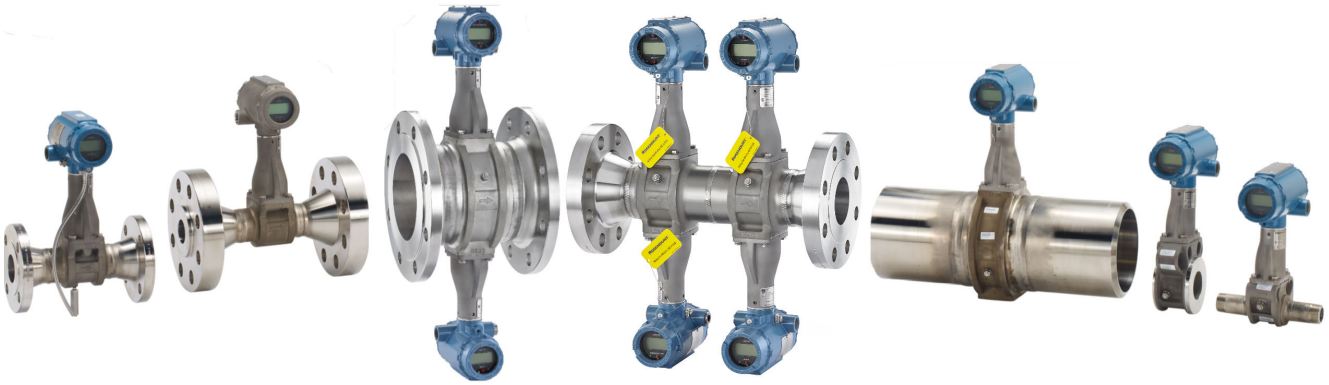
Product Data Sheet
00813-0100-4004, Rev KH
August 2020

Rosemount™ 8800D Vortex Flowmeter



Industry Leading Vortex

- HART™ and FOUNDATION™ Fieldbus Protocols
- All welded, non-clog design provides maximum performance, reliability and enhanced safety by eliminating ports and gaskets.
- CriticalProcess™ increases process availability and enhances overall safety.
- SIL 2/3 Capable: IEC 61508 certified by an accredited 3rd party agency for use in safety instrumented systems up to SIL 3.
- Available with optional multivariable output. Internal temperature compensation provides cost-effective saturated steam and liquid mass flow measurement.
- Adaptive Digital Signal Processing (ADSP) provides vibration immunity and flow range optimization.
- Reducer™ Vortex extends the measurable flow range, reduces installation costs, and minimizes project risk.
- Simplified troubleshooting through device diagnostics and meter verification.
- Available in wafer, flanged, dual, quad, weld end, reducer, and high pressure designs.

ROSEMOUNT™

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Product Overview

Rosemount 8800 selection guide

Rosemount 8800 Flanged vortex flow meter

- Wide range of flange ratings available
- Ideal for all applications from general purpose to the most demanding applications
- Available with ½ through 12 inch (15 mm through 300 mm) line sizes

Rosemount 8800 Reducer vortex flow meter

- Flanged vortex flow meter with reducing flanges integrated into the design
- Reduces cost by eliminating the need for field assembly of reduced piping
- Both reducer and standard vortex have a common face-to-face dimension which allows the user to change the meter without impacting the piping layout or drawing
- Available with ½ through 14 inch (15 mm to 350 mm) line sizes

Contents

Rosemount 8800 MultiVariable vortex flow meter

- Integral temperature sensor enables temperature compensated mass flow for saturated steam and liquids
- Incorporates temperature sensor into the vortex meter using the shedder bar as a thermowell, which keeps the vortex and temperature sensors isolated from process for easy verification and replacement
- Capability to capture a pressure input from a HART pressure device for pressure compensation mass flow for saturated steam
- Pressure and Temperature compensation mass flow for Superheated Steam
- Superheat Diagnostics allows for an alert and/or alarm to activate when degrees of superheat are close to saturated conditions.
- Available with integrated thermowell for 1½ inch through 12 inch (40 mm through 300 mm) Flanged and 2 inch through 12 inch (50 mm through 300 mm) Reducer Vortex meter body sizes

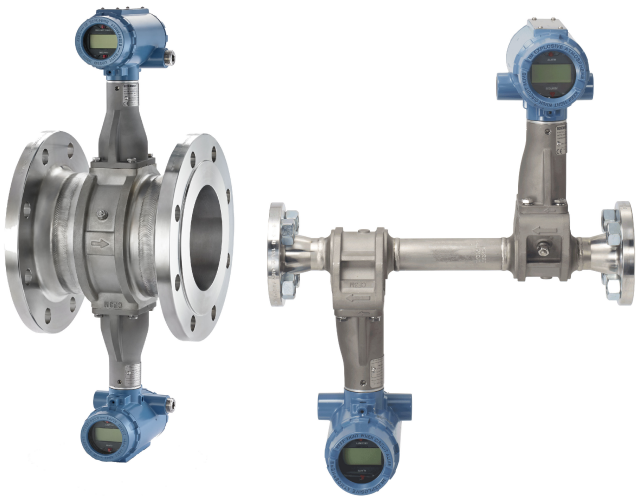
Rosemount 8800 Wafer vortex flow meter

- Lightweight, cost-effective solution
- Easy installation with standard alignment rings
- Ideal for utility applications
- Available with ½ inch through 8 inch (15 mm through 200 mm) line sizes

Rosemount 8800 Weld-end vortex flow meter

- Flange gaskets are eliminated by welding the flow meter directly into your process piping
- The only vortex flow meter available with zero potential leak points
- Ideal for applications where reducing potential leak points is important
- Available with ½ inch through 12 inch (15 mm through 300 mm) line sizes

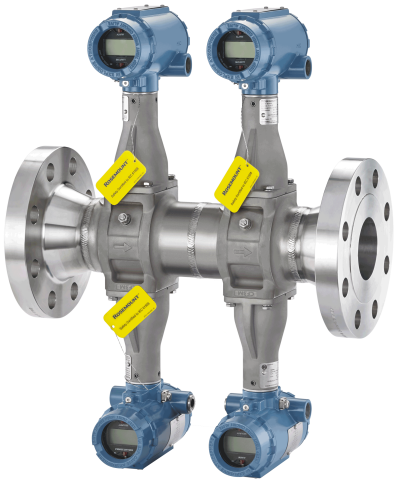
Rosemount 8800 Dual vortex flow meter



- Flanged vortex flow meter with redundant electronics and sensors
- Use for SIS and other applications where redundancy is critical
- Available with ½ inch through 12 inch (15 mm through 300 mm) line sizes

Rosemount 8800 Quad vortex flow meter

- Emerson delivers an integrated quadruple sensor configuration providing 2oo3 voting plus an addition independent output for process control
- Reduce installation costs with a simple drop-in solution
- Decrease operating expenses and maintenance over traditional dP orifice flow meters
- Excellent rangeability and no need for zeroing
- Couple with the CriticalProcess (CPA) option to ensure ultimate safety and reliability
- Transmitters available with independent configurations
- Available with 2 inch through 12 inch (50 mm through 300 mm) line sizes



The Rosemount 8800D delivers reliability, safety, and maximum process availability

- Rosemount Reliability—The Rosemount 8800D Vortex eliminates impulse lines, ports, and gaskets to improve reliability.
- Non-clog Design—Unique all welded, gasket-free construction which has no ports or crevices that can clog.
- SIL 2/3 Capable - The Rosemount 8800D Vortex is certified by an accredited 3rd party agency for use in safety instrumented systems up to SIL 3 (minimum requirement of single use [1oo1] for SIL 2 and redundant use [1oo2] for SIL 3).
- Vibration Immunity—Mass balancing of the sensor system, and Adaptive Digital Signal Processing (ADSP) provide vibration immunity.
- Replaceable Sensor—The sensor is isolated from the process and can be replaced without breaking the process seal. All line sizes use the same sensor design allowing a single spare to serve every meter.
- Simplified Troubleshooting—Device Diagnostics enable field verification of meter electronics and sensor without process shutdown.

The Rosemount 8800D Critical Process Vortex increases process availability and enhances overall safety

Eliminate bypass piping for critical process installations

Traditional vortex installations in critical applications include a bypass line to allow process fluid to be re-directed around the vortex flow meter during routine sensor maintenance. Rosemount's unique non-wetted sensor can be installed without bypass piping, even in the most difficult process environments.

Improve process availability

Eliminate the need to shut down the process during routine maintenance and meter verification.

Enhances safety in hazardous process fluid applications

A Critical Process Valve (CPA option) enables access to the sensor cavity to verify that no process fluid is present.

Boost reliability, confidence, and control while reducing safety risks, maintenance costs, and down time in liquid and steam flow applications with the Rosemount 8800D MultiVariable™ flowmeter

Gain confidence in your mass flow measurement accuracy

Emerson MultiVariable Vortex provides the highest level of accurate steam mass flow over the widest range using an external pressure and/or internal temperature measurement to capture your dynamic operating conditions. This delivers the confidence required for your billing statements and also achieves better control in steam applications.

Reduce safety risks and maintenance burdens associated with many-component measurement solutions

By selecting Emerson MultiVariable Vortex, the safety risk to operators is reducing while at the same time, the maintenance required is reduced and simplified. The plant area shutdown requirements are reduced while performing maintenance or verification tasks, which also reduces the cost implications of being offline.

Overcome challenges of steam mass-flow measurement with a more durable solution

Emerson MultiVariable Vortex delivers the performance confidence and system reliability required in steam applications. Cost implications related to poor quality steam, complex system architecture and process shutdowns are eliminated by reducing vulnerability to leakage, clogging, plugging and freezing.

Available with flow computer for additional functionality

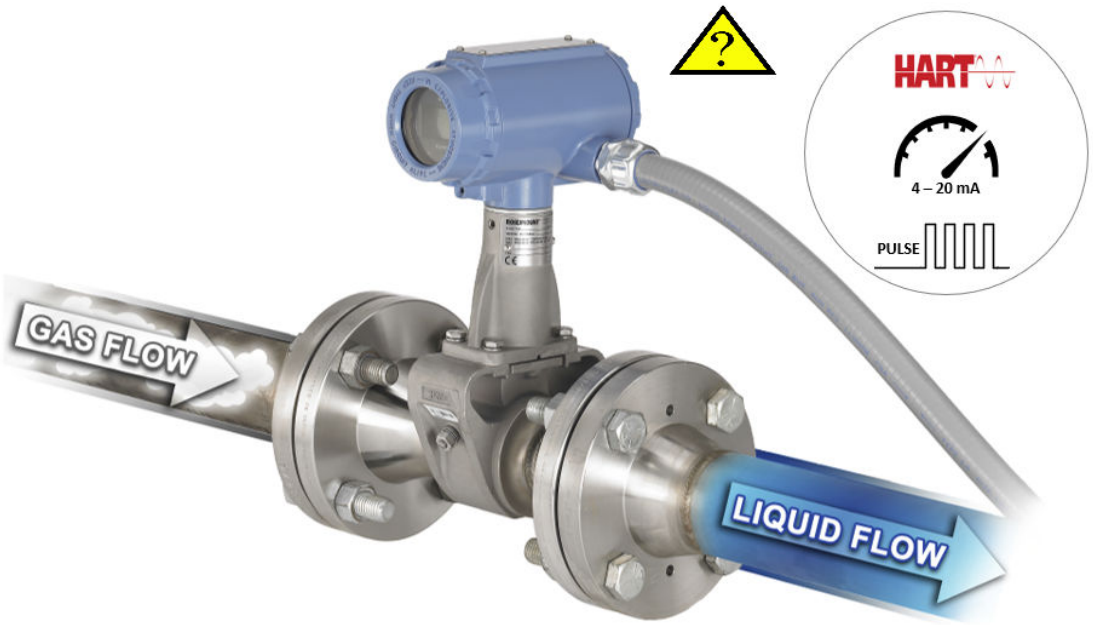
Integrating the multivariable vortex with a pressure transmitter for full pressure and temperature compensation of superheated steam and various gases provides the following additional functionality:

- Remote Communications
- Heat Flow Calculations
- Remote Totalization
- Peak Demand Calculation
- Data Logging Capabilities

Maximum reliability and reduced installation complexity with the Remote Transmitter

- Available with standard (Rxx option code) or armored (Axx option code) cable
- Improved protection against abrasion, impact, and moisture.
- Available in 10, 20, 33, 50, and 75 foot (3, 6, 10, 15, and 23 m) lengths.
- Two cable glands are provided to securely connect the remote cable to transmitter and meter body.
- The cable gland material will match the material of construction of the mating parts at both the meter body end and transmitter end. The cable gland that connects to the meter body will utilize a stainless steel gland and the cable gland material at the electronics end will be either aluminum or stainless steel depending on the material of the electronics housing that is ordered.

Detect process fluid change from liquid to gas with SMART Fluid Diagnostics



Oil and gas separators

- Remotely detect when your separator dump valve allows gas to pass through your water dump leg.
- Selectable alert modes (digital, analog or pulse) signal when gas flow is detected.

Steam, nitrogen, or air blow down

- Control your clean in place (CIP) or blow down cycles with a single meter that measures the flow rate of your primary process fluid as well as the change from liquid to gas flow.
- Set your control system to control down cycle based on alert from in-line vortex meter.
- Selectable alert modes (digital, analog or pulse) signal when gas flow is detected.

Provide comparison to external time reference with Elapsed Time Meter

- Running totalizer of hours of operation
- Accuracy 1 hour per year maximum deviation

Access process variables and diagnostics locally with the optional LCD Display

The optional 11 digit, two-line integral LCD display can be configured to alternate between selected display options,such as flow, totalizer, mA output, temperature (MTA/MCA) and pressure (MPA/MCA). Diagnostics and fault conditions, when present, will also appear on the display for local troubleshooting.

Flow rate sizing

Sizing calculations are required to select the proper flow meter size. These calculations provide pressure loss, accuracy, minimum and maximum flow rate data to guide in proper selection. Vortex sizing software can be found using the Selection and Sizing tool. The Selection and Sizing tool can be accessed online or downloaded for offline use using this link:

www.Emerson.com/FlowSizing

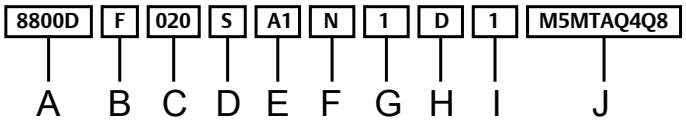
For reference for typical flow rates for common applications, please refer to product reference manual 00809-0100-4004 or 00809-1100-4004.

Ordering Information - Single/Dual Transmitter

Model code structure

In conjunction with a complete model code string, we strongly recommend every meter be configured at the factory for your application. Use the Rosemount 8800D Configuration Data Sheet (00806-0100-4004) to convey your configuration information to the factory.

Figure 1: Guide to model code structure



A. *Model*
B. *Meter style*
C. *Line size*
D. *Wetted material*
E. *Process connection & pressure rating*
F. *Sensor process temperature range*
G. *Housing material & conduit entries*
H. *Output options*
I. *Calibration*
J. *Options*

Example model code with one selection out of each required category:

8800D F 020 S A1 N 1 D 1 M5 MTA Q4 Q8

The starred (★) offerings represent the best delivery options.

Requirements

Table 1: Requirements - select one from each available choice

Code	Description	
Base model		
8800D	Vortex Flow Meter	★
Meter style		
F	Flanged	★
W	Wafer	★
R	Reducer – Meter body is one nominal size smaller than line size selection	★
D[1]	Dual-sensor (flanged-style only)	
Line size		
005[2]	½ inch (15 mm)	★
010	1 inch (25 mm)	★
015	1½ inch (40 mm)	★
020	2 inch (50 mm)	★
030	3 inch (80 mm)	★
040	4 inch (100 mm)	★
060	6 inch (150 mm)	★
080	8 inch (200 mm)	★
100	10 inch (250 mm)	
120	12 inch (300 mm)	
140[3]	14 inch (350 mm)	
Wetted materials		
S	316 wrought stainless and CF-3M cast stainless; Material of construction is 316/316L.	★
H[4]	UNS N06022 wrought nickel alloy; CW2M cast nickel alloy.	
C	A105 forged carbon steel and WCB cast carbon steel	
L	LF2 forged carbon steel and LCC cast carbon steel	
D[5]	UNS S32760 wrought duplex stainless steel and 6A cast duplex stainless steel	
Process connection style and pressure rating		
A1	ASME B16.5 RF Class 150	★
A3	ASME B16.5 RF Class 300	★
A6	ASME B16.5 RF Class 600	
A7[6]	ASME B16.5 RF Class 900	
A8[7]	ASME B16.5 RF Class 1500	
K0	EN 1092-1 PN 10 Type B1	
K1	EN 1092-1 PN 16 (PN 10/16 for wafer style) Type B1	★
K2	EN 1092-1 PN 25 Type B1	

Table 1: Requirements - select one from each available choice *(continued)*

Code	Description	
K3	EN 1092-1 PN 40 (PN 25/40 for wafer style) Type B1	★
K4	EN 1092-1 PN 63 Type B1	
K6	EN 1092-1 PN 100 Type B1	
K7[6]	EN 1092-1 PN 160 Type B1	
K8[7]	EN 1092-1 PN 250 Type B1	
B1[8]	ASME B16.5 RTJ Class 150 for flange-style only	
B3	ASME B16.5 RTJ Class 300 for flange-style only	
B6	ASME B16.5 RTJ Class 600 for flange-style only	
B7[6]	ASME B16.5 RTJ Class 900 for flange-style only	
B8[7]	ASME B16.5 RTJ Class 1500 for flange-style only	
C1	ASME B16.5 RF Class 150, smooth finish	
C3	ASME B16.5 RF Class 300, smooth finish	
C6	ASME B16.5 RF Class 600, smooth finish	
C7[6]	ASME B16.5 RF Class 900, smooth finish	
C8[7]	ASME B16.5 RF Class 1500, smooth finish	
J1	JIS 10K	
J2	JIS 20K	
J4	JIS 40K	
L0	EN 1092-1 PN 10 Type B2	
L1	EN 1092-1 PN 16 (PN 10/16 for wafer style) Type B2	
L2	EN 1092-1 PN 25 Type B2	
L3	EN 1092-1 PN 40 (PN 25/40 for wafer style) Type B2	
L4	EN 1092-1 PN 63 Type B2	
L6	EN 1092-1 PN 100 Type B2	
L7[6]	EN 1092-1 PN 160 Type B2	
M0	EN 1092-1 PN 10 Type D for flange style only	
M1	EN 1092-1 PN 16 Type D for flange style only	
M2	EN 1092-1 PN 25 Type D for flange style only	
M3	EN 1092-1 PN 40 Type D for flange style only	
M4	EN 1092-1 PN 63 Type D for flange style only	
M6	EN 1092-1 PN 100 Type D for flange style only	
M7[6]	EN 1092-1 PN 160 Type D for flange style only	
N0	EN 1092-1 PN 10 Type F	
N1	EN 1092-1 PN 16 Type F	
N2	EN 1092-1 PN 25 Type F	

Table 1: Requirements - select one from each available choice *(continued)*

Code	Description	
N3	EN 1092-1 PN 40Type F	
N4	EN 1092-1 PN 63 Type F	
N6	EN 1092-1 PN 100 Type F	
N7(6)	EN 1092-1 PN 160 Type F	
W1(9)	Weld-end, Schedule 10S	
W4(9)	Weld-end, Schedule 40S	
W8(8)(9)	Weld-end, Schedule 80S	
W9(9)	Weld-end, Schedule 160S	
Sensor process temperature range		
N	Standard: –40 to +450 °F (–40 to +232 °C)	★
E(10)	Extended: –330 to +800 °F (–200 to +427 °C)	★
S(10)	Severe service: –330 to +800 °F (–200 to +427 °C) and nickel alloy construction for increased corrosion resistance	★
Housing material and conduit entries		
1	Aluminum housing, two ½–14 NPT conduit entries	★
2(11)	Aluminum housing, two M20 x 1.5 conduit entries	★
3(11)	Aluminum housing, two PG 13.5 conduit adapters	★
4	Aluminum housing, one G1/2 conduit adapter (one conduit entry)	★
5	Aluminum housing, two G1/2 conduit adapters (two conduit entries)	★
6	Stainless steel housing, two ½–14 NPT conduit entries	
7(11)	Stainless steel housing, two M20 x 1.5 conduit entries	
Outputs		
D	4–20 mA digital electronics (HART protocol)	★
P	4–20 mA digital electronics (HART protocol) with scaled pulse	★
F(12)(13)	FOUNDATION Fieldbus digital signal	★
Calibration		
1	Flow calibration	★

(1) *Duals from ½ inch through 4 inch (15 mm through 100 mm) have dual bar meter body design. Duals from 6 inch through 12 inch (150 mm through 350 mm) have single bar meter body design. Please contact an Emerson Flow representative (see back page) for more information on 2 inch through 4 inch (50 mm to 100 mm) on single bar dual meter body design.*
(2) *Not available for Rosemount 8800DR.*
(3) *Code 140 (14 inch [350 mm]) size is only available with reducer.*
(4) *See Table 3 for collared vs. weld neck flange configuration.*
(5) *Available in Flanged and Dual from 6 inch through 12 inch and Reducer from 8 inch through 12 inch Class 1500 in 6 inch and 8 inch meter body sizes and Class 900 in 10 inch through 12 inch meter body sizes.*
(6) *Available on flanged and dual style meters from ½ inch through 8 inch (15–200 mm) and reducer style meters from 1 inch through 8 inch (25–200 mm). Also available in 10 inch through 12 inch (250-300 mm) flanged and dual meters along with 12 inch (300 mm) reducers when using Super Duplex material of construction.*
(7) *Only available for flange and dual style meters from 1 inch through 8 inch (25–200 mm).*
(8) *Not available with ½ inch line size.*
(9) *Only available with Meter Style F.*

(10) *The meter body and sensor, in remote mount configurations, is functionally rated to +842 °F process temperature. Process temperature may be further restricted depending on hazardous area options and PED certificates. Consult applicable certificates for particular installation limits. –320 °F to 800 °F (–196 to +427 °C) for European Pressure Equipment Directive (PED), consult factory for lower temperature requirements. The Super Duplex material of construction is limited to use in applications with process temperatures from –40 to +450 °F (–40 to +232 °C).*
(11) *No Japan (E4) approval.*
(12) *The Safety Certifications SI option code is not available with this option.*
(13) *MultiVariable option codes MPA and MCA not available with this option.*

Options

Select only as needed.

Table 2: Options

Code	Description	
Hazardous area approvals		
E5	US Approvals Explosion-proof and Dust Ignition-proof	★
I5	US Approvals Intrinsically Safe and Non-Incendive	★
IE(1)	US Approvals FISCO Intrinsically Safe and Non-Incendive	★
K5	US Approvals Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Non-Incendive	★
E6	US/Canadian Approvals Explosion-proof and Dust Ignition-proof	★
I6	US/Canadian Approvals Intrinsically Safe and Division 2	★
IF(1)	US/Canadian Approvals FISCO Intrinsically Safe and Division 2	★
K6	US/Canadian Approvals Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
KB	US/Canadian Approvals Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety ia; Intrinsic Safety ic	★
IA(1)	ATEX FISCO Intrinsic Safety	★
N1	ATEX Type n	★
ND	ATEX Dust	★
K1	ATEX Flameproof; Intrinsic Safety; Type n; Dust	★
E7	IECEx Flameproof	★
I7	IECEx Intrinsic Safety	★
IG(1)	IECEx FISCO Intrinsic Safety	★
N7	IECEx Type n	★
NF	IECEx Dust	★
K7	IECEx Flameproof; Intrinsic Safety; Type n; Dust	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB(1)	INMETRO FISCO Intrinsic Safety	★
K2	INMETRO Flameproof; Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★
N3	China Type n	★

Table 2: Options *(continued)*

Code	Description	
IH[1]	China FISCO/FNICO Intrinsic Safety	★
K3	China Flameproof; Dust; Intrinsic Safety; Type n	★
E4	Japan Flameproof	★
E8	Technical Regulations Customs Union (EAC) Flameproof	★
I8	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
N8	Technical Regulations Customs Union (EAC) Type n	★
K8	Technical Regulations Customs Union (EAC) Flameproof; Intrinsic Safety; Type n	★
G8	Technical Regulations Customs Union (EAC) FISCO Intrinsic Safety	★
MultiVariable		
MTA[2][3]	MultiVariable output with temperature compensation and integral temperature sensor	★
MPA[2][4]	MultiVariable output with pressure compensation	★
MCA[2][3][4]	MultiVariable output with pressure and temperature compensation and integral temperature sensor	★
Display type		
M5	LCD indicator	★
Remote electronics		
R10	Remote electronics with 10 ft (3,0 m) cable	★
R20	Remote electronics with 20 ft (6,1 m) cable	★
R30	Remote electronics with 30 ft (9,1 m) cable	★
R33	Remote electronics with 33 ft (10,1m) cable	★
R50	Remote electronics with 50 ft (15,2 m) cable	★
R75	Remote electronics with 75 ft (22,9 m) cable	★
Rxx	Remote Electronics with customer-specified cable length (xx ft., 1 ft to 75 ft cable in 1 ft increments) Example: R15 = 15 ft, R34 = 34 ft	
A10	Armored remote electronics with 10 ft (3,0 m) cable	
A20	Armored remote electronics with 20 ft (6,1 m) cable	
A33	Armored remote electronics with 33 ft (10,1 m) cable	
A50	Armored remote electronics with 50 ft (15,2 m) cable	
A75	Armored remote electronics with 75 ft (22,9 m) cable	
Transient protection		
T1	Transient Protection terminal block	★
Alarm mode		
C4[5]	NAMUR alarm and saturation values, high alarm	★
CN[5]	NAMUR alarm and saturation values, low alarm	★

Table 2: Options *(continued)*

Code	Description	
Special cleaning		
P2	Cleaning for special services	★
Ground screw assembly		
V5	External ground screw assembly	★
Plantweb™ control functionality		
A01(6)	Basic Control: One Proportional/Integral/Derivative (PID) Function Block	★
ASME B31.1 code compliance		
J2	ASME B31.1 General compliance	
J7	ASME B31.1 Boiler External Piping (BEP) code stamp	
Conduit electrical connectors		
GE(7)	M12, 4-pin, Male Connector (eurofast™)	
GM(7)	A size Mini, 4-pin, Male Connector (minifast™)	
GN	ATEX Flameproof A size, Mini 4-pin male connector (minifast)	
HART communication		
HR7	HART Revision 7	★
Process diagnostics		
DS3(2)(4)	Smart Fluid Diagnostics	★
Safety certifications		
SI(4)	Safety Certification of 4–20 mA Output per IEC 61508	★
Quality certificate		
Q4	Calibration Certificate per ISO 10474 3.1/EN 10204 3.1	★
Q5	Hydrostatic Test Certificate	★
Q8	Material Traceability per ISO 10474 3.1/EN 10204 3.1	★
QP	Calibration Certificate per ISO 10474 3.1/EN 10204 3.1 and Tamper Evident Seal	★
Q25	Certificate of Compliance to NACE MR0175 and MR0103	★
Q66	Weld procedure package (weld map, weld procedure specification, weld procedure qualification record, welder performance qualification)	★
Q70(8)	NDE Weld Examination Inspection Certificate, ISO 10474 3.1; see Table 30	
Q71(8)	NDE Weld Examination Inspection Certificate, ISO 10474 3.1 with images; see Table 30	
Q76	Positive Material Identification (PMI) on Flanges and Pipe (XRF), per ASTM E1476-97; see Table 31.	★
Q77	Positive Material Identification (PMI) with Carbon Content on Flange and Pipe (OES) per ASTM E1476-97; see Table 32.	★
Q80	Ferrite Content Testing (FN 3 to 10)	★
Sensor completion		
WG	Witness General	

Table 2: Options *(continued)*

Code	Description	
Pressure Equipment Directive (PED)		
PD	Pressure Equipment Directive (PED)	★
Shipboard approvals		
SBS	American Bureau of Shipping (ABS) type approval	★
SBV	Bureau Veritas (BV) type approval	★
SDN	Det Norske Veritas (DNV) type approval	★
SLL	Lloyd's Register (LR) type approval	★
Critical process vortex		
CPA(9)	Critical Process Online Sensor Replacement	
Elapsed time meter		
ETM	Elapsed time meter	★
Quick Start Guide language (default is English)		
YF	French	★
YG	German	★
YI	Italian	★
YJ	Japanese	★
YK	Korean	★
YM	Chinese (Mandarin)	★
YP	Portuguese	★
YR	Russian	★
YS	Spanish	★

(1) *Fieldbus Intrinsic Safe Concept (FISCO) available with output code F (Foundation Fieldbus digital signal) only.*
(2) *The Safety Certifications SI option code is not available with this option.*
(3) *Available with Rosemount 8800DF from 1½ inch through 12 inch (40 mm through 300 mm). Available with 8800DR from 2 inch through 12 inch (50 mm through 300 mm). Consult an Emerson Flow representative (see back page) for line sizes smaller than 1½ inch (40 mm). Not available with 8800DW or 8800DD.*
(4) *Output option code F not available with this option.*
(5) *NAMUR compliant operation and the alarm latch options are preset at the factory and can be changed to standard operation in the field.*
(6) *Requires output code F.*
(7) *Not available with certain hazardous location certifications. Contact an Emerson Flow representative for details (see back page).*
(8) *Available with material option codes S, C, L and H; not available with Meter Style option code W in 1 inch through 4 inch (25 mm through 100 mm) line sizes.*
(9) *The CPA option is not available on wafer, ½ inch (15 mm) flange, or 1 inch (25 mm) reducer units. In addition it is not available on 1 inch (25 mm) flanged and 1½ (40 mm) inch reducer JIS 10K, EN PN40, or EN PN16. Not available with Super Duplex or B31.1 line sizes greater than 6 inch (150 mm).*

Table 3: Material of construction details for wetted material code H (for single/dual transmitters only)

	Flange rating code								
Line size in. (mm)	**A1**	**A3**	**A6**	**A7**	**K1**	**K3**	**K4**	**K6**	**K7**
½ (15)	C	C	C	W	W	W	NA	W	W
1 (25)	C	C	C	W	W	W	NA	W	W
1½ (40)	C	C	C	W	W	W	NA	W	W
2 (50)	C	C	C	W	C	C	W	W	W
3 (80)	C	C	C	W	C	C	W	W	W
4 (100)	C	C	C	W	C	C	W	W	W
6 (150)	C	C	C	W	W	W	W	W	W
8 (200)	C	C	C	W	W	W	W	W	W
10 (250)	W	W	W	NA	W	W	W	W	NA
12 (300)	W	W	W	NA	W	W	W	W	NA
14 (350) Reducer only	W	W	W	W	W	W	W	W	W

C Nickel alloy collar and 316 SST lap flange (Table 4). If weld neck flange is required, contact an Emerson Flow representative (see back page).

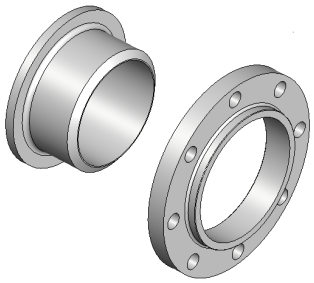
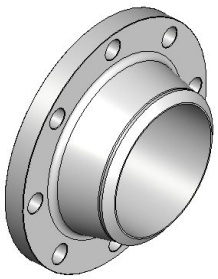
W Nickel alloy weld neck flange (Table 4).

* Contact an Emerson Flow representative (see back page).

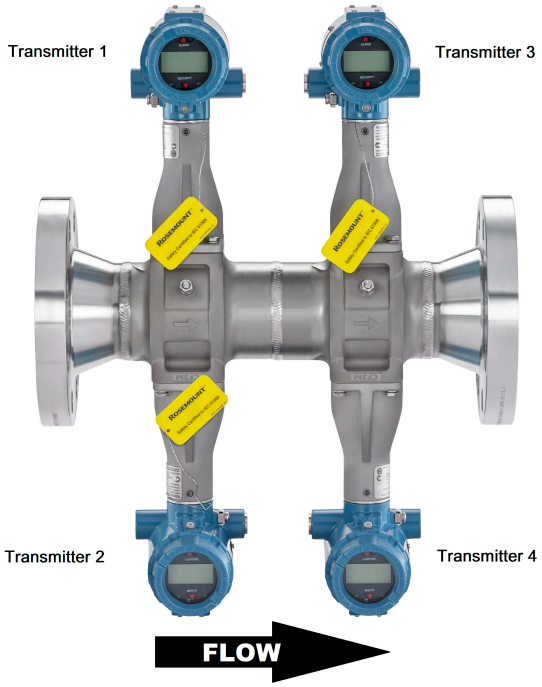
NA Not Available.

All reducer models with nickel alloy materials of construction, all quad transmitter models, and all other listed flange rating codes use weld neck flanges.

Table 4: Flange illustrations

Collar/lap	Weld neck
	

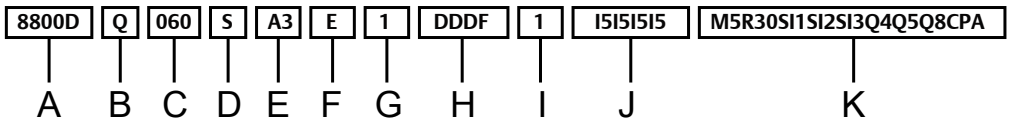
Ordering information – Quad transmitter



Model code structure

The outputs and hazardous approvals must be specified for each of the four transmitters on a quad transmitter vortex flow meter. As a result, the model code string in those two sections has an entry for each transmitter. The model code string for all other requirements and options has only a single entry applicable to the entire meter. We strongly recommend that every meter, and each transmitter, be configured at the factory for your application. Use the Rosemount 8800D Quad Configuration Data Sheet (00806-1100-4004) to convey your configuration information to the factory. Example model code with one selection out of each required category:

Figure 2: Guide to model code structure



A. *Model*
B. *Meter style*
C. *Line size*
D. *Wetted material*
E. *Process connection & pressure rating*
F. *Sensor process temperature range*
G. *Housing material & conduit entries*
H. *Output options (each transmitter)*
I. *Calibration*
J. *Hazardous area approvals (each transmitter)*
K. *Options*

Example model string: 8800DQ 060 S A3 E 1 DDDF 1 I5I5I5IE M5 R30 SI1 SI2 SI3 Q4 Q5 Q8 CPA

The starred (★) offerings represent the best delivery options.

Requirements

Table 5: Requirements - select one from each available choice

Code	Description	
Base model		
8800D	Vortex Flow Meter	★
Style		
Q	Quad transmitter (two shedder bars and four transmitters), flanged	★
Line size		
020[1]	2 inch (50 mm)	★
030[1]	3 inch (80 mm)	★
040[1]	4 inch (100 mm)	★
060	6 inch (150 mm)	★
080	8 inch (200 mm)	★
100	10 inch (250 mm)	
120	12 inch (300 mm)	

Table 5: Requirements - select one from each available choice *(continued)*

Code	Description	
Wetted materials		
S	316 wrought stainless and CF-3M cast stainless; Material of construction is 316/316L.	★
H	UNS N06022 wrought nickel alloy; CW2M cast nickel alloy; weld neck flange	
C	A105 forged carbon steel and WCB cast carbon steel	
L	LF2 forged carbon steel and LCC cast carbon steel	
D(2)	UNS S32760 wrought duplex stainless steel and 6A cast duplex stainless steel	
Process connection style and pressure rating		
A1	ASME B16.5 RF Class 150	★
A3	ASME B16.5 RF Class 300	★
A6	ASME B16.5 RF Class 600	
A7(3)	ASME B16.5 RF Class 900	
A8(4)	ASME B16.5 RF Class 1500	
K0	EN 1092-1 PN 10 Type B1	
K1	EN 1092-1 PN 16 Type B1	★
K2	EN 1092-1 PN 25 Type B1	
K3	EN 1092-1 PN 40 Type B1	★
K4	EN 1092-1 PN 63 Type B1	
K6	EN 1092-1 PN 100 Type B1	
K7(3)	EN 1092-1 PN 160 Type B1	
B1	ASME B16.5 RTJ Class 150	
B3	ASME B16.5 RTJ Class 300	
B6	ASME B16.5 RTJ Class 600	
B7(3)	ASME B16.5 RTJ Class 900	
B8(4)	ASME B16.5 RTJ Class 1500	
C1	ASME B16.5 RF Class 150, smooth finish	
C3	ASME B16.5 RF Class 300, smooth finish	
C6	ASME B16.5 RF Class 600, smooth finish	
C7(3)	ASME B16.5 RF Class 900, smooth finish	
C8(4)	ASME B16.5 RF Class 1500, smooth finish	
J1	JIS 10K	
J2	JIS 20K	
J4	JIS 40K	

Table 5: Requirements - select one from each available choice *(continued)*

Code	Description	
L0	EN 1092-1 PN 10 Type B2	
L1	EN 1092-1 PN 16 Type B2	
L2	EN 1092-1 PN 25 Type B2	
L3	EN 1092-1 PN 40 Type B2	
L4	EN 1092-1 PN 63 Type B2	
L6	EN 1092-1 PN 100 Type B2	
L7[3]	EN 1092-1 PN 160 Type B2	
M0	EN 1092-1 PN 10 Type D	
M1	EN 1092-1 PN 16 Type D	
M2	EN 1092-1 PN 25 Type D	
M3	EN 1092-1 PN 40 Type D	
M4	EN 1092-1 PN 63 Type D	
M6	EN 1092-1 PN 100 Type D	
M7[3]	EN 1092-1 PN 160 Type D	
N0	EN 1092-1 PN 10 Type F	
N1	EN 1092-1 PN 16 Type F	
N2	EN 1092-1 PN 25 Type F	
N3	EN 1092-1 PN 40Type F	
N4	EN 1092-1 PN 63 Type F	
N6	EN 1092-1 PN 100 Type F	
N7[3]	EN 1092-1 PN 160 Type F	
W1	Weld-end, Schedule 10S	
W4	Weld-end, Schedule 40S	
W8	Weld-end, Schedule 80S	
W9	Weld-end, Schedule 160S	
Sensor process temperature range		
N	Standard: –40 to +450 °F (–40 to +232 °C)	★
E[5]	Extended: –330 to +800 °F (–200 to +427 °C)	★
S[5]	Severe service: –330 to +800 °F (–200 to +427 °C) and nickel alloy construction for increased corrosion resistance	★

Table 5: Requirements - select one from each available choice *(continued)*

Code	Description	
Housing material and conduit entries		
1	Aluminum housing, two ½–14 NPT conduit entries	★
2[6]	Aluminum housing, two M20 x 1.5 conduit entries	★
3[6]	Aluminum housing, two PG 13.5 conduit adapters	★
4	Aluminum housing, one G1/2 conduit adapter (one conduit entry)	★
5	Aluminum housing, two G1/2 conduit adapters (two conduit entries)	★
6	Stainless steel housing, two ½–14 NPT conduit entries	
7[6]	Stainless steel housing, two M20 x 1.5 conduit entries	
Transmitter 1, 2, 3, 4 output (Make a selection for each transmitter in order)		
D	4–20 mA digital electronics (HART protocol)	★
P	4–20 mA digital electronics (HART protocol) with scaled pulse	★
F[7]	FOUNDATION Fieldbus digital signal	★
Calibration		
1	Flow calibration	★
Hazardous area approvals for transmitter 1, 2, 3, 4 (Make a selection for each transmitter in order, all approvals must be from one group)		
Hazardous area approvals Group A		
NH	Ordinary location (non-hazardous)	★
Hazardous area approvals Group B		
E5	US Approvals Explosion-proof and Dust Ignition-proof	★
I5	US Approvals Intrinsically Safe and Non-Incendive	★
IE[8]	US Approvals FISCO Intrinsically Safe and Non-Incendive	★
K5	US Approvals Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Non-Incendive	★
Hazardous area approvals Group C		
E6	US/Canadian Approvals Explosion-proof and Dust Ignition-proof	★
I6	US/Canadian Approvals Intrinsically Safe and Division 2	★
IF[8]	US/Canadian Approvals FISCO Intrinsically Safe and Division 2	★
K6	US/Canadian Approvals Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
KB	US/Canadian Approvals Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★

Table 5: Requirements - select one from each available choice *(continued)*

Code	Description	
Hazardous area approvals Group D		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety ia; Intrinsic Safety ic	★
IA[8]	ATEX FISCO Intrinsic Safety	★
N1	ATEX Type n	★
ND	ATEX Dust	★
K1	ATEX Flameproof; Intrinsic Safety; Type n; Dust	★
Hazardous area approvals Group E		
E7	IECEx Flameproof	★
I7	IECEx Intrinsic Safety	★
IG[8]	IECEx FISCO Intrinsic Safety	★
N7	IECEx Type n	★
NF	IECEx Dust	★
K7	IECEx Flameproof; Intrinsic Safety; Type n; Dust	★
Hazardous area approvals Group F		
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB[8]	INMETRO FISCO Intrinsic Safety	★
K2	INMETRO Flameproof; Intrinsic Safety	★
Hazardous area approvals Group G		
E3	China Flameproof	★
I3	China Intrinsic Safety	★
N3	China Type n	★
IH[8]	China FISCO/FNICO Intrinsic Safety	★
K3	China Flameproof; Dust; Intrinsic Safety; Type n	★
Hazardous area approvals Group H		
E4	Japan Flameproof	★
Hazardous area approvals Group I		
E8	Technical Regulations Customs Union (EAC) Flameproof	★
I8	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
N8	Technical Regulations Customs Union (EAC) Type n	★
K8	Technical Regulations Customs Union (EAC) Flameproof; Intrinsic Safety; Type n	★
G8	Technical Regulations Customs Union (EAC) FISCO Intrinsic Safety	★

(1) *Only available with remote electronics.*
(2) *Available in Class 1500 in 6 inch and 8 inch meter body sizes and Class 900 in 10 inch through 12 inch meter body sizes.*

(3) *Available on meters from 2 inch through 8 inch (50–200 mm). Also available in 10 inch through 12 inch (250–300 mm) meters when using Super Duplex material of construction.*
(4) *Only available for meters from 2 inch through 8 inch (50–200 mm).*
(5) *The meter body and sensor, in remote mount configurations, is functionally rated to +842 °F process temperature. Process temperature may be further restricted depending on hazardous area options and PED certificates. Consult applicable certificates for particular installation limits. –320 °F to 800 °F (–196 to +427 °C) for European Pressure Equipment Directive (PED), consult factory for lower temperature requirements. The Super Duplex material of construction is limited to use in applications with process temperatures from –40 to +450 °F (–40 to +232 °C).*
(6) *No Japan (E4) approval.*
(7) *The Safety Certifications SI1, SI2, SI3, or SI4 option codes are not available with this option.*
(8) *Fieldbus Intrinsic Safe Concept (FISCO) available with output code F (Foundation Fieldbus digital signal) only.*

Options

Select only as needed.

Table 6: Options

Code	Description	
Display type(1)		
M5	LCD indicator	★
Remote electronics(1)		
R10	Remote electronics with 10 ft (3,0 m) cable	★
R20	Remote electronics with 20 ft (6,1 m) cable	★
R30	Remote electronics with 30 ft (9,1 m) cable	★
R33	Remote electronics with 33 ft (10,1m) cable	★
R50	Remote electronics with 50 ft (15,2 m) cable	★
R75	Remote electronics with 75 ft (22,9 m) cable	★
Rxx	Remote Electronics with customer-specified cable length (xx ft., 1 ft to 75 ft cable in 1 ft increments) Example: R15 = 15 ft, R34 = 34 ft	
A10	Armored remote electronics with 10 ft (3,0 m) cable	
A20	Armored remote electronics with 20 ft (6,1 m) cable	
A33	Armored remote electronics with 33 ft (10,1 m) cable	
A50	Armored remote electronics with 50 ft (15,2 m) cable	
A75	Armored remote electronics with 75 ft (22,9 m) cable	
Transient protection(1)		
T1	Transient Protection terminal block	
Alarm mode(1)		
C4(2)	NAMUR alarm and saturation values, high alarm	★
CN(2)	NAMUR alarm and saturation values, low alarm	★
Special cleaning		
P2	Cleaning for special services	★
Ground screw assembly(1)		
V5	External ground screw assembly	★
Plantweb™ control functionality		
A01(3)	Basic Control: One Proportional/Integral/Derivative (PID) Function Block	★

Table 6: Options *(continued)*

Code	Description	
ASME B31.1 code compliance		
J2	ASME B31.1 General compliance	
J7	ASME B31.1 Boiler External Piping (BEP) code stamp	
HART communication[1]		
HR7	HART Revision 7	★
Process diagnostics[1]		
DS3[4][5]	Smart Meter Verification	★
Safety certifications for Transmitter 1		
SI1[4]	Safety Certification of 4–20 mA Output per IEC 61508	★
Safety certifications for Transmitter 2		
SI2[4]	Safety Certification of 4–20 mA Output per IEC 61508	★
Safety certifications for Transmitter 3		
SI3[4]	Safety Certification of 4–20 mA Output per IEC 61508	★
Safety certifications for Transmitter 4		
SI4[4]	Safety Certification of 4–20 mA Output per IEC 61508	★
Quality certificate		
Q4	Calibration Certificate per ISO 10474 3.1/EN 10204 3.1	★
Q5	Hydrostatic Test Certificate	★
Q8	Material Traceability per ISO 10474 3.1/EN 10204 3.1	★
QP	Calibration Certificate per ISO 10474 3.1/EN 10204 3.1 and Tamper Evident Seal	★
Q25	Certificate of Compliance to NACE MR0175 and MR0103	★
Q66	Weld Procedure Package (weld map, weld procedure specification, weld procedure qualification record, welder performance qualification)	★
Q70	NDE Weld Examination Inspection Certificate, ISO 10474 3.1; see Table 30	
Q71	NDE Weld Examination Inspection Certificate, ISO 10474 3.1 with images; see Table 30	
Q76	Positive Material Identification (PMI) on Flanges and Pipe (XRF), per ASTM E1476-97; see Table 31.	★
Q77	Positive Material Identification (PMI) with Carbon Content on Flange and Pipe (OES) per ASTM E1476-97; see Table 32.	★
Sensor completion		
WG	Witness General	
Pressure Equipment Directive (PED)		
PD	Pressure Equipment Directive (PED)	★
Shipboard approvals[1]		
SBS	American Bureau of Shipping (ABS) type approval	★
SBV	Bureau Veritas (BV) type approval	★
SDN	Det Norske Veritas (DNV) type approval	★

Table 6: Options *(continued)*

Code	Description	
SLL	Lloyd's Register (LR) type approval	★
Critical process vortex(1)		
CPA	Critical Process Online Sensor Replacement	★
Quick Start Guide language (default is English)		
YF	French	★
YG	German	★
YI	Italian	★
YJ	Japanese	★
YK	Korean	★
YM	Chinese (Mandarin)	★
YP	Portuguese	★
YR	Russian	★
YS	Spanish	★

(1) *Option code will apply to all applicable transmitters.*
(2) *NAMUR compliant operation and the alarm latch options are preset at the factory and can be changed to standard operation in the field.*
(3) *Only applies to transmitters ordered with output code F.*
(4) *Not available with Outputs option code F.*
(5) *The Safety Certifications S11, SI2, SI3, or SI4 option codes are not available with this option.*

Product Specifications

Physical specifications

Process fluids

Liquid, **Gas**, and **Steam** applications. Fluids must be homogeneous and single-phase.

Flow calibration

Every Emerson Vortex flowmeter is water calibrated and given a unique calibration number called a reference K-factor. Emerson flow labs use traceable calibrations that reference internationally recognized standards such as NIST in the United States and Mexico, National Institute of Standards in China, and ISO 10725 in Europe.

Theoretical and experimental data have shown that the K-factor is independent of fluid density and viscosity, proving the K-factor is applicable in all types of fluid—liquid, gas and steam. The K-factor is a function of the shedder bar and meter geometry.

Line sizes and pipe schedules

Table 7: Line sizes by process connection type

Line size		Process connection type (✓ indicates availability)					
Inches	DIN	Flanged				Wafer	Weld-end
		Standard	Dual	Reducer	Quad		
0.5	15	✓	✓			✓	✓
1	25	✓	✓	✓		✓	✓
1.5	40	✓	✓	✓		✓	✓
2	50	✓	✓	✓	✓	✓	✓
3	80	✓	✓	✓	✓	✓	✓
4	100	✓	✓	✓	✓	✓	✓
6	150	✓	✓	✓	✓	✓	✓
8	200	✓	✓	✓	✓	✓	✓
10	250	✓	✓	✓	✓		✓
12	300	✓	✓	✓	✓		✓
14	350			✓			

Process pipe schedules

Meters will be shipped from the factory at the Schedule 40 default value unless otherwise specified. The value can be changed in the field if necessary.

For a weld-end style meter, see Table 13.

Table 8: Wetted materials by component

Process wetted materials		
Meter body	**Flanges**	**Collar**
CF–3M cast stainless steel	316 / 316 L stainless steel	N06022 nickel alloy(1)
CW2M cast nickel alloy	N06022 nickel alloy weld neck	
N06022 wrought nickel alloy(2)		

Table 8: Wetted materials by component *(continued)*

Process wetted materials		
Meter body	**Flanges**	**Collar**
WBB cast carbon steel	A105 forged carbon steel	
LCC cast carbon steel	LF2 forged carbon steel	
6A duplex stainless steel	UNS S32760 wrought duplex stainless steel	

(1) *Mated with 316/316L stainless steel lap flange.*
(2) *Applicable to 10 inch and 12 inch meters only.*

Surface finish

- Standard surface facing finish meets the requirements of the applicable flange standard.
- Optional smooth facing finish (flange option codes Cx) is 63 to 125 µ inches (1.6 to 3.1 µ meters) Ra roughness.

NACE compliance

- Materials of Construction meet NACE material recommendations per MR0175 / ISO15156 for use in H_2S containing environments in oil field production.
- Materials of Construction also meet NACE recommendations per MR0103-2003 for corrosive petroleum refining environments.
- MR0175/MR0103 compliance requires Q25 option in model code.

Table 9: Non-wetted materials by component

Non-wetted Materials	
Sensor	316 SST or Monel / Iconel
Lap Flange	316 / 316 L SST
Type N Thermocouple	304 Stainless Steel
Transmitter support tube	316 Stainless Steel
Transmitter housing	Aluminum or 316 Stainless Steel

Pressure limits

Table 10: Flanged/Dual/Quad style meter

ASME 16.5	EN1092-1	JIS
Class 150	PN 10	10K
Class 300	PN 16	20K
Class 600	PN 25	40K
Class 900	PN 40	
Class 1500	PN 63	
	PN 100	
	PN 160	

Table 11: Reducer style meter

ASME 16.5	EN1092-1
Class 150	PN 10
Class 300	PN 16
Class 600	PN 25
Class 900	PN 40
Class 1500	PN 63
	PN 100
	PN 160

Table 12: Wafer style meter

ASME 16.5	EN1092-1	JIS
Class 150	PN 10	10K
Class 300	PN 16	20K
Class 600	PN 25	40K
	PN 40	
	PN 63	
	PN 100	

Table 13: Weld-end style meter

	W1	W4	W8	W9
Mating pipe schedule:	Schedule 10	Schedule 40	Schedule 80	Schedule 160
Pressure rating for 1 inch to 4 inch sizes:	720 psig (4.96 MPa-g)	1,440 psig (9.93 MPa-g)	2,160 psig (14.9 MPa-g)	3,600 psig (24.8 MPa-g)
Pressure rating for 6 inch to 12 inch sizes:	N/A	720 psig (4.96 MPa-g)	1,440 psig (9.93 MPa-g)	2,160 psig (14.9 MPa-g)

Temperature limits

Table 14: Vortex sensor temperature limits

Vortex sensor	Temperature limit
Standard	–40 °F to +450 °F (–40 °C to +232 °C)
Extended	–330 °F to +800 °F (–201 °C to +427 °C)
Severe[1]	–330 °F to +800 °F (–201 °C to +427 °C)

(1) *The meter body and sensor, in remote mount configurations, is functionally rated to +842 °F process temperature. Process temperature may be further restricted depending on hazardous area options and PED certificates. Consult applicable certificates for particular installation limits.*
–320 °F to 800 °F (–196 to +427 °C) for European Pressure Equipment Directive (PED), Contact an Emerson Flow representative (see back page).
The Super Duplex material of construction is limited to use in applications with process temperatures from –40 to +450 °F (–40 to +232 °C). Contact an Emerson Flow representative (see back page).

Table 15: Temperature sensor (MTA/MCA option) temperature limits

Temperature sensor	Temperature limit
Type N thermocouple	–40 °F to +800 °F (–40 °C to +427 °C)(1)

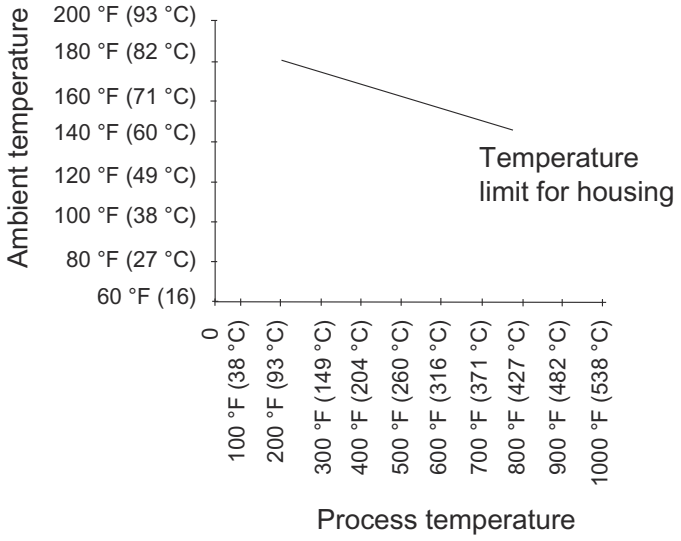
(1) *Meets ASTM E230/E230M-17 Special Tolerance Standard.*

Table 16: Electronics temperature limits (remotely-mounted transmitter)

Ambient operating temperature range	–58 °F to +185 °F (–50 °C to +85 ° C)
Ambient operating temperature range with LCD—Local Indicator(1)	–40 °F to +185 °F (–40 °C to +85 ° C)
Storage temperature range	–58 °F to +250 °F (–50 °C to +121 ° C)
Storage temperature range with LCD	–50 °F to +185 °F (–46 °C to +85 ° C)

(1) *LCD contrast may be affected below –4 °F (–20 °C).*

Table 17: Electronics temperature limits (integrally-mounted transmitter)

Operating and storage temperature range, with and without LCD	Same as remotely-mounted transmitter. See Table 16. However, high process temperature lowers the maximum allowable ambient temperature. See Figure 3.
Maximum process temperature	Interdependent with ambient temperature. Figure 3 indicates the combined ambient and process temperature limits under which the electronics temperature can be maintained below the maximum +185 °F (+85 °C). **Note** The indicated limit is with the integral transmitter directly above a horizontal pipe, and the pipe insulated with three inches of ceramic fiber. Other configurations may affect the actual electronics temperature. **Figure 3: Maximum ambient/process temperature limit** 

EMI/RFI effect

- Meets EMC requirements to Directive 2014/30/EU.
- Output error less than ±0.025% of span with twisted pair from 80-1000 MHz for radiated field strength of 10 V/m.
- 1.4 - 2.0 GHz for radiated field strength of 3 V/m.

- 2.0 - 2.7 GHz for radiated field strength of 1 V/m.
- No affect on the values that are being given if using HART digital signal.
- Tested per EN61326.

Humidity limits

Operates in 0–95% relative humidity under noncondensing conditions (tested to IEC 60770, Section 6.2.11).

Transmitter housing details

Table 18: Transmitter housing (enclosure) physical details

Material of construction	Low-copper aluminum is standard. 316 SST is optional.
Enclosure rating	CSA Type 4X; IP66.
Conduit entry	½–14 NPT or M20 x 1.5 threads
Paint	Polyurethane
Cover O-rings	Buna -N

Remote transmitter mounting hardware and cables

- Mounting hardware is provided.
- The transmitter and meter body are interconnected by a standard or armored signal cable assembly.
  - Cable length is specified when ordered (see Ordering Information - Single/Dual Transmitter or Ordering information – Quad transmitter), and it cannot be altered in the field.
  - Standard cable is non-armored and is intended to be run through rigid metal conduit.
  - Armored cable includes glands/adapters to connect the cable to the meter body and transmitter.
  - Both types of cable are flame resistant in accordance with IEC 60322-3.

Tagging

- Standard tags are stainless steel.
- The standard tag is permanently attached to the flowmeter.
- Character height is 1/16 inch (1,6 mm).
- A wired-on tag is available on request.
- Character height on the wire-on tag is 0.236 inch (6 mm).
- Wire on tags can contain five lines with an average of 19 characters per line at standard character height.

Performance specifications

The following performance specifications are for all Rosemount models except where noted. Digital performance specifications applicable to both Digital HART and FOUNDATION Fieldbus output. Unless stated otherwise, all accuracy specifications include linearity, hysteresis, and repeatability.

Volume flow accuracy

Table 19: Volume flow accuracy

Process fluid	Digital and pulse output
Liquids with Reynolds number over 20,000	±0.65% of rate[(1)(2)(3)(4)]
Gas and steam with Reynolds number over 15,000	±1.0% of rate[(5)(2)]

Table 19: Volume flow accuracy *(continued)*

Process fluid	Digital and pulse output
For all process fluids from stated limit to a Reynolds number of 10,000	From process limit specification to ±2% linear increase
For Reynolds numbers less than 10,000 to 5,000	±2% to ±6%, linear

(1) *6 inch to 12 inch reducer (150 mm to 300 mm) ±1.0% of rate.*
(2) *Analog ±0.025% of span*
(3) *4 inch (100 mm) Quad, ±0.65% for 20-100% of rate, ± 1.00 for 0–20%.*
(4) *6 inch (150 mm) Quad, ± 1.00% of rate.*
(5) *6 inch to 12 inch reducer (150 mm to 300 mm): ±1.35% of rate.*

Accuracy limitations for gas and steam:

- For ½ inch and 1 inch (DN 15 and DN 25); max velocity of 220 ft/s (67.06 m/s)
- For all dual shedder bar design meters: max velocity of 100 ft/s (30.5 m/s)
- For dual shedder bar design meters above 100 ft/s (30.5 m/s) contact an Emerson Flow representative (see back page).

Volume flow repeatability

±0.1 percent of actual flow rate.

Stability

±0.1% of rate over one year

Process temperature accuracy

Table 20: Process temperature accuracy by installation type

Installation type	Process temperature accuracy
Integral mount	2.2 °F (1.2 °C) or 0.4% of reading, whichever is greater
Remote mount	Add ±0.018 °F/ft (±0.03 °C/m) of uncertainty to measurement

Temperature sensor accuracy meets ASTM E230/E230M-17 Special Tolerance Standard.

Mass flow accuracy

Table 21: Mass flow accuracy by process fluid type

Process fluid type	MV option code	Compensation type	Accuracy
Steam	MTA or MCA	Temperature compensation(1)	±2.0% of rate (typical)
	MPA and MCA	Pressure compensation(1)(2)(3)	±1.3% of rate at 30 psia through 2,000 psia
	MCA	Pressure and Temperature Compensation(1)(2)(3)	±1.2% of rate at 150 psia ±1.3% of rate at 300 psia ±1.6% of rate at 800 psia ±2.5% of rate at 2,000 psia
Liquid (water)	MTA and MCA	Temperature Compensation	±0.70% of rate up to 500 °F (260 °C)(4)
Liquid (user-defined)	MTA and MCA	Temperature Compensation	Dependent on user input

(1) *Temperature range +176 °F to +842 °F (+80 °C to + 450 °C)*
(2) *Pressure measurement accuracy is ±0.1% of span.*
(3) *Consult factory accuracy for < 30 psia and > 2,000 psia.*
(4) *±0.85% of rate between +500 °F to +600 °F (+260 °C to +316 °C)*

Process temperature effect on K-factor

The compensated K-factor is based on the reference K-factor as compensated for the given fixed process temperature and wetted materials. Compensated K-factor is calculated by the electronics.

The percentage change in K-factor for all materials is no greater than ±0.3 per 100 °F (56 °C).

Table 22: Ambient temperature effect

Output type	Ambient temperature effect
Digital and pulse output	No effect
Analog output	±0.1% of span from –58 °F to 185 °F (–50 to 85 °C)

Measurable flow rates

Capable of processing signals from flow applications which meet the Reynolds number and velocity limitations listed in Table 23, Table 24, and Table 25.

Table 23: Minimum Measurable Meter Reynolds Numbers

Meter sizes	Reynolds number limitations
½ – 4 inch (DN 15 – DN100)	5000 minimum
6 – 12 inch (DN150 – DN300)	

Table 24: Minimum measurable meter velocities

Process	Feet per second(1)	Meters per second(1)
Liquids(2)	$\sqrt{36/\rho}$	$\sqrt{54/\rho}$
Gases(2)	$\sqrt{36/\rho}$	$\sqrt{54/\rho}$
ρ is the process fluid density at flowing conditions in lb/ft³ for ft/s and kg/m³ for m/s.		

(1) *Referenced to schedule 40 pipe.*
(2) *This minimum measurable meter velocity is based on default filter settings.*

Table 25: Maximum Measurable Meter Velocities (use the smaller of the two values)

Process	Feet per second(1)		Meters per second(1)	
Liquids	$\sqrt{90{,}000/\rho}$	or 25	$\sqrt{134{,}000/\rho}$	or 7.6
Gases(2)	$\sqrt{90{,}000/\rho}$	or 300	$\sqrt{134{,}000/\rho}$	or 91.4
ρ is the process fluid density at flowing conditions in lb/ft³ for ft/s and kg/m³ for m/s.				

(1) *Referenced to schedule 40 pipe.*
(2) *Accuracy limitations for gas and steam for dual-style meters (½ to 4 inch): max velocity of 100 ft/s (30.5 m/s).*

Note
Sizing calculations are required to select the proper flow meter size. These calculations provide pressure loss, accuracy, minimum and maximum flow rate data to guide in proper selection. Vortex sizing software can be found using the Selection and Sizing tool. The Selection and Sizing tool can be accessed online or downloaded for offline use using this link:

www.Emerson.com/FlowSizing

Permanent pressure loss

The approximate permanent pressure loss (PPL) from the flowmeter is calculated for each application in the Vortex sizing software. Go to the Rosemount 8800D Product Page, and select **Size** for detailed sizing on most applications, or complete a Configuration Data Sheet and contact an Emerson Flow representative (see back page).

The PPL is determined using the equation:

$$\mathrm{PPL} = \frac{A \times \rho_f \times Q^2}{D^4}$$

PPL Permanent pressure loss (psi or kPa)

ρ_f Density at operating conditions (lb/ft³ or kg/m³)

Q Actual volumetric flow rate (Gas = ft³/min or m³/hr; Liquid = gal/min or l/min)

D Flowmeter bore diameter (in. or mm)

A Constant depending on meter style, fluid type, and flow units. Determined per :

Meter style	English units		SI units	
	A_{liquid}	A_{gas}	A_{liquid}	A_{gas}
8800DF/W	3.4×10^{-5}	1.9×10^{-3}	0.425	118
8800DR	3.91×10^{-5}	2.19×10^{-3}	0.489	136
8800DD	6.12×10^{-5}	3.42×10^{-3}	0.765	212
8800DQ	6.12×10^{-5}	3.42×10^{-3}	0.765	212

Minimum upstream pressure (liquids)

Flow metering conditions that would allow cavitation, the release of vapor from a liquid, should be avoided. This flow condition can be avoided by remaining within the proper flow range of the meter and by following appropriate system design.

For some liquid applications, incorporation of a back pressure valve should be considered. To prevent cavitation, the minimum upstream pressure should be the smaller result of these two equations:

- $2.9 \times \Delta P + 1.3 \times p_v$
- $2.9 \times \Delta P + p_v + 0.5$ psia (3.45 kPa)

Where:

P Line pressure five pipe diameters downstream of the meter (psia or kPa abs)

ΔP Pressure loss across the meter (psi or kPa)

p_v Liquid vapor pressure at operating conditions (psia or kPa abs)

Vibration effect

High vibration may cause a false flow measurement when there is no flow. The meter design will minimize this effect, and the factory settings for signal processing are selected to eliminate these errors for most applications. If an output error at zero flow is still detected, it can be eliminated by adjusting the low flow cutoff, trigger level, or low-pass filter. As the process begins to flow through the meter, most vibration effects are quickly overcome by the flow signal.

Vibration specifications

- Integral aluminum housings, remote aluminum housings, and remote SST housings: At or near the minimum liquid flow rate in a normal pipe mounted installation, the maximum vibration should be 0.087 inch (2,21 mm) double amplitude displacement or 1 g acceleration, whichever is smaller. At or near the minimum gas flow rate in a normal pipe mounted installation, the maximum vibration should be 0.043 inch (1,09 mm) double amplitude displacement or ½ g acceleration, whichever is smaller.
- Integral SST housing: At or near the minimum liquid flow rate in a normal pipe mounted installation, the maximum vibration should be 0.044 inch (1,11 mm) double amplitude displacement or ⅓ g acceleration, whichever is smaller. At or near the minimum gas flow rate in a normal pipe mounted installation, the maximum vibration should be 0.022 inch (0,55 mm) double amplitude displacement or ⅙ g acceleration, whichever is smaller.

Mounting position effect

Meter will meet accuracy specifications when mounted in horizontal, vertical, or inclined pipelines. Best practice for mounting in a horizontal pipe is to orient the shedder bar in the horizontal plane. This will prevent solids in liquid applications and liquid in gas/steam applications from disrupting the shedding frequency.

Pipe length requirements

Rated accuracy is based on the number of pipe diameters from an upstream disturbance. No K-factor correction is required if the meter is installed with 35D upstream and 5D downstream. The value of the K-factor may shift up to 0.5% when the upstream straight pipe length is reduced down to the minimum recommended 10D. Refer to the Rosemount 8800 Vortex Installation Effects Technical Data Sheet for detailed information on K-factor correction.

Flow calibration information

Flowmeter calibration and configuration information is provided with every flowmeter. For a certified copy of flow calibration data, the Q4 option code must be ordered in the model number.

HART specifications

Output signals

Digital HART signal	Bell 202 superimposed on 4–20 mA signal
Optional scalable pulse output	0 to 10000 Hz; transistor switch closure with adjustable scaling via HART communications; capable of switching from 5 to 30 Vdc, 120 mA maximum

Analog output adjustment

Engineering units and lower and upper range values are user-selected. Output is automatically scaled to provide 4 mA at the selected lower range value, 20 mA at the selected upper range value. No frequency input is required to adjust the range values.

Scalable frequency adjustment

The scalable pulse output can be set to a specific velocity, volume, or mass (i.e. 1 pulse = 1 lb). The scalable pulse output can also be scaled to a specific rate of volume, mass, or velocity (i.e. 100 Hz = 500 lb/hr).

Analog 4–20 mA Power supply

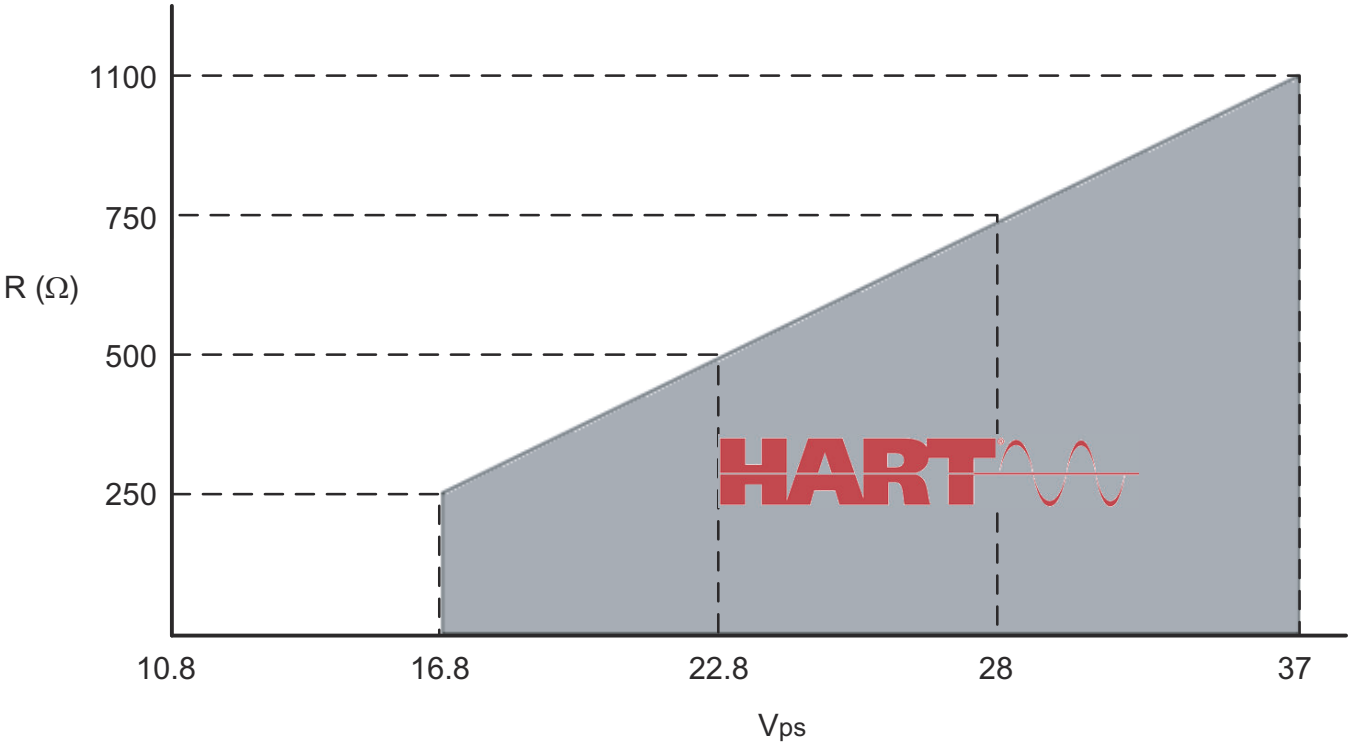
External power supply required. Each transmitter operates on 10.8 VDC to 42 VDC terminal voltage. See Figure 4.

Power consumption

One watt maximum per transmitter.

HART communication

Figure 4: HART communication voltage/resistance requirement



Maximum loop resistance is determined by the voltage level of the external power supply, as described in the graph.

Note that HART Communication requires a minimum loop resistance of 250 ohms up to a maximum of 1100 ohms.

R(Ω) Load resistor value.

V_{ps} Minimum power supply voltage required

$R(\Omega)max = 41.7 (V_{ps} - 10.8 V)$.

Failure mode alarm levels

If transmitter self-diagnostics detect a fault condition, the analog signal will be driven to the values in Table 26.

Table 26: mA outputs for low and high alarm

Alarm jumper position	mA output by Alarm Type setting(1)	
	Rosemount standard	NAMUR-compliant
Low	3.75	3.60
Hi	21.75	22.6

(1) *The Alarm and Saturation Type settings can be pre-configured at the factory (Options C4 and CN for NAMUR-compliance) or user-configured.*

Saturation output values

When the operating flow is outside the range points, the analog output continues to track the operating flow until reaching the saturation values in Table 27. The output does not exceed the listed saturation value regardless of the operating flow.

Table 27: mA output saturation values

	mA output saturation value by type(1)	
	Rosemount standard	**NAMUR-Compliant**
Low	3.9	3.8
Hi	20.8	20.5

(1) *The Alarm and Saturation Type settings can be pre-configured at the factory (Options C4 and CN for NAMUR-compliance) or user-specified.*

Damping

Flow Damping adjustable between 0.2 and 255 seconds.

Process temperature damping adjustable between 0.4 and 32.0 seconds (MTA/MCA Option only).

Response time

Three vortex shedding cycles or 300 ms, whichever is greater, maximum required to reach 63.2% of actual input with the minimum damping (0.2 seconds).

Turn-on time

Less than six seconds plus the response time to rated accuracy from power up (less than eight seconds with the MTA/MCA Option).

Transient protection

The optional transient terminal block prevents damage to the flowmeter from transients induced by lightning, welding, heavy electrical equipment, or switch gears. The transient protection electronics are located in the terminal block.

The transient terminal block meets the following specifications:

- IEEE C62.41 - 2002 Category B
- 3 kA crest (8 × 20 ms)
- 6 kV crest (1.2 × 50 ms)
- 6 kV/0.5 kA (0.5 ms, 100 kHz, ring wave)

Security lockout

When the security lockout jumper is enabled, the electronics will not allow you to modify parameters that affect flowmeter output.

Output testing

Analog output Flow meter may be commanded to set the analog output to a specified value between 3.6 mA and 22.6 mA.

Pulse output Flow meter may be commanded to set the pulse output frequency to a specified value between 0 Hz and 10000 Hz.

Low flow cutoff

Optimized at the factory per the user's process conditions per Rosemount 8800D Configuration Data Sheet (00806-0100-4004) and typically required no adjustment. In certain cases, if required, it can be further adjusted after installation. Below selected value, output is driven to 4 mA and zero pulse output frequency.

Overrange capability

Analog signal output continues to 105 percent of span for Standard limits (or 103.1% for NAMUR), then remains constant with increasing flow. The digital and pulse outputs will continue to indicate flow up to the upper sensor limit of the flowmeter and a maximum pulse output frequency of 10400 Hz.

Magnetic-field interference

- Output error less than ±0.025% of span at 30 A/m (rms).
- Tested per EN 61326.

Series mode noise rejection

Output error less than ±0.025% of span at 1 V rms, 60 Hz.

Common mode noise rejection

Output error less than ±0.025% of span at 30 V rms, 60 Hz.

Power supply effect

Less than 0.005% of span per volt

Transmitter electrical connections

Model	Terminal type
Analog 4–20 mA/HART	Compression screw terminal permanently fixed to the terminal block.
Analog 4–20 mA/HART + Pulse	

Field Communicator connections

Communication and test terminals	
All models	Clip connections permanently fixed to the terminal block.

The transmitter test function permits testing the loop output current without disconnecting the loop power.

FOUNDATION™ Fieldbus specifications

Transducer block

The transducer block calculates flow from sensor frequency. The calculation includes information about damping, shedding frequency, K-factor, process fluid, pipe ID, and diagnostics.

Resource block

The resource block contains physical transmitter information, including available memory, manufacturer identification, device type, software tag, and unique identification.

Backup Link Active Scheduler (LAS)

The transmitter is classified as a device link master. A device link master can function as an LAS if the current link master device fails or is removed from the segment.

The host or other configuration tool is used to download the schedule for the application to the link master device. In the absence of a primary link master, the transmitter will claim the LAS and provide permanent control for the H1 segment.

Diagnostics

The transmitter automatically performs continuous self-diagnostics. The user can perform on-line testing of the transmitter digital signal. Advanced simulation diagnostics are available. This enables remote verification of the electronics via a flow signal generator built into the electronics. The sensor strength value can be used to view the process flow signal and provide information regarding filter settings.

FOUNDATION Fieldbus function blocks

Analog input	The AI function block processes the measurement and makes it available to other function blocks. The AI function block also allows filtering, alarming, and engineering unit changes. The Rosemount 8800D Flowmeter with Foundation Fieldbus comes with five AI function blocks. Two of the AI function blocks, flow and signal strength, come as standard. Three additional AI function blocks are available when the MTA option is selected: electronics temperature, process temperature, and process density. Note that process density is only available when the process fluid is configured as temperature compensated saturated steam, shown as TComp Sat Steam in the device.
Proportional/ Integral/ Derivative	The optional PID function block provides a sophisticated implementation of the universal PID algorithm. The PID function block features input for feed forward control, alarms on the process variable, and control deviation. The PID type (series or Instrument Society of America [ISA]) is user-selectable on the derivative filter.
Integrator	The standard integrator block is available for totalization of flow.
Arithmetic	The standard arithmetic block is available for various computations.

Output signal

Completely digital output with Foundation Fieldbus communication (ITK 6.0 compliant).

Power supply

External power supply required. Flowmeter operates on 9 to 32 Vdc, 18 mA maximum.

Power consumption

600 mW maximum

Failure mode alarm

The AI block allows the user to configure the alarm to HI-HI, HI, LO, or LO-LO with a variety of priority levels.

Damping

Flow Damping adjustable between 0.2 and 255 seconds.

Process temperature damping adjustable between 0.4 and 32.0 seconds (MTA Option only).

Response time

Three vortex shedding cycles or 300 ms, whichever is greater, maximum required to reach 63.2% of actual input with the minimum damping (0.2 seconds).

Turn-on time

Performance within specifications no greater than 10.0 seconds after power is applied.

Overrange capability

- For liquid process fluid type, the transducer block digital output will continue to a nominal value of 25 ft/s. After that, the status associated with the transducer block output will go to UNCERTAIN. Above a nominal value of 30 ft/s, the status will go to BAD.
- For gas/steam service, the transducer block digital output will continue to a nominal value of 220 ft/s for 0.5 and 1.0-in. line sizes and a nominal value of 250 ft/s for 1.5–12-in. line sizes. After that, the status associated with the transducer block output will go to UNCERTAIN. Above a nominal value of 300 ft/s for all line sizes, the status will go to BAD.

Status

If self-diagnostics detect a transmitter failure, the status of the measurement will inform the control system. Status may also set the PID output to a safe value.

Schedule entries

Six (6)

Links

Twelve (12)

Virtual communications relationships (VCRs)

- Maximum VCRs: 20
- Number of Permanent Entries: 1

Table 28: Block Information

Block	Base index	Execution time (milliseconds)
Resource (RB)	1000	N/A
Transducer (TB)	1200	N/A
Analog Input 1 (AI 1)	1400	15
Analog Input 2 (AI 2)	1600	15
Proportional/ Integral/ Derivative (PID)	1800	20
Integrator (INTEG)	2000	25
Arithmetic (ARITH)	2200	20
Analog Input 3 (AI 3)	2400	15
Analog Input 4 (AI 4)	2600	15
Analog Input 5 (AI 5)	2800	15

Magnetic-field interference

- No effect on digital output accuracy at 30 A/m (rms).
- Tested per EN 61326.

Series mode noise rejection

No effect on digital output accuracy at 1 V rms, 60 Hz.

Common mode noise rejection

No effect on digital output accuracy at 250 V rms, 60 Hz.

Power supply effect

No effect on accuracy.

Electrical connections

Model	Power terminals
FOUNDATION fieldbus	Compression screw terminal permanently fixed to the terminal block.

LCD indicator functional specifications

Optional LCD indicator

The optional 11 digit, two-decimal, two-line integral LCD display can be configured to alternate between selected display options, which differ depending upon the output type selected.

Table 29: Indicator options

HART	FOUNDATION fieldbus	Examples
■ Primary Variable ■ Velocity Flow ■ Volumetric Flow ■ Corrected Volumetric Flow ■ Mass Flow ■ Signal Strength ■ Percent of Range ■ Analog Output ■ Totalizer ■ Shedding Frequency ■ Pulse Output Frequency ■ Electronics Temperature ■ Process Temperature (MTA/MCA only) ■ Process Pressure (MPA/MCA only) ■ Calculated Process Density (MTA/MCA/MPA only) ■ Elapsed Time Meter (ETM)	■ Primary Variable ■ Percent of Range ■ Shedding Frequency ■ Electronics Temperature (MTA only) ■ Process Temperature (MTA only) ■ Calculated Process Density (MTA only) ■ Totalizer (via Integrator block)	
When more than one item is selected, the display will scroll through all items selected. In the event of a fault, the display shows the applicable fault code.		

Quality certificate details

Table 30: Weld examination certifications for Q70, Q71

			Helium report	Dye pen report	Radio-graphic report	CD of images
8800DF/8800DD/8800DQ Form Q70, Inspection Certificate Weld Examination, ISO 10747.3.1						
	0.5 inch	15 mm	✓		✓	
	1–4 inch	25–100 mm			✓	
	6–12 inch	150–300 mm		✓	✓	
8800DF/8800DD/8800DQ Form Q71, Inspection Certificate Weld Examination, ISO 10747.3.1						
	0.5 inch	15 mm	✓		✓	✓
	1–4 inch	25–100 mm			✓	✓
	6–12 inch	150–300 mm		✓	✓	✓

Table 30: Weld examination certifications for Q70, Q71 *(continued)*

			Helium report	Dye pen report	Radio-graphic report	CD of images
8800DR Form Q70, Inspection Certificate Weld Examination, ISO 10747.3.1						
	1 inch	25 mm	✓		✓	
	1.5–6 inch	40–150 mm			✓	
	8–12 inch	200–300 mm		✓	✓	
8800DR Form Q71, Inspection Certificate Weld Examination, ISO 10747.3.1						
	1 inch	25 mm	✓		✓	✓
	1.5–6 inch	40–150 mm		✓	✓	✓
	8–12 inch	200–300 mm		✓	✓	✓
8800DW Form Q70, Inspection Certificate Weld Examination, ISO 10747.3.1						
	0.5 inch	15 mm	✓			
	6–8 inch	150–200 mm		✓		
8800DW Form Q71, Inspection Certificate Weld Examination, ISO 10747.3.1						
	0.5 inch	15 mm	✓			✓
	6–8 inch	150–200 mm		✓		✓

Table 31: PMI Code Q76 for X-Ray Fluorescent Spectrometry (XFR)

Alloy	Elements to be identified
316L Stainless Steel	Cr (Chromium), Ni (Nickel), Mo (Molybdenum)
NiB (Nickel based) Alloys	Cr (Chromium), Ni (Nickel), Mo (Molybdenum)
25Cr Super Duplex	Cr (Chromium), Ni (Nickel), Mo (Molybdenum)

Table 32: PMI Code Q77 for Optical Emission Spark Spectrometry (OES)

Alloy	Elements to be identified
316L Stainless Steel	Cr (Chromium), Ni (Nickel), Mo (Molybdenum), C (Carbon)
Carbon Steel	Cr (Chromium), Ni (Nickel), Mo (Molybdenum), C (Carbon)

Product certifications

For information about product certifications, refer to *Rosemount™ 8800D Series Vortex Flowmeter Approval Document* (00825-VA00-0001). You can find it at emerson.com or contact an Emerson Flow representative (see back page).

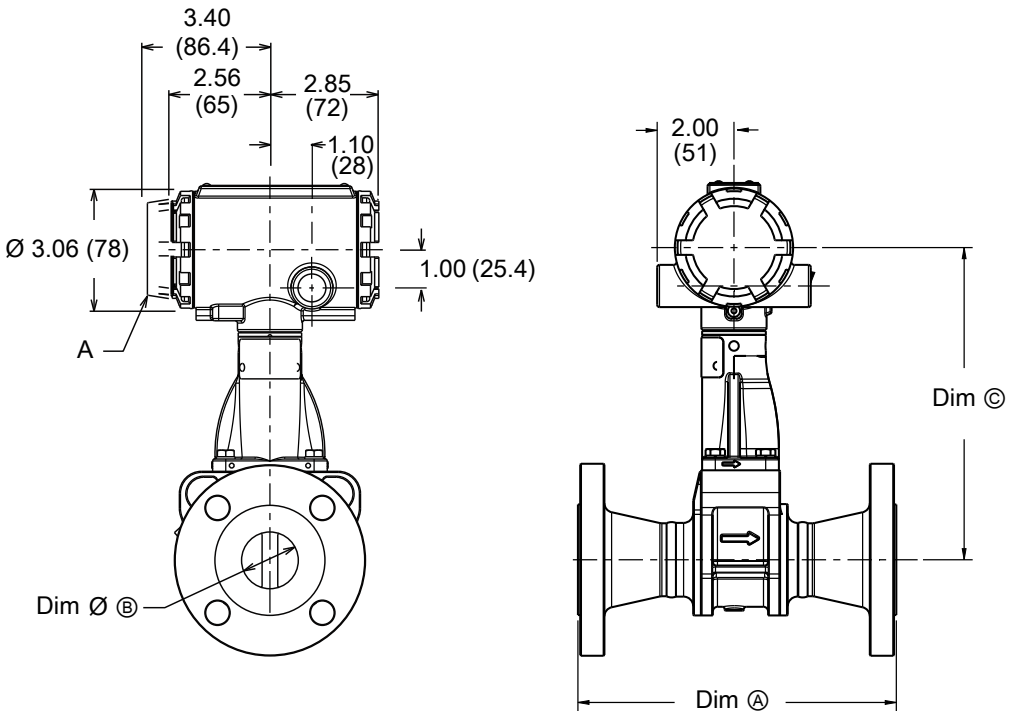
Dimensional drawings

Single transmitter dimensions and weights

Flanged style flow meter (½- inch through 12-inch/15 mm through 300 mm line sizes)

Dimensions are in inches (millimeters).

Figure 5: Dimensional drawing for ½ inch through 1½ inch (15 mm through 40 mm) flanged style flow meter

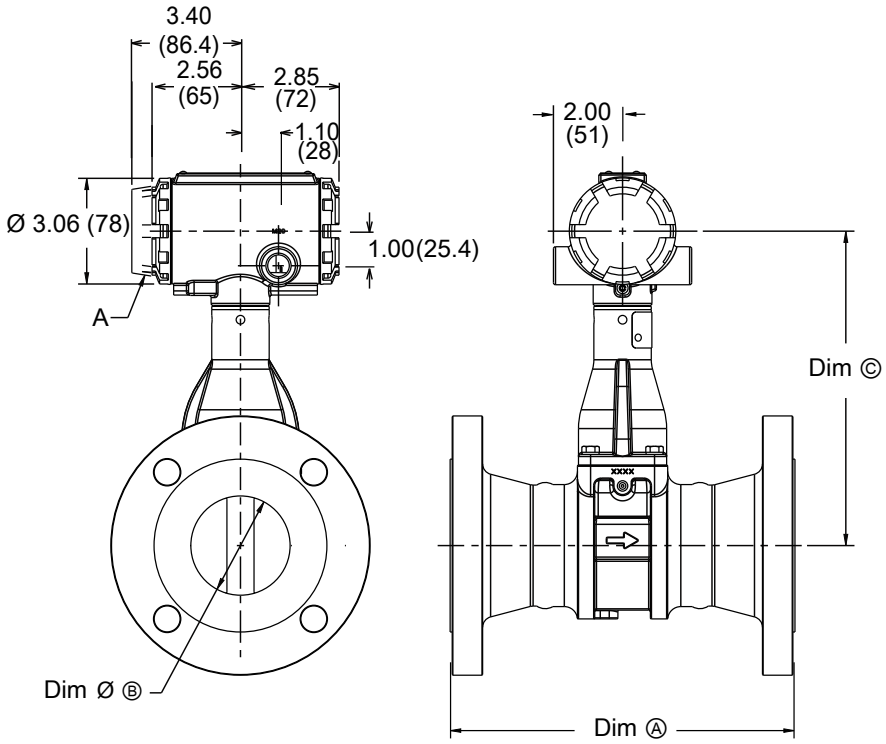


A	Display option

Note

See Table 33 for Dim Ⓐ, ØⒷ, and Dim Ⓒ values.

Figure 6: Dimensional drawing for 2 inch through 12 inch (50 mm through 300 mm) flanged style flow meter



A Display option

Note
See Table 33 for Dim Ⓐ, Dim ØⒷ, and Dim Ⓒ values.

Table 33: Dimensions and weights for flanged style flow meter

Nominal size inch (mm)	Flange rating	Dim Ⓐ inch (mm)	Dim Ⓐ (RTJ) inch (mm)	Dim ØB inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)[1]
½ (15)	Class 150	6.8 (173)	N/A	0.54 (13,7)	7.6 (193)	9 (4)
	Class 300	7.2 (183)	7.6 (193)	0.54 (13,7)	7.6 (193)	10 (5)
	Class 600	7.7 (196)	7.6 (193)	0.54 (13,7)	7.6 (193)	11 (5)
	Class 900	8.3 (211)	8.3 (211)	0.54 (13,7)	7.6 (193)	15 (7)
	PN 16/40	6.1 (155)	N/A	0.54 (13,7)	7.6 (193)	10 (5)
	PN 100	6.6 (168)	N/A	0.54 (13,7)	7.6 (193)	12 (6)
	JIS 10K/20K	6.3 (160)	N/A	0.54 (13,7)	7.6 (193)	10 (5)
	JIS 40K	7.3 (185)	N/A	0.54 (13,7)	7.6 (193)	14 (6)

Table 33: Dimensions and weights for flanged style flow meter *(continued)*

Nominal size inch (mm)	Flange rating	Dim Ⓐ inch (mm)	Dim Ⓐ (RTJ) inch (mm)	Dim ØB inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)[1]
1 (25)	Class 150	7.5 (191)	8.0 (203)	0.95 (24,1)	7.7 (196)	12 (6)
	Class 300	8.0 (203)	8.5 (216)	0.95 (24,1)	7.7 (196)	15 (7)
	Class 600	8.5 (216)	8.5 (216)	0.95 (24,1)	7.7 (196)	16 (7)
	Class 900	9.4 (239)	9.4 (239)	0.95 (24,1)	7.7 (196)	24 (11)
	Class 1500	9.4 (239)	9.4 (239)	0.95 (24,1)	7.7 (196)	24 (11)
	PN 16/40	6.2 (157)	N/A	0.95 (24,1)	7.7 (196)	14 (6)
	PN 100	7.7 (196)	N/A	0.95 (24,1)	7.7 (196)	20 (9)
	PN 160	7.7 (196)	N/A	0.95 (24,1)	7.7 (196)	20 (9)
	JIS 10K/20K	6.5 (165)	N/A	0.95 (24,1)	7.7 (196)	14 (6)
	JIS 40K	7.8 (198)	N/A	0.95 (24,1)	7.7 (196)	18 (8)
1½ (40)	Class 150	8.2 (208)	8.7 (221)	1.49 (37,8)	8.1 (206)	18 (8)
	Class 300	8.7 (221)	9.2 (234)	1.49 (37,8)	8.1 (206)	23 (10)
	Class 600	9.3 (236)	9.3 (236)	1.49 (37,8)	8.1 (206)	26 (12)
	Class 900	10.3 (262)	10.3 (262)	1.49 (37,8)	8.1 (206)	37 (17)
	Class 1500	10.3 (262)	10. 3(262)	1.49 (37,8)	8.1 (206)	37 (17)
	PN 16/40	6.9 (175)	N/A	1.49 (37,8)	8.1 (206)	19 (9)
	PN 100	8.2 (208)	N/A	1.49 (37,8)	8.1 (206)	28 (13)
	PN 160	8.4 (213)	N/A	1.49 (37,8)	8.1 (206)	30 (13)
	JIS 10K/20K	7.3 (185)	N/A	1.49 (37,8)	8.1 (206)	19 (8)
	JIS 40K	8.4 (213)	N/A	1.49 (37,8)	8.1 (206)	26 (12)
2 (50)	Class 150	9.2 (234)	9.6 (243)	1.92 (48,8)	8.5 (216)	22 (10)
	Class 300	9.7 (246)	10.4 (264)	1.92 (48,8)	8.5 (216)	26 (12)
	Class 600	10.5 (267)	10.6 (269)	1.92 (48,8)	8.5 (216)	30 (14)
	Class 900	12.7 (323)	12.9 (328)	1.92 (48,8)	8.5 (216)	60 (27)
	Class 1500	12.7 (323)	12.9 (328)	1.67 (42,4)	8.5 (216)	62 (28)
	PN 16/40	8.0 (203)	N/A	1.92 (48,8)	8.5 (216)	23 (11)
	PN 63/64	9.1 (231)	N/A	1.92 (48,8)	8.5 (216)	31 (14)
	PN 100	9.6 (244)	N/A	1.92 (48,8)	8.5 (216)	37 (17)
	PN 160	10.2 (259)	N/A	1.92 (48,8)	8.5 (216)	39 (18)
	PN 250	10.9 (277)	N/A	1.67 (42,4)	8.5 (216)	47 (22)
	JIS 10K	7.7 (195)	N/A	1.92 (48,8)	8.5 (216)	20 (9)
	JIS 20K	8.3 (210)	N/A	1.92 (48,8)	8.5 (216)	20 (9)
	JIS 40K	9.8 (249)	N/A	1.92 (48,8)	8.5 (216)	29 (13)

Table 33: Dimensions and weights for flanged style flow meter *(continued)*

Nominal size inch (mm)	Flange rating	Dim Ⓐ inch (mm)	Dim Ⓐ (RTJ) inch (mm)	Dim ØB inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)[1]
3 (80)	Class 150	9.9 (251)	10.4 (264)	2.87 (72,9)	9.1 (231)	37 (17)
	Class 300	10.6 (269)	11.2 (284)	2.87 (72,9)	9.1 (231)	47 (21)
	Class 600	11.4 (290)	11.5 (292)	2.87 (72,9)	9.1 (231)	53 (24)
	Class 900	12.9 (328)	13.0 (330)	2.87 (72,9)	9.1 (231)	76 (35)
	Class 1500	14.1 (358)	14.2 (361)	2.60 (66)	9.1 (231)	109 (49)
	PN 16/40	8.9 (226)	N/A	2.87 (72,9)	9.1 (231)	37 (17)
	PN 63/64	10.0 (254)	N/A	2.87 (72,9)	9.1 (231)	45 (21)
	PN 100	10.5 (267)	N/A	2.87 (72,9)	9.1 (231)	55 (25)
	PN 160	11.1 (282)	N/A	2.87 (72,9)	9.1 (231)	60 (27)
	JIS 10K	7.9 (201)	N/A	2.87 (72,9)	9.1 (231)	28 (13)
	JIS 20K	9.3 (236)	N/A	2.87 (72,9)	9.1 (231)	35 (16)
	JIS 40K	11.0 (279)	N/A	2.87 (72,9)	9.1 (231)	50 (29)
4 (100)	Class 150	10.3 (262)	10.8 (274)	3.79 (96,3)	9.6 (244)	51 (23)
	Class 300	11.0 (279)	11.6 (295)	3.79 (96,3)	9.6 (244)	72 (32)
	Class 600	12.8 (325)	12.9 (328)	3.79 (96,3)	9.6 (244)	98 (44)
	Class 900	13.8 (351)	13.9 (353)	3.79 (96,3)	9.6 (244)	121 (55)
	Class 1500	14.5 (368)	14.6 (371)	3.40 (86,4)	9.6 (244)	163 (74)
	PN 16	8.4 (213)	N/A	3.79 (96,3)	9.6 (244)	40 (18)
	PN 40	9.4 (239)	N/A	3.79 (96,3)	9.6 (244)	50 (22)
	PN 63/64	10.4 (264)	N/A	3.79 (96,3)	9.6 (244)	63 (28)
	PN 100	11.3 (287)	N/A	3.79 (96,3)	9.6 (244)	79 (36)
	PN 160	12.1 (307)	N/A	3.79 (96,3)	9.6 (244)	86 (39)
	JIS 10K	8.7 (220)	N/A	3.79 (96,3)	9.6 (244)	38 (17)
	JIS 20K	8.7 (220)	N/A	3.79 (96,3)	9.6 (244)	45 (21)
	JIS 40K	11.8 (300)	N/A	3.79 (96,3)	9.6 (244)	76 (34)

Table 33: Dimensions and weights for flanged style flow meter *(continued)*

Nominal size inch (mm)	Flange rating	Dim Ⓐ inch (mm)	Dim Ⓐ (RTJ) inch (mm)	Dim ØB inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)[1]
6 (150)	Class 150	11.6 (295)	12.1 (307)	5.7 (144,8)	10.8 (274)	81 (37)
	Class 300	12.3 (312)	13.0 (330)	5.7 (144,8)	10.8 (274)	120 (55)
	Class 600	14.3 (363)	14.4 (366)	5.7 (144,8)	10.8 (274)	187 (55)
	Class 900	16.1 (409)	16.2 (411)	5.14 (130,6)	10.8 (274)	278 (126)
	Class 1500	18.6 (472)	18.8 (478)	5.14 (130,6)	10.8 (274)	376 (170)
	PN 16	8.9 (226)	N/A	5.7 (144,8)	10.8 (274)	66 (30)
	PN 40	10.5 (267)	N/A	5.7 (144,8)	10.8 (274)	86 (39)
	PN 63/64	12.1 (307)	N/A	5.7 (144,8)	10.8 (274)	130 (59)
	PN 100	13.6 (345)	N/A	5.7 (144,8)	10.8 (274)	160 (73)
	JIS 10K	10.6 (270)	N/A	5.7 (144,8)	10.8 (274)	70 (32)
	JIS 20K	10.6 (270)	N/A	5.7 (144,8)	10.8 (274)	88 (40)
	JIS 40K	14.2 (361)	N/A	5.7 (144,8)	10.8 (274)	166 (75)
8 (200)	Class 150	13.5 (343)	14.0 (356)	7.55 (191,8)	11.7 (297)	142 (64)
	Class 300	14.3 (363)	14.9 (378)	7.55 (191,8)	11.7 (297)	199 (90)
	Class 600	16.5 (419)	16.7 (424)	7.55 (191,8)	11.7 (297)	299 (135)
	Class 900	18.8 (478)	18.9 (480)	6.62 (168,1)	11.7 (297)	479 (217)
	Class 1500	22.8 (579)	23.2 (589)	6.62 (168,1)	11.7 (297)	652 (296)
	PN 10	10.4 (264)	N/A	7.55 (191,8)	11.7 (297)	111 (50)
	PN 16	10.4 (264)	N/A	7.55 (191,8)	11.7 (297)	109 (50)
	PN 25	11.8 (300)	N/A	7.55 (191,8)	11.7 (297)	138 (63)
	PN 40	12.5 (318)	N/A	7.55 (191,8)	11.7 (297)	157 (71)
	PN 63/64	14.2 (361)	N/A	7.55 (191,8)	11.7 (297)	217 (99)
	PN 100	15.8 (401)	N/A	7.55 (191,8)	11.7 (297)	283 (128)
	JIS 10K	12.2 (310)	N/A	7.55 (191,8)	11.7 (297)	110 (50)
	JIS 20K	12.2 (310)	N/A	7.55 (191,8)	11.7 (297)	135 (61)
	JIS 40K	16.5 (419)	N/A	7.55 (191,8)	11.7 (297)	256 (116)

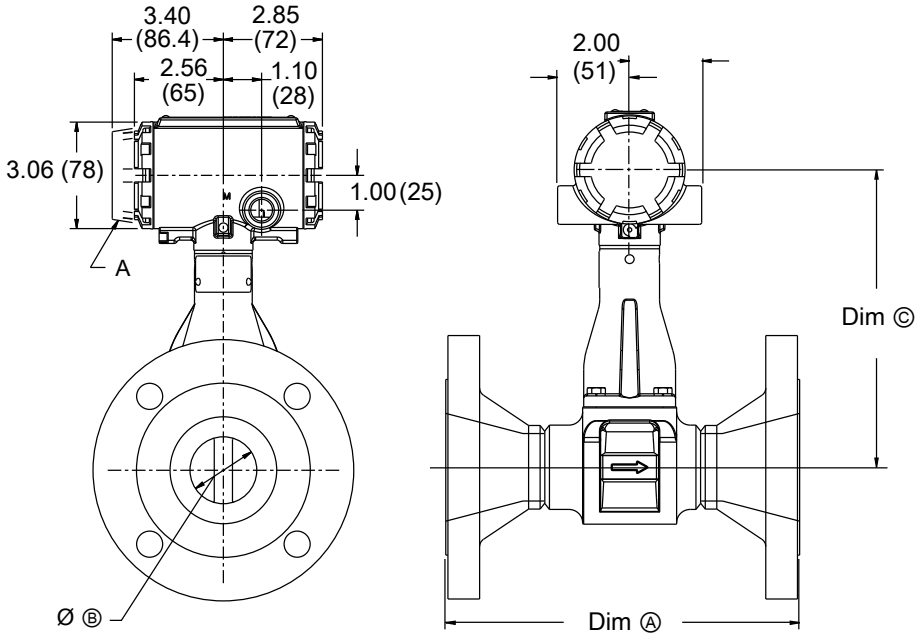
Table 33: Dimensions and weights for flanged style flow meter *(continued)*

Nominal size inch (mm)	Flange rating	Dim Ⓐ inch (mm)	Dim Ⓐ (RTJ) inch (mm)	Dim ØB inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)[1]
10 (250)	Class 150	14.5 (368)	15.0 (381)	9.56 (243)	12.8 (325)	198 (90)
	Class 300	15.8 (401)	16.4 (417)	9.56 (243)	12.8 (325)	286 (130)
	Class 600	19.0 (483)	19.2 (488)	9.56 (243)	12.8 (325)	478 (220)
	PN 10	11.9 (302)	N/A	9.56 (243)	12.8 (325)	157 (71)
	PN 16	12.0 (305)	N/A	9.56 (243)	12.8 (325)	162 (74)
	PN 25	13.5 (343)	N/A	9.56 (243)	12.8 (325)	199 (90)
	PN 40	14.8 (376)	N/A	9.56 (243)	12.8 (325)	247 (112)
	PN 63/64	16.4 (417)	N/A	9.56 (243)	12.8 (325)	308 (140)
	PN 100	18.9 (480)	N/A	9.56 (243)	12.8 (325)	445 (202)
	JIS 10K	14.5 (368)	N/A	9.56 (243)	12.8 (325)	175 (79)
	JIS 20K	14.5 (368)	N/A	9.56 (243)	12.8 (325)	222 (101)
	JIS 40K	18.1 (460)	N/A	9.56 (243)	12.8 (325)	379 (172)
12 (300)	Class 150	16.8 (427)	17.3 (439)	11.38 (289)	13.7 (348)	298 (135)
	Class 300	18.0 (457)	18.6 (472)	11.38 (289)	13.7 (348)	416 (189)
	Class 600	20.5 (521)	20.6 (523)	11.38 (289)	13.7 (348)	595 (270)
	PN 10	13.1 (333)	N/A	11.38 (289)	13.7 (348)	204 (93)
	PN 16	13.9 (353)	N/A	11.38 (289)	13.7 (348)	225 (102)
	PN 25	15.0 (381)	N/A	11.38 (289)	13.7 (348)	269 (122)
	PN 40	16.8 (427)	N/A	11.38 (289)	13.7 (348)	348 (158)
	PN 63/64	18.8 (478)	N/A	11.38 (289)	13.7 (348)	431 (196)
	PN 100	21.2 (538)	N/A	11.38 (289)	13.7 (348)	644 (292)
	JIS 10K	15.7 (399)	N/A	11.38 (289)	13.7 (348)	223 (101)
	JIS 20K	15.7 (399)	N/A	11.38 (289)	13.7 (348)	284 (129)
	JIS 40K	19.6 (498)	N/A	11.38 (289)	13.7 (348)	494 (224)

(1) *With integral transmitter, and without MTA or CPA options.*

Reducer style flow meter

Figure 7: Dimensional drawing for reducer style flow meters



A Display option

Note
See Table 34 for Dim Ⓐ, ØⒷ, and Dim Ⓒ values.

Table 34: Dimensions and weights for reducer style flow meter

Nominal size inch (mm)	Flange rating	Face-to-face Dim Ⓐ inch (mm)	Dim Ⓐ RTJ inch (mm)	Dim ØB inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)
1 (25)	Class 150	7.5 (191)	8.0 (203)	0.54 (13,7)	7.6 (193)	12 (5)
	Class 300	8.0 (203)	8.5 (216)	0.54 (13,7)	7.6 (193)	14 (6)
	Class 600	8.5 (216)	8.5 (216)	0.54 (13,7)	7.6 (193)	15 (7)
	Class 900	9.4 (239)	9.4 (239)	0.54 (13,7)	7.6 (193)	21 (9)
	PN 16/40	6.2 (157)	N/A	0.54 (13,7)	7.6 (193)	13 (6)
	PN 100	7.7 (196)	N/A	0.54 (13,7)	7.6 (193)	18 (8)

Table 34: Dimensions and weights for reducer style flow meter *(continued)*

Nominal size inch (mm)	Flange rating	Face-to-face Dim Ⓐ inch (mm)	Dim Ⓐ RTJ inch (mm)	Dim ØB inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)
1 ½ (40)	Class 150	8.2 (208)	8.7 (221)	0.95 (24,1)	7.7 (196)	16 (7)
	Class 300	8.7 (221)	9.2 (234)	0.95 (24,1)	7.7 (196)	21 (10)
	Class 600	9.3 (236)	9.3 (236)	0.95 (24,1)	7.7 (196)	24 (11)
	Class 900	10.3 (262)	10.3 (262)	0.95 (24,1)	7.7 (196)	35 (16)
	PN 16/40	6.9 (175)	N/A	0.95 (24,1)	7.7 (196)	18 (8)
	PN 100	8.2 (208)	N/A	0.95 (24,1)	7.7 (196)	26 (12)
	PN 160	8.4 (213)	N/A	0.95 (24,1)	7.7 (196)	28 (13)
2 (50)	Class 150	9.2 (234)	9.7 (246)	1.49 (37,8)	8.1 (206)	23 (10)
	Class 300	9.7 (246)	10.4 (264)	1.49 (37,8)	8.1 (206)	27 (12)
	Class 600	10.5 (267)	10.6 (269)	1.49 (37,8)	8.1 (206)	31 (14)
	Class 900	12.7 (323)	12.9 (328)	1.49 (37,8)	8.1 (206)	61 (28)
	PN 16/40	8.0 (203)	N/A	1.49 (37,8)	8.1 (206)	24 (11)
	PN 63/64	9.1 (231)	N/A	1.49 (37,8)	8.1 (206)	31 (14)
	PN 100	9.6 (244)	N/A	1.49 (37,8)	8.1 (206)	37 (17)
	PN 160	10.2 (259)	N/A	1.49 (37,8)	8.1 (206)	40 (18)
3 (80)	Class 150	9.9 (251)	10.4 (264)	1.92 (48,8)	8.5 (216)	33 (15)
	Class 300	10.6 (269)	11.2 (284)	1.92 (48,8)	8.5 (216)	43 (19)
	Class 600	11.4 (290)	11.5 (292)	1.92 (48,8)	8.5 (216)	49 (22)
	Class 900	12.9 (328)	13.0 (330)	1.92 (48,8)	8.5 (216)	73 (33)
	PN 16/40	8.9 (226)	N/A	1.92 (48,8)	8.5 (216)	33 (15)
	PN 63/64	10.0 (254)	N/A	1.92 (48,8)	8.5 (216)	42 (19)
	PN 100	10.5 (267)	N/A	1.92 (48,8)	8.5 (216)	52 (24)
	PN 160	11.1 (282)	N/A	1.92 (48,8)	8.5 (216)	58 (26)
4 (100)	Class 150	10.3 (262)	10.8 (274)	2.87 (72,9)	9.1 (231)	46 (21)
	Class 300	11.0 (279)	11.6 (295)	2.87 (72,9)	9.1 (231)	67 (30)
	Class 600	12.8 (325)	12.9 (328)	2.87 (72,9)	9.1 (231)	94 (43)
	Class 900	13.8 (351)	13.9 (353)	2.87 (72,9)	9.1 (231)	118 (54)
	PN 16	8.4 (213)	N/A	2.87 (72,9)	9.1 (231)	36 (16)
	PN 40	9.4 (239)	N/A	2.87 (72,9)	9.1 (231)	46 (21)
	PN 63/64	10.4 (264)	N/A	2.87 (72,9)	9.1 (231)	60 (27)
	PN 100	11.3 (287)	N/A	2.87 (72,9)	9.1 (231)	77 (35)
	PN 160	12.1 (307)	N/A	2.87 (72,9)	9.1 (231)	85 (38)

Table 34: Dimensions and weights for reducer style flow meter *(continued)*

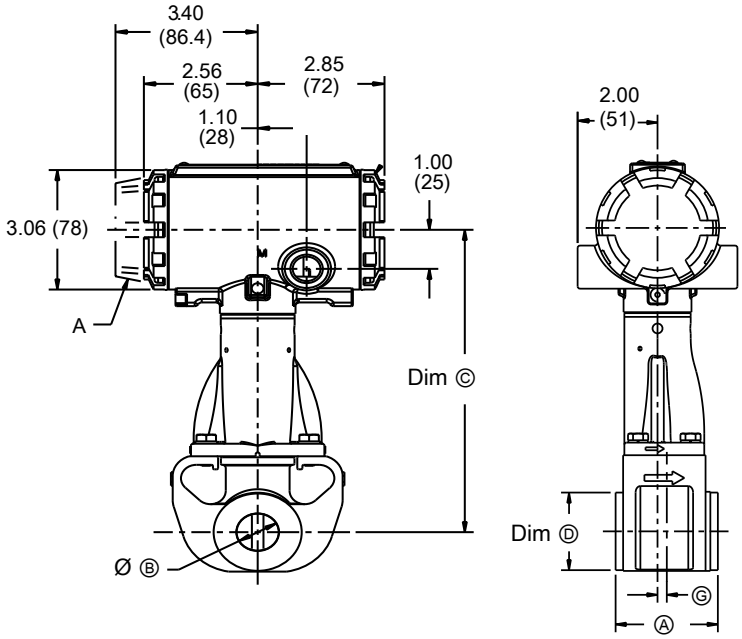
Nominal size inch (mm)	Flange rating	Face-to-face Dim Ⓐ inch (mm)	Dim Ⓐ RTJ inch (mm)	Dim ØB inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)
6 (150)	Class 150	11.6 (295)	12.1 (307)	3.79 (96,3)	9.6 (244)	70 (32)
	Class 300	12.3 (312)	13.0 (330)	3.79 (96,3)	9.6 (244)	113 (51)
	Class 600	14.3 (363)	14.4 (366)	3.79 (96,3)	9.6 (244)	185 (84)
	Class 900	16.1 (409)	16.2 (411)	3.79 (96,3)	9.6 (244)	246 (112)
	PN 16	8.9 (226)	N/A	3.79 (96,3)	9.6 (244)	59 (27)
	PN 40	10.5 (267)	N/A	3.79 (96,3)	9.6 (244)	82 (37)
	PN 63/64	12.1 (307)	N/A	3.79 (96,3)	9.6 (244)	125 (57)
	PN 100	13.6 (345)	N/A	3.79 (96,3)	9.6 (244)	162 (73)
	PN 160	14.7 (373)	N/A	3.79 (96,3)	9.6 (244)	188 (85)
8 (200)	Class 150	13.5 (343)	14.0 (356)	5.70 (144,8)	10.8 (274)	124 (56)
	Class 300	14.3 (363)	14.9 (378)	5.70 (144,8)	10.8 (274)	186 (84)
	Class 600	16.5 (419)	16.7 (424)	5.70 (144,8)	10.8 (274)	295 (134)
	PN 10	10.4 (264)	N/A	5.70 (144,8)	10.8 (274)	91 (41)
	PN 16	10.4 (264)	N/A	5.70 (144,8)	10.8 (274)	91 (41)
	PN 25	11.8 (300)	N/A	5.70 (144,8)	10.8 (274)	124 (56)
	PN 40	12.5 (318)	N/A	5.70 (144,8)	10.8 (274)	145 (66)
	PN 63/64	14.2 (361)	N/A	5.70 (144,8)	10.8 (274)	211 (96)
	PN 100	15.8 (401)	N/A	5.70 (144,8)	10.8 (274)	283 (128)
10 (250)	Class 150	14.5 (368)	15.0 (381)	7.55 (191,8)	11.7 (297)	182 (83)
	Class 300	15.8 (401)	16.4 (417)	7.55 (191,8)	11.7 (297)	282 (128)
	Class 600	19.0 (483)	19.2 (488)	7.55 (191,8)	11.7 (297)	490 (222)
	PN 10	11.9 (302)	N/A	7.55 (191,8)	11.7 (297)	139 (63)
	PN 16	12.0 (305)	N/A	7.55 (191,8)	11.7 (297)	149 (67)
	PN 25	13.5 (343)	N/A	7.55 (191,8)	11.7 (297)	191 (87)
	PN 40	14.8 (376)	N/A	7.55 (191,8)	11.7 (297)	246 (112)
	PN 63/64	16.4 (417)	N/A	7.55 (191,8)	11.7 (297)	314 (143)
	PN 100	18.9 (480)	N/A	7.55 (191,8)	11.7 (297)	463 (210)

Table 34: Dimensions and weights for reducer style flow meter *(continued)*

Nominal size inch (mm)	Flange rating	Face-to-face Dim Ⓐ inch (mm)	Dim Ⓐ RTJ inch (mm)	Dim ØB inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)
12 (300)	Class 150	16.8 (427)	17.3 (439)	9.56 (242,8)	12.8 (325)	282 (128)
	Class 300	18.0 (457)	18.6 (472)	9.56 (242,8)	12.8 (325)	412 (187)
	Class 600	20.5 (521)	20.6 (523)	9.56 (242,8)	12.8 (325)	610 (297)
	PN 10	13.1 (333)	N/A	9.56 (242,8)	12.8 (325)	188 (85)
	PN 16	13.9 (353)	N/A	9.56 (242,8)	12.8 (325)	212 (96)
	PN 25	15.0 (381)	N/A	9.56 (242,8)	12.8 (325)	262 (119)
	PN 40	16.8 (427)	N/A	9.56 (242,8)	12.8 (325)	350 (159)
	PN 63/64	18.8 (478)	N/A	9.56 (242,8)	12.8 (325)	444 (201)
	PN 100	21.2 (538)	N/A	9.56 (242,8)	12.8 (325)	672 (305)
14 (350)	Class 150	19.8 (502)	-	11.38 (289.0)	13.7 (348)	410 (186)
	Class 300	19.8 (502)	-	11.38 (289)	13.7 (348)	508 (230)

Wafer style flow meters

Figure 8: Dimensional drawing for wafer style flow meters



A Display option

Note
See Table 35 for Dim Ⓐ, ØB, Dim Ⓒ, Dim Ⓓ, and Dim Ⓖ.

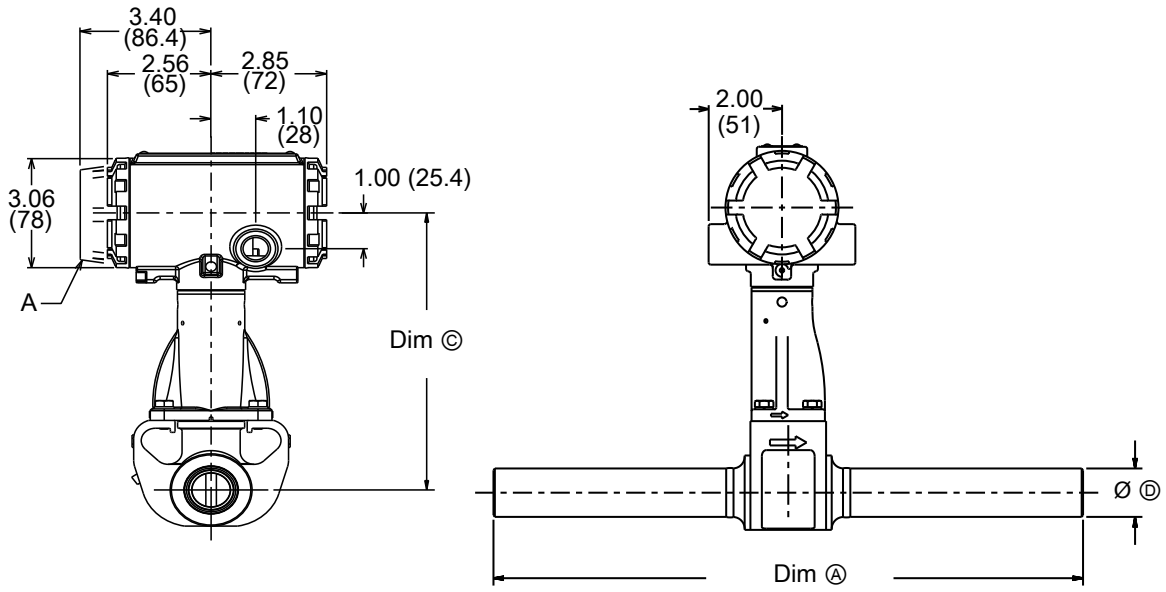
Table 35: Dimensions and weights for wafer-style flow meter

Nominal size inch (mm)	Face-to-face Dim Ⓐ Inch (mm)	Ø Ⓑ Inch (mm)	Dim Ⓒ Inch (mm)	Dim Ⓖ Inch (mm)	Weight lb (kg)[1]
½ (15)	2.56 (65)	0.54 (13,2)	7.63 (194)	0.17 (4,3)	6.8 (3,1)
1 (25)	2.56 (65)	0.95 (24,1)	7.74 (197)	0.23 (5,9)	7.4 (3,4)
1½ (40)	2.56 (65)	1.49 (37,8)	8.14 (207)	0.18 (4,6)	10.0 (4,5)
2 (50)	2.56 (65)	1.92 (49)	8.85 (225)	0.12 (3)	10.6 (4,8)
3 (80)	2.56 (65)	2.87 (73)	9.62 (244)	0.25 (6)	13.6 (6,2)
4 (100)	3.42 (87)	3.79 (96)	10.48 (266)	0.44 (11)	21.4 (9,7)
6 (150)	5.00 (127)	5.70 (145)	10.29 (261)	0.30 (7,6)	36 (16)
8 (200)	6.60 (168)	7.55 (192)	11.22 (285)	0.70 (17,8)	62 (28)

(1) *With integral transmitter, and without CPA option.*

Weld end style flow meters

Figure 9: Dimensional drawing for weld end style flow meters



A Display option

Note
See Table 36 for Dim Ⓐ, Dim Ⓒ, and ØⒹ values.

Table 36: Dimensions and weights for weld end style flow meter

Nominal size in. (mm)	Pipe schedule	Dim Ⓐ inch (mm)	Dim Ⓒ inch (mm)	ØⒹ inch (mm)	Weight lb (kg)(1)
0.5 (15)	10, 40, 160	16.0 (406)	7.6 (194)	0.84 (21.3)	8 (4)
1 (25)	10, 40, 80, 160	16.0 (406)	7.7 (197)	1.32 (33.4)	10 (5)
1.5 (40)	10, 40, 80, 160	16.0 (406)	8.1 (207)	1.90 (48.3)	13 (6)
2 (50)	10, 40, 80	16.0 (406)	8.5 (216)	2.38 (60.3)	15 (7)
	160	16.0 (406)	8.5 (216)	2.38 (60.3)	18 (8)
3 (80)	10, 40, 80	16.0 (406)	9.1 (230)	3.50 (88.9)	24 (11)
	160	16.0 (406)	9.1 (230)	3.50 (88.9)	29 (13)
4 (100)	10, 40, 80	16.0 (406)	9.6 (244)	4.50 (114.3)	32 (15)
	160	16.0 (406)	9.6 (244)	4.50 (114.3)	43 (19)
6 (150)	10, 40, 80	18.0 (457)	10.8 (274)	6.63 (168)	60 (28)
	160	18.0 (457)	10.8 (274)	6.63 (168)	87 (40)
8 (200)	10, 40, 80	18.0 (457)	11.7 (297)	8.63 (219)	89 (40)
	160	18.0 (457)	11.7 (297)	8.63 (219)	144 (66)
10 (250)	10, 40, 80, 160	20 (508)	12.8 (325)	10.75 (273)	135 (61)
12 (300)	10, 40, 80, 160	20 (508)	13.7 (348)	12.75 (324)	185 (84.1)

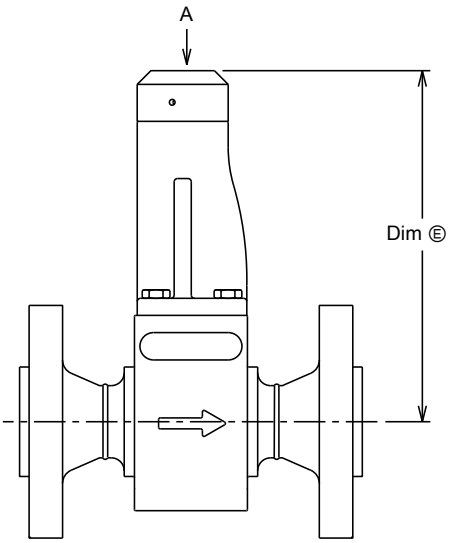
(1) *With integral transmitter, and without MTA or CPA option.*

Height variation and conduit entry with remote transmitters

Table 37 shows the location of the conduit entry and the adjusted height of the meter when a remote transmitter used.

Note
Dimension Ⓔ is measured from the center of the process pipe, and is the same for all process fitting types.

Table 37: Height variation and conduit entry with remote transmitters

	Meter size inch (mm)	Dim Ⓔ inch (mm)
	½ (15)	6.4 (162)
	1 (25)	6.5 (165)
	1½ (40)	6.8 (173)
	2 (50)	7.2 (183)
	3 (80)	7.8 (198)
	4 (100)	8.3 (211)
	6 (150)	9.5 (241)
	8 (200)	10.4 (264)
	10 (250)	11.4 (290)
	12 (300)	12.3 (312)

A Conduit entry

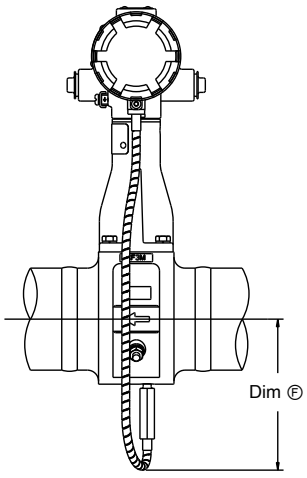
Dim Ⓔ Dimension to top of meter, add clearance for cable/fitting.

Clearance for MTA option

When the MTA option is selected, some additional clearance is required for the MTA sensor cable

Note
Dimension Ⓕ is measured from the center of the process pipe, and is the same for all process fitting types.

Table 38: Clearance for MTA option

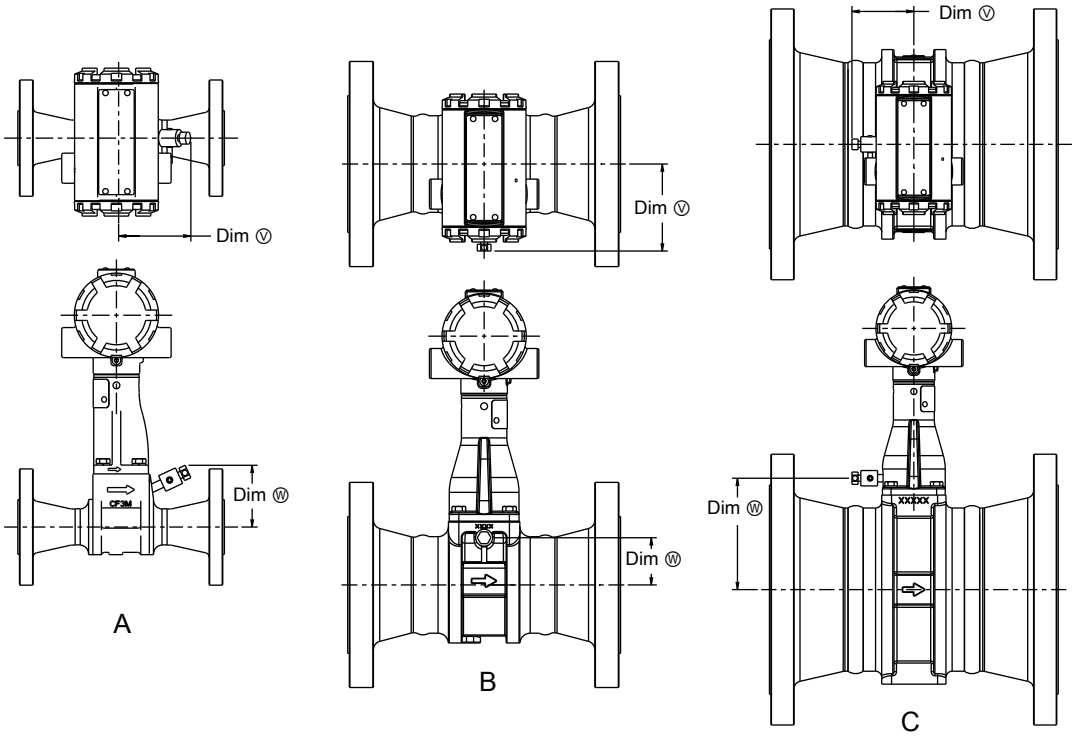
	Meter size inch (mm)	Dim Ⓕ inch (mm)
	2 (50)	4.5 (114)
	3 (80)	4.7 (119)
	4 (100)	5.3 (135)
	6 (150)	5.9 (150)
	8 (200)	7.4 (188)
	10 (250)	8.3 (211)
	12 (300)	9.3 (236)
	14 (350)	10.1 (256)

Location for CPA valve option

When the CPA option is ordered, the CPA valve can be in one of three general locations depending on the size of the meter.

Note
On some models, the orientation or relative location of the CPA valve may vary. Contact an Emerson representative (see back page) for more precise information if needed.

Figure 10: Location for CPA valve option



A. 1–1½ inch (DN25–DN40) models and 1½–2 inch (DN40-DN50) reducer flange models
B. 2–4 inch (DN50-DN100) models and 3–6 inch (DN80-DN150) reducer flange models
C. 6+ inch (DN150+) models and 8+ inch (DN200) reducer flange models

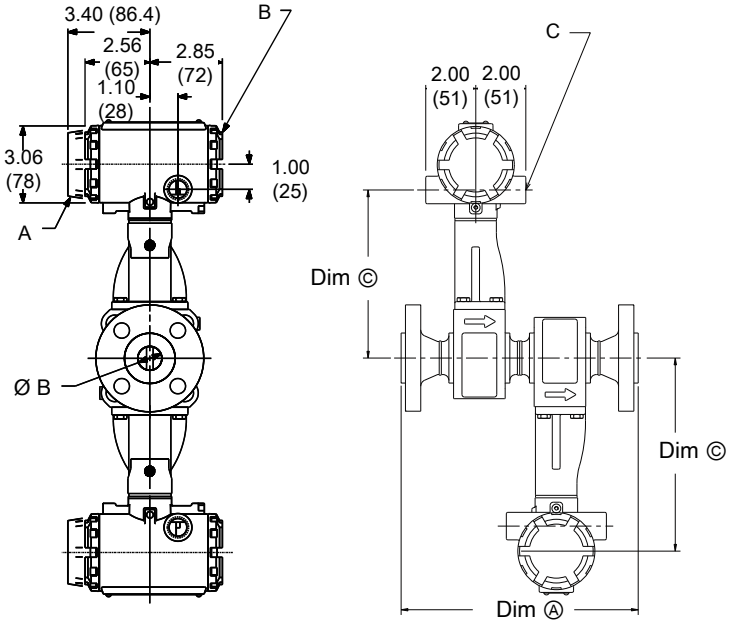
Note
Dimensions Ⓥ and Ⓦ are measured from the center of the meter or process pipe, and they are the same for all process fitting types.

Table 39: Location for CPA valve option

Meter size	Dim ⓥ inch (mm)	Dim ⓦ inch (mm)
1 inch (DN25) (and 1½ inch [DN40] reducer)	2.7 (70)	2.3 (57)
1½ inch (DN40) (and 2 inch [DN50] reducer)	2.6 (66)	2.6 (66)
2 inch (DN50) (and 3 inch [DN80] reducer)	3.2 (81)	1.1 (28)
3 inch (DN80) (and 4 inch [DN100] reducer)	3.2 (81)	1.7 (44)
4 inch (DN100) (and 6 inch [DN150] reducer)	3.2 (81)	2.3 (57)
6 inch (DN150) (and 8 inch [DN200] reducer)	2.5 (64)	4.5 (115)
8 inch (DN200) (and 10 inch [DN250] reducer)	2.5 (64)	5.6 (141)
10 inch (DN250) (and 12 inch [DN300 reducer)	2.5 (64)	6.6 (167)
12 inch (DN300) (and 14 inch [DN350] reducer)	2.5 (64)	7.5 (190)

Dual transmitter dimensions

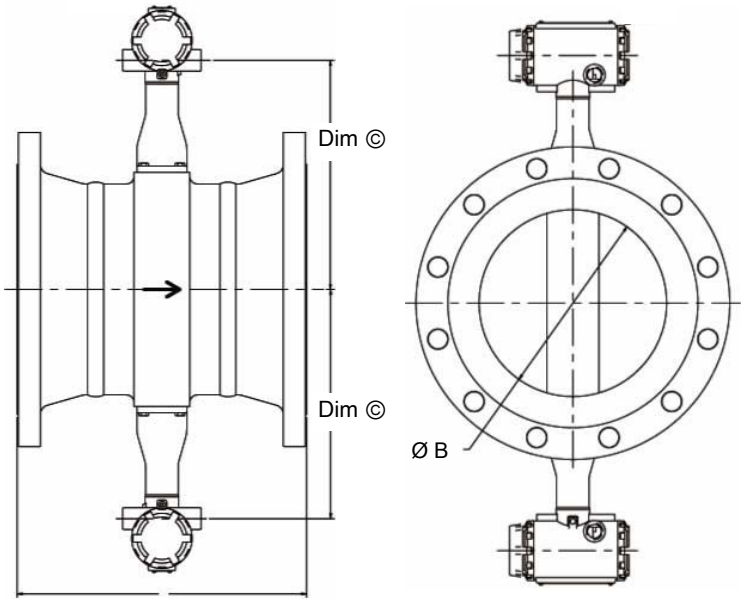
Figure 11: Vortex Dual-Sensor Style Flowmeter (1/2- through 4-in./15 mm through 100 mm Line Sizes)



A. Display option
B. Terminal cover
C. Electrical connection

Note
For Dim Ⓐ, Dim ⌀Ⓑ, and Dim ©, see Table 40 and Table 41 for dimensions.

Figure 12: Vortex Dual-Sensor Style Flowmeter (6- through 12-in./150 mm through 300 mm Line Sizes)



Note
For Dim ⌀Ⓑ and Dim ©, see Table 40 and Table 41 for dimensions.

Table 40: Vortex Dual-Sensor Style Flowmeter (1/2- through 3-in./15 mm through 80 mm Line Sizes)

Nominal size inch (mm)	Flange rating	Face-to-face Dim Ⓐ inch (mm)	Dim Ⓐ RTJ inch (mm)	Dim ⌀Ⓑ inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)
½ (15)	Class 150 Class 300 Class 600 Class 900	11.9 (302) 12.3 (312) 12.8 (325) 13.4 (340)	N/A 12.7 (323) 12.7 (323) 13.4 (340)	0.54 (13,7) 0.54 (13,7) 0.54 (13,7) 0.54 (13,7)	7.6 (193) 7.6 (193) 7.6 (193) 7.6 (193)	16 (7) 17 (8) 18 (8) 23 (10)
	PN 16/40 PN 100	11.2 (284) 11.7 (297)	N/A N/A	0.54 (13,7) 0.54 (13,7)	7.6 (193) 7.6 (193)	17 (8) 19 (9)
	JIS 10K/20K JIS 40K	11.4 (290) 12.4 (315)	N/A N/A	0.54 (13,7) 0.54 (13,7)	7.6 (193) 7.6 (193)	17 (8) 21 (9)
1 (25)	Class 150 Class 300 Class 600 Class 900 Class 1500	15.0 (381) 15.6 (396) 16.1 (409) 16.9 (429) 16.9 (429)	15.6 (396) 16.1 (409) 16.1 (409) 16.9 (429) 16.9 (429)	0.95 (24,1) 0.95 (24,1) 0.95 (24,1) 0.95 (24,1) 0.95 (24,1)	7.7 (196) 7.7 (196) 7.7 (196) 7.7 (196) 7.7 (196)	21 (9) 23 (11) 24 (11) 33 (15) 33 (15)
	PN 16/40 PN 100 PN 160	13.8 (351) 15.3 (389) 15.3 (389)	N/A N/A N/A	0.95 (24,1) 0.95 (24,1) 0.95 (24,1)	7.7 (196) 7.7 (196) 7.7 (196)	22 (10) 28 (13) 28 (13)
	JIS 10K/20K JIS 40K	14.0 (356) 15.4 (391	N/A N/A	0.95 (24,1) 0.95 (24,1)	7.7 (196) 7.7 (196)	22 (10) 26 (12)
1½ (40)	Class 150 Class 300 Class 600 Class 900 Class 1500	11.3 (287) 11.8 (300) 12.4 (315) 13.4 (340) 13.4 (340)	11.8 (300) 12.3 (312) 12.4 (315) 13.4 (340) 13.4 (340)	1.49 (37,8) 1.49 (37,8) 1.49 (37,8) 1.49 (37,8) 1.49 (37,8)	8.1 (206) 8.1 (206) 8.1 (206) 8.1 (206) 8.1 (206)	27 (12) 32 (15) 35 (16) 46 (21) 46 (21)
	PN 16/40 PN 100 PN 160	9.9 (251) 11.3 (287) 11.4 (290)	N/A N/A N/A	1.49 (37,8) 1.49 (37,8) 1.49 (37,8)	8.1 (206) 8.1 (206) 8.1 (206)	29 (13) 37 (17) 39 (18)
	JIS 10K/20K JIS 40K	10.3 (262) 11.5 (292)	N/A N/A	1.49 (37,8) 1.49 (37,8)	8.1 (206) 8.1 (206)	28 (13) 35 (16)
2 (50)	Class 150 Class 300 Class 600 Class 900 Class 1500	13.0 (330) 13.5 (343) 14.3 (363) 16.5 (419) 17.0 (432)	13.5 (343) 14.0 (356) 14.3 (363) 16.7 (424) 17.2 (437)	1.92 (48,8) 1.92 (48,8) 1.92 (48,8) 1.92 (48,8) 1.67 (42.4)	8.5 (216) 8.5 (216) 8.5 (216) 8.5 (216) 8.5 (216)	32 (15) 36 (16) 39 (18) 69 (31) 72 (33)
	PN 16/40 PN 63/64 PN 100 PN 160	11.8 (300) 12.9 (328) 13.4 (340) 13.9 (353)	N/A N/A N/A N/A	1.92 (48,8) 1.92 (48,8) 1.92 (48,8) 1.92 (48,8)	8.5 (216) 8.5 (216) 8.5 (216) 8.5 (216)	33 (15) 40 (18) 46 (21) 48 (22)
	JIS 10K JIS 20K JIS 40K	11.5 (292) 12.0 (305) 13.6 (345)	N/A N/A N/A	1.92 (48,8) 1.92 (48,8) 1.92 (48,8)	8.5 (216) 8.5 (216) 8.5 (216)	29 (13) 30 (14) 38 (14)

Table 40: Vortex Dual-Sensor Style Flowmeter (1/2- through 3-in./15 mm through 80 mm Line Sizes) *(continued)*

Nominal size inch (mm)	Flange rating	Face-to-face Dim Ⓐ inch (mm)	Dim Ⓐ RTJ inch (mm)	Dim ⌀Ⓑ inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)
3 (80)	Class 150	14.3 (363)	14.8 (376)	2.87 (72,9)	9.1 (231)	51 (23)
	Class 300	15.0 (381)	15.7 (399)	2.87 (72,9)	9.1 (231)	60 (27)
	Class 600	15.8 (401)	15.9 (404)	2.87 (72,9)	9.1 (231)	66 (30)
	Class 900	17.3 (439)	17.4 (442)	2.87 (72,9)	9.1 (231)	88 (41)
	Class 1500	18.5 (470)	18.7 (475)	2.60 (66.0)	9.1 (232)	124 (56)
	PN 16/40	13.4 (340)	N/A	2.87 (72,9)	9.1 (231)	50 (23)
	PN 63/64	14.5 (367)	N/AN/A	2.87 (72,9)	9.1 (231)	59 (27)
	PN 100	14.9 (378)	N/A	2.87 (72,9)	9.1 (231)	68 (31)
	PN 160	15.6 (396)	N/A	2.87 (72,9)	9.1 (231)	73 (33)
	JIS 10K	12.3 (312)	N/A	2.87 (72,9)	9.1 (231)	41 (19)
	JIS 20K	13.7 (348)	N/A	2.87 (72,9)	9.1 (231)	49 (22)
	JIS 40K	15.5 (394)	N/A	2.87 (72,9)	9.1 (231)	64 (29)

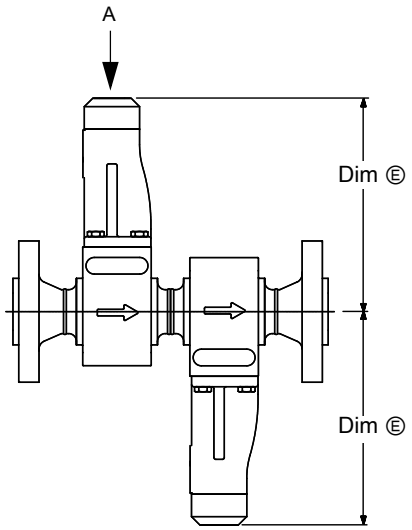
Table 41: Vortex Dual-Sensor Style Flowmeter (4- through 12-in./100 mm through 300 mm Line Sizes)

Nominal size inch (mm)	Flange rating	Face-to-face Dim Ⓐ inch (mm)	Dim Ⓐ RTJ inch (mm)	Dim ⌀B inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)
4 (100)	Class 150	15.2 (386)	15.7 (399)	3.79 (96,3)	9.6 (244)	70 (32)
	Class 300	16.0 (406)	16.6 (422)	3.79 (96,3)	9.6 (244)	89 (41)
	Class 600	17.7 (450)	17.9 (454)	3.79 (96,3)	9.6 (244)	116 (53)
	Class 900	18.7 (475)	18.9 (480)	3.79 (96,3)	9.6 (244)	139 (63)
	Class 1500	20.0 (509)	20.2 (512)	3.40 (86.4)	9.6 (244)	184 (83)
	PN 16	13.3 (338)	N/A	3.79 (96,3)	9.6 (244)	59 (27)
	PN 40	14.4 (366)	N/A	3.79 (96,3)	9.6 (244)	68 (31)
	PN 63/64	15.4 (391)	N/A	3.79 (96,3)	9.6 (244)	81 (37)
	PN 100	16.3 (414)	N/A	3.79 (96,3)	9.6 (244)	97 (44)
	PN 160	17.1 (434)	N/A	3.79 (96,3)	9.6 (244)	104 (47)
	JIS 10K	13.6 (345)	N/A	3.79 (96,3)	9.6 (244)	56 (25)
	JIS 20K	13.6 (345)	N/A	3.79 (96,3)	9.6 (244)	64 (29)
	JIS 40K	16.8 (427)	N/A	3.79 (96,3)	9.6 (244)	94 (43)
6 (150)	Class 150	11.6 (295)	12.1 (307)	5.7 (144,8)	10.8 (274)	85 (39)
	Class 300	12.3 (312)	13.0 (330)	5.7 (144,8)	10.8 (274)	124 (57)
	Class 600	14.3 (363)	14.4 (366)	5.7 (144,8)	10.8 (274)	191 (87)
	Class 900	16.1 (409)	16.2 (411)	5.14 (130.6)	10.8 (274)	282 (128)
	Class 1500	18.6 (472)	18.8 (478)	5.14 (130.6)	10.8 (274)	380 (173)
	PN 16	8.9 (226)	N/A	5.7 (144,8)	10.8 (274)	70 (32)
	PN 40	10.5 (267)	N/A	5.7 (144,8)	10.8 (274)	90 (41)
	PN 63/64	12.1 (307)	N/A	5.7 (144,8)	10.8 (274)	134 (61)
	PN 100	13.6 (345)	N/A	5.7 (144,8)	10.8 (274)	164 (75)

Table 41: Vortex Dual-Sensor Style Flowmeter (4- through 12-in./100 mm through 300 mm Line Sizes) *(continued)*

Nominal size inch (mm)	Flange rating	Face-to-face Dim Ⓐ inch (mm)	Dim Ⓐ RTJ inch (mm)	Dim ⌀B inch (mm)	Dim Ⓒ inch (mm)	Weight lb (kg)
	JIS 10K	10.6 (269)	N/A	5.7 (144,8)	10.8 (274)	74 (34)
	JIS 20K	10.6 (269)	N/A	5.7 (144,8)	10.8 (274)	92 (42)
	JIS 40K	14.2 (361)	N/A	5.7 (144,8)	10.8 (274)	170 (77)
8 (200)	Class 150	13.5 (343)	14.0 (356)	7.55 (191,8)	11.7 (297)	146 (66)
	Class 300	14.3 (363)	14.9 (378)	7.55 (191,8)	11.7 (297)	203 (92)
	Class 600	16.5 (419)	16.7 (424)	7.55 (191,8)	11.7 (297)	303 (138)
	Class 900	18.8 (478)	18.9 (480)	6.62 (168,1)	11.7 (297)	484 (220)
	Class 1500	22.8 (580)	23.2 (589)	6.62 (168,1)	11.7 (297)	657 (299)
	PN 10	10.4 (264)	N/A	7.55 (191,8)	11.7 (297)	115 (52)
	PN 16	10.4 (264)	N/A	7.55 (191,8)	11.7 (297)	114 (52)
	PN 25	11.8 (300)	N/A	7.55 (191,8)	11.7 (297)	142 (65)
	PN 40	12.5 (318)	N/A	7.55 (191,8)	11.7 (297)	161 (73)
	PN 63/64	14.2 (361)	N/A	7.55 (191,8)	11.7 (297)	221 (101)
	PN 100	15.8 (401)	N/A	7.55 (191,8)	11.7 (297)	287 (130)
	JIS 10K	12.2 (310)	N/A	7.55 (191,8)	11.7 (297)	114 (52)
	JIS 20K	12.2 (310)	N/A	7.55 (191,8)	11.7 (297)	139 (63)
	JIS 40K	16.5 (419)	N/A	7.55 (191,8)	11.7 (297)	260 (118)
10 (250)	Class 150	14.5 (368)	15.0 (381)	9.56 (243)	12.8 (325)	202 (92)
	Class 300	15.8 (401)	16.4 (417)	9.56 (243)	12.8 (325)	290 (132)
	Class 600	19.0 (483)	19.2 (488)	9.56 (243)	12.8 (325)	482 (219)
	PN 10	11.9 (302)	N/A	9.56 (243)	12.8 (325)	161 (73)
	PN 16	12.0 (305)	N/A	9.56 (243)	12.8 (325)	166 (75)
	PN 25	13.5 (343)	N/A	9.56 (243)	12.8 (325)	203 (92)
	PN 40	14.8 (376)	N/A	9.56 (243)	12.8 (325)	251 (114)
	PN 63/64	16.4 (417)	N/A	9.56 (243)	12.8 (325)	312 (142)
	PN 100	18.9 (480)	N/A	9.56 (243)	12.8 (325)	450 (204)
	JIS 10K	14.5 (368)	N/A	9.56 (243)	12.8 (325)	179 (81)
	JIS 20K	14.5 (368)	N/A	9.56 (243)	12.8 (325)	226 (103)
	JIS 40K	18.1 (460)	N/A	9.56 (243)	12.8 (325)	383 (174)
12 (300)	Class 150	16.8 (427)	17.3 (439)	11.38 (289)	13.7 (348)	302 (137)
	Class 300	18.0 (457)	18.7 (475)	11.38 (289)	13.7 (348)	420 (191)
	Class 600	20.5 (521)	20.7 (526)	11.38 (289)	13.7 (348)	600 (272)
	PN 10	13.1 (331)	N/A	11.38 (289)	13.7 (348)	208 (95)
	PN 16	13.9 (353)	N/A	11.38 (289)	13.7 (348)	229 (104)
	PN 25	15.0 (381)	N/A	11.38 (289)	13.7 (348)	274 (124)
	PN 40	16.8 (427)	N/A	11.38 (289)	13.7 (348)	352 (160)
	PN 63/64	18.8 (478)	N/A	11.38 (289)	13.7 (348)	435 (198)
	PN 100	21.2 (538)	N/A	11.38 (289)	13.7 (348)	648 (294)
	JIS 10K	15.7 (399)	N/A	11.38 (289)	13.7 (348)	227 (103)
	JIS 20K	15.7 (399)	N/A	11.38 (289)	13.7 (348)	288 (131)
	JIS 40K	19.6 (498)	N/A	11.38 (289)	13.7 (348)	498 (226)

Figure 13: Dual Sensor Flanged-Style Remote Mount Flowmeters (1/2- through 12-inch/15 mm through 300 mm Line Sizes)



A. ½–14 NPT (for remote cable conduit)

Note
For Dim Ⓔ, see Table 42.

Table 42: Remote Mount Flanged, Dual Sensor Flowmeter Dimensions

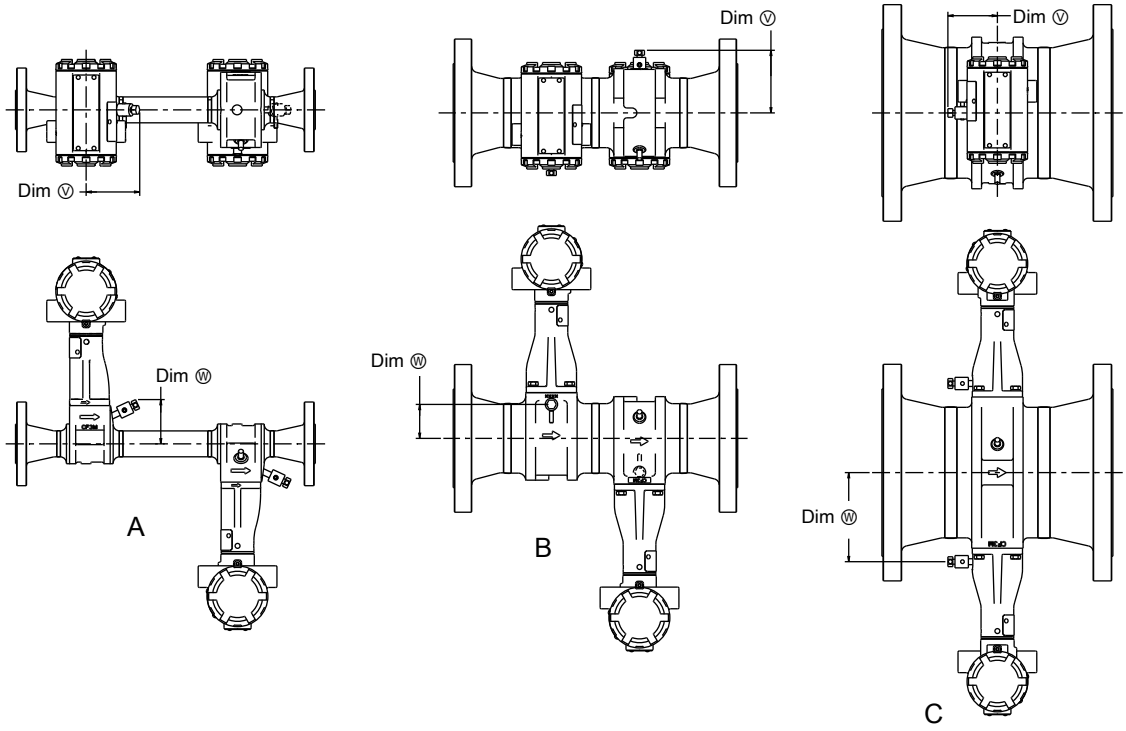
Nominal size inch (mm)	Dim Ⓔ inch (mm)
1/2 (15)	6.4 (162)
1 (25)	6.5 (165)
11/2 (40)	6.8 (173)
2 (50)	7.2 (183)
3 (80)	7.8 (198)
4 (100)	8.3 (211)
6 (150)	9.5 (241)
8 (200)	10.4 (264)
10 (250)	11.4 (290)
12 (300)	12.3 (313)

Location for CPA valve option

When the CPA option is ordered, the CPA valve can be in one of three general locations depending on the size of the meter.

Note
On some models, the orientation or relative location of the CPA valve may vary. Contact an Emerson representative (see back page) for more precise information if needed.

Figure 14: Location for CPA valve option



A. 1–1½ inch (DN25–DN40) models
B. 2–4 inch (DN50-DN100) models
C. 6+ inch (DN150+) models

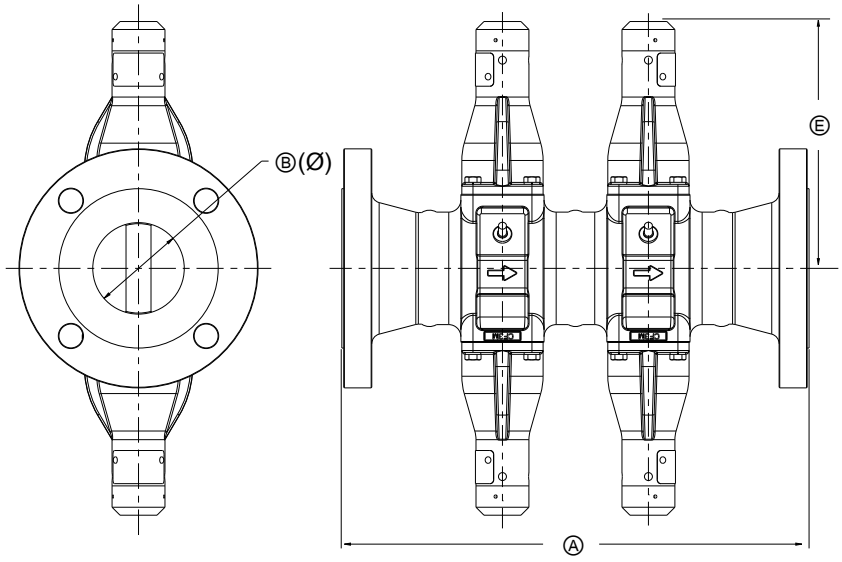
Note
Dimensions Ⓥ and Ⓦ are measured from the center of the meter or process pipe, and they are the same for all process fitting types.

Table 43: Location for CPA valve option

Meter size	Dim Ⓥ inch (mm)	Dim Ⓦ inch (mm)
1 inch (DN25)	2.7 (70)	2.3 (57)
1½ inch (DN40)	2.6 (66)	2.6 (66)
2 inch (DN50)	3.2 (81)	1.1 (28)
3 inch (DN80)	3.2 (81)	1.7 (44)
4 inch (DN100)	3.2 (81)	2.3 (57)
6 inch (DN150)	2.5 (64)	4.5 (115)
8 inch (DN200)	2.5 (64)	5.6 (141)
10 inch (DN250)	2.5 (64)	6.6 (167)
12 inch (DN300)	2.5 (64)	7.5 (190)

Quad transmitter dimensions

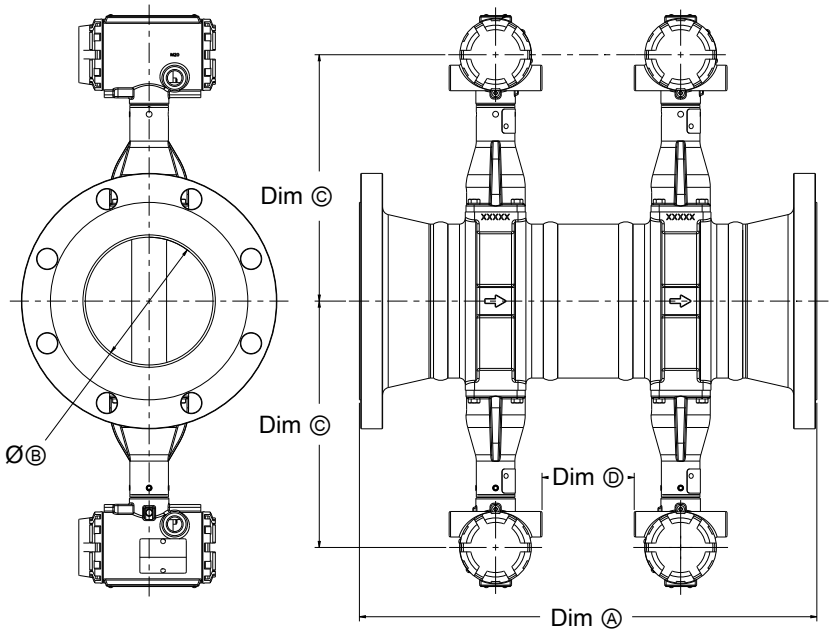
Figure 15: Vortex quad sensor for remote transmitters, all line sizes



A. Face-to-face dimension Ⓐ
B. Inside diameter ⌀Ⓑ
C. Center-to-top/bottom dimension Ⓔ

Note
For product weight and dimensions, see Table 44.

Figure 16: Vortex integral quad meters, 6 inch through 12 inch (150 mm through 300 mm) line sizes



Note
For product weight and Dims Ⓐ, ⌀Ⓑ, Ⓒ, and Ⓓ, see Table 44.

Note
For 4 inch (DN100) and smaller meters, weights do not include the remote transmitter. For 6 inch (DN150) and larger meters, weights include integral transmitters. To determine the weight for 6 inch (DN150) and larger meters without integral transmitters, subtract a total of 10 lb (4.6 kg).

Table 44: Vortex quad sensor flow meter for integral or remote transmitters, dimensions for 2 inch to 12 inch (50 mm through 300 mm) line sizes

Nominal size, inch (mm)	Flange rating	Face-to-face Dim Ⓐ, inch (mm)		Dim ⌀Ⓑ, inch (mm)	Dim Ⓒ, inch (mm)	Dim Ⓓ, inch (mm)	Dim Ⓔ, inch (mm)	Weight, lb (kg)
		Flanged	RTJ					
2 inch (DN50)	150	12.6 (320)	12.9 (328)	1.9 (49)	-	-	7.2 (183)	31 (14)
	300	13.1 (333)	13.6 (345)	1.9 (49)	-	-	7.2 (183)	35 (16)
	600	13.8 (351)	13.9 (353)	1.9 (49)	-	-	7.2 (183)	39 (18)
	900	16.1 (409)	16.2 (411)	1.9 (49)	-	-	7.2 (183)	68 (31)
	1500	15.6 (396)	15.7 (399)	1.7 (42)	-	-	7.2 (183)	72 (33)
	PN16	11.1 (282)	-	1.9 (49)	-	-	7.2 (183)	31 (14)
	PN40	11.3 (287)	-	1.9 (49)	-	-	7.2 (183)	32 (14)
	PN63	12.4 (315)	-	1.9 (49)	-	-	7.2 (183)	40 (18)
	PN100	12.9 (328)	-	1.9 (49)	-	-	7.2 (183)	45 (20)
	PN160	13.5 (343)	-	1.9 (49)	-	-	7.2 (183)	48 (22)
	JIS 10K	11 (279)	-	1.9 (49)	-	-	7.2 (183)	31 (14)
	JIS 20K	11.6 (295)	-	1.9 (49)	-	-	7.2 (183)	35 (16)

Table 44: Vortex quad sensor flow meter for integral or remote transmitters, dimensions for 2 inch to 12 inch (50 mm through 300 mm) line sizes *(continued)*

Nominal size, inch (mm)	Flange rating	Face-to-face Dim Ⓐ, inch (mm)		Dim ⌀Ⓑ, inch (mm)	Dim Ⓒ, inch (mm)	Dim Ⓓ, inch (mm)	Dim Ⓔ, inch (mm)	Weight, lb (kg)
		Flanged	RTJ					
	JIS 40K	13.1 (333)	-	1.9 (49)	-	-	7.2 (183)	39 (18)
3 inch (DN80)	150	14.3 (363)	14.7 (373)	2.9 (73)	-	-	7.8 (198)	50 (23)
	300	15 (381)	15.5 (394)	2.9 (73)	-	-	7.8 (198)	59 (27)
	600	15.8 (401)	15.9 (404)	2.9 (73)	-	-	7.8 (198)	66 (30)
	900	17.3 (439)	17.4 (442)	2.9 (73)	-	-	7.8 (198)	89 (40)
	1500	18.4 (467)	18.6 (472)	2.6 (66)	-	-	7.8 (198)	122 (56)
	PN 16	12.7 (323)	-	2.9 (73)	-	-	7.8 (198)	46 (21)
	PN 40	13.4 (340)	-	2.9 (73)	-	-	7.8 (198)	50 (23)
	PN 63	14.5 (368)	-	2.9 (73)	-	-	7.8 (198)	59 (27)
	PN100	14.9 (378)	-	2.9 (73)	-	-	7.8 (198)	68 (31)
	PN160	15.6 (396)	-	2.9 (73)	-	-	7.8 (198)	73 (33)
	JIS 10K	12.3 (312)	-	2.9 (73)	-	-	7.8 (198)	50 (23)
	JIS 20K	13.7 (348)	-	2.9 (73)	-	-	7.8 (198)	59 (27)
	JIS 40K	15.4 (391)	-	2.9 (73)	-	-	7.8 (198)	66 (30)
4 inch (DN100)	150	15.3 (389)	15.6 (396)	3.8 (96)	-	-	8.3 (211)	70 (32)
	300	16 (406)	16.5 (419)	3.8 (96)	-	-	8.3 (211)	90 (41)
	600	17.8 (452)	17.9 (455)	3.8 (96)	-	-	8.3 (211)	116 (53)
	900	18.8 (478)	18.9 (480)	3.8 (96)	-	-	8.3 (211)	139 (63)
	1500	20.0 (508)	20.1 (511)	3.4 (86)	-	-	8.3 (211)	188 (86)
	PN16	13.4 (340)	-	3.8 (96)	-	-	8.3 (211)	60 (27)
	PN40	14.4 (366)	-	3.8 (96)	-	-	8.3 (211)	69 (31)
	PN63	15.4 (391)	-	3.8 (96)	-	-	8.3 (211)	82 (37)
	PN100	16.3 (414)	-	3.8 (96)	-	-	8.3 (211)	99 (45)
	PN160	17.1 (434)	-	3.8 (96)	-	-	8.3 (211)	106 (48)
	JIS 10K	13.7 (348)	-	3.8 (96)	-	-	8.3 (211)	70 (32)
	JIS 20K	13.7 (348)	-	3.8 (96)	-	-	8.3 (211)	90 (41)
	JIS 40K	16.8 (427)	-	3.8 (96)	-	-	8.3 (211)	116 (53)
6 inch (DN150)	150	19.3 (490)	19.6 (498)	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	128 (58)
	300	20.0 (508)	20.5 (521)	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	168 (76)
	600	22.0 (559)	22.1 (561)	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	234 (106)
	900	23.3 (592)	23.5 (597)	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	333 (151)
	1500	25.8 (663)	26.1 (663)	5.1 (131)	10.8 (274)	3.4 (86)	9.5 (241)	432 (196)
	PN16	16.6 (422)	-	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	114 (52)

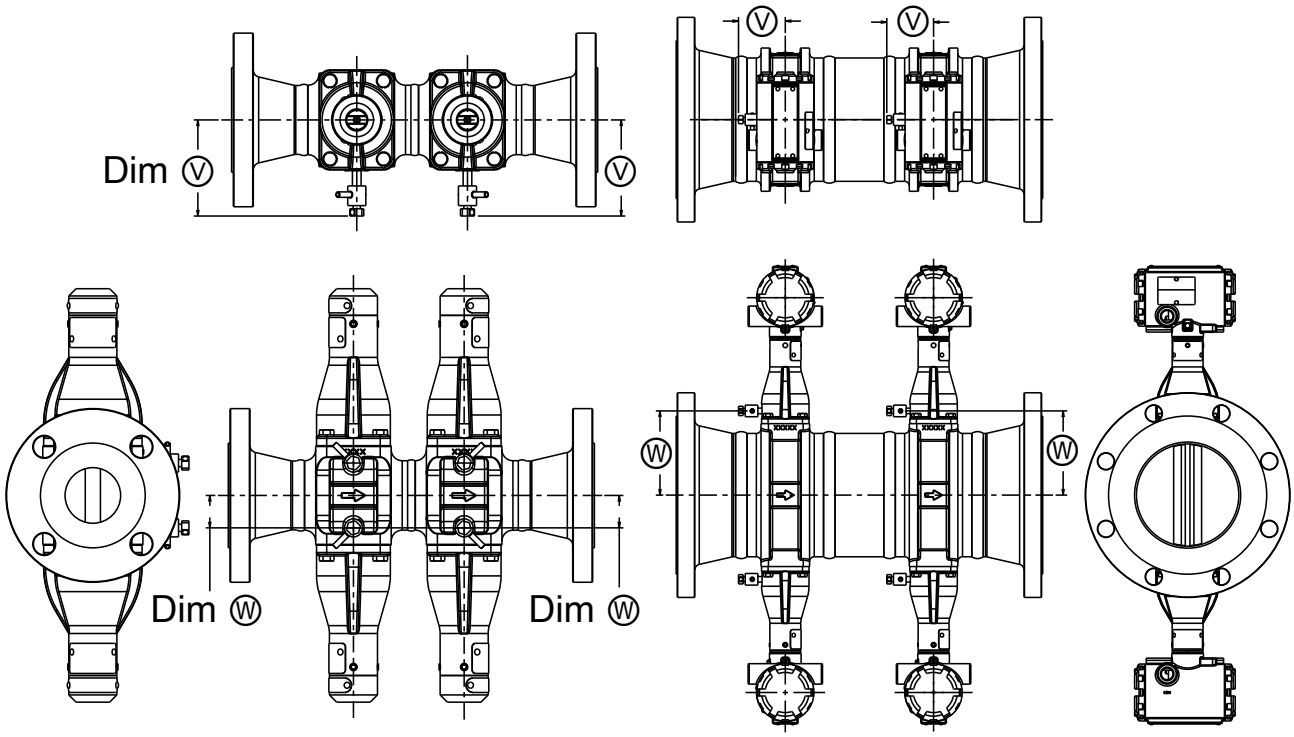
Table 44: Vortex quad sensor flow meter for integral or remote transmitters, dimensions for 2 inch to 12 inch (50 mm through 300 mm) line sizes *(continued)*

Nominal size, inch (mm)	Flange rating	Face-to-face Dim Ⓐ, inch (mm)		Dim ⌀Ⓑ, inch (mm)	Dim Ⓒ, inch (mm)	Dim Ⓓ, inch (mm)	Dim Ⓔ, inch (mm)	Weight, lb (kg)
		Flanged	RTJ					
	PN40	18.2 (462)	-	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	134 (61)
	PN63	19.7 (500)	-	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	178 (81)
	PN100	21.3 (541)	-	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	208 (94)
	PN160	21.9 (556)	-	5.1 (131)	10.8 (274)	3.4 (86)	9.5 (241)	270 (123)
	JIS10K	18.3 (465)	-	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	128 (58)
	JIS20K	18.3 (465)	-	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	168 (76)
	JIS40K	21.8 (554)	-	5.7 (145)	10.8 (274)	3.8 (95)	9.5 (241)	234 (106)
8 inch (DN200)	150	23.9 (607)	24.3 (617)	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	207 (94)
	300	24.6 (625)	25.1 (638)	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	264 (120)
	600	26.9 (683)	27.0 (686)	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	363 (165)
	900	27.6 (701)	27.8 (706)	6.6 (168)	11.7 (297)	5.0 (126)	10.4 (264)	590 (268)
	1500	31.6 (829)	32.0 (813)	6.6 (168)	11.7 (297)	5.0 (126)	10.4 (264)	763 (346)
	PN10	20.8 (528)	-	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	177 (80)
	PN16	20.8 (528)	-	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	176 (80)
	PN25	22.2 (564)	-	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	205 (93)
	PN40	22.8 (579)	-	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	223 (101)
	PN63	24.5 (623)	-	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	284 (129)
	PN100	26.1 (663)	-	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	350 (159)
	PN160	25.4 (645)	-	6.6 (168)	11.7 (297)	5.0 (126)	10.4 (264)	491 (223)
	JIS10K	22.5 (572)	-	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	207 (94)
	JIS20K	22.5 (572)	-	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	264 (120)
	JIS40K	26.8 (682)	-	7.6 (192)	11.7 (297)	6.4 (126)	10.4 (264)	363 (165)
10 inch (DN250)	150	27.9 (709)	28.3 (719)	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	309 (140)
	300	29.1 (739)	29.6 (752)	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	270 (123)
	600	32.4 (823)	32.5 (826)	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	588 (267)
	PN10	25.2 (640)	-	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	270 (123)
	PN16	25.4 (645)	-	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	275 (125)
	PN25	26.8 (681)	-	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	311 (141)
	PN40	28 (714)	-	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	360 (163)
	PN63	29.7 (754)	-	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	421 (191)
	PN100	32.2 (818)	-	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	558 (253)
	JIS10K	27.9 (709)	-	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	309 (140)
	JIS20K	27.9 (709)	-	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	397 (180)

Table 44: Vortex quad sensor flow meter for integral or remote transmitters, dimensions for 2 inch to 12 inch (50 mm through 300 mm) line sizes *(continued)*

Nominal size, inch (mm)	Flange rating	Face-to-face Dim Ⓐ, inch (mm)		Dim ⌀Ⓑ, inch (mm)	Dim Ⓒ, inch (mm)	Dim Ⓓ, inch (mm)	Dim Ⓔ, inch (mm)	Weight, lb (kg)
		Flanged	RTJ					
	JIS40K	31.4 (798)	-	9.6 (243)	12.8 (325)	9.4 (239)	11.5 (292)	588 (267)
12 inch (DN300)	150	31.9 (810)	32.3 (820)	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	467 (212)
	300	33.1 (841)	33.6 (853)	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	585 (265)
	600	35.6 (904)	35.7 (907)	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	764 (347)
	PN10	28.2 (716)		11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	377 (171)
	PN16	29.0 (737)	-	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	398 (181)
	PN25	30.1 (765)		11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	443 (201)
	PN40	31.9 (810)	-	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	521 (236)
	PN63	33.9 (861)	-	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	604 (274)
	PN100	36.3 (922)	-	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	817 (371)
	JIS10K	30.8 (782)	-	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	467 (212)
	JIS20K	30.8 (782)	-	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	585 (265)
	JIS40K	34.8 (884)	-	11.4 (289)	13.7 (348)	11.2 (284)	12.4 (315)	764 (347)

Figure 17: Vortex quad meters with CPA option



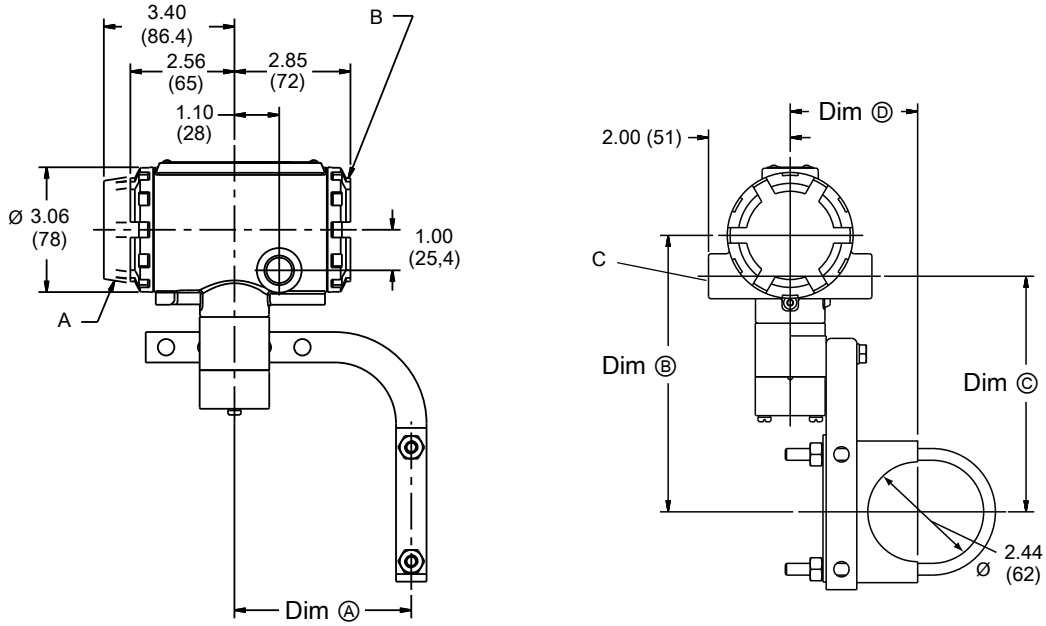
Note
For Dim Ⓥ and Dim Ⓦ, see Table 45.

Table 45: Vortex integral quad meters dimensions for CPA fitting

Nominal size, inch (mm)	Pipe center to CPA fitting, Dim Ⓥ, inch (mm)	Pipe center to CPA fitting, Dim Ⓦ, inch (mm)
2 inch (DN50)	3.2 (81)	1.1 (28)
3 inch (DN80)	3.2 (81)	1.7 (43)
4 inch (DN100)	3.2 (81)	2.3 (58)
6 inch (DN150)	2.5 (64)	4.5 (114)
8 inch (DN200)	2.5 (64)	5.6 (142)
10 inch (DN250)	2.5 (64)	6.6 (168)
12 inch (DN300)	2.5 (64)	7.5 (191)

Remote transmitter dimensions

Figure 18: Remote mount transmitters



A Display option

B Terminal cover

C ½–14 NPT (for remote cable conduit)

Note
Dims Ⓐ, Ⓑ, Ⓒ, and Ⓓ vary by housing material. See Table 46.

Table 46: Dimensions by transmitter housing material

Material	Dim Ⓐ inch (mm)	Dim Ⓑ inch (mm)	Dim Ⓒ inch (mm)	Dim Ⓓ inch (mm)
Aluminum	4.4 (110)	6.8 (172)	5.8 (147)	3.1 (79)
Stainless Steel	4.5 (114)	6.9 (175)	5.9 (150)	3.4 (86)

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