	5104
ReadWrite 32bit unsigned integer U32RW und U32RO	Single	TUSIGN32	3300	3326
ReadWrite 8bit unsigned integer U8RW	Single	TUSIGN8	4000	4175
Unsigned Integer 16bit ReadWrite U16RW	Single	TUSIGN16	3100	3236
Variant 16bit ReadOnly V16RO	Single	TUSIGN16	1100	1231
Character 8bit ReadOnly C8RO	String	TUSIGN8	2500	2759
Character 8bit ReadWrite C8RW	String	TCHAR	3400	3519
Float 64bit ReadOnly dynamic F64ROD	Single	TUSIGN8	400	432
Float 32bit ReadOnly dynamic F32ROD	Single	TDOUBLE	200	306
Unsigned Integer 8bit ReadOnly U8RO	Single	TUSIGN32	2000	2052

Digital output 41/42, 51/52

Can be configured as pulse, frequency or binary output.



(A) Passive digital output 41/42, 51/52 as pulse or frequency output

(B) Passive digital output 51/52 as binary output

Figure 49 Connection example (I = internal, E = external, RB = load)

Note

- Terminals 42/52 have the same ground potential. Digital outputs 41/42 and 51/52 are not electrically isolated from each other.
- If a mechanical counter is used, ABB recommends setting a pulse width of ≥ 30 ms and a maximum frequency (f_{max}) of ≤ 3 kHz.

Pulse/frequency output (passive)

Terminal	41/42, 51/52
U_{max}	30 V DC
I_{max}	25 mA
f_{max}	10.5 kHz
Pulse width	0.1 to 2000 ms

Binary output (passive)

Terminal	41/42, 51/52
U_{max}	30 V DC
I_{max}	25 mA
Switching function	Can be configured using software as: System alarm, empty pipe alarm, max./min. alarm, flow direction signaling, others

Ordering information

ProcessMaster FEW621

Electromagnetic Flowmeter system, integral mount (ABB Part No.: 3KXF242621V)

FEW621	XX	XX	XXXX	XX	XX	X
Explosion Protection Certification						
Without, Flowmeter acc to CE Standard	Y0					
Without, Flowmeter acc to UKCA Standard	Y1					
Housing Type / Housing Material / Cable Glands						
Integral / Single compartment / Plastic / M20 x 1.5		V1				
Integral / Single compartment / Plastic / NPT 1/2 in		V2				
Meter Size						
DN 25 (1 in)			0025			
DN 32 (1¼ in)			0032			
DN 40 (1½ in)			0040			
DN 50 (2 in)			0050			
DN 65 (2½ in)			0065			
DN 80 (3 in)			0080			
DN 100 (4 in)			0100			
DN 125 (5 in)			0125			
DN 150 (6 in)			0150			
DN 200 (8 in)			0200			
DN 250 (10 in)			0250			
DN 300 (12 in)			0300			
DN 350 (14 in)			0350			
DN 400 (16 in)			0400			
DN 450 (18 in)			0450			
DN 500 (20 in)			0500			
DN 600 (24 in)			0600			
DN 700 (28 in)			0700			
DN 750 (30 in)			0750			
DN 800 (32 in)			0800			
DN 900 (36 in)			0900			
DN 1000 (40 in)			1000			
DN 1050 (42 in)			1050			
DN 1100 (44 in)			1100			
DN 1200 (48 in)			1200			
DN 1350 (54 in)			1350			
DN 1400 (54 in)			1400			
DN 1500 (60 in)			1500			
DN 1600 (66 in)			1600			
DN 1650 (66 in)			1650			
DN 1800 (72 in)			1800			
DN 1950 (78 in)			1950			
DN 2000 (80 in)			2000			
DN 2100 (84 in)			2100			
DN 2200 (88 in)			2200			
DN 2400 (96 in)			2400			
DN 2600 (104 in)			2600			
DN 2800 (112 in)			2800			
DN 3000 (120 in)			3000			

FEW621	XX	XX	X	X	X	X	X	X	XX	X
Process Connection Type										
Flanges ASME CL 150 B16.5 up to DN600, B16.47 serie B > DN600	A1									
Flanges ASME CL 300 B16.5 up to DN600, B16.47 serie B > DN600	A3									
Flanges ASME CL 150 A16.47 serie A > DN600	B1									
Flanges ASME CL 300 A16.47 serie A > DN600	B3									
Flanges JIS 10K	J1									
Flanges JIS 5K	J2									
AWWA C207 Class B	C1									
AWWA C207 Class D	C2									
AWWA C207 Class E	C3									
AWWA C207 Class F	C4									
AS4087 PN16	E1									
AS2129 Table E	E4									
AS2129 Table D	E5									
AS4087 PN35	E8									
Flanges JIS 7,5K	J0									
EN 1092-1 PN 6	S0									
EN 1092-1 PN10	S1									
EN 1092-1 PN16	S2									
EN 1092-1 PN25	S3									
EN 1092-1 PN40	S4									
Liner Material										
Hard rubber		R2								
Process Connection Material										
Carbon steel			B							
Stainless steel			C							
Electrode Design										
Standard				1						
Measuring Electrodes Material										
Hast. C-4 (2.4610)					D					
Stainless steel 316Ti (1.4571)					S					
Stainless steel 316L (1.4404)					R					
Super Austenitic steel (1.4529)					U					
Hast. C-22					C					
Grounding Electrode / Full Pipe Detection										
No grounding electrode / No full pipe detection						0				
No grounding electrode / With full pipe detection						1				
Grounding electrode / No full pipe detection						2				
Grounding electrode / With full pipe detection						3				
Grounding Accessories										
Without							A			
Grounding Ring (1 off), stainless steel, loose item							D			
Grounding Ring (2 off), stainless steel, loose item							E			

	FEW621	XX	X	XX	X	XX	XXX	XXX	XXX	XX	XX	XX
Protection Class Transmitter / Protection Class Sensor												
IP 66, NEMA 4X / IP67, NEMA 4X										72		
Power Supply												
100 to 230 AC / 24 V DC, 50 Hz										F		
100 to 230 AC / 24 V DC, 60 Hz										G		
Outputs												
HART/ Current output (active), 2 digital outputs (passive),										A7		
HART/ Current output (active), 2 digital output (passive),										M1		
<u>Modbus RTU</u>												
Design Level												
(Specified by ABB)										A		
Usage Certifications												
Without										C0		
Inspection certificate 3.1 acc. EN 10204										C2		
<u>Others</u>										CZ		
Calibration Certifications												
ABB Standard										CMA		
3rd party witnessed calibration										CMW		
<u>5-point calibration acc. ISO17025</u>										CMD		
Other Usage Certifications												
<u>Standard (without PED)</u>								CRA				
Potable Water and Food & Beverage Approvals												
Without									CWY			
DVGW ; KTW for ProcessMaster(in preparation)									CWL			
WRAS - Cold water approval									CWA			
WRAS - 50 °C water approval									CWN			
WRAS - 60 °C water approval									CWK			
NSF-61 meter approval									CWC			
AZ / NZS 4020									CWE			
<u>ACS(in preparation)</u>									CWF			
Sensor Length												
ABB Standard										J6		
<u>1.0D (DN700 and Above)</u>										JH		
Other Options												
Without										K0		
<u>With Gore-tex membrane</u>										KG		
Documentation Language												
German										M1		
English										M5		
Chinese										M6		
Language package Western Europe / Scandinavia										MW		
Language package Eastern Europe										ME		

[illegible]

ProcessMaster FEW622

Electromagnetic Flowmeter system, remote mount (ABB Part No.: 3KXF242622V)

FEW622		XX	XX	XXXX	XX	XX	X
Explosion Protection Certification							
Without, Flowmeter acc to CE Standard		Y0					
Without, Flowmeter acc to UKCA Standard		Y1					
Housing Type / Housing Material / Cable Glands							
Remote / Plastic / M20 x 1.5		P1					
Remote / 'Plastic / NPT 1/2 in		P2					
Meter Size							
DN 25 (1 in)				0025			
DN 32 (1¼ in)				0032			
DN 40 (1½ in)				0040			
DN 50 (2 in)				0050			
DN 65 (2½ in)				0065			
DN 80 (3 in)				0080			
DN 100 (4 in)				0100			
DN 125 (5 in)				0125			
DN 150 (6 in)				0150			
DN 200 (8 in)				0200			
DN 250 (10 in)				0250			
DN 300 (12 in)				0300			
DN 350 (14 in)				0350			
DN 400 (16 in)				0400			
DN 450 (18 in)				0450			
DN 500 (20 in)				0500			
DN 600 (24 in)				0600			
DN 700 (28 in)				0700			
DN 750 (30 in)				0750			
DN 800 (32 in)				0800			
DN 900 (36 in)				0900			
DN 1000 (40 in)				1000			
DN 1050 (42 in)				1050			
DN 1100 (44 in)				1100			
DN 1200 (48 in)				1200			
DN 1350 (54 in)				1350			
DN 1400 (54 in)				1400			
DN 1500 (60 in)				1500			
DN 1600 (66 in)				1600			
DN 1650 (66 in)				1650			
DN 1800 (72 in)				1800			
DN 1950 (78 in)				1950			
DN 2000 (80 in)				2000			
DN 2100 (84 in)				2100			
DN 2200 (88 in)				2200			
DN 2400 (96 in)				2400			
DN 2600 (104 in)				2600			
DN 2800 (112 in)				2800			
DN 3000 (120 in)				3000			

FEW622	XX	XX	XXXX	XX	XX	X
Process Connection Type						
Flanges ASME CL 150 B16.5 up to DN600, B16.47 serie B> DN600	A1					
Flanges ASME CL 300 B16.5 up to DN600, B16.47 serie B> DN600	A3					
Flanges ASME CL 150 A16.47 serie A > DN600	B1					
Flanges ASME CL 300 A16.47 serie A> DN600	B3					
Flanges JIS 10K	J1					
Flanges JIS 5K	J2					
AWWA C207 Class B	C1					
AWWA C207 Class D	C2					
AWWA C207 Class E	C3					
AWWA C207 Class F	C4					
AS4087 PN16	E1					
AS2129 Table E	E4					
AS2129 Table D	E5					
AS4087 PN35	E8					
Flanges JIS 7.5K	J0					
EN 1092-1 PN 6	S0					
EN 1092-1 PN 10	S1					
EN 1092-1 PN 16	S2					
EN 1092-1 PN 25	S3					
EN 1092-1 PN 40	S4					

[illegible]

FEW622		XXX	XX	XXX	XXX	XX
Signal Cable						
Without		SC0				
5 m (approx. 15 ft)		SC1				
10 m (approx. 30 ft)		SC2				
20 m (approx. 66 ft)		SC4				
30 m (approx. 98 ft)		SC6				
50 m (approx. 164 ft)		SCA				
80 m (approx. 262 ft)		SCD				
100 m (approx. 328 ft)		SCE				
150 m (approx. 492 ft)		SCG				
200 m (approx. 656 ft)		SCJ				
Device Identification Plate						
Adhesive label			TC			
Temperature Range of Installation / Ambient Temperature Range						
Standard design / -20 to 60 °C (-4 to 140 °F)				TK1		
Number of Testpoints						
3 Points					TV3	
5 Points					TV5	
Verification Capability						
enabled						V1

ProcessMaster FET622
remote Transmitter (ABB Part No.: 3KXF240622V)

[illegible]

ProcessMaster FER621 remote Transmitter (ABB Part No.: 3KXF244621V)

	FER621	XX	XX	XXXX	XX	XX	X	X	X	X	X	XX	X
Explosion Protection Certification													
Without, Flowmeter acc to CE Standard		Y0											
Housing Type / Housing Material / Cable Glands													
Integral / Single compartment / Plastic / M20 x 1.5		V1											
Integral / Single compartment / Plastic / NPT 1/2 in.		V2											
Meter Size													
DN 40 (1-1/2 in.)				0040									
DN 50 (2 in.)				0050									
DN 65 (2-1/2 in.)				0065									
DN 80 (3 in.)				0080									
DN 100 (4 in.)				0100									
DN 125 (5 in.)				0125									
DN 150 (6 in.)				0150									
DN 200 (8 in.)				0200									
DN 250 (10 in.)				0250									
DN 300 (12 in.)				0300									
*DN 350 (14 in.)				0350									
*DN 400 (16 in.)				0400									
*DN 450 (18 in.)				0450									
*DN 500 (20 in.)				0500									
*DN 600 (24 in.)				0600									
Process Connection Type													
Flanges ASME CL 150 B16.5 up to DN600, B16.47 serie B > DN600					A1								
Flanges JIS 10K					J1								
Flanges JIS 5K					J2								
AS4087 PN16					E1								
AS2129 Table E					E4								
EN 1092-1 PN10					S1								
EN 1092-1 PN16					S2								
EN 1092-1 PN25					S3								
EN 1092-1 PN40					S4								
Liner Material													
Elastomer					R1								
Process Connection Material													
Carbon steel						B							
Electrode Design													
Standard							1						
Measuring Electrodes Material													
Stainless steel 316L (1.4404)								R					
Super Austenitic steel (1.4529)								U					
Grounding Electrode / Full Pipe Detection													
Grounding electrode / No full pipe detection									2				
Grounding Accessories													
Without											A		
Grounding Ring (1off), stainless steel, loose Item											D		
Grounding Ring (2off), stainless steel, loose Item											E		
Protection Class Transmitter / Protection Class Sensor													
IP 66, NEMA 4X / IP67, NEMA 4X												72	
Power Supply													
100 ... 230 AC / 24 V DC, 50 Hz													F
100 ... 230 AC / 24 V DC, 60 Hz													G

*DN350 to DN600 in preparation

ProcessMaster FER620 remote Transmitter (ABB Part No.: 3KXF244621V)

FER621	XX	XX	XXX	XXX	XXX	XX	XX	XXX	XXX	XXX	XXX	XXX	XXX
Outputs													
1 Current output (active), 2 digital outputs (passive), HART	A7												
Current output 1 (active), digital output 1 & 2 (passive), HART, MODBUS RTU	M1												
Usage Certifications													
Without		C0											
Inspection certificate 3.1 acc. EN 10204		C2											
Others		CZ											
Calibration Certifications													
ABB Standard			CMA										
3rd party witnessed calibration			CMW										
5-point calibration acc. ISO17025			CMD										
Other Usage Certifications													
Standard (without PED)						CRA							
Potable Water and Food & Beverage Approvals													
Without						CWY							
WRAS - Cold water approval						CWA							
WRAS - 50 °C water approval						CWN							
NSF-61 meter approval						CWC							
AZ / NZS 4020						CWE							
ACS						CWF							
Other Options													
Without						K0							
With Gore-tex membrane						KG							
Documentation Language													
German							M1						
English							M5						
Chinese							M6						
Language package Western Europe / Scandinavia							MW						
Language package Eastern Europe							ME						
Tests and Reports													
Without								CRO					
Pressure test acc. to DIN								CPD					
TSG Certificate (China)								CT1					
TSG Certificate (China) + TSG Authority Witness								CT2					
Configuration Type													
Parameters set to factory defaults									NC1				
Parameters set customer specific									NCC				
Transmitter Software Function Package													
Standard										NFS			
Calibration Type													
0,2% (+/-2mm/s,Option)												RCB	
0,4% Factory Calibration												RCD	
0,4% Factory Calibration (+ / - 1 mm/s)												RCG	
0,3% Factory Calibration (Option)												RCE	
MCERT Class 2 calibration												RCJ	
Class 2 calibration to OIML R49 & NMI R49												RCM*	
Class 1 calibration to OIML R49 & NMI R49												RCN*	
Signal Cable													
Without													SC0

*No certification of OIML yet, calibration according to OIML standard

	FER621	XX	XXX	XXX	XX	XXX	XX	XX	XXX	XXX	XXX	XXX	XXX	XXX
Device Identification Plate														
Adhesive label		TC												
Temperature Range of Installation / Ambient Temperature Range														
Standard design / -20 ... 60 °C (-4 ... 140 °F)		TK1												
Number of Testpoints														
2 Points				TV2										
3 Points				TV3										
5 Points				TV5										
Verification Capability														
enabled					V1									
Topworks housing orientation														
Cable entries pointing 90° versus the sensor axis, Tx housing/Display is horizontal (Version C)						HDD								
Cable entries pointing in same direction as sensor axis, Tx housing/ Display is horizontal (Version D)						HDC								
Cable entries pointing 90° versus the sensor axis, Tx housing/Display is 45° (Version B) DEFAULT						HDB								
Cable entries pointing in same direction as sensor axis, Tx housing/ Display is 45° (Version A)						HDA								

ProcessMaster FER622

remote Transmitter (ABB Part No.: 3KXF244622V)

FER622	XX	XX	XXXX	XX	XX	X	X	X	X	X	XX	X
Explosion Protection Certification												
Without, Flowmeter acc to CE Standard	Y0											
Housing Type / Housing Material / Cable Glands												
Remote / Plastic / M20 x 1.5	P1											
Remote / 'Plastic / NPT 1/2 in.	P2											
Remote / Stainless Steel / M20 x 1.5	U1											
Remote / Stainless Steel / NPT 1/2 in	U2											
Meter Size												
DN 40 (1-1/2 in.)			0040									
DN 50 (2 in.)			0050									
DN 65 (2-1/2 in.)			0065									
DN 80 (3 in.)			0080									
DN 100 (4 in.)			0100									
DN 125 (5 in.)			0125									
DN 150 (6 in.)			0150									
DN 200 (8 in.)			0200									
DN 250 (10 in.)			0250									
DN 300 (12 in.)			0300									
*DN 350 (14 in.)			0350									
*DN 400 (16 in.)			0400									
*DN 450 (18 in.)			0450									
*DN 500 (20 in.)			0500									
*DN 600 (24 in.)			0600									
Process Connection Type												
Flanges ASME CL 150 B16.5 up to DN600, B16.47 serie B > DN600				A1								
Flanges JIS 10K				J1								
Flanges JIS 5K				J2								
AS4087 PN16				E1								
AS2129 Table E				E4								
EN 1092-1 PN10				S1								
EN 1092-1 PN16				S2								
EN 1092-1 PN25				S3								
EN 1092-1 PN40				S4								
Liner Material												
Elastomer					R1							
Process Connection Material												
Carbon steel						B						
Electrode Design												
Standard							1					
Measuring Electrodes Material												
Stainless steel 316L (1.4404)								R				
Super Austenitic steel (1.4529)								U				
Grounding Electrode / Full Pipe Detection												
Grounding electrode / No full pipe detection									2			
Grounding Accessories												
Without											A	
Grounding Ring (1off), stainless steel, loose Item											D	
Grounding Ring (2off), stainless steel, loose Item											E	
Protection Class Transmitter / Protection Class Sensor												
IP67, NEMA 4X / IP68, NEMA 6P - Cable not fitted and potted												78
IP67, NEMA 4X / IP68, NEMA 6P - Cable fitted and potted												79
Power Supply												
Without , 50Hz												Y
Without , 60Hz USA												W

*DN350 to DN600 in preparation

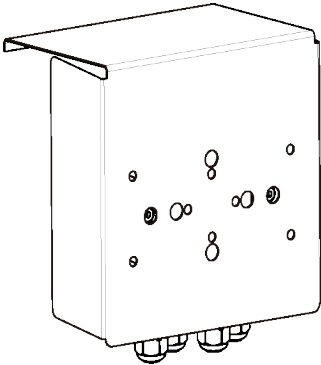
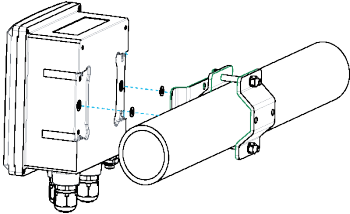
FER622	XX	XX	XXX	XXX	XXX	XX	XX	XXX	XXX	XXX	XXX
Outputs											
Without	Y0										
Usage Certifications											
Without		C0									
Inspection certificate 3.1 acc. EN 10204		C2									
Others		CZ									
Calibration Certifications											
ABB Standard			CMA								
3rd party witnessed calibration			CMW								
5-point calibration acc. ISO17025			CMD								
Other Usage Certifications											
Standard (without PED)				CRA							
Potable Water and Food & Beverage Approvals											
Without						CWY					
WRAS - Cold water approval						CWA					
WRAS - 50 °C water approval						CWN					
NSF-61 meter approval						CWC					
AZ / NZS 4020						CWE					
ACS						CWF					
Other Options											
ABB Standard						K0					
3rd party witnessed calibration						KP					
5-point calibration acc. ISO17025						KG					
With Gore-tex membrane						KM					
Documentation Language											
German							M1				
English							M5				
Chinese							M6				
Language package Western Europe / Scandinavia							MW				
Language package Eastern Europe							ME				
Tests and Reports											
Without								CR0			
Pressure test acc. to DIN								CPD			
TSG Certificate (China)								CT1			
TSG Certificate (China) + TSG Authority Witness								CT2			
Configuration Type											
Parameters set to factory defaults									NC1		
Parameters set customer specific									NCC		
Transmitter Software Function Package											
Standard										NFS	
Calibration Type											
0,2% (+/-2mm/s,Option)											RCB
0,4% Factory Calibration											RCD
0,4% Factory Calibration (+ / - 1 mm/s)											RCG
0,3% Factory Calibration (Option)											RCE
MCERT Class 2 calibration											RCJ
Class 2 calibration to OIML R49 & NMI R49											RCM*
Class 1 calibration to OIML R49 & NMI R49											RCN*

*No certification of OIML yet, calibration according to OIML standard

ProcessMaster FER622
remote Transmitter (ABB Part No.: 3KXF244622V)

	FER622	XX	XXX	XXX	XX	XXX
Signal Cable						
Without		SC0				
5 m (approx. 15 ft)		SC1				
10 m (approx. 30 ft)		SC2				
20 m (approx. 66 ft)		SC4				
30 m (approx. 98 ft)		SC6				
50 m (approx. 164 ft)		SCA				
80 m (approx. 262 ft)		SCD				
100 m (approx. 328 ft)		SCE				
150 m (approx. 492 ft)		SCG				
200 m (approx. 656 ft)		SCJ				
Device Identification Plate						
Adhesive label			TC			
Temperature Range of Installation / Ambient Temperature Range						
Standard design / -20 ... 60 °C (-4 ... 140 °F)				TK1		
Number of Testpoints						
2 Points					TV2	
3 Points					TV3	
5 Points					TV5	
Verification Capability						
enabled						V1

Accessories

Description	Order code
Weathershield Kit for FET622 remote Transmitter	3KXA877210L0103
	
Pipe-mount Kit for FET622 remote Transmitter	3KXA877210L0102
	
Panel-mount Kit for FET622 remote Transmitter	3KXA877210L0101
	
Service cable with USB to TTL Converter for 620 Series Transmitter	
cable with USB to USB connector	3KXF065601U0100
cable with USB to JST connector	3KXF065669U0100
2pcs in one Pack, 1x(USB to USB) and 1x(USB to JST)	3KXF065690U0100
Signal cable	
5 m (approx. 15 ft)	D173D031U05
10 m (approx. 30 ft)	D173D031U10
15 m (approx. 49 ft)	D173D031U15
20 m (approx. 66 ft)	D173D031U20
25 m (approx. 82 ft)	D173D031U25
30 m (approx. 98 ft)	D173D031U30
35 m (approx. 115 ft)	D173D031U35
40 m (approx. 131 ft)	D173D031U40
50 m (approx. 164 ft)	D173D031U50
80 m (approx. 262 ft)	D173D031U80
100 m (approx. 328 ft)	D173D031U1H
150 m (approx. 492 ft)	D173D031U1F
200 m (approx. 656 ft)	D173D031U2H
Potting Kit	
For on-site sensor terminal box potting	0218499

Notes

Notes

Trademarks

HART is a registered trademark of FieldComm Group, Austin, Texas, USA
Hastelloy C is a trademark of Haynes International

Sales



Service





ABB Measurement & Analytics

For your local ABB contact, visit:

www.abb.com/contacts

For more product information, visit:

www.abb.com/measurement

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.