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Product Data Sheet
January 2014
00813-0100-4727, Rev UE

Rosemount 8700 Series Magnetic Flowmeter Systems



- Industry leading performance with standard reference accuracy of 0.25% of rate with an optional High Accuracy of 0.15% of rate
- Rosemount 8732 Transmitter - Integral-mount design, backlit display, and explosion-proof housing. Available with HART®, FOUNDATION™ fieldbus, or PROFIBUS PA, Device Diagnostics, and Smart™ Meter Verification to improve reliability and performance
- Rosemount 8712 HART Transmitter - available with Device Diagnostics including Smart Meter Verification to improve reliability and performance. Quick setup with easy-to-use local operator interface
- Rosemount 8712H/8707 High-Signal System - Pulsed DC solutions for the most demanding flow measurement applications
- Rosemount 8705 Flanged sensor - Fully welded sensor for maximum protection
- Rosemount 8711 Wafer sensor - Economical, compact, and lightweight sensor, provided with alignment spacers for easy installation
- Rosemount 8721 Hygienic sensor - Specifically designed for food, beverage, and life sciences applications

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Product selection guide

Several sensor types, liner types, electrode materials, electrode types, grounding options, and transmitters are available for the Rosemount 8700 Series Magnetic Flowmeter System to ensure compatibility with virtually any application and installation. See Table 16 for information on liner types, Table 17 for information on electrode materials and electrode types, Table 18 and Table 19 for grounding options and installation, and Table 1 for transmitter selection. Other material options not mentioned here may be available. Contact your local sales representative for alternative material selection. For further guidance on selecting materials, refer to the Magnetic Flowmeter Material Selection Guide located on Rosemount.com (Technical Data Sheet Number 00816-0100-3033). For more information regarding product offering and ordering information, refer to "Ordering information" on page 6 in this product data sheet.

Table 1. Transmitter selection

Transmitter	General Characteristics
8732 	• Ideal for integral mount transmitter installations • HART / Analog, FOUNDATION fieldbus, or PROFIBUS PA fieldbus output available • Advanced Diagnostics available • Optical Switch LOI • Optional DI/DO available (HART only)
8712 	• Remote mount transmitter • Easy to use LOI with dedicated configuration buttons • Advanced Diagnostics available • Perfect for wall or panel mount
8712H 	• Remote mount transmitter • High-Signal Pulsed DC for use with the High-Signal 8707 Sensor • Ideal for high solid applications - mining/pulp stock/other slurries • 120 VAC power only • Not CE Marked

Table 2. Sensor selection

Sensor	General Characteristics
8705 	• Standard Process Sensor • Flanged Process Connections • Welded, sealed coil housing • 1/2-in. (15mm) to 36-in. (900mm) • Pulse DC Technology • Standard, grounding, and bullet-nose electrodes available
8707 	• High Signal Sensor • Flanged Process System Sensor • Welded, sealed coil housing • 3-in. (80mm) to 36-in. (900mm) • High current pulsed DC technology ideal for high solids or slurry applications • Standard, grounding, and bullet-nose electrodes available
8711 	• Wafer (flangeless) design • Economical, compact, and lightweight alternative to flanged sensors • 0.15-in. (4mm) to 8-in. (200mm) • Pulsed DC technology • Standard, grounding, and bullet-nose electrodes available
8721 	• Hygienic sensor • Designed for food, beverage, and pharmaceutical applications • 3-A and EHEDG certified • 1/2-in. (15mm) to 4-in. (100mm) • Pulsed DC technology • Variety of industry standard process connections • Suitable for CIP/SIP

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Magmeter diagnostics

Rosemount Mag Diagnostics Power PlantWeb to Reduce Cost & Improve Output by Enabling New Practices
Rosemount Magmeters provide device diagnostics that powers PlantWeb and informs the user of abnormal situations throughout the life of the meter - from Installation to Maintenance and Meter Verification. With Rosemount Magmeter diagnostics enabled, users can change their practices to improve plant availability and throughput, and reduce costs through simplified installation, maintenance and troubleshooting.

Diagnostics	Mag user practice	8732	8712	8712H
Basic				
Empty Pipe	Process Management	•	•	•
Electronics Temperature	Maintenance	•	•	
Coil Fault	Maintenance	•	•	•
Transmitter Faults	Maintenance	•	•	•
Reverse Flow	Process Management	•	•	•
Advanced (Suite 1)		DA1 / D01	DA1	N/A
High Process Noise	Process Management	•	•	
Grounding/Wiring Fault	Installation	•	•	
Advanced (Suite 2)		DA2 / D02	DA2	N/A
Smart Meter Verification	Meter Verification	•	•	
4-20 mA Loop Verification	Maintenance	•		

Options for accessing diagnostics

Rosemount Magmeter Diagnostics can be accessed through the Local Operator Interface (LOI)(1), the 475 Field Communicator, and AMS™ Suite: Intelligent Device Manager. Contact your local Rosemount representative to activate diagnostics or for diagnostic availability on existing transmitters.

Access diagnostics through the LOI for quicker installation, maintenance, and meter verification

Rosemount Magmeter Diagnostics are available through the LOI to make maintenance of every magmeter easier.

Access diagnostics through AMS Intelligent Device Manager for the ultimate value

The value of the diagnostics increases significantly when AMS is used. Now the user gets a simplified screen flow and procedures for how to respond to the diagnostic messages.

(1) A Local Operator Interface (LOI) is not available on FOUNDATION fieldbus transmitters.

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Magnetic flowmeter sizing

Flowmeter sizing

Because of its effect on flow velocity, sensor size is an important consideration. It may be necessary to select a magnetic flowmeter that is larger or smaller than the adjacent piping to ensure the fluid velocity is in the specified measuring range of the sensor. Suggested guidelines and examples for sizing normal velocities in different applications are listed in Table 3, Table 4, and Table 5. Operation outside these guidelines may also give acceptable performance.

Table 3. Sizing guidelines

Application	Velocity range (ft/s)	Velocity range (m/s)
Normal Service	0–39	0–12
Preferred Service	2–20	0.6–6.1
Abrasive Slurries	3–10	0.9–3.1
Non-Abrasive Slurries	5–15	1.5–4.6

To convert flow rate to velocity, use the appropriate factor listed in Table 4 and the following equation:.

$$\text{Velocity} = \frac{\text{Flow Rate}}{\text{Factor}}$$

Example: SI units

Magmeter Size: 100 mm (factor from Table 4 = 492.78)
Normal Flow Rate: 800 L/min

$$\text{Velocity} = \frac{800\ (\text{L/min})}{492.78}$$

Velocity = 1.62 m/s

Example: English units

Magmeter Size: 4 in. (factor from Table 4 = 39.679)
Normal Flow Rate: 300 GPM

$$\text{Velocity} = \frac{300\ (\text{gpm})}{39.679}$$

Velocity = 7.56 ft/s

Table 4. Line size vs. Conversion factor

Nominal line size inches (mm)	Gallons per minute factor	Liters per minute factor
0.15 (4)	0.055	0.684
0.30 (8)	0.220	2.736
½ (15)	0.947	11.762
1 (25)	2.694	33.455
1½ (40)	6.345	78.806
2 (50)	10.459	129.89
2 ½ (65)	14.923	185.33
3 (80)	23.042	286.17
4 (100)	39.679	492.78
5 (125)	62.356	774.42
6 (150)	90.048	1,118.3
8 (200)	155.93	1,936.5
10 (250)	245.78	3,052.4
12 (300)	352.51	4,378.0
14 (350)	421.70	5,237.3
16 (400)	550.80	6,840.6
18 (450)	697.19	8,658.6
20 (500)	866.51	10,761
24 (600)	1,253.2	15,564
30 (750)	2006.0	24,913
36 (900)	2,935.0	36,451
40 (1000)	3,652.1	45,357
42 (1050)	4,115.1	51,107
48 (1200)	5,407.6	67,159

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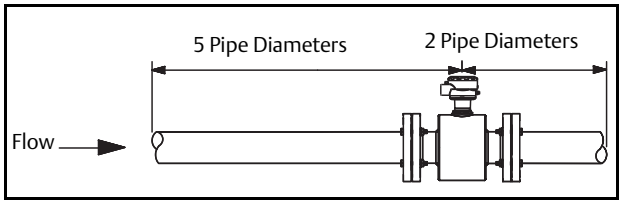
Table 5. Line size vs. velocity/rate

Nominal line size in Inches (mm)	Minimum/maximum flow rate							
	Gallons per minute				Liters per minute			
	at 0.04 ft/s (low-flow cutoff)	at 1 ft/s (min range setting)	at 3 ft/s	at 39.37 ft/s (max range setting)	at 0.012 m/s (low-flow cutoff)	at 0.3 m/s (min range setting)	at 1 m/s	at 12 m/s (max range setting)
0.15 (4)	0.002	0.055	0.165	2.168	0.008	0.205	0.684	8.209
0.30 (8)	0.009	0.220	0.661	8.674	0.033	0.821	2.736	32.83
1/2 (15)	0.038	0.947	2.841	37.287	0.141	3.529	11.76	141.15
1 (25)	0.108	2.694	8.081	106.05	0.401	10.04	33.45	401.46
1 1/2 (40)	0.254	6.345	19.04	249.82	0.946	23.64	78.81	945.67
2 (50)	0.418	10.459	31.38	411.77	1.559	38.97	129.89	1,558.7
2 1/2 (65)	0.597	14.923	44.77	587.51	2.224	55.60	185.33	2,224.0
3 (80)	0.922	23.042	69.13	907.17	3.434	85.85	286.17	3,434.0
4 (100)	1.587	39.679	119.04	1,562.2	5.913	147.84	492.78	5,913.4
5 (125)	2.494	62.356	187.07	2,454.9	9.293	232.33	774.42	9,293.0
6 (150)	3.602	90.048	270.14	3,545.2	13.42	335.50	1,118.3	13,420
8 (200)	6.237	155.93	467.79	6,138.9	23.24	580.96	1,936.5	23,238
10 (250)	9.831	245.78	737.34	9,676.3	36.63	915.73	3,052.4	36,629
12 (300)	14.10	352.51	1,057.5	13,878	52.54	1,313.4	4,378.0	52,535
14 (350)	16.87	421.71	1,265.1	16,603	62.85	1,571.2	5,237.3	62,848
16 (400)	22.03	550.80	1,652.4	21,685	82.09	2,052.2	6,840.6	82,087
18 (450)	27.89	697.19	2,091.6	27,448	103.90	2,597.6	8,658.6	103,903
20 (500)	34.66	866.51	2,599.5	34,114	129.14	3,228.4	10,761	129,137
24 (600)	50.13	1,253.2	3,759.6	49,339	186.77	4,669.2	15,564	186,769
30 (750)	80.24	2,006.0	6,018.0	78,976	298.96	7,474.0	24,913	298,959
36 (900)	117.40	2,935.0	8,805.1	115,553	437.42	10,935	36,451	437,416
40 (1000)	146.09	3,652.1	10,956	143,785	544.29	13,607	45,357	544,286
42 (1050)	164.60	4,115.1	12,345	162,011	613.28	15,332	51,107	613,278
48 (1200)	216.30	5,407.6	16,223	212,898	805.91	20,148	67,159	805,908

Upstream/downstream piping length

To ensure specification accuracy over widely varying process conditions, install the sensor with a minimum of five straight pipe diameters upstream and two straight pipe diameters downstream from the electrode plane. See Figure 1. This procedure should adequately allow for disturbances created by elbows, valves, and reducers.

Figure 1. Upstream and downstream straight pipe diameters



Installations with reduced straight runs are possible. In reduced straight run installations, performance may shift. Reported flow rates will still be highly repeatable.

Sensor grounding

A reliable ground path is required between the sensor and the process fluid. Optional grounding rings, process reference electrode, and lining protectors are available with 8700 Series sensors to ensure proper grounding. See Table 6 and Table 19.

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Ordering information



Rosemount 8732

The Rosemount 8732 transmitter has multiple diagnostic suites available. Best in class performance coupled with advanced diagnostics provides unparalleled process management capabilities. With an optional backlit 2 line by 16 character display/local operator interface, the transmitter can be configured by optical switches to simplify adjustments in hazardous environments without removing the cover.



Rosemount 8712

The remote mount 8712 transmitter brings diagnostics to any HART/ 4-20 mA system that can change how magmeters are installed, maintained, and verified. The Rosemount 8712 also features an easy-to-use 2 line by 20 character operator interface, with quick access to all diagnostic information, and instant access to basic configuration setup through dedicated keys.

Table 6. Rosemount 8732/8712 ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Model	Product description	8732	8712	
8732E	Magnetic Flowmeter Transmitter	•		
8712E	Remote Mount Transmitter		•	
Transmitter style				
Standard				**Standard**
S	Revision 3 - “S” Electronics	•	•	★
Transmitter mount				
Standard				**Standard**
T	Integral Mount	•		★
R	Remote Mount for 2 in. pipe or panel(1)	•	•	★
Transmitter power supply				
Standard				**Standard**
1	AC Power Supply (90 to 250 V AC, 50-60Hz)	•	•	★
2	DC Power Supply (12 to 42 V DC)	•	•	★
Outputs				
Standard				**Standard**
A	4-20 mA Digital Electronics (HART Protocol)	•	•	★
F	FOUNDATION fieldbus digital electronics with FISCO Intrinsically Safe Output	•		★
P	PROFIBUS PA fieldbus digital electronics with FISCO Intrinsically Safe Output	•		★

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Table 6. Rosemount 8732/8712 ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
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Transmitter conduit entries		8732	8712	
8732 = 2 conduit ports / 8712 = 4 conduit ports				
Standard				**Standard**
1	1/2 - 14 NPT, Standard Conduits	•	•	★
Expanded				
2	CM20, Conduit Adapters	•	•	
3	PG 13.5, Conduit Adapters	•	•	
8732 = 3 conduit ports / 8712 = NA				
Standard				**Standard**
4	1/2 - 14 NPT, Additional Conduit	•		★
Expanded				
5	CM20, Additional Conduit Adapters	•		
6	PG 13.5, Additional Conduit Adapters	•		
Safety approvals				
FM & CSA				
Standard				**Standard**
NH	FM and CSA Ordinary Locations/General Purpose Shock and Fire Hazard Approval	•	•	★
N0	FM Class I Div 2 for Non-Flammable Fluids: CSA Class I Div 2 for Non-Flammable Fluids	•	•	★
N5	FM Class I Div 2 for Flammable Fluids	•	•	★
E5	FM Class I Div 1, Explosion-Proof	•		★
ATEX				
Standard				**Standard**
ED	ATEX Flameproof Ex de IIB T6, and ATEX Dust Approval; Ex de [ia] IIB T6 with IS outputs	•		★
ND	ATEX Dust	•		★
Expanded				
E1	ATEX Flameproof Ex de IIC T6, and ATEX Dust Approval; Ex de [ia] IIC T6 with IS outputs	•		
N1	ATEX Type n	•	•	
IECEx				
Standard				**Standard**
EF	IECEx Flameproof Ex de IIB T6 Gb and IECEx Dust Approval; Ex de [ia IIC Ga] IIB T6 Gb with IS Output	•		★
NF	IECEx Dust	•		★
Expanded				
E7	IECEx Flameproof Ex de IIC T6 Gb and IECEx Dust Approval; Ex de [ia Ga] IIC T6 Gb with IS output	•		
N7	IECEx Type n	•	•	
NEPSI and CMC (China)				
Standard				**Standard**
EP	NEPSI Flameproof Ex de IIB T6; Ex de [ia] IIB T6 with IS output	•		★
Expanded				
E3	NEPSI Flameproof Ex de IIC T6; Ex de [ia] IIC T6 with IS output	•		

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Table 6. Rosemount 8732/8712 ordering information

★ **The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.**

The Expanded offering is subject to additional delivery lead time.

Hazardous area classification continued		8732	8712	
INMETRO (Brazil)				
Standard				**Standard**
EB	INMETRO Flameproof Ex de IIB T6; Ex de [ia] IIB T6 with IS outputs	•		★
Expanded				
E2	INMETRO Flameproof Ex de IIC T6; Ex de [ia] IIC T6 with IS outputs	•		
GOST (Russia)				
Standard				**Standard**
EM	GOST Flameproof Ex de IIB T6; Ex de [ia] IIB T6 with IS outputs	•		★
Expanded				
E8	GOST Flameproof Ex de IIC T6; Ex de [ia] IIC T6 with IS outputs	•		

Options (include with selected model number)

PlantWeb product/process diagnostics				
Standard				**Standard**
DA1	Magmeter HART Diagnostic Suite 1: High Process Noise Detection and Ground/Wiring Fault Detection	•	•	★
DA2	Magmeter HART Diagnostic Suite 2: Smart Meter Verification	•	•	★
D01	Magmeter digital fieldbus Diagnostic Suite 1: High Process Noise and Ground/Wiring Fault Detection	•		★
D02	Magmeter digital fieldbus Diagnostic Suite 2: Smart Meter Verification	•		★
Discrete input/discrete output				
Standard				**Standard**
AX	Two Discrete Channels (DI/DO 1, DO 2), see page 32 for more details[(2)]	•	•	★
Display options				
Standard				**Standard**
M4	Local Operator Interface (HART and PROFIBUS PA only)	•	•	★
M5	LCD Display only (HART and FOUNDATION fieldbus only)	•		★
Other options				
C1	Custom Configuration (Completed CDS required with order)	•	•	
D1	High Accuracy Calibration (0.15% of rate for matched sensor and transmitter)[(3)]	•	•	
DT	Heavy Duty Tagging	•	•	
SH	316/316L SST Electronics Housing, Remote Mount Only	•		
B6	316L Stainless Steel 4-bolt Kit for 2-in. Remote Pipe Mount	•	•	
Conduit electrical connectors				
Expanded				
GE	M12, 4-Pin, Male Connector (Eurofast)	•	•	
GM	A Size Mini, 4-Pin, Male Connector (Minifast)	•	•	
GT	A Size, Spade Terminal Mini, 5-pin, Male Connector (Minifast)		•	
Product certifications				
WC	OIML R49 Water Custody Transfer Certificate	•		
FP	FM Fire Pump Approved	•		
Paint options				
V2	Offshore/Near Shore Marine Paint 3 layer epoxy	•		
Certificates				
Q4	Inspection certificate; calibration data, per ISO 10474 3.1B / EN 10204 3.1	•	•	

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Table 6. Rosemount 8732/8712 ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

Quick Installation Guide (QIG) language options (default is English)		8732	8712	
Expanded				
YA	Danish	•	•	
YB	Hungarian	•	•	
YC	Czech	•	•	
YD	Dutch	•	•	
YE	Bulgarian	•	•	
YF	French	•	•	
YG	German	•	•	
YH	Finnish	•	•	
YI	Italian	•	•	
YJ	Japanese	•		
YL	Polish	•	•	
YM	Mandarin	•	•	
YN	Norwegian	•	•	
YP	Portuguese	•	•	
YS	Spanish	•	•	
YR	Russian	•		
YW	Swedish	•	•	
Typical model number: 8732 S T 1 A 1 N0 DA1 DA2 M4				

(1) 8712ESR - standard qty (2) Zn Plated CS U-Bolts.

(2) Requires an additional conduit entry code 4, 5, or 6.

(3) D1 Option Code must be ordered with sensor and transmitter.

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Rosemount 8712H high-signal magmeter system

The 8707 High-Signal Sensor, used in conjunction with the 8712H High-Signal Transmitter, forms the Rosemount High-Signal Magnetic Flowmeter System. This system provides stable flow measurement in the most difficult high-noise applications while maintaining the benefits of DC technology. The increased signal strength of the high-signal system is made possible through a combination of sensor coil design that incorporates the most advanced materials and an extremely efficient and innovative coil drive circuit. The increased signal strength of the Rosemount high-signal system, coupled with advanced signal processing and superior filtering techniques, provide the solution to demanding flow measurement applications. The high-signal magmeter system is not available with CE mark.

Table 7. Rosemount 8712H ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

Model	Product description	
8712H	High-Signal Magnetic Flowmeter Transmitter (For use with 8707 High-Signal Sensor only.)	
Transmitter style		
Standard		**Standard**
R	Remote Mount for 2-in. pipe or panel	★
Power supply voltage		
Standard		**Standard**
12	120 V AC, 50–60 Hz	★
Hazardous area classification		
Standard		**Standard**
NH	FM and CSA Ordinary Locations/General Purpose Shock and Fire Hazard Approval	★
N0	FM Class I, Division 2 Approval for Non-Flammable Fluids CSA Class I, Division 2 Approval for Non-Flammable Fluids	★

Options (include with selected model number)

Standard		Standard
M4	Local Operator Interface (LOI)	★
Expanded		
B6	316L Stainless Steel 4-bolt Kit for 2-in. Pipe Mount	
C1	Custom Configuration (Completed CDS required with order)	
D1	High Accuracy Calibration [0.25% of rate from 3 to 30 ft/s (0.9 to 10 m/s)] matched sensor and transmitter system[(1)]	
J1	CM20 Conduit Adapters	
J2	PG 13.5 Conduit Adapters	

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Table 7. Rosemount 8712H ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

Quick Installation Guide (QIG) language options (default is English)	
Expanded	
YA	Danish
YD	Dutch
YF	French
YG	German
YH	Finnish
YI	Italian
YN	Norwegian
YP	Portuguese
YS	Spanish
YW	Swedish
Typical model number: 8712H R 12 N 0 M 4	

(1) D1 Option Code must be selected for both sensor and transmitter.

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Rosemount 8705 / 8707 flanged sensors

All flanged sensors are fabricated from stainless and carbon steel and welded to provide a hermetic seal that protects against moisture and other contaminants. Sizes range from $^{1}/_{2}$-in. (15 mm) to 36-in. (900 mm). The sealed housing ensures maximum sensor reliability by protecting all internal components and wiring from the most hostile environments.

Table 8. Rosemount flanged sensor ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Code	Product description	
8705	Magnetic Flowmeter Sensor	
8707	High-Signal Magnetic Flowmeter Sensor(1)	
Lining material		
Standard		**Standard**
T	PTFE(2)	★
P	Polyurethane(3)	★
N	Neoprene(3)	★
Expanded		
A	PFA(4)	
F	ETFE(5)	
L	Linatex(3)	
D	Extreme Service Polyurethane (Adiprene)(6)	
K	Extreme Service PFA	
Electrode material		
Standard		**Standard**
S	316L Stainless Steel	★
H	Nickel Alloy 276 (UNS N10276)	★
Expanded		
T	Tantalum	
P	80% Platinum - 20% Iridium	
N	Titanium	
V	Flat Head Tungsten-Carbide Coated 316L SST	
W	Tungsten-Carbide Coated 316L SST	
Electrode type		
Standard		**Standard**
A	2 Measurement Electrodes	★
E	2 Measurement Electrodes plus 1 Reference Electrode	★
Expanded(7)		
B	2 Bulletnose Measurement Electrodes	
F	2 Bulletnose Measurement Electrodes plus 1 Bulletnose Reference Electrode	

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Table 8. Rosemount flanged sensor ordering information

★ **The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.**

The Expanded offering is subject to additional delivery lead time.

Line size		Lining material (from page 12)						
		PTFE code T	Poly code P	Neoprene code N	PFA code A	ETFE code F	Adiprene code D	Linatex code L
005	1/2-in. (15 mm) (8705 only)	•	NA	NA	•	•	NA	NA
010	1-in. (25 mm) (8705 only)	•	•	•	•	•	NA	•
015	1 1/2-in. (40 mm) (8705 only)	•	•	•	•	•	•	•
020	2-in. (50 mm) (8705 only)	•	•	•	•	•	•	•
025	2 1/2-in (65mm) (8705 only)	•	NA	•	NA	NA	NA	NA
030	3-in. (80 mm)	•	•	•	•	•	•	•
040	4-in. (100 mm)	•	•	•	•	•	•	•
050	5-in (125mm) (8705 only)	•	NA	•	NA	NA	NA	NA
060	6-in. (150 mm)	•	•	•	•	•	•	•
080	8-in. (200 mm)	•	•	•	•	•	•	•
100	10-in. (250 mm)	•	•	•	•	•	•	•
120	12-in. (300 mm)	•	•	•	•	•	•	•
140	14-in. (350 mm)	•	•	•	•	•	•	•
160	16-in. (400 mm)	•	•	•	NA	•	•	•
180	18-in. (450 mm)	•	•	•	NA	NA	•	•
200	20-in. (500 mm)	•	•	•	NA	NA	•	•
240	24-in. (600 mm)	•	•	•	NA	NA	•	•
300	30-in. (750 mm)	•	•	•	NA	NA	•	•
360	36-in. (900 mm)	•	•	•	NA	NA	•	•
Flange material and style[8]		**Availability**						
C	Carbon Steel Raised Face Slip-On	Refer to Table 9 for availability of Slip-On flanges						
S	Stainless Steel (304/304L) Raised Face Slip-On							
P	Stainless Steel (316/316L) Raised Face Slip-On							
F	Carbon Steel Flat Faced Slip-On[9]							
G	Stainless Steel (304/304L) Flat Faced Slip-On[9]							
H	Stainless Steel (316/316L) Flat Faced Slip-On[9]							
D	Carbon Steel Raised Face Weld Neck	Refer to Table 10 for availability of Weld Neck flanges						
T	Stainless Steel (304/304L) Raised Face Weld Neck							
R	Stainless Steel (316/316L) Raised Face Weld Neck							
J	Carbon Steel Ring Type Joint (RTJ) Weld Neck[10]							
K	Stainless Steel (304/304L) Ring Type Joint (RTJ) Weld Neck[10]							
L	Stainless Steel (316/316L) Ring Type Joint (RTJ) Weld Neck[10]							
Flange type and rating[8]								
1	ASME B16.5 Class 150 (30-in. and 36-in. AWWA C207 Class D Flat Face)							
2	MSS SP44 Class 150 (30-in. and 36-in. line sizes only)							
3	ASME B16.5 Class 300/MSS-SP44 Class 300 (30-in only)							
6	ASME B16.5 Class 600 (Maximum Pressure: 1000 psig)							
7	ASME B16.5 Class 600							
9	ASME B16.5 Class 900[11]							
M	ASME B16.5 Class 1500[12]							
N	ASME B16.5 Class 2500[12]							
D	EN1092-1 PN10							
E	EN1092-1 PN16							
F	EN1092-1 PN25							
H	EN1092-1 PN40							

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Table 8. Rosemount flanged sensor ordering information

★ **The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.**

The Expanded offering is subject to additional delivery lead time.

Flange type and rating[8]				
K	AS2129 Table D[13]			
L	AS2129 Table E[13]			
P	JIS B 2220, 10K[14]			
R	JIS B 2220, 20K[14]			
T	JIS B 2220, 40K[15]			
U	AS4087, PN16[16]			
W	AS4087, PN21[16]			
Y	AS4087, PN35[16]			
Electrode housing configuration				
Standard				**Standard**
W0	Sealed, Welded Housing			★
Expanded				
W1	Sealed, Welded Housing with Pressure Relief			
W3	Sealed, Welded Housing with Separate Electrode Compartments[17]			
Safety approvals		**8705**	**8707**	
FM & CSA				
Standard				**Standard**
NH	FM and CSA Ordinary Locations/General Purpose Shock and Fire Hazard Approval	•	•	★
N0	FM Class I Div 2 for Non-Flammable Fluids; CSA Class I Div 2 for Non-Flammable Fluids Dust ignition proof	•	•	★
N5	FM Class I Div 2 for Flammable Fluids; Dust ignition proof	•		★
E5	FM Class I Div 1, Explosion Proof; Dust ignition proof[18]	•		
ATEX				
Standard				**Standard**
N1	ATEX Type n	•		★
E1	ATEX EEx e ia IIC T3.T6, Increased Safety Approval (with I.S. electrodes) integral mount with 8732 only	•		
KD	ATEX EEx e ia IIC T3.T6, Increased Safety Approval (with I.S. electrodes)	•		★
ND	ATEX Dust	•		
IECEx				
Standard				**Standard**
NF	IECEx Dust	•		★
N7	IECEx Type n	•		★
NEPSI and CMC (China)				
E3	NEPSI Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes) integral mount with 8732 only	•		
EP	NEPSI Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes)	•		
INMETRO (Brazil)				
E2	INMETRO Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes) integral mount with 8732 only	•		
EB	INMETRO Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes)			
GOST (Russia)				
E8	GOST Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes) integral mount with 8732 only	•		
EM	GOST Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes)	•		

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Table 8. Rosemount flanged sensor ordering information

★ **The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.**

The Expanded offering is subject to additional delivery lead time.

Options (Include with selected model number)

Certifications		8705	8707	
Expanded				
CR	Canadian Registration Number (CRN) certification[19]	•	•	
PD	European Pressure Equipment Directive Certification (PED, per 97/23/EC)	•		
DW	NSF Drinking Water Certification[20]	•	•	
FP	FM Fire Pump Approval	•		
WC	OIML R49 Water Custody Transfer Certificate	•		
Optional grounding rings[21]		**8705**	**8707**	
Standard				**Standard**
G1	(2) 316L SST Ground Rings	•	•	★
G5	(1) 316L SST Ground Ring	•	•	★
Expanded				
G2	(2) Nickel Alloy 276 (UNS N10276) Ground Rings	•	•	
G3	(2) Titanium Ground Rings	•	•	
G4	(2) Tantalum Ground Rings	•	•	
G6	(1) Nickel Alloy 276 (UNS N10276) Ground Ring	•	•	
G7	(1) Titanium Ground Ring	•	•	
G8	(1) Tantalum Ground Ring	•	•	
Optional lining protectors[21]				
Standard				**Standard**
L1	(2) 316L SST Lining Protectors	•	•	★
L5	(1) 316L SST Lining Protector			★
Expanded				
L2	(2) Nickel Alloy 276 (UNS N10276) Lining Protectors	•	•	
L3	(2) Titanium Lining Protectors	•	•	
L6	(1) Nickel Alloy 276 (UNS N10276) Lining Protector	•	•	
L7	(1) Titanium Lining Protector	•	•	
Other options		**8705**	**8707**	
Standard				**Standard**
B3	Integral Mount with 8732 E Series Transmitter	•		★
Expanded				
D1	High Accuracy Calibration (0.15% of rate for matched sensor and transmitter) (0.25% of rate for matched 8707 and 8712H)[22]	•	•	
D2	Dual Calibration Number		•	
DT	Heavy Duty Tagging	•	•	
H1	Lay-length matching 8701 using spool piece[23]	•	•	
H2	Lay-length matching 8701[24]	•	•	
J1	CM 20 Conduit Adapter	•	•	
J2	PG 13.5 Conduit Adapter	•	•	
P05	5 Point Verification	•	•	
P10	10 Point Verification	•	•	
SC	304 SST Junction Box, fully welded to housing	•	•	
SH	316 SST Coil Housing and Remote Junction Box	•	•	
TA	High Temperature Permeable Fluid Option (Contains vent holes provided for permeable fluids such as nitric acid, hydrofluoric acid, or sodium hydroxide at high temperatures) No CRN, No PED[25]		•	

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Table 8. Rosemount flanged sensor ordering information

★ **The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.**

The Expanded offering is subject to additional delivery lead time.

Paint Options				
V1	Coal Tar Paint (Submersible/Direct Burial)	•		
V2	Offshore/ Near Shore Marine Paint 3 layer epoxy	•	•	
Submergence protection (with IP68 conduit connector)				
R05	Potted Junction Box with 50 feet of Combo Cable	•		
R10	Potted Junction Box with 100 feet of Combo Cable	•		
R15	Potted Junction Box with 150 feet of Combo Cable	•		
R20	Potted Junction Box with 200 feet of Combo Cable	•		
R25	Potted Junction Box with 250 feet of Combo Cable	•		
R30	Potted Junction Box with 300 feet of Combo Cable	•		
Rxx	Potted Junction Box with `xx' feet of Combo Cable `XX' not to exceed 30 which equates to 300 feet	•		
Certificates		**8705**	**8707**	
Q4	Calibration Certificate per ISO 10474 3.1B/ EN 10204 3.1	•	•	
Q8	Material Traceability per ISO 10474 3.1B / EN 10204 3.1	•	•	
Q9	Material Traceability Electrode only per ISO 10474 3.1B / EN 10204 3.1	•	•	
Q66	Welding Procedure Qualification Record Documentation	•	•	
Q67	Welding Performance Qualification Record Documentation	•	•	
Q68	Welding Procedure Specification Documentation	•	•	
Q70	Weld Examination Inspection Certificate, ISO 10474 3.1B	•	•	
Q76	Positive Material Identification (PMI) on flanges and pipe, per ASTM E1476-97	•	•	
Typical model number: 8705 T SA 040 C1 W0 N0				

(1) The high-signal magmeter system is not currently available with CE mark.

(2) Available in 1/2-in. to 36-in. line sizes ASME Class150, ASME Class 300, and EN 1092-1 Flanges. Available in 1-in. to 8-in. ASME Class 600 Derated only.

(3) Available in 1-in. to 24-in. line sizes ASME Class 150, ASME Class 300, and EN 1092-1 Flanges. Available in 30-in. and 36-in. AWWA Class D and ASME Class 150. Available in 1-in. to 24-in. ASME Class 600 full rated. Available in 1 to 12 in. ASME Class 900, ANSI 1500, and ASME Class 2500.

(4) Available in 1/2-in. to 12-in. line sizes ASME Class 150, ASME Class 300, and EN 1092-1 Flanges. Available in 14-in. ASME Class 150 only; Not available with electrode housing code M2 or M4.

(5) Available in 1/2-in. to 14-in. line sizes ASME Class 150, ASME Class 300, and EN 1092-1 Flanges; Available in 16-in. ASME Class 150 only. Available in 1-in. to 10-in. ASME Class 600 Derated only.

(6) Available in line sizes 2-in. to 36-in; Consult Rosemount Sales Team for flange availability.

(7) Available in 316L (S) and Nickel Alloy 276 (H) only; 316L (S) and Nickel Alloy 276 (H) only; Not available in 1/2-in.

(8) Refer to Table 9 and Table 10 for Standard vs. Expanded flange offering.

(9) Flat-faced flanges are manufactured with full-face liners; Available liners Neoprene and Linatex only.

(10) Available flange rating ASME Class 1500 and ASME Class 2500 only.

(11) Not available with lining protectors.

(12) Available liners: Poly (P), Extreme Service Polyurethane (D), Neoprene (N) or Linatex (L); Available line sizes 1 1/2-in. to 12-in. for ASME Class 1500; 1 1/2-in. to 6-in. for ASME Class 2500; Not available with ground rings or lining protectors.

(13) Not available with PFA (A) liner; Not available with lining protectors.

(14) Available line sizes 1/2-in. to 24-in.; Not available with lining protectors.

(15) Available line sizes 1/2-in. to 16-in.; Not available with lining protectors.

(16) Available in 2-in. to 4-in. and 6-in. to 24-in. line sizes; Not available with lining protectors.

(17) Available in 3-in. and larger meters for the 8705. Available in 8-in. and larger meters for 8707.

(18) Available line sizes 1/2-in. to 8-in. (15 mm to 200 mm).

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(19) CRN Approval covers Alberta and Ontario as a standard. Consult Rosemount sales team for availability of other provinces.

(20) Available liners PTFE (T) all line sizes or Polyurethane (P) 4-in. or larger; Electrode materials 316L SST (S) or Ni-Alloy 276 (H).

(21) Grounding Rings and Lining Protectors provide the same fluid grounding function.

(22) D1 transmitter must be ordered with D1 sensor at the same time.

(23) Available in sensor line sizes 1/2-in. to 16-in. (15 mm to 400 mm).

(24) Available in sensor line sizes 1/2-in. to 16-in. (15 mm to 400 mm).

(25) Contains vent holes provided for highly permeable fluids such as nitric acid, hydrofluoric acid, or sodium hydroxide at high temperatures.

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Table 9. Availability of slip-on flanges vs. flange type and rating. The starred (★) options should be selected for best delivery.

Line size (in) flange type-rating	1/2	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	30[1][2]	36[1]
C1 or F1	★	★	★	★	★	★	★	★	★	★	★	★							
C2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
C3 or F3	★	★	★	★	★	★	★	★	★	★	★	★							NA
C6													NA	NA	NA	NA	NA	NA	NA
C7	NA												NA	NA	NA	NA	NA	NA	NA
C9	NA												NA	NA	NA	NA	NA	NA	NA
CD or FD	NA	NA	NA	NA	NA	NA	NA	NA	NA	★	★							NA	NA
CE or FE	NA	NA	NA	NA	NA	NA	★	★	★	★	★							NA	NA
CF or FF	NA	NA	NA	NA	NA	NA	NA	NA	NA									NA	NA
CH or FH	★	★	★	★	★	★	★	★	★	★	★							NA	NA
CK																			
CL																			
CP																		NA	NA
CR																		NA	NA
CT														NA	NA	NA	NA	NA	NA
CU	NA	NA	NA																
CW	NA	NA	NA																
CY	NA	NA	NA																
S1 or G1	★	★	★	★		★	★		★	★	★								
S2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
S3 or G3																			NA
S6													NA	NA	NA	NA	NA	NA	NA
S7													NA	NA	NA	NA	NA	NA	NA
S9	NA												NA	NA	NA	NA	NA	NA	NA
SD or GD	NA	NA	NA	NA	NA	NA	NA	NA	NA									NA	NA
SE or GE	NA	NA	NA	NA	NA	NA	★		★	★	★	★						NA	NA
SF or GF	NA	NA	NA	NA	NA	NA	NA	NA	NA									NA	NA
SH or GH	★	★	★	★		★	★		★	★	★							NA	NA
SK																			
SL																			
SP																		NA	NA
SR																		NA	NA
ST															NA	NA	NA	NA	NA
SU	NA	NA	NA																
SW	NA	NA	NA																
SY	NA	NA	NA																
P1 or H1																			
P2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
P3 or H3																			NA
P6													NA	NA	NA	NA	NA	NA	NA
P7													NA	NA	NA	NA	NA	NA	NA
P9	NA												NA	NA	NA	NA	NA	NA	NA
PD or HD	NA	NA	NA	NA	NA	NA	NA	NA	NA									NA	NA
PE or HE	NA	NA	NA	NA	NA	NA												NA	NA
PF or HF	NA	NA	NA	NA	NA	NA	NA	NA	NA									NA	NA
PH or HH																		NA	NA
PK																			
PL																			
PP																			NA
PR																			NA
PT															NA	NA	NA	NA	NA
PU	NA	NA	NA																
PW	NA	NA	NA																
PY	NA	NA	NA																

(1) AWWA C207 Class D Flat Face Flange for option C1 only.

(2) MMS-SP44 Class 300 Flanges for option C3.

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Table 10. Availability of weld neck flanges vs. flange type and rating

Line size (in) flange type-rating	1/2	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	30[1][2]	36[2]
D1					NA			NA											
D3					NA			NA											
D6	NA										NA	NA	NA	NA	NA	NA	NA	NA	NA
D7					NA			NA					NA	NA	NA	NA	NA	NA	NA
D9	NA	NA	NA	NA	NA	NA	NA	NA	NA									NA	NA
DM	NA	NA			NA			NA					NA	NA	NA	NA	NA	NA	NA
DN	NA	NA			NA			NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T1					NA			NA											
T3					NA			NA											
T6	NA										NA	NA	NA	NA	NA	NA	NA	NA	NA
T7					NA			NA					NA	NA	NA	NA	NA	NA	NA
T9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA								NA	NA
TM	NA	NA			NA			NA					NA	NA	NA	NA	NA	NA	NA
TN	NA	NA			NA			NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R1					NA			NA											
R3					NA			NA											
R6	NA										NA	NA	NA	NA	NA	NA	NA	NA	NA
R7					NA			NA					NA	NA	NA	NA	NA	NA	NA
R9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA								NA	NA
RM	NA				NA			NA					NA	NA	NA	NA	NA	NA	NA
RN	NA	NA			NA			NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
J1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
J3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
J6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
J7	NA				NA			NA					NA	NA	NA	NA	NA	NA	NA
J9	NA				NA			NA					NA	NA	NA	NA	NA	NA	NA
JM	NA	NA			NA			NA					NA	NA	NA	NA	NA	NA	NA
JN	NA	NA			NA			NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K7	NA				NA			NA					NA	NA	NA	NA	NA	NA	NA
K9	NA				NA			NA					NA	NA	NA	NA	NA	NA	NA
KM	NA	NA			NA			NA					NA	NA	NA	NA	NA	NA	NA
KN	NA	NA			NA			NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
L1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
L3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
L6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
L7	NA				NA			NA				NA	NA	NA	NA	NA	NA	NA	NA
L9	NA				NA			NA				NA	NA	NA	NA	NA	NA	NA	NA
LM	NA	NA			NA			NA				NA	NA	NA	NA	NA	NA	NA	NA
LN	NA	NA			NA			NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

(1) MMS-SP44 Class 300 Flanges for option C3.

(2) AWWA C207 Class D Flat Face Flange for option C1 only.

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Rosemount 8711 wafer sensors

The flangeless design of the 8711 wafer sensor makes it an economical, compact, and lightweight alternative to flanged magnetic flowmeters. Alignment spacers are provided with every 8711 which help center the sensor in the process line and makes installation easier.

Table 11. Rosemount 8711 ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Model	Product description	
8711	Magnetic Flowmeter Wafer Sensor	
Lining material		
Standard		**Standard**
S	PTFE(1)	★
Expanded		
A	PFA(2)	
T	ETFE(1)	
Electrode material		
Standard		**Standard**
S	316L Stainless Steel	★
H	Nickel Alloy 276 (UNS N10276)	★
Expanded		
N	Titanium	
T	Tantalum	
P	80% Platinum - 20% Iridium	
Electrode type		
Standard		**Standard**
A	2 Measurement Electrodes	★
E	2 Measurement Electrodes plus 1 Reference Electrode	★
Expanded(3)		
B	2 Bulletnose Measurement Electrodes	
F	2 Bulletnose Measurement Electrodes plus 1 Reference Bulletnose Electrode	
Line size		
Standard		**Standard**
005	½-in. (15 mm)	★
010	1-in. (25 mm)	★
015	1½-in. (40mm)	★
020	2-in. (50mm)	★
030	3-in. (80 mm)	★
040	4-in. (100 mm)	★
060	6-in. (150 mm)	★
080	8-in. (200 mm)	★
Expanded		
15F	0.15-in. (4 mm) liner material PFA only(4)	
30F	0.30-in. (8 mm) liner material PFA only(4)	

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Table 11. Rosemount 8711 ordering information

★ **The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.**
The Expanded offering is subject to additional delivery lead time.

Transmitter mounting configuration		
Standard		**Standard**
R	Remote	★
U	Integral, mounted to Rosemount 8732 Transmitter	★
Mating pipe flange pressure rating		
Includes three alignment spacers (where applicable)		
Standard		**Standard**
1	ASME Class 150	★
3	ASME Class 300	★
D	EN1092-1 PN10	★
E	EN1092-1 PN16	★
F	EN1092-1 PN25	★
H	EN1092-1 PN40	★
P	JIS B2220 10K	★
R	JIS B2220 20K	★
U	AS4087 PN16	★
W	AS4087 PN21	★
Y	AS4087 PN35	★
Hazardous area classification[(5)]		
FM & CSA		
Standard		**Standard**
NH	FM and CSA Ordinary Locations/General Purpose Shock and Fire Hazard Approval	★
N0	FM Class I Div 2 for Non-Flammable Fluids; CSA Class I Div 2 for Non-Flammable Fluids	★
N5	FM Class I Div 2 for Flammable Fluids	★
E5	FM Class I Div 1, Explosion Proof	★
ATEX		
Standard		**Standard**
KD	ATEX EEx e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes)	★
N1	ATEX Type n	★
ND	ATEX Dust	★
E1	ATEX EEx e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732 only	
IECEx		
NF	IECEx Dust	
NEPSI and CMC (China)		
E3	NEPSI Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732 only	
EP	NEPSI Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes)	
INMETRO (Brazil)		
E2	INMETRO Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732 only	
EB	INMETRO Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes)	
GOST (Russia)		
E8	GOST Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732 only	
EM	GOST Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes)	

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Table 11. Rosemount 8711 ordering information

★ **The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.**

The Expanded offering is subject to additional delivery lead time.

Options (include with selected model number)

Certifications		
Expanded		
PD	Pressure Equipment Directive Certification (PED, per 97/23/EC)	
DW	NSF Drinking Water Certification(6)	
FP	FM Fire Pump Approval	
WC	OIML R49 Water Custody Transfer Certificate	
Optional grounding rings		
Standard		**Standard**
G1	(2) 316L SST Ground Rings	★
G5	(1) 316L SST Ground Ring	★
Expanded		
G2	(2) Nickel Alloy 276 (UNS N10276) Ground Rings	
G3	(2) Titanium Ground Rings	
G4	(2) Tantalum Ground Rings	
G6	(1) Nickel Alloy 276 (UNS N10276) Ground Ring	
G7	(1) Titanium Ground Ring	
G8	(1) Tantalum Ground Ring	
Other options		
Expanded		
Mounting kit		
MK2	Mounting Studs and Nuts	
Paint options		
V2	Offshore/ Near Shore Marine Paint 3 layer epoxy	
Certificates		
Q4	Calibration Certificate per ISO 10474 3.1B / EN 10204 3.1	
Q8	Material Traceability per ISO 10474 3.1B / EN 10204 3.1	
Q9	Material Traceability Electrode only per ISO 10474 3.1B / EN 10204 3.1 3.1B	
Q66	Welding Procedure Qualification Record Documentation(7)	
Q67	Welding Performance Qualification Record Documentation(7)	
Q68	Welding Procedure Specification Documentation(7)	
Q70	Weld Examination Inspection Certificate, ISO 10474 3.1B(7)	
Q76	Positive Material Identification (PMI) on flanges and pipe, per ASTM E1476-97(7)	
DT	Heavy Duty Tagging	
D1	High Accuracy Calibration (0.15% of rate for matched sensor and transmitter)(8)	
Typical model number: 8711 TSA 020 R 5 N0		

(1) Not available with 0.15-in. and 0.30-in. (4 mm and 8 mm) line sizes.

(2) Available with 0.15-in. and 0.30-in. (4 mm and 8 mm) line sizes only.

(3) Bullet nose electrodes are available in 1-in. to 8-in. (25 mm to 200 mm).

(4) This line size mounts between ASME 1/2-in flanges

(5) Add option “Q7” to the model number to receive a copy of the agency approval certificate.

(6) Available liner PTFE (T) Â½-in to 8-in. (15 mm to 200 mm); Electrode materials 316L SST (S) or Ni-Alloy 276 (H).

(7) 6-in. and 8-in. (150 mm and 200 mm) line sizes only.

(8) D1 Option Code must be ordered with sensor and transmitter.

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Rosemount 8721 hygienic sensors

The 8721 hygienic sensor is specifically designed for the demanding applications in food, beverage, and life sciences. The robust, all-welded, full diameter sensor is constructed of FDA approved materials and is authorized to display the 3-A Symbol (Authorization #1222) is certified by EHEDG (#C03-5229) and is approved for use in FDA Grade A milk meter based timing loops (M-b 350). Sizes range from 1/2-in. (15mm) to 4-in. (100mm) and are available in a variety of industry standard process connections.

Table 12. Rosemount 8721 ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Model	Product description	
8721	Hygienic Magnetic Flowmeter Sensor	
Lining material		
Standard		**Standard**
A	PFA	★
Electrode material		
Standard		**Standard**
S	316L SST (standard)	★
Expanded		
H	Nickel Alloy 276 (UNS N10276)	
P	80% Platinum-20% Iridium	
Electrode construction		
Standard		**Standard**
A	Standard measurement electrodes	★
Line Sizes		
Standard		**Standard**
005	1/2-in. (15 mm)	★
010	1-in. (25 mm)	★
015	1 1/2-in. (40 mm)	★
020	2-in. (50 mm)	★
025	2 1/2-in. (65 mm)	★
030	3-in. (80 mm)	★
040	4-in. (100 mm)	★
Transmitter mounting configuration		
Standard		**Standard**
R	Remote, for use with 8712, or remote version of 8732 transmitter	★
U	Integral, mounted to 8732 transmitter	★
X	Sensor only (does not include terminal junction box)	★

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Table 12. Rosemount 8721 ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

Process connection type		
Standard		**Standard**
A	Tri-Clamp (1)	★
B	IDF Sanitary screw type (2)	★
Expanded		
C	ANSI Weld Nipple (2)	
D	DIN 11851 (Imperial)	
E	DIN 11851 (Metric)	
F	DIN 11864-1 form A	
G	DIN 11864-2 form A	
H	SMS Connection	
J	Cherry-Burrell I-Line	
K	DIN 11850 Weld Nipple	
Process gasket material		
Standard		**Standard**
1	Silicone gasket seal	★
2	EPDM	★
Expanded		
4	Viton	
8	EPDM Compression - limiting (3)	
9	Viton Compression - limiting (3)	
X	No gasket (User supplied; only applicable with Process Connection B)	
Product certifications		
Standard		**Standard**
N0	FM / CSA General Purpose / Ordinary Location, CE Marking; 3-A; EHEDG Type EL	★
Options (include with selected model number)		
Expanded		
AH	Electropolished process connection surface finish < 15µinch Ra (0.38µm Ra)	
D1	High Accuracy Calibration [0.25% of rate from 3-30 ft/s (0.9-10 m/s)] matched sensor and transmitter system(4)	
D3	High Velocity Meter Verification. Calibration verified at 1, 3, 10 and 20 ft/sec (0.3. 1, 3, and 6 m/s)	
HP	Process Data PD340 (Alfa-Laval PD340) 250mm lay length and Tri-Clamp process connections	
J1	CM20 Conduit Adapter (Applies to Transmitter Mount Option “R” only)	
J2	PG13.5 Conduit Adapter (Applies to Transmitter Mount Option “R” only)	
Q4	Calibration Certificate per ISO 10474 3.1B/ EN 10204 3.1	
Q8	Material Traceability Certificate per ISO 10474 3.1B / EN 10204 3.1(product contact surfaces)	
SJ	304 Stainless Steel terminal junction box (Remote configuration only)	
Typical model number: 8721 A S A 020 U A 1 N0		

(1) Tri-Clamp specification per BPE.

(2) IDF Specification per BS4825 Part 4.

(3) EHEDG Document 8 requires mechanical compression limiting, provided by Compression - limiting gaskets for line sizes 1-in. to 4-in. only.

(4) D1 transmitter must be ordered with D1 sensor at the same time.

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Rosemount 8714D

The Rosemount 8714D Magnetic Flowmeter Simulator attaches to an 8712, or 8732 transmitter's sensor connections to ensure traceability to NIST standards and long-term accuracy of the flowmeter system. The 8714D is not compatible with the 8712H High-Signal transmitter

Table 13. Rosemount 8714 ordering information

Model	Description
8714DQ4	Magnetic Flowmeter Simulator - Reference Calibration Standard

Tagging styles

Name Plate

1 Line - 30 Characters

Wire-on

5 Lines - 30 Characters per line

Ordering procedure

To order, select the desired sensor and/or transmitter by specifying model codes from the ordering table.

For remote transmitter applications, note the cable specification requirements.

Sensors and transmitters must be selected from Product Data Sheet 00813-0100-4727.

Standard configuration

Unless the Configuration Data Sheet is completed, the transmitter will be shipped as follows:

Engineering Units:	ft/sec
4 mA (1 V DC):	0
20 mA (5 V DC):	30
Sensor Size:	3-in.
Empty Pipe:	On
Sensor Calibration Number:	1000005010000000

Integrally Mounted Rosemount 8732 Transmitters are factory configured with the attached sensor size and appropriate calibration number.

Cable requirements for remote transmitters

Description	Length	P/N
Electrode Cable (20 AWG) Belden 8762, Alpha 2411 equivalent	ft m	08712-0061-0001 08712-0061-2003
Coil Drive Cable (14 AWG) Belden 8720, Alpha 2442 equivalent	ft m	08712-0060-0001 08712-0060-2003
Combination Cable Electrode Cable (20AWG) and Coil Drive Cable (18 AWG)(1)	ft m	08732-0753-1003 08732-0753-2004

(1) Combination signal and coil drive cable is not recommended for high-signal magmeter system.

Remote transmitter installations require equal lengths of electrode and coil drive cables. Integrally mounted transmitters are factory wired and do not require interconnecting cables.

Individual cable lengths from 5 to 1000 ft. (1.5 to 300 m) may be specified. Cable longer than 100 ft. (30 m) is not recommended for high-signal systems. Combination signal and coil drive cable should be limited to less than 330 ft (100 m). All cables will be shipped with the sensor.

Custom configuration (Option Code C1)

If Option Code C1 is ordered, the Configuration Data Sheet (CDS) must be submitted at the time of order.

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Product specifications

Listed below are tables that outline some of the basic performance, physical, and functional specifications of the Rosemount 8700 Series Magnetic Flowmeter products. Table 14 provides an overview of the Rosemount 8700 Series Transmitter products. Table 15 provides an overview of the Rosemount 8700 Series Sensor products.

Table 14. Rosemount 8700 series transmitter specifications

	Model	Base accuracy(1)	Mounting	Power supply	User interface	Communication protocol	Diagnostics	Sensor compatibility	Detailed specifications	Ordering information
	8732	0.25% Standard 0.15% High Accuracy Option	Integral or Remote	Global AC or DC	4 Optical Switch LOI	HART	Basic plus DA1 and DA2 Suite	All Rosemount plus other manufacturers	page 30	page 6
						PROFIBUS PA fieldbus	Basic plus D01 and D02 Suite			
					Display Only	HART & FOUNDATION fieldbus				
	8712	0.25% Standard 0.15% High Accuracy Option	Remote	Global AC or DC	Dedicated 15 Button LOI	HART	Basic plus Optional DA1 and DA2 Suite	All Rosemount plus other manufacturers	page 30	page 6
	8712H	0.5% Standard 0.25% High Accuracy Option	Remote	120 V AC	Dedicated 15 Button LOI	HART	Basic	8707 Only	page 37	page 10

(1) For complete accuracy specifications, please refer to the transmitter detailed specifications.

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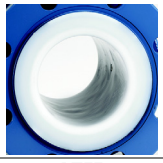
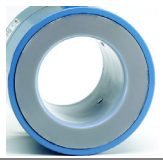
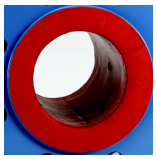
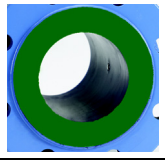
Table 15. Rosemount 8700 series sensor specifications

	Model	Style	Base accuracy[(1)]	Line sizes	Coil drive power	Design features	Detailed specifications	Ordering information
	8705	Flanged	0.25% Standard 0.15% High Accuracy Option	1/2-in. to 36-in. (15 mm to 900 mm)	Pulsed DC	Standard Process Design	page 40	page 12
	8707	High-Signal (Flanged)	0.5% Standard 0.25% High Accuracy Option	3-in. to 36-in. (15 mm to 900 mm)	High-Signal Pulsed DC	Superior Signal Stability for High Solids and Slurry Applications	page 40	page 12
	8711	Wafer	0.25% Standard 0.15% High Accuracy Option	0.15-in. to 8-in. (4 mm to 200 mm)	Pulsed DC	Compact, Light Weight	page 43	page 20
	8721	Hygienic	0.5% Standard 0.25% High Accuracy Option	1/2-in. to 4-in. (15 mm to 100 mm)	Pulsed DC	3-A and EHEDG CIP/SIP	page 45	page 23

(1) For complete accuracy specifications, please refer to the sensor detailed specifications.

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Table 16. Lining material selection

	Liner material	General characteristics
	PFA 	• Best chemical resistance • Better abrasion resistance than PTFE • Best high temperature capabilities • -20 to 350 °F (-29 to 177 °C)
	PTFE 	• Highly chemical resistant • Excellent high temperature capabilities • -20 to 350 °F (-29 to 177 °C)
	ETFE 	• Excellent chemical resistance • Better abrasion resistance than PTFE • -20 to 300 °F (-29 to 149 °C)
	Polyurethane 	• Excellent abrasion resistance for slurries with small and medium particles • Limited chemical resistance • 0 to 140 °F (-18 to 60 °C) • Typically applied in clean water
	Neoprene 	• Very good abrasion resistance for small and medium particles • Better chemical resistance than polyurethane • 0 to 176 °F (-18 to 80 °C) • Typically applied in water with chemicals, and sea water
	Linatex Rubber 	• Very good abrasion resistance for large particles • Limited chemical resistance especially in acids • Softer material than polyurethane and neoprene • 0 to 158 °F (-18 to 70 °C) • Typically applied in mining slurries
	Extreme Service Polyurethane 	• Ideal for applications with high salinity and / or hydrocarbon carryover • Excellent abrasion resistance • 0 to 200 °F (-18 to 93 °C) • Typically used for Water Injection, Recovered Water, and Coal Gasification Slurries

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Table 17. Electrode selection

Electrode material	General characteristics
316L Stainless Steel	• Good corrosion resistance
	• Good abrasion resistance
	• Not recommended for sulfuric or hydrochloric acids
Nickel Alloy 276 (UNS N10276)	• Better corrosion resistance
	• High strength
	• Good in slurry applications
	• Effective in oxidizing fluids
Tantalum	• Excellent corrosion resistance
	• Not recommended for hydroflouric acid, fluorosilic acid, or sodium hydroxide
80% Platinum 20% Iridium	• Best chemical resistance
	• Expensive material
	• not recommended for aquaregia
Titanium	• Better chemical resistance
	• Better abrasion resistance
	• Good for sea water applications
	• Not recommended for hydrofluoric or sulfuric acid
Tungsten Carbide	• Limited chemical resistance
	• Best abrasion resistance
	• High concentration slurries
	• Preferred electrode for Oil and Gas fracturing applications
Electrode type	**General characteristics**
Standard Measurement	• Lowest cost
	• Good for most applications
Standard Measurement + Reference electrode (Also see Table 18 and Table 19 for grounding options and installation	• Low cost grounding option especially for large line sizes
	• Minimum conductivity of 100 microsiemens/cm
	• Not recommended for electrolysis or galvanic corrosion applications
Bulletnose	• Slightly more expensive
	• Best option for coating processes

Table 18. Process reference options

Grounding options	General characteristics
No Grounding Options (grounding straps)	• Acceptable for conductive unlined pipe
	• Grounding straps provided at no cost
Reference Electrode	• Same material as measurement electrodes
	• Sufficient grounding option when process fluid conductivity is greater than 100 microsiemens/cm
	• Not recommended in electrolysis applications, galvanic corrosion applications, or applications where the electrodes may coat.
Grounding Rings	• Low conductivity process fluids
	• Cathodic or electrolysis applications that may have stray currents in or around the process
	• Variety of materials for process fluid compatibility
Lining Protectors	• Protect upstream edge of sensor from abrasive fluids
	• Permanently installed on sensor
	• Protect liner material from over torquing of flange bolts
	• Provide ground path and eliminate need for grounding rings or reference electrode

Table 19. Process reference installation

Type of pipe	Grounding straps	Grounding rings	Reference electrode	Lining protectors
Conductive unlined pipe	Acceptable	Not Required	Not Required	Not Required
Conductive lined pipe	Not Acceptable	Acceptable	Acceptable	Acceptable
Non-conductive pipe	Not Acceptable	Acceptable	Not Acceptable	Acceptable

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Rosemount E-Series transmitter specifications







Functional specifications

Sensor compatibility

Compatible with Rosemount 8705, 8711, 8721, and 570TM sensors. Compatible with Rosemount 8707 sensor with D2 Dual calibration option. Compatible with AC and DC powered sensors of other manufacturers.

Transmitter coil drive current

500 mA

Flow rate range

Capable of processing signals from fluids that are traveling between 0.04 and 39 ft/s (0.01 to 12 m/s) for both forward and reverse flow in all sensor sizes. Full scale continuously adjustable between –39 and 39 ft/s (–12 to 12 m/s).

Conductivity limits

Process liquid must have a conductivity of 5 microsiemens/cm (5 micromhos/cm) or greater.

Power supply

90-250 VAC, 50–60 Hz or 12-42 VDC

Line power fuses

90-250 VAC systems

2 amp, Quick-acting Bussman AGC2 or equivalent

12-42 VDC systems

3 amp, Quick-acting Bussman AGC3 or equivalent

Power consumption

15 watts maximum - DC

40 VA maximum - AC

Switch-on current

AC: Maximum 35.7 A (< 5 ms) at 250 VAC

DC: Maximum 42 A (< 5 ms) at 42 VDC

AC power supply requirements

Units powered by 90-250 VAC have the following power requirements.

Figure 2. AC current requirements

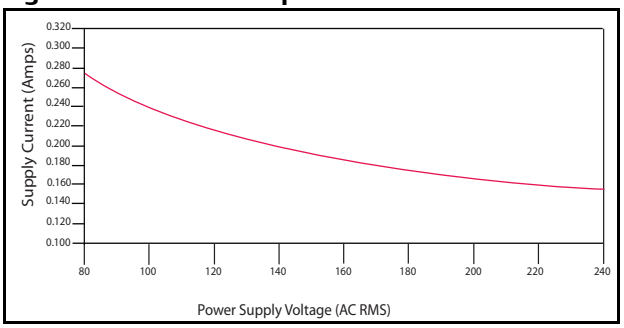
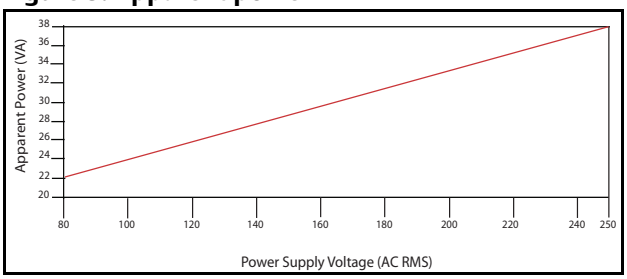


Figure 3. Apparent power

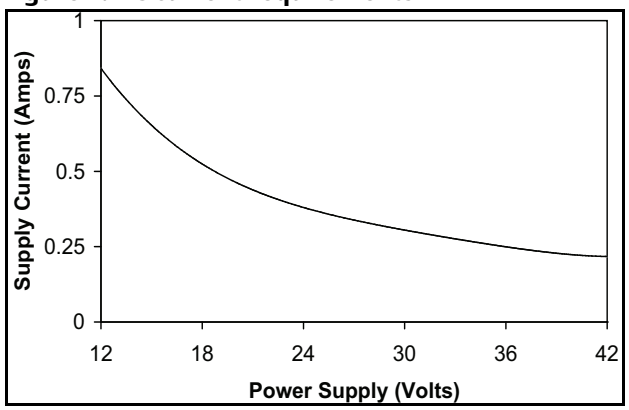


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DC supply current requirements

Units powered by 12 VDC power supply may draw up to 1amp of current steady state.

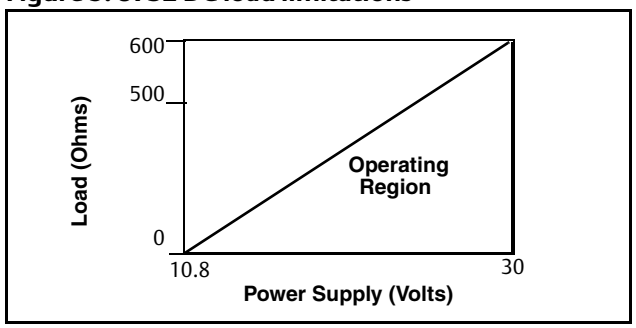
Figure 4. DC current requirements



DC load limitations (Analog output)

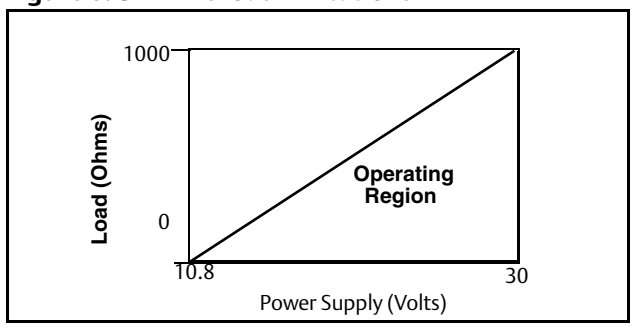
Maximum loop resistance is determined by the voltage level of the external power supply, as described by:

Figure 5. 8732 DC load limitations



R_{max} = 31.25 (V_{ps} – 10.8)
V_{ps} = Power Supply Voltage (Volts)
R_{max} = Maximum Loop Resistance (Ohms)

Figure 6. 8712 DC load limitations



R_{max} = 52.08 (V_{ps} – 10.8)
V_{ps} = Power Supply Voltage (Volts)
R_{max} = Maximum Loop Resistance (Ohms)

Note
HART Communication requires a minimum loop resistance of 250 ohms.

8732 ambient temperature limits

Operating
–58 to 165 °F (–50 to 74 °C) without local operator interface

–4 to 140 °F (–20 to 60 °C) with local operator interface

Storage
–40 to 185 °F (–40 to 85 °C) without local operator interface

–22 to 176 °F (–30 to 80 °C) with local operator interface

8732 humidity limits

0–95% RH to 140 °F (60 °C)

8712 ambient temperature limits

Operating
-40 to 165 °F (-40 to 74 °C) without local operator interface

-20 to 140 °F (-29 to 60 °C) with local operator interface

Storage
-40 to 176 °F (-40 to 80 °C) with and without local operator interface

8712 humidity limits

0-95% RH to 120 °F (49 °C), decreases linearly to 10% RH at 130 °F (54 °C)

Altitude

2000 meters maximum

Enclosure rating

Type 4X, IEC 60529, IP66 (transmitter)

Transient protection rating

Built in transient protection that conforms to:

IEC 61000-4-4 for burst currents

IEC 61000-4-5 for surge currents.

IEC 611185-2.2000, Class 3 up to 2 kV and up to 2 kA protection.

Turn-on time

5 minutes to rated accuracy from power up; 5 seconds from power interruption

Start-up time

50 ms from zero flow

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Low Flow cut-off

Adjustable between 0.01 and 38.37 ft/s (0.003 and 11.7 m/s). Below selected value, output is driven to the zero flow rate signal level.

Overrange capability

Signal output will remain linear until 110% of upper range value or 44 ft/s (13 m/s). The signal output will remain constant above these values. Out of range message displayed on LOI and the Field Communicator.

Damping

Adjustable between 0 and 256 seconds

E-Series advanced diagnostics capabilities

Basic
Self test
Transmitter faults
Analog output test
Pulse output test
Tunable empty pipe
Reverse flow
Coil circuit fault
Electronics temperature

Process diagnostics (DA1/D01)
Ground/wiring fault
High process noise

Smart meter verification (DA2/D02)

Smart Meter Verification
4-20 mA loop verification(1)

Output signals

8732 HART / Pulse specifications

Analog output adjustment(2)
4–20 mA, switch-selectable as internally or externally powered 10.8 to 30 VDC; 0 to 600 Ω load.

Engineering units—lower and upper range values are user-selectable.

Output automatically scaled to provide 4 mA at lower range value and 20 mA at upper range value. Full scale continuously adjustable between -39 and 39 ft/s (-12 to 12 m/sec), 1 ft/s (0.3 m/s) minimum span.

HART Communications, digital flow signal, superimposed on 4–20 mA signal, available for control system interface. 250 Ω required for HART communications.

Scalable frequency adjustment(2)
0-10,000 Hz, switch-selectable as internally or externally powered 10 to 24 VDC, transistor switch closure up to 5.75 w. Pulse value can be set to equal desired volume in selected engineering units. Pulse width adjustable from 0.1 to 650 ms.

8712 HART / Pulse specifications

Analog output adjustment(3)
4–20 mA, switch-selectable as internally or externally powered 10.8 to 30 V DC; 0 to 1000 Ω load.

Engineering units—lower and upper range values are user-selectable.

Output automatically scaled to provide 4 mA at lower range value and 20 mA at upper range value. Full scale continuously adjustable between -39 and 39 ft/s (-12 to 12 m/sec), 1 ft/s (0.3 m/s) minimum span.

HART Communications, digital flow signal, superimposed on 4–20 mA signal, available for control system interface. 250 Ω required for HART communications.

Scalable frequency adjustment(2)
0-10,000 Hz, externally powered 5 to 24 V DC, transistor switch closure up to 2 W for frequencies up to 4,000 Hz and 5 V DC at 0.1 W at maximum frequency of 10,000 Hz. Pulse value can be set to equal desired volume in selected engineering units. Pulse width adjustable from 1.5 to 500 msec, below 1.5 msec pulse width automatically switches to 50% duty cycle.

Optional discrete output function (AX option)

Externally powered at 5 to 24 V DC, transistor switch closure up to indicate either:

Reverse flow:
Activates switch closure output when reverse flow is detected. The reverse flow rate is displayed.

Zero flow:
Activates switch closure output when flow goes to 0 ft/s.

Empty pipe:
Activates switch closure output when an empty pipe condition is detected.

(1) Only available on the 8732 with HART outputs.

(2) For transmitters with intrinsically safe outputs, power must be supplied externally.

(3) For transmitters with intrinsically safe outputs, power must be supplied externally.

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Transmitter faults:
Activates switch closure output when a transmitter fault is detected.

Flow limits (2):
Activates switch closure output when the transmitter measures a flow rate that meets the conditions established for this alert. There are two independent flow limit alerts that can be configured as discrete outputs.

Totalizer limit:
Activates switch closure output when the transmitter measures a total flow that meets the conditions established for this alert.

Diagnostic status:
Activates switch closure output when the transmitter detects a condition that meets the configured criteria of this output.

Optional discrete input function (AX option)

Externally powered at 5 to 24 V DC, transistor switch closure up to indicate either:

Net total reset:
Resets the net totalizer value to zero.

Positive zero return (PZR):
Forces outputs of the transmitter to zero flow.

Output testing

Analog output test
Transmitter may be commanded to supply a specified current between 3.5 and 23 mA.

Pulse output test
Transmitter may be commanded to supply a specified frequency between 1 and 10,000 Hz.

Security lockout

Security lockout switch on the electronics board can be set to deactivate all LOI and HART-based communicator functions to protect configuration variables from unwanted or accidental change.

8732 LOI lockout
All optical switches on the display can be locked locally from the display layout configuration screen by holding the upper right optical switch for 10 seconds. The display can be reactivated holding the same switch for 10 seconds.

FOUNDATION fieldbus digital output specifications

Output signal

Manchester-encoded digital signal that conforms to IEC 1158-2 and ISA 50.02

Schedule entries

Seven (7)

Links

Twenty (20)

Virtual communications relationships (VCRs)

One (1) predefined (F6, F7) Nineteen (19) configurable

(see Table 1)

Block	Execution time (milliseconds)
Resource (RB)	—
Transducer (TB)	—
Analog Input (AI)	10
Proportional/Integral/ Derivative (PID)	10
Integrator (INT)	10
Arithmetic (AR)	10

FOUNDATION fieldbus electrical specifications

- Voltage Requirement = 9 to 32 VDC
- Polarity Insensitive
- Current Draw = 18mA

FOUNDATION fieldbus function blocks

Transducer block

The transducer block calculates flow from the measured induced voltage. The calculation includes information related to the calibration number, line size, 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 a Link Active Scheduler (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.

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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.

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 8732 Transmitter with FOUNDATION fieldbus comes standard with one AI function block for flow.

Arithmetic block

Provides predefined application-based equations including flow with partial density compensation, electronic remote seals, hydrostatic tank gauging, ratio control and others.

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.

Reverse flow

Detects and reports reverse flow

Software lockout

A write-lock switch and software lockout are provided in the resource function block.

PROFIBUS PA fieldbus digital output specifications

Output signal

Manchester-encoded digital signal that conforms to IEC 1158-2 and ISA 50.02.

Profile version

3.01

Identification number

Generic: 0x9740
Manufacturer Specific: 0x0C15

PROFIBUS PA function blocks

Resource block

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

Transducer block

The transducer block calculates flow from the measured induced voltage and provides the PV Variable input to the AI Block. The calculation includes information related to the calibration number, line size, and diagnostics.

Diagnostics

The transmitter automatically performs continuous self-diagnostics. The user can perform on-line testing of the transmitter digital signal. In addition advanced diagnostic capabilities are also available to give better insight to meter performance and process information.

Analog Input block

The AI function block processes the measurement and makes it available to the Host system. The AI function block also allows filtering, alarming, and engineering unit changes. The 8732 Transmitter with PROFIBUS PA digital fieldbus comes standard with one AI function block flow.

Totalizer block (3 blocks)

The Totalizer function block allows for totalization of the flow signal. The 8732 Transmitter with PROFIBUS PA digital fieldbus comes with 3 independent totalizer blocks. Each totalized value can be displayed on the Local Operator Interface of the device in addition to the Primary Variable. The non-volatile totalizers can be configured to measure gross, net, forward, and reverse totals.

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Sensor compensation

Rosemount sensors are flow-calibrated and assigned a calibration factor at the factory. The calibration factor is entered into the transmitter, enabling interchangeability of sensors without calculations or a compromise in standard accuracy.

8732 transmitters and other manufacturers' sensors can be calibrated at known process conditions or at the Rosemount NIST-Traceable Flow Facility. Transmitters calibrated on site require a two-step procedure to match a known flow rate. This procedure can be found in the Operations Manual:

Performance specifications

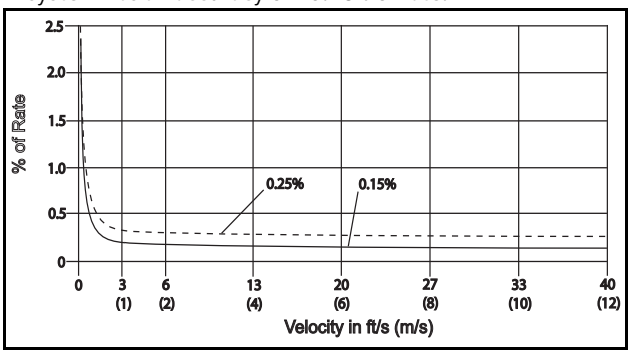
(System specifications are given using the frequency output and with the unit at reference conditions.)

Accuracy

Includes the combined effects of linearity, hysteresis, repeatability, and calibration uncertainty.

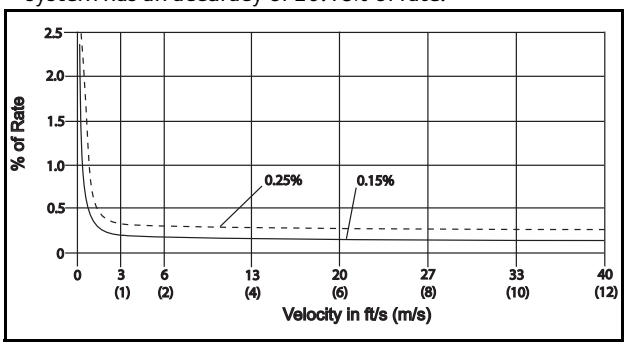
Rosemount 8705/8707 sensor:
Standard system accuracy is ±0.25% of rate ±1.0 mm/sec from 0.04 to 6 ft/s (0.01 to 2 m/s); above 6 ft/s (2 m/s), the system has an accuracy of ±0.25% of rate ±1.5 mm/sec.

Optional high accuracy is ±0.15% of rate ±1.0 mm/sec from 0.04 to 13 ft/s (0.01 to 4 m/s); above 13 ft/s (4 m/s), the system has an accuracy of ±0.18% of rate.(1)



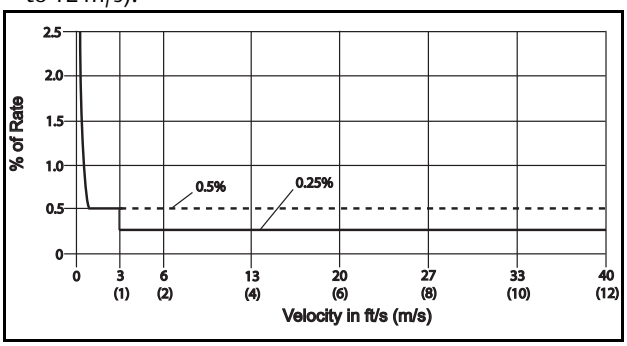
Rosemount 8711 sensor:
Standard system accuracy is ±0.25% of rate ±2.0 mm/sec from 0.04 to 39 ft/s (0.01 to 12 m/s).

Optional high accuracy is ±0.15% of rate ±1.0 mm/sec from 0.04 to 13 ft/s (0.01 to 4 m/s); above 13 ft/s (4 m/s), the system has an accuracy of ±0.18% of rate.



Rosemount 8721 sensor:
Standard system accuracy is ±0.5% of rate from 1 to 39 ft/s (0.3 to 12 m/s); between 0.04 and 1.0 ft/s (0.01 and 0.3 m/s), the system has an accuracy of ±0.005 ft/s (0.0015 m/s).

Optional high accuracy is ±0.25% of rate from 3 to 39 ft/s (1 to 12 m/s).



Other manufacturers' sensors:
When calibrated in the Rosemount Flow Facility, system accuracies as good as 0.5% of rate can be attained.

There is no accuracy specification for other manufacturers' sensors calibrated in the process line.

(1) For Sensor sizes greater than 12 in. (300 mm) the high accuracy is ±0.25% of rate from 3 to 39 ft/sec (1 to 12 m/sec).

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Analog output effect

Analog output has the same accuracy as frequency output plus an additional ±4μA.

Repeatability

±0.1% of reading

Response time (analog output)

50 ms max response time to step change in input

Stability

±0.1% of rate over six months

Ambient temperature effect

±0.25% change over operating temperature range

EMC compliance

Requires Combo Cable to meet EN61326-1: 2006 (Industrial) electromagnetic compatibility (EMC) for process and laboratory apparatus.

8732 Physical specifications

Materials of construction

Standard housing

Low copper aluminum
Type 4X and IEC 60529 IP66

Optional housing

316/316L unpainted, option code SH
Type 4X and IEC 60529 IP66

Paint
Polyurethane

Cover gasket
Buna-N

Electrical connections

Two $^1/_2$–14 NPT connections provided on the transmitter housing (optional third connection available). PG13.5 and CM20 adapters are available. Screw terminals provided for all connections. Power wiring connected to transmitter only. Integrally mounted transmitters are factory wired to the sensor.

Vibration rating

3G per IEC 61298

Transmitter weight

Approximately 7 lbs. (3.2 kg). Add 1 pound (0.5 kg) for Option Code M4/M5.

8712 Physical specifications

Materials of construction

Housing
Low-copper aluminum, Type 4X and IEC 60529 IP66

Paint
Polyurethane

Cover gasket
Silicone Rubber

Electrical connections

Four $^1/_2$–14 NPT connections provided on the base of the transmitter. Screw terminals provided for all of the connections. Power wiring connected to the transmitter only. Remote mounted transmitters require only a single conduit connection to the sensor.

Transmitter weight

Transmitter approximately 9 lbs. (4 kg). Add 1 lb (0.5 kg) for local operator interface.

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Rosemount 8712H transmitter specifications

Functional specifications

Sensor compatibility

Compatible with 8707 High-Signal sensor only.

Sensor coil resistance

12 Ω maximum

Transmitter coil drive current

5 A

Flow rate range

Capable of processing signals from fluids that are traveling between 0.04 and 30 ft/s (0.01 to 10 m/s) for both forward and reverse flow in all sensor sizes. Full scale continuously adjustable between –30 and 30 ft/s (–10 to 10 m/s).

Conductivity limits

Process liquid must have a conductivity of 50 microsiemens/cm (50 micromhos/cm). Excludes the effect of interconnecting cable length in remote mount transmitter installations.

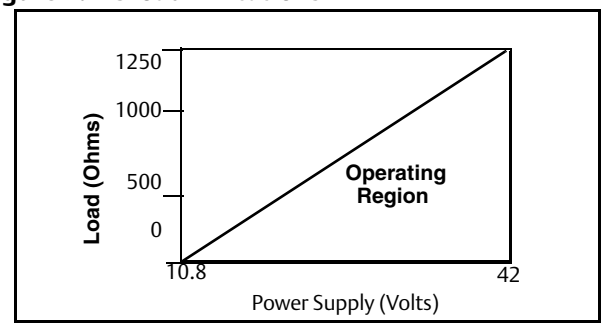
Power supply

120 V AC, 50–60 Hz

DC load limitations (analog output)

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

Figure 7. DC load limitations



R_{max} = $41.7(V_{ps} - 10.8)$
V_{ps} = Power Supply Voltage (Volts)
R_{max} = Maximum Loop Resistance (Ohms)

Note
HART Communication requires a minimum loop resistance of 250 ohms.

Power consumption

300 watts maximum

Ambient temperature limits

Operating
–20 to 130 °F (–29 to 54 °C)

Storage
–40 to 176 °F (–40 to 80 °C)

Humidity limits

0–95% RH at 120 °F (49 °C), decreases linearly to 10% RH at 130 °F (54 °C)

Enclosure ratings

Type 4X, IP66

Output signals

Analog output adjustment
4–20 mA, switch-selectable as internally or externally powered 5 to 30 VDC; 0 to 1000 Ω load.

Engineering units—lower and upper range values are user-selectable.

Output automatically scaled to provide 4 mA at lower range value and 20 mA at upper range value.

Full scale continuously adjustable between -30 and 30 ft/s (-10 to 10 m/sec), 1 ft/s (0.3 m/s) minimum span.

HART Communications, digital flow signal, superimposed on 4–20 mA signal, available for control system interface. 250 Ω required for HART communications.

Scalable frequency adjustment
0-1000 Hz, externally powered at 5 to 24 V DC, transistor switch closure up to 5.75 W. Pulse value can be set to equal desired volume in selected engineering units. Pulse width adjustable from 0.5 to 100 ms. Local operator interface automatically calculates and displays maximum allowable output frequency.

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Auxiliary functions

Externally powered at 5 to 24 V DC, transistor switch closure up to 3 W to indicate either:

Reverse flow:
Activates switch closure output when reverse flow is detected. The reverse flow rate is displayed.

Zero flow:
Activates switch closure output when flow goes to 0 ft/s.

Positive Zero Return (PZR)[(1)]
Forces outputs of the transmitter to the zero flow rate signal level. Activated by applying a contact closure.

Security lockout

Security lockout jumper on the electronics board can be set to deactivate all LOI and HART-based communicator functions to protect configuration variables from unwanted or accidental change.

Output testing

Analog output test
Transmitter may be commanded to supply a specified current between 3.75 and 23.25 mA

Pulse output test
Transmitter may be commanded to supply a specified frequency between 1 and 1000 Hz

Turn-on time

30 minutes to rated accuracy from power up, 5 seconds from power interruption

Start-up time

0.2 seconds from zero flow

Low Flow cut-off

Adjustable between 0.04 and 1.0 ft/s (0.012 to 0.304 m/s). Below selected value, output is driven to the zero flow rate signal level.

Overrange capability

Signal output will remain linear until 110% of upper range value. The signal output will remain constant above these values. Out of range message displayed on LOI and the Field Communicator.

Damping

Adjustable between 0.2 and 256 seconds

Sensor compensation

Rosemount sensors are flow-calibrated and assigned a calibration factor at the factory. The calibration factor is entered into the transmitter, enabling interchangeability of sensors without calculations or a compromise in accuracy.

(1) PZR is internally powered on the 8712H transmitter.

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Performance specifications

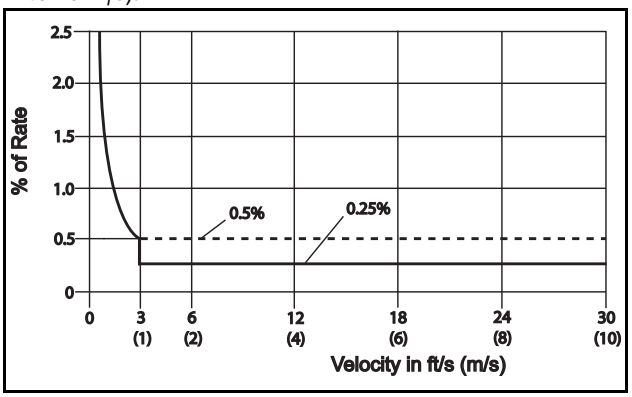
(System specifications are given using the frequency output and with the unit at referenced conditions.)

Accuracy

Includes the combined effects of linearity, hysteresis, repeatability, and calibration uncertainty.

Rosemount high signal flowmeter system
System accuracy is ±0.5% of rate from 3 to 30 ft/s (1 to 10 m/s); between 0.04 and 3.0 ft/s (0.01 and 0.3 m/s), the system has an accuracy of ±0.015 ft/s (0.005 m/s).

Optional high accuracy is ±0.25% of rate from 3 to 30 ft/s (1 to 10 m/s).



Total System Performance 1.6%

Analog output effect
Analog output has the same accuracy as frequency output plus an additional 0.1% of span.

Repeatability

±0.1% of reading

Response time

0.2 seconds maximum response to step change in input

Stability

±0.1% of rate over six months

Ambient temperature effect

±1% per 100 °F (57 °C)

Physical specifications

Materials of construction

Housing
Low-copper aluminum, Type 4X and IEC 60529 IP66

Paint
Polyurethane

Cover gasket
Silicone Rubber

Electrical connections

Four $^{1}/_{2}$–14 NPT connections provided on the base of the transmitter. Screw terminals provided for all of the connections. Power wiring connected to the transmitter only. Remote mounted transmitters require only a single conduit connection to the sensor.

Line power fuses
5 amp, Quick-acting Bussman AGC5 or equivalent.

Transmitter weight

Transmitter approximately 9 lb (4 kg). Add 1 lb (0.5 kg) for local operator interface.

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Rosemount 8705 / 8707 flanged sensor specifications

Functional specifications

Service

Conductive liquids and slurries

Line sizes

1/2–in. to 36-in. (15 mm to 900 mm) for Rosemount 8705

3–in. to 36-in. (80 mm to 600 mm) for Rosemount 8707

Sensor coil resistance

8705: 7 - 16 Ω

8707: 1.5 - 10 Ω

Interchangeability

Rosemount 8705 Sensors are interchangeable with 8732, and 8712 Transmitters. Rosemount 8707 High-Signal Sensors are interchangeable with 8732, 8712, and 8712H High-Signal Transmitters. System accuracy is maintained regardless of line size or optional features. Each sensor nameplate has a sixteen-digit calibration number that can be entered into a transmitter through the Local Operator Interface (LOI) or the Field Communicator. In a FOUNDATION fieldbus environment, the 8732 can be configured using the DeltaV™ fieldbus configuration tool or another FOUNDATION fieldbus configuration device. No further calibration is necessary.

Upper range limit

39.37 ft/s (12 m/s)

Process temperature limits

PTFE Lining
–20 to 350 °F (–29 to 177 °C)

ETFE Lining
–20 to 300 °F (–29 to 149 °C)

PFA Lining
-20 to 350 °F (-29 to 177 °C)

Polyurethane Lining
0 to 140 °F (–18 to 60 °C)

Neoprene Lining
0 to 176 °F (–18 to 80 °C)

Linatex lining
0 to 158 °F (–18 to 70 °C)

Extreme service polyurethane lining
0 to 200 °F (–18 to 93 °C)

Extreme service PFA lining
-20 to 350 °F (–29 to 177 °C)

Ambient temperature limits

–20 to 150 °F (–29 to 65 °C)

Pressure limits

See Table 20, Table 21 and Table 22

Vacuum limits

PTFE lining
Full vacuum to 350 °F (177 °C) through 4-in. (100 mm) line sizes. Consult factory for vacuum applications with line sizes of 6 inches (150 mm) or larger.

All other standard sensor lining materials
Full vacuum to maximum material temperature limits for all available line sizes.

Submergence protection[(1)]

IP68. Continuous submergence to 30 ft. (10 m). Requires conduit entries of the sensor remote junction box be properly sealed to prevent water ingress. This requires the user to install sealed IP68 approved cable glands, conduit connections, or conduit plugs. For more details on proper installation techniques for an IP68 / submersible application, reference Rosemount Technical Document 00840-0100-4750 available on www.Rosemount.com.

Conductivity limits

Process liquid must have a minimum conductivity of 5 microsiemens/cm (5 micromhos/cm) or greater for 8705. Process liquid must have a conductivity of 50 microsiemens/cm (50 micromhos/cm) for 8707 when used with 8712H, 5 microsiemens/cm when used with other transmitters.

(1) Available for Rosemount 8705 Sensors only.

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Table 20. Temperature vs. pressure limits[1]

Sensor temperature vs. pressure limits for ASME B16.5 Class Flanges (1/2-in. to 36-in. line sizes)[2]					
		Pressure			
Flange material	**Flange rating**	**@ -20 to 100 °F (-29 to 38 °C)**	**@ 200 °F (93 °C)**	**@ 300 °F (149 °C)**	**@ 350 °F (177 °C)**
Carbon Steel	Class 150	285 psi	260 psi	230 psi	215 psi
	Class 300	740 psi	675 psi	655 psi	645 psi
	Class 600 [3]	1000 psi	800 psi	700 psi	650 psi
	Class 600 [4]	1480 psi	1350 psi	1315 psi	1292 psi
	Class 900	2220 psi	2025 psi	1970 psi	1935 psi
	Class 1500	3705 psi	3375 psi	3280 psi	3225 psi
	Class 2500	6170 psi	5625 psi	5470 psi	5375 psi
304 Stainless Steel	Class 150	275 psi	235 psi	205 psi	190 psi
	Class 300	720 psi	600 psi	530 psi	500 psi
	Class 600 [5]	1000 psi	800 psi	700 psi	650 psi
	Class 600 [6]	1440 psi	1200 psi	1055 psi	997 psi
	Class 900	2160 psi	1800 psi	1585 psi	1497 psi
	Class 1500	3600 psi	3000 psi	2640 psi	2495 psi
	Class 2500	6000 psi	5000 psi	4400 psi	4160 psi

(1) Liner temperature limits must also be considered. Polyurethane, Linatex, and Neoprene have temperature limits of 140 °F (60 °C), 158 °F (70 °C), and 176 °F (80 °C)

(2) 30-in. and 36-in. AWWA C207 Class D rated to 150 psi at atmospheric temperature.

(3) Option Code C6.

(4) Option Code C7.

(5) Option Code S6.

(6) Option Code S7.

Table 21. Temperature vs. pressure limits[1]

Sensor temperature vs. pressure limits for AS2129 Table D and E Flanges (4-in. to 24-in. line sizes)					
		Pressure			
Flange Material	**Flange Rating**	**@ -200 to 50 °C (-320 to 122 °F)**	**@ 100 °C (212 °F)**	**@ 150 °C (302 °F)**	**@ 200 °C (392 °F)**
Carbon Steel	D	101.6 psi	101.6 psi	101.6 psi	94.3 psi
	E	203.1 psi	203.1 psi	203.1 psi	188.6 psi

(1) Liner temperature limits must also be considered. Polyurethane, Linatex, and Neoprene have temperature limits of 140 °F (60 °C), 158 °F (70 °C), and 176 °F (80 °C)

Table 22. Temperature vs. pressure limits[1]

Sensor temperature vs. pressure limits for EN 1092-1 Flanges (15 mm to 600 mm line sizes)					
		Pressure			
Flange material	**Flange rating**	**@ -196 to 50 °C (-320 to 122 °F)**	**@ 100 °C (212 °F)**	**@ 150°C (302 °F)**	**@ 175°C (347 °F)**
Carbon Steel	PN 10	10 bar	10 bar	9.7 bar	9.5 bar
	PN 16	16 bar	16 bar	15.6 bar	15.3 bar
	PN 25	25 bar	25 bar	24.4 bar	24.0 bar
	PN 40	40 bar	40 bar	39.1 bar	38.5 bar
304 Stainless Steel	PN 10	9.1 bar	7.5 bar	6.8 bar	6.5 bar
	PN 16	14.7 bar	12.1 bar	11.0 bar	10.6 bar
	PN 25	23 bar	18.9 bar	17.2 bar	16.6 bar
	PN 40	36.8 bar	30.3 bar	27.5 bar	26.5 bar

(1) Liner temperature limits must also be considered. Polyurethane, Linatex, and Neoprene have temperature limits of 140°F, 158°F, and 176°F, respectively.

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Physical specifications

Non-wetted materials

Sensor pipe
Type 304/304L SST or Type 316/316L SST

Flanges
Carbon steel, Type 304/304L SST, or Type 316/316L SST

Coil housing
Rolled carbon steel

Optional coil housing
316/316L unpainted, option code SH

Paint
Polyurethane

Process wetted materials

Lining
PFA, PTFE, ETFE, Polyurethane, Neoprene, Linatex, Extreme Service Polyurethane

Electrodes
316L SST, Nickel Alloy 276 (UNS N10276), Tantalum,

80% Platinum-20% Iridium, Titanium

Flat-faced flanges

Flat-faced flanges are manufactured with full-face liners. Available in Neoprene and Linatex only.

Process connections

ASME B16.5

1/2-in. to 24-in. (Class 150)

1/2-in. to 24-in. (Class 300)

1/2-in. to 24-in. (Class 600)(1)

1-in. to 12-in. (Class 900)(2)

1 1/2-in. to 12-in. (Class 1500)(2)

1 1/2-in. to 6-in. (Class 2500)(2)

AWWA C207 Class D
30-in. and 36-in.

MSS SP44 (ASME B16.47)
30-in. to 36-in. (Class 150)

30-in. only (Class 300)

EN 1092-1
PN10: 8-in. to 36-in. (200 mm to 900mm)

PN16: 4 -in. to 36-in. (100 mm to 900mm)

PN 25: 8-in. to 36-in. (200 mm to 900mm)

PN40: 1/2-in. to 36-in. (15 mm to 900mm)

AS2129 Table D and E
1/2-in. to 36-in. (15 mm to 900 mm)

AS4087
2-in. to 24-in. (50 mm to 600 mm) (PN16, PN21, PN35)

JIS B2220
1/2-in. to 8-in. (15 mm to 200 mm) (10K, 20K, 40K)

Electrical connections

Two 1/2–14 NPT connections with number 8 screw terminals are provided in the terminal enclosure for electrical wiring.

Reference electrode

An optional reference electrode can be installed similarly to the measurement electrodes through the sensor lining on 8705 sensors. It is available in all electrode materials.

Grounding rings - (optional)

Optional grounding rings can be installed between the flange and the sensor face on both ends of the sensor. Single ground rings can be installed on either end of the sensor. They have an I.D. slightly larger than the sensor I.D. and an external tab to attach ground wiring. Grounding rings are available in 316L SST, Nickel Alloy 276 (UNS N10276), titanium, and tantalum.

Lining protectors - (optional)

Optional lining protectors can be installed between the flange and the sensor face on both ends of the sensor. The leading edge of lining material is protected by the lining protector; lining protectors cannot be removed once they are installed. Lining protectors are available in 316L SST, Nickel Alloy 276 (UNS N10276), and titanium.

Dimensions

See Figure 10 and Table 34.

Weight

See dimensional tables starting with Table 31.

(1) For PTFE and ETFE, maximum working pressure is derated to 1000 psig.

(2) For Class 900 and higher flange ratings,.liner selection is limited to resilient liners.

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Rosemount 8711 wafer sensor specifications

Specifications

Functional specifications

Service

Conductive liquids and slurries

Line sizes

0.15-in. to 8-in. (4 mm to 200 mm)

Sensor coil resistance

8711: 10 - 18 Ω

Interchangeability

Rosemount 8711 Sensors are interchangeable with 8732 and 8712 Transmitters. System accuracy is maintained regardless of line size or optional features. Each sensor nameplate has a sixteen-digit calibration number that can be entered into a transmitter through the Local Operator Interface (LOI) or the Field Communicator. In a digital fieldbus environment, the 8732 can be configured using any compatible digital fieldbus configuration tool. No further calibration is necessary.

Upper range limit

39.37 ft/s (12 m/s)

Process temperature limits

ETFE lining
-20 to 300 °F (–29 to 149 °C)

PTFE lining
-20 to 350 °F (-29 to 177 °C)

PFA Lining
-20 to 200 °F (-29 to 93 °C)

Ambient temperature limits

–20 to 150 °F (–29 to 65 °C)

Maximum safe working pressure at 100 °F (38 °C)

ETFE lining
Full vacuum to 740 psi (5.1 MPa)

PTFE lining
Full vacuum through 4-in. (100 mm) line sizes. Consult factory for vacuum applications with line sizes of 6-in. (1450 mm) or larger.

PFA lining
Full vacuum to 285 psi (1.96 MPa)

Conductivity limits

Process liquid must have a minimum conductivity of 5 microsiemens/cm (5 micromhos/cm) or greater for 8711.

Physical specifications

Non-wetted materials

Sensor body
303 SST
CF3M or CF8M
Type 304/304L

Coil housing
Rolled carbon steel
Cast carbon steel

Paint
Polyurethane

Process-wetted materials

Lining
ETFE, PTFE and PFA

Electrodes
316L SST, Nickel Alloy 276 (UNS N10276), Tantalum, 80% Platinum—20% Iridium, Titanium

Process connections

Mounts between these flange configurations
ASME B16.5: Class 150, 300
EN 1092-1: PN10, PN16, PN25, PN40

JIS B2220: 10K, 20K,
AS4087: PN16, PN21, PN35

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Studs, nuts, and washers[(1)]
ASME B16.5

0.15-in. to 1-in. (4 mm to 25 mm):
316 SST, ASTM A193, Grade B8M, Class 1 threaded mounting studs; ASTM A194, Grade 8M heavy hex nuts; SAE per ANSI B18.2.1, Type A, Series N flat washers.

$1^1/_2$-in. to 8-in. (40 mm to 200 mm):
CS, ASTM A193, Grade B7, Class 1 threaded mounting studs; ASTM A194, Grade 2H heavy hex nuts; SAE per ANSI B18.2.1, Type A, Series N flat washers; all items clear, chromate zinc-plated.

EN 1092-1

4 mm to 25 mm (0.15-in. to 1-in.):
316 SST ASTM A193, Grade B8M Class 1 threaded mounting studs; ASTM A194, Grade 8M, DIN 934 H=D, metric heavy hex nuts; 316 SST, A4, DIN 125 flat washers.

40 mm to 200 mm ($1^1/_2$-in. to 8-in.):
CS, ASTM A193, Grade B7 threaded mounting studs; ASTM A194, Grade 2H, DIN 934 H=D, metric heavy hex nuts; CS, DIN 125 flat washers; all items yellow zinc-plated.

Electrical connections

Two $^1/_2$–14 NPT connections with number 8 screw terminals are provided in the terminal enclosure for electrical wiring.

Reference electrode

An optional reference electrode can be installed similarly to the measurement electrodes through the sensor lining. It is available in all electrode materials.

Grounding rings

Optional grounding rings can be installed between the flange and the sensor face on both ends of the sensor. They have an I.D. slightly smaller than the sensor I.D. and an external tab to attach ground wiring. Grounding rings are available in 316L SST, Nickel Alloy 276 (UNS N10276), titanium, and tantalum.

Dimensions and weight

See Figure 17, Figure 24, and Table 23.

(1) 0.15 and 0.30 in. (4 and 80 mm) sensors mount between $^1/_2$-in. flange.

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Rosemount 8721 sanitary sensor specifications

Functional specifications

Service

Conductive liquids and slurries

Line sizes

1/2-in. to 4-in. (15 mm to100 mm)

Sensor compatibility and interchangeability

The Rosemount 8721 Sensors are interchangeable with Rosemount 8732 and 8712 transmitters. System accuracy is maintained regardless of line size or optional features.

Each sensor label has a 16 digit calibration number that can be entered into the transmitter through the Local Operator Interface (LOI) or the Field Communicator. In a digital fieldbus environment, the 8732 can be configured using compatible digital fieldbus configuration tool. No further calibration is necessary.

Conductivity limits

Process liquid must have a minimum conductivity of 5 microsiemens/cm (5 micromhos/cm) or greater. Excludes the effect of interconnecting cable length in remote mount transmitter installations.

Sensor coil resistance

5Ω to 10Ω (line size dependent)

Flow rate range

Capable of processing signals from fluids that are traveling between 0.04 and 39 ft/s (0.01 to 12 m/s) for both forward and reverse flow in all sensor sizes. Full scale continuously adjustable between –39 and 39 ft/s (–12 to 12 m/s).

Sensor ambient temperature limits

14 to 140 °F (–15 to 60 °C)

Process temperature limits

PFA lining
-20 to 350 °F (-29 to 177 °C)

Pressure limits

Line size	Max working pressure	CE Mark max. working pressure
1/2 (15)	300 psi (20.7 bar)	300 psi (20.7 bar)
1 (25)	300 psi (20.7 bar)	300 psi (20.7 bar)
1 1/2 (40)	300 psi (20.7 bar)	300 psi (20.7 bar)
2 (50)	300 psi (20.7 bar)	300 psi (20.7 bar)
2 1/2 (65)	300 psi (20.7 bar)	240 psi (16.5 bar)
3 (80)	300 psi (20.7 bar)	198 psi (13.7 bar)
4 (100)	210 psi (14.5 bar)	148 psi (10.2 bar)

Vacuum limits

Full vacuum at maximum lining material temperature; consult factory.

Submergence protection (sensor)

IP68. Continuous submergence to 30 ft. (10 m). Requires conduit entries of the sensor remote junction box be properly sealed to prevent water ingress. This requires the use of sealed IP68 approved cable glands, conduit connections, or conduit plugs. For more details on proper installation techniques for an IP 68/submersible application, reference Rosemount Technical Document 00840-0100-4750 available on www.rosemount.com.

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Physical specifications

Mounting

Integrally mounted transmitters are factory-wired and do not require interconnecting cables. The transmitter can rotate in 90° increments. Remote mounted transmitters require only a single conduit connection to the sensor.

Non-wetted materials

Sensor
304 Stainless Steel (wrapper), 304 Stainless Steel (pipe)

Terminal junction box
Cast aluminum, polyurethane coated
Optional: 304 Stainless Steel

Paint
Polyurethane

Weight

Table 23. 8721 Sensor weight

Line size	Sensor only	008721-0350 Tri-clamp fitting (each)
1/2	4.84 lbs (2.20 kg)	0.58 lbs (0.263 kg)
1.0	4.52 lbs (2.05 kg)	0.68 lbs (0.309 kg)
1 1/2	5.52 lbs (2.51 kg)	0.88 lbs (0.400 kg)
2.0	6.78 lbs (3.08 kg)	1.30 lbs (0.591 kg)
2 1/2	8.79 lbs (4.00 kg)	1.66 lbs (0.727 kg)
3.0	13.26 lbs (6.03 kg)	2.22 lbs (1.01 kg)
4.0	21.04 lbs (9.56 kg)	3.28 lbs (1.49 kg)

Aluminum remote junction box
Approximately 1 lb. (0.45 kg)

SST remote junction box
Approximately 2.5 lbs. (1.13 kg)

Process wetted materials (sensor)

Liner
PFA with Ra < 32µ in. (0.81 µm)

Electrodes
316L SST with Ra < 15µ in. (0.38 µm)

Nickel Alloy 276 (UNS N10276) with Ra < 15µ in. (0.38 µm)

80% Platinum-20% Iridium with Ra < 15µ in. (0.38 µm)

Process connections

The Rosemount 8721 Sanitary Sensor is designed using a standard IDF fitting as the basis for providing a flexible, hygienic interface for a variety of process connections. The Rosemount 8721 Sensor has the threaded or “male” end of the IDF fitting on the ends of the base sensor. The sensor can be directly connected with user supplied IDF fittings and gaskets. If other process connections are needed, the IDF fittings and gaskets can be provided and welded directly into the sanitary process tubing, or can be supplied with adapters to standard Tri-Clamp® process connections. All connections are PED compliant for group 2 fluids.

Tri-clamp sanitary coupling

IDF Sanitary Coupling (screw type)
IDF specification per BS4825 part 4

ANSI Weld Nipple

DIN 11850 Weld Nipple

DIN 11851 (imperial and metric)

DIN 11864-1 form A

DIN 11864-2 form A

SMS 1145

Cherry-Burrell I-Line

Process connection material

316L Stainless Steel with Ra < 32µ in. (0.81µm)

Optional Electro-polished Surface Finish with Ra < 15µ in.

(0.38µ m)

Process connection gasket material

Silicone

EPDM

Viton

Electrical connections

Two 1/2–14 NPT connections with number 8 screw terminals are provided in the terminal enclosure for electrical wiring.

Sensor dimensions

Refer to Figure 17.

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Product certifications

Approved manufacturing locations

Rosemount Inc. — Eden Prairie, Minnesota, USA

Fisher-Rosemount Technologias de Flujo, S.A. de C.V. — Chihuahua Mexico

Emerson Process Management Flow — Ede, The Netherlands

Asia Flow Technology Center — Nanjing, China

European directive information

The EC declaration of conformity for all applicable European directives for this product can be found on our website at www.rosemount.com. A hard copy may be obtained by contacting your local sales office.

ATEX directive

Rosemount Inc. complies with the ATEX Directive.

Type n protection type in accordance with EN50 021

⚠ • Closing of entries in the device must be carried out using the appropriate EEx e or EEx n metal cable gland and metal blanking plug or any appropriate ATEX approved cable gland and blanking plug with IP66 rating certified by an EU approved certification body.

For Rosemount 8732 transmitters:

Complies with Essential Health and Safety Requirements:
EN 60079-0: 2006
EN 60079-1: 2007
EN 60079-7: 2007
EN 60079-11: 2007
EN 60079-15: 2005
EN 61241-0: 2004
EN 61241-1: 2006

For Rosemount 8712 transmitters:

Complies with Essential Health and Safety Requirements:
EN 60079-15: 2003

For Rosemount 8700 Series Sensors:

Complies with Essential Health and Safety Requirements:
EN 61241-0: 2006
EN 61241-1: 2004

European Pressure Equipment Directive (PED) (97/23/EC)

Rosemount 8705 and 8707 Magnetic Flowmeter Sensors in line size and flange combinations:

Line Size: $1^1/_2$ in. to 24-in. with all (excluded $2^1/_2$-ft. and 5-ft.) EN 1092-1 flanges and ASME Class150 and ASME Class 300 flanges. Also available with ASME Class 600 flanges in limited line sizes.

Line Size: 30-in. and 36-in. with AWWA Class D
Certificate of Assessment - EC No. PED-H-100
Module H Conformity Assessment

Rosemount 8711 Magnetic Flowmeter Sensors line sizes: $1^1/_2$-in., 2-in., 3-in., 4-in., 6-in., and 8-in.

Certificate of Assessment - EC No. PED-H-100
Module H Conformity Assessment

Rosemount 8721 Sanitary Magmeter Sensors in line sizes of $1^1/_2$-in. and larger:

Module A Conformity Assessment

All other Rosemount 8705/8707/8711/8721 Sensors — in line sizes of 1-in. and less: sound engineering practice

Sensors that are SEP are outside the scope of PED and cannot be marked for compliance with PED.
Mandatory CE-marking for sensors in accordance with Article 15 of the PED can be found on the sensor body (CE 0575).
Sensor category I is assessed for conformity per module A procedures.
Sensor categories II – III, use module H for conformity assessment procedures.

Electro Magnetic Compatibility (EMC) (2004/108/EC)

Model 8732 and 8712 EN 61326: 2006
Installed signal wiring should not be run together and should not be in the same cable tray as AC power wiring.
Device must be properly grounded or earthed according to local electric codes.
Rosemount combination cable model number 08732-0753-1003 (ft) or 08732-0753-2004 (m) is required to be used to meet EMC requirements.

Low voltage directive (2006/95/EC)

Model 8732 and 8712 - EN 61010 -1: 2001

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Other important guidelines

Only use new, original parts.
To prevent the process medium escaping, do not unscrew or remove process flange bolts, adapter bolts or bleed screws during operation.
Maintenance shall only be done by qualified personnel.

CE Marking

Compliance with all applicable European Union Directives.
(Note: CE Marking is not available on Rosemount 8712H).

IECEx Certificates

C-Tick Marking

Rosemount Inc. complies with the following IEC Requirements.

For Rosemount 8732 transmitters:
IEC 60079-0: 2004
IEC 60079-0: 2007
IEC 60079-1: 2007
IEC 60079-11: 2006
IEC 60079-15: 2005
IEC 60079-7: 2006
IEC 61241-0: 2004
IEC 61241-1: 2004

For Rosemount 8712 transmitters:
IEC 60079-0: 2004
IEC 60079-15: 2005-03

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Safety approval offering

The Rosemount 8700 Series Magnetic Flowmeters offer many different hazardous locations certifications. The table below provides an overview of the available hazardous area approval options. Equivalent hazardous locations certifications for sensor and transmitter must match in integrally mounted magnetic flowmeter systems. Remote mounted magnetic flowmeter systems do not require matched hazardous location certifications. For complete information about the hazardous area approval codes listed, see Safety approval certifications starting on page 53.

Table 24. Factory Mutual (FM) approvals offering

Transmitter	8732			8712(1)			8712H(1)
Sensor	**8705**	**8707**	**8711**	**8705**	**8707**	**8711**	**8707**
Safety approval code							
Ordinary Locations							
Transmitter	NH	NH	NH	NH	NH	NH	NH
Sensor	NH	NH	NH	NH	NH	NH	NH
Suitable for Class I, Division 1							
Explosion-Proof							
Trans: Groups C, D T6	E5(2)	-	E5	-	-	-	-
Sensor: Groups C, D T6	E5(2)	-	E5	-	-	-	-
Explosion-Proof with Intrinsically Safe Output							
Trans: Groups C, D T6	E5(2)(3)	-	E5(3)	-	-	-	-
Sensor: Groups C, D T6	E5(2)	-	E5	-	-	-	-
Suitable for Class I, Division 2							
Non-Flammable Fluids							
Trans: Groups A,B,C,D T4	N0	N0	N0	N0	N0	N0	N0
Sensor: Groups A,B,C,D T5	N0	N0(4)	N0	N0	N0(4)	N0	N0(4)
Flammable Fluids							
Trans: Groups A,B,C,D T4	N5	N5	N5	N5	N5	N5	N5
Sensor: Groups A,B,C,D T5	N5	N5(4)	N5	N5	N5(4)	N5	N5(4)
Non-Flammable Fluids with Intrinsically Safe Output							
Trans: Groups A,B,C,D T4	N0(3)	N0(3)	N0(3)	-	-	-	-
Sensor: Groups A,B,C,D T5	N0	N0(4)	N0	-	-	-	-
Other certifications	**Product certification code(5)**						
Canadian Registration Number (CRN)	CR	CR	Standard	CR	CR	Standard	CR
European Pressure Equipment Directive (PED)	PD	-	PD	PD	-	PD	-
NSF 61 Drinking Water	DW	-	DW	DW	-	DW	-

(1) Remote Transmitter Only.

(2) Available in line sizes 1/2-in. to 8-in. (15 mm to 200 mm) only.

(3) For I.S. Output, code F or P must be ordered.

(4) 8707 Sensor has Temp Code - T3C.

(5) Product Certification Codes are added to the Sensor model number only.

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Table 25. Canadian Standards Association (CSA) approvals offering

Transmitter	8732			8712[1]			8712H[1]
Sensor	**8705**	**8707**	**8711**	**8705**	**8707**	**8711**	**8707**
Safety approval code							
Ordinary Locations							
Transmitter	NH	-	NH	NH	-	NH	-
Sensor	NH	-	NH	NH	-	NH	-
Suitable for Class I, Division 2							
Non-Flammable Fluids							
Trans: Groups A,B,C,D T4	N0	N0	N0	N0	N0	N0	N0
Sensor: Groups A,B,C,D T5	N0	N0[2]	N0	N0	N0[2]	N0	N0[2]
Other certifications	**Product certification code[3]**						
Canadian Registration Number (CRN)	CR	CR	Standard	CR	CR	Standard	CR
European Pressure Equipment Directive (PED)	PD	-	PD	PD	-	PD	-
NSF 61 Drinking Water	DW	-	DW	DW	-	DW	-

(1) Remote Transmitter Only.

(2) 8707 Sensor has Temp Code - T3C.

(3) Product Certification Codes are added to the Sensor model number only.

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Table 26. ATEX approvals offering

Transmitter	8732		8712[1]	
Sensor	**8705**	**8711**	**8705**	**8711**
Safety approval code				
Non-hazardous				
Trans: LVD and EMC	NH	NH	NH	NH
Sensor: LVD and EMC	NH	NH	NH	NH
Equipment Category 2				
Gas Group IIB				
Trans: Ex d IIB T6	ED	ED	-	-
Sensor: Ex e ia IIC T3...T6	KD[2]	KD[2]	-	-
Gas Group IIC				
Trans: Ex d IIC T6	E1	E1	-	-
Sensor: EEx e ia IIC T3...T6	E1	E1	-	-
Gas Group IIB with intrinsically safe output				
Trans: Ex de [ia] IIB T6	ED[3]	ED[3]	-	-
Sensor: EEx e ia IIC T3...T6	KD[2]	KD[2]	-	-
Gas Group IIC with intrinsically safe output				
Trans: Ex de [ia] IIC T6	E1[3]	E1[3]	-	-
Sensor: EEx e ia IIC T3...T6	E1	E1	-	-
Equipment Category 3				
Gas Group IIC				
Trans: Ex nA nL IIC T4	N1	N1	N1	N1
Sensor: Ex nA [L] IIC T3...T6	N1	N1	N1	N1
Equipment Category 1 - Dust Environment				
Dust environment only				
Trans: Dust	ND	ND	-	-
Sensor: Dust	ND	ND	-	-
Other certifications	**Product certification code[4]**			
Canadian Registration Number (CRN)	CR	Standard	CR	Standard
European Pressure Equipment Directive (PED)	PD	PD	PD	PD
NSF 61 Drinking Water	DW	DW	DW	DW

(1) Remote Transmitter Only.

(2) With integral mount transmitter, approval is valid for Gas Group IIB.

(3) For I.S. Output, Code F or P must be ordered.

(4) Product Certification Codes are added to the Sensor model number only.

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Table 27. IECEx approvals offering

Transmitter	8732[1]		8712	
Sensor	**8705**	**8711**	**8705**	**8711**
Safety approval code				
Non-hazardous				
Trans: Low Voltage and EMC	NH	NH	NH	NH
Sensor: Low Voltage and EMC	NH	NH	NH	NH
Suitable for Zone 1				
Gas Group IIB				
Trans: Ex d IIB T6	EF	EF		
Gas Group IIC				
Trans: Ex d IIC T6	E7	E7		
Gas Group IIB with intrinsically safe output				
Trans: Ex de [ia] IIB T6	EF[2]	EF[3]		
Gas Group IIC with intrinsically safe output				
Trans: Ex de [ia] IIC T6	E1[3]	E1[3]		
Suitable for Zone 2				
Gas Group IIC				
Trans: Ex nA nL IIC T4	N7	N7	N7	N7
Suitable for Zone 20				
Dust Environment Only				
Trans: Dust	NF	NF		
Other certifications	**Product certification code[3]**		**Product certification code[4]**	
Canadian Registration Number (CRN)	CR	Standard	CR	Standard
European Pressure Equipment Directive (PED)	PD	PD	PD	PD
NSF 61 Drinking Water	DW	DW	DW	DW

(1) Available in remote mount configuration only. Requires equivalent ATEX approval on the sensor.

(2) For I.S. Output, Code F or P must be ordered.

(3) Product Certification Codes are added to the Sensor model number only.

(4) Product Certification Codes are added to the Sensor model number only.

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Safety approval certifications

Equivalent Hazardous Location Certifications for sensor and transmitter must match in integrally-mounted magnetic flowmeter systems. Remote-mounted systems do not require matched hazardous location certification option codes.

8712 and 8732 transmitter approval information

North American certifications

Factory Mutual (FM)

Note
For intrinsically safe (IS) outputs on the 8732 output option code F or P must be selected.
Reference Rosemount Control Drawing 08732-1061
Lower ambient temperature of 8712 with LOI: -29 °C
Lower ambient temperature of 8732 with LOI: -20 °C

NH FM Ordinary Locations
General Purpose Fire and Shock
8712 (-40 °C ≤ Ta ≤ +40 °C)
8732 (-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66

N0 Non-incendive for Class I, Division 2
Groups A, B, C, D: T4
Dust-Ignition Proof Class II/III, Division 1
Groups E, F and G: T5
8712 (-40 °C ≤ Ta ≤ +40 °C)
8732 (-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66

N5 Non-incendive for Class I, Division 2
Groups A, B, C, D: T4
Dust-Ignition Proof Class II/III, Division 1
Groups E, F and G: T5
8712 (-40 °C ≤ Ta ≤ +40 °C)
8732 (-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66
Requires sensors with N5 Approval

E5 Explosion proof for Class I, Division 1
Groups C and D: T6; Factory Sealed
Non-Incendive for Class I, Division 2,
Groups A, B, C, and D: T4
Dust-Ignition Proof Class II/III, Division 1
Groups E, F and G: T5
8712 (-40 °C ≤ Ta ≤ +40 °C)
8732 (-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66

Canadian Standards Association (CSA)

Note
For intrinsically safe (IS) outputs on the 8732 output option code F or P must be selected.
Reference Rosemount Control Drawing 08732-1062
Lower ambient temperature of 8712 with LOI: -29 °C
Lower ambient temperature of 8732 with LOI: -20 °C

NH CSA Ordinary Locations
General Purpose Fire and Shock
8712 (-40 °C ≤ Ta ≤ 40 °C)
8732 (-50 °C ≤ Ta ≤ 60 °C)

N0 Non-incendive for Class I, Division 2
Groups A, B, C, and D: T4
Dust-Ignition Proof Class II/III, Division 1
Groups E, F and G: T5

8712 (-40 °C ≤ Ta ≤ +40 °C)
8732 (-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66

European certifications

ATEX

Note
For intrinsically safe (IS) outputs on the 8732 output option code F or P must be selected.

E1 ATEX Flameproof
8732 - Certificate No.: KEMA 07ATEX0073 X
⟨Ex⟩ II 2G Ex de IIC T6 or
with I.S. outputs
⟨Ex⟩ II 2 (1)G Ex de [ia] IIC T6
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
Vmax = 250 V AC or 42 V DC
CE0575

ED ATEX Flameproof
8732 - Certificate No.: KEMA 07ATEX0073 X
⟨Ex⟩ II 2G Ex de IIB or
with I.S. outputs
⟨Ex⟩II 2 (1) G Ex de [ia] IIB T6
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
V_{max} = 250 V AC or 42 V DC
CE 0575

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ND ATEX Dust

8732 - Certificate No.: KEMA 07ATEX0073 X
⟨Ex⟩ II 1D tD A20 IP66 T100 °C or with I.S. outputs
⟨Ex⟩ II (1) G [Ex ia] II C
without LOI (-50 °C ≤ Ta ≤ + 60 °C)
with LOI (-20 °C ≤ Ta ≤ + 60 °C)
V_{max} = 250 V AC or 42 V DC
CE 0575

Special conditions for safe use (KEMA 07ATEX0073 X):

If the Rosemount 8732 Flow Transmitter is used integrally with the Rosemount 8705 or 8711 Sensors, it shall be assured that the mechanical contact areas of the Sensor and Flow Transmitter comply with the requirements for flat joints according to standard EN/IEC 60079-1 clause 5.2.

The relation between ambient temperature, process temperature, and temperature class is to be taken from the table under (15 - description) above. (see Table 29)

The electrical data is to be taken from the summary under (15 - electrical data) above. (see Table 28)

If the Rosemount 8732 Flow Transmitter is used integrally with the Junction Box, it shall be assured that the mechanical contact areas of the Junction Box and Flow Transmitter comply with the requirements for flanged joints. Contact Rosemount Inc. for requirements and dimensions of Flanged Joints.

INSTALLATION INSTRUCTIONS:

The cable and conduit entry devices and blanking elements shall be of a certified flameproof type, suitable for the conditions of use and correctly installed. With the use of conduit, a certified stopping box shall be provided immediately to the entrance of the enclosure.
The cable and conduit entry devices and the closing elements shall be of a certified increased safety type, suitable for the conditions of use and correctly installed.
At ambient temperatures above 50 °C, the flow meter shall be used with heat resistant cables with a temperature rating of at least 90 °C.
A Junction Box in type of explosion protection increased safety “e” may be attached to the base of the Rosemount 8732 Flow Transmitter, permitting remote mounting of the Rosemount 8705 and 8711 Sensors.
The Junction Box is classified as II 2 G Ex e IIB T6 and certified under KEMA 07ATEX0073 X and KEMA 03ATEX2052X.

N1 ATEX Type n

8712 - ATEX Certificate No: BASEEFA 05ATEX0170X
⟨Ex⟩ II 3G EEx nA nL IIC T4 (Ta = -40 °C ≤ Ta ≤ + 60 °C)
V_{max} = 42 V DC
CE 0575

8732 - Certificate No: Baseefa 07ATEX0230X

⟨Ex⟩ II 3G Ex nA nL IIC T4 (HART)
⟨Ex⟩ II 3(1)G Ex nA nL [ia] IIC T4 (Digital Fieldbus)
without LOI (-50 °C ≤ Ta ≤ + 60 °C)
with LOI (-20 °C ≤ Ta ≤ + 60 °C)
V_{max} = 42 V DC
IP 66
CE 0575

Special conditions for safe use (x):

The apparatus is not capable of withstanding the 500V insulation test required by Clause 6.8.1 of EN 60079-15: 2005. This must be taken into account when installing the apparatus.

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International certifications

IECEx

Note
For intrinsically safe (IS) outputs on the 8732 output option code F or P must be selected.

E7 IECEx Flameproof
8732 - Certificate No.: KEM 07.0038X
Ex de IIC T6 Gb or Ex de [ia Ga] IIC T6
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
V_{max} = 250 V AC or 42 V DC

EF IECEx Flameproof
8732 - Certificate No.: KEM 07.0038X
Ex de IIB T6 Gb or Ex de [ia IIC Ga] IIB T6
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
V_{max} = 250 V AC or 42 V DC

NF IECEx Dust
8732 - Certificate No.: KEM 07.0038X
Ex tD A20 IP66 T 100 °C
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
V_{max} = 250 V AC or 42 V DC

Special conditions for safe use (KEM 07.0038X):
If the Rosemount 8732 Flow Transmitter is used integrally with the Rosemount 8705 or 8711 Sensors, it shall be assured that the mechanical contact areas of the Sensor and Flow Transmitter comply with the requirements for flat joints according to standard EN/IEC 60079-1 clause 5.2.

The relation between ambient temperature, process temperature, and temperature class is to be taken from the table under (15 - description) above. (see Table 29)

The electrical data is to be taken from the summary under (15 - electrical data) above. (see Table 28)

If the Rosemount 8732 Flow Transmitter is used integrally with the Junction Box, it shall be assured that the mechanical contact areas of the Junction Box and Flow Transmitter comply with the requirements for flanged joints according to standard EN/IEC 60079-1 clause 5.2.

INSTALLATION INSTRUCTIONS:
The cable and conduit entry devices and blanking elements shall be of a certified flameproof type, suitable for the conditions of use and correctly installed. With the use of conduit, a certified stopping box shall be provided immediately to the entrance of the enclosure.

N7 IECEx Type n
8712 -Certificate No: IECEx BAS 07.0062X
Ex nA nL IIC T4
with FISCO / FNICO output
Ex nA nL [ia] IIC T4
V_{max} = 42 V DC

8732 HART
Certificate No: IECEx BAS 07.0062X
Ex nA nL IIC T4
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
V_{max} = 250 V AC or 42 V DC

8732 digital fieldbus
Certificate No: IECEx BAS 07.0062X
Ex nA nL [ia] IIC T4 (-50 ≤ Ta ≤ +60 °C)
with LOI (-20 ≤ Ta ≤ +60 °C)
Vmax = 42 V DC

Special conditions for safe use (x):
The apparatus is not capable of withstanding the 500V insulation test required by Clause 6.8.1 of EN 60079-15: 2005. This must be taken into account when installing the apparatus.

NEPSI - China

Note
For intrinsically safe (IS) outputs on the 8732 output option code F or P must be selected.

E3 NEPSI Flameproof
8732 - Certificate No.: GYJ12.1495X
Ex de IIC T6 Gb or Ex de [ia Ga] IIC T6 Gb
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
V_{max} = 250 V AC or 42 V DC

EP NEPSI Flameproof
8732 - Certificate No.: GYJ12.1495X
Ex de IIB T6 Gb or Ex de [ia Ga] IIB T6 Gb
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
V_{max} = 250 V AC or 42 V DC

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INMETRO - Brazil

Note
For intrinsically safe (IS) outputs on the 8732 output option code F or P must be selected.

E2 INMETRO Flameproof
8732 - Certificate No.: NCC 12.1177 X
Ex de IIC T6 Gb IP66 or
Ex de [ia IIC Ga] IIC T6 Gb IP66
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
V_{max} = 250 V AC or 42 V DC

EB INMETRO Flameproof
8732 - Certificate No.: NCC 12.1177 X
Ex de IIB T6 Gb IP66 or
Ex de [ia IIC Ga] IIB T6 Gb IP66
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
V_{max} = 250 V AC or 42 V DC

Special conditions for safe use:
If the equipment needs maintenance, the company Emerson Process Management Brazil should be contacted for information about flameproof seals.

The integral assembly of the 8732 flow transmitter with 8711 or 8705 sensor is allowed only for processes where the maximum ambient temperature is 60 °C. For processes where the ambient temperature is above 60 °C, the assembly of the 8732 flow transmitter must be remote.

GOST - Russia

Note
For intrinsically safe (IS) outputs on the 8732 output option code F or P must be selected.

E8 GOST Flameproof
Certificate No.: 0558689
Ex de IIC or Ex de [ia] IIC T6
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
IP67

EM GOST Flameproof
Certificate No.: 0558689
Ex de IIB or Ex de [ia] IIB T6
without LOI (-50 °C ≤ Ta ≤ +60 °C)
with LOI (-20 °C ≤ Ta ≤ +60 °C)
IP67

8705, 8707, 8711, and 8721 sensor approval information

North American certifications

Factory Mutual (FM)

NH FM Ordinary Locations
8705, 8711(-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66/IP68

N0 Non-Incendive for Class I, Division 2
Groups A, B, C, and D; T5 (8705/8711), T3C (8707)
For use with non-flammable fluids
Dust-Ignition Proof Class II/III, Division 1
Groups E, F and G; T6 (8705/8711) T3C (8707)
8705, 8707, 8711 (-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66/IP68

N0 8721 Hygienic Sensor
Factory Mutual (FM) Ordinary Location;
CE Marking; 3-A Symbol Authorization #1222;
EHEDG Type EL

N5 Non-Incendive for Class I, Division 2
Groups A, B, C, and D; T5 (8705/8711)
With Intrinsically Safe electrodes
For use with flammable fluids Class II/III Division 1
Groups A, B, C, D, E, F, and G
Dust-Ignition Proof Class II/III, Division 1,
Groups E, F, G; T5 (8705/8711)
8705, 8711 (-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66/IP68

E5 Explosion-Proof for Class I, Division 1
Groups C and D; T6 (8705/8711)
With Intrinsically Safe electrodes
Class I Division 1, Groups A, B, C, and D
Dust-Ignition Proof Class II/III, Division 1
Groups E, F, and G; T6 (8705/8711)
Non-Incendive for Class I, Division 2
Groups A, B, C, and D; T6 (8705/8711)
8705, 8711 (-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66/IP68

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Canadian Standards Association (CSA)

N0 Non-Incendive for Class I, Division 2
Groups A, B, C, and D; T5 (8705/8711), T3 (8707)
For use with non-flammable fluids
Dust-Ignition Proof Class II/III, Division 1
Groups E, F, and G; T6 (8705/8711), T3C (8707)
8705, 8707, 8711 (-50 °C ≤ Ta ≤ +60 °C)
Enclosure Type 4X, IP66/IP68

N0 8721 Hygienic Sensor
Canadian Standards Association (CSA) Ordinary Location;
CE Marking; 3-A Symbol Authorization #1222;
EHEDG Type EL

European certifications

ATEX

ND ATEX Dust
Certificate No.: KEMA 06ATEX0006
Ⓔx II 1D Ex tD A20 IP6x T105 °C (-50 ≤ Ta ≤ +65 °C)
CE 0575

INSTALLATION INSTRUCTIONS:
The cable and conduit entry devices and blanking elements shall be of a certified IP6x type, suitable for the conditions of use and correctly installed. At maximum ambient temperatures or at process temperatures above 60 °C heat resistant cables with a temperature rating of at least 90 °C shall be used.

N1 ATEX Type n
Certificate No: KEMA02ATEX1302X
Ⓔx II 3G
EEx nA [L] IIC T3... T6 (-20 ≤ Ta ≤ +65 °C)

Special conditions for safe use (x):
The relation between ambient temperature, process temperature and temperature class is to be taken from Table 30. The electrical data is to be taken from the summary in Table 28.

E1/KD ATEX Increased Safety with IS Electrodes
Certificate No: KEMA03ATEX2052X
Ⓔx II 1/2G
EEx e ia IIC T3... T6 (-20 ≤ Ta ≤ +60 °C) (see Table 29)
CE 0575
V_{max} = 40 V

Special conditions for safe use (x):
The relation between ambient temperature, process temperature and temperature class is to be taken from Table 29. The electrical data is to be taken from the summary in Table 28.

INSTALLATION INSTRUCTIONS:
At ambient temperature above 50 °C, the flowmeter shall be used with heat resistant cables with a temperature rating of at least 90 °C.
A fuse with a rating of maximum 0,7 A according to IEC 60127-1 shall be included in the coil excitation circuit if the sensors are used with other flow transmitters (e.g. Rosemount 8712).

International certifications

IECEX

NF IECEx Dust
Certificate Number: IECEx KEM 09.0078
Ex tD A20 IP6x T105 °C (-50 ≤ Ta ≤ +65 °C)

N7 IECEx Type n
Certificate Number: IECEx DEK 11.0094X
Ex nA nL IIC T3...T5 Gc

INSTALLATION INSTRUCTIONS:
The cable and conduit entry devices and blanking elements shall be of a certified IP6x type, suitable for the conditions of use and correctly installed.At maximum ambient temperatures or at process temperatures above 60 °C heat resistant cables with a temperature rating of at least 90 °C shall be used.

NEPSI - China

E3 / EP NEPSI Increased Safety with IS Electrodes
Certificate No: GYJ12.1497 X
Ex e ia IIC T3... T6 (Ta = -20 +60 °C) (see Table 29)
Vmax = 40 V

INMETRO - Brazil

E2 / EB INMETRO Increased Safety with IS Electrodes
Certificate No: NCC 12.1174 X
Ex e ia IIC T3... T6 (Ta = -20 ≤Ta ≤ +60 °C)
(see Table 29)
V_{max} = 40 V

GOST - Russia

E8 / EM GOST Increased Safety with IS Electrodes
Certificate No: N0558689
Ex e ia IIC T3... T6 (Ta = -20 ≤Ta ≤ +60 °C)
(see Table 29)
V_{max} = 40 V

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Table 28. Electrical data

Rosemount 8732 Flow Transmitter	
Power supply:	250 V AC, 1 A or 42 V DC, 1 A, 20 W maximum
Pulsed output circuit:	30 V DC (pulsed), 0,25 A, 7,5 W maximum
4-20 mA output circuit:	30 V DC, 30 mA, 900 mW maximum
Rosemount 8705 and 8711 Sensors	
Coil excitation circuit:	40 V 0,5 A, 20 W maximum
Electrode circuit:	in type of explosion protection intrinsic safety EEx ia IIC, U_i = 5 V, I_i = 0.2 mA, P_i = 1 mW, U_m = 250 V

Table 29. Relation between ambient temperature, process temperature, and temperature class(1)

Meter size (inches)	Maximum ambient temperature	Maximum process temperature	Temperature class
1/2	149 °F (65 °C)	239 °F (115 °C)	T3
1	149 °F (65 °C)	248 °F (120 °C)	T3
1	95 °F (35 °C)	95 °F (35 °C)	T4
1 1/2	149 °F (65 °C)	257 °F (125 °C)	T3
1 1/2	122 °F (50 °C)	140 °F (60 °C)	T4
2	149 °F (65 °C)	257 °F (125 °C)	T3
2	149 °F (65 °C)	167 °F (75 °C)	T4
2	104 °F (40 °C)	104 °F (40 °C)	T5
3 - 4	149 °F (65 °C)	266 °F (130 °C)	T3
3 - 4	149 °F (65 °C)	194 °F (90 °C)	T4
3 - 4	131 °F (55 °C)	131 °F (55 °C)	T5
3 - 4	104 °F (40 °C)	104 °F (40 °C)	T6
6	149 °F (65 °C)	275 °F(135 °C)	T3
6	149 °F (65 °C)	230 °F (110 °C)	T4
6	149 °F (65 °C)	167 °F (75 °C)	T5
6	140 °F (60 °C)	140 °F (60 °C)	T6
8-60	149 °F (65 °C)	284 °F (140 °C)	T3
8-60	149 °F (65 °C)	239 °F (115 °C)	T4
8-60	149 °F (65 °C)	176 °F (80 °C)	T5
8-60	149 °F (65 °C)	149 °F (65 °C)	T6

(1) This table is applicable for the E1 and KD approval codes only.

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Table 30. Relation between the maximum ambient temperature, the maximum process temperature, and the temperature class(1).

Maximum ambient temperature	Maximum process temperature °F (°C) per temperature class			
	T3	T4	T5	T6
1/2-in. sensor size				
149 °F (65 °C)	296.6 °F (147 °C)	138.8 °F (59 °C)	53.6 °F (12 °C)	17.6 °F (-8 °C)
140 °F (60 °C)	309.2 °F (154 °C)	150.8 °F (66 °C)	66.2 °F (19 °C)	28.4 °F (-2 °C)
131 °F (55 °C)	321.8 °F (161 °C)	163.4 °F (73 °C)	78.8 °F (26 °C)	41 °F (5 °C)
122°F (50 °C)	334.4 °F (168 °C)	176 °F (80 °C)	86.6 °F (32 °C)	53.6 °F (12 °C)
113°F (45 °C)	347 °F (175 °C)	188.6 °F (87 °C)	102.2 °F (39 °C)	66.2 °F (19 °C)
104 °F (40 °C)	350.6 °F (177 °C)	199.4 °F (93 °C)	114.8 °F (46 °C)	78.8 °F (26 °C)
95 °F (35 °C)	350.6 °F (177 °C)	212 °F (100 °C)	127.4 °F (53 °C)	89.6 °F (32 °C)
86 °F (30 °C)	350.6 °F (177 °C)	224.6 °F (107 °C)	138.2 °F (59 °C)	102.2 °F (39 °C)
77 °F (25 °C)	350.6 °F (177 °C)	237.2 °F (114 °C)	150.8 °F (66 °C)	114.8 °F (46 °C)
68 °F (20 °C)	350.6 °F (177 °C)	248 °F (120 °C)	163.4 °F (73 °C)	127.4 °F (53 °C)
1-in. sensor size				
149 °F (65 °C)	318.2 °F (159 °C)	158 °F (70 °C)	71.6 °F (22 °C)	33.8 °F (1 °C)
140 °F (60 °C)	330.8 °F (166 °C)	170.6 °F (77 °C)	84.2 °F (29 °C)	46.4 °F (8 °C)
131 °F (55 °C)	343.4 °F (173 °C)	183.2 °F (84 °C)	96.8 °F (36 °C)	59 °F (15 °C)
122 °F (50 °C)	350.6 °F (177 °C)	195.8 °F (91 °C)	109.4 °F (43 °C)	71.6 °F (22 °C)
113 °F (45 °C)	350.6 °F (177 °C)	206.6 °F (97 °C)	122 °F (50 °C)	84.2 °F (29 °C)
104 °F (40 °C)	350.6 °F (177 °C)	219.2 °F (104 °C)	134.6 °F (57 °C)	96.8 °F (36 °C)
95 °F (35 °C)	350.6 °F (177 °C)	231.8 °F (111 °C)	145.4 °F (63 °C)	109.4 °F (43 °C)
86 °F (30 °C)	350.6 °F (177 °C)	244.4 °F (118 °C)	158 °F (70 °C)	122 °F (50 °C)
77 °F (25 °C)	350.6 °F (177 °C)	257 °F (125 °C)	170.6 °F (77 °C)	135 °F (57 °C)
68 °F (20 °C)	350.6 °F (177 °C)	269.6 °F (132 °C)	183.2 °F (84 °C)	145.4 °F (63 °C)
1 1/2-in. sensor size				
149 °F (65 °C)	296.6 °F (147 °C)	159.8 °F (71 °C)	87.8 °F (31°C)	55.4 °F (13 °C)
140 °F (60 °C)	307.4 °F (153 °C)	170.6 °F (77 °C)	96.8 °F (36 °C)	66.2 °F (19 °C)
131 °F (55 °C)	318.2 °F (159 °C)	181.4 °F (83°C)	107.6 °F (42 °C)	77 °F (25 °C)
122 °F (50 °C)	329 °F (165 °C)	192.2 °F (89 °C)	118.4 °F (48 °C)	87.8 °F (31 °C)
113 °F (45 °C)	339.8 °F (171 °C)	203 °F (95 °C)	129.2 °F (54 °C)	96.8 °F (36 °C)
104°F (40 °C)	350.6 °F (177 °C)	213.8 °F (101 °C)	140 °F (60 °C)	107.6 °F (42 °C)
95 °F (35 °C)	350.6 °F (177 °C)	222.8 °F (106 °C)	150.8 °F (66 °C)	118.4 °F (48 °C)
86 °F (30 °C)	350.6 °F (177 °C)	233.6 °F (112 °C)	159.8 °F (71°C)	129.2 °F (54 °C)
77 °F (25 °C)	350.6 °F (177 °C)	244.4 °F (118 °C)	170.6 °F (77 °C)	140 °F (60 °C)
68 °F (20 °C)	350.6 °F (177 °C)	255.2 °F (124 °C)	181.4 °F (83 °C)	150.8 °F (66 °C)

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Table 30. Relation between the maximum ambient temperature, the maximum process temperature, and the temperature class(1).

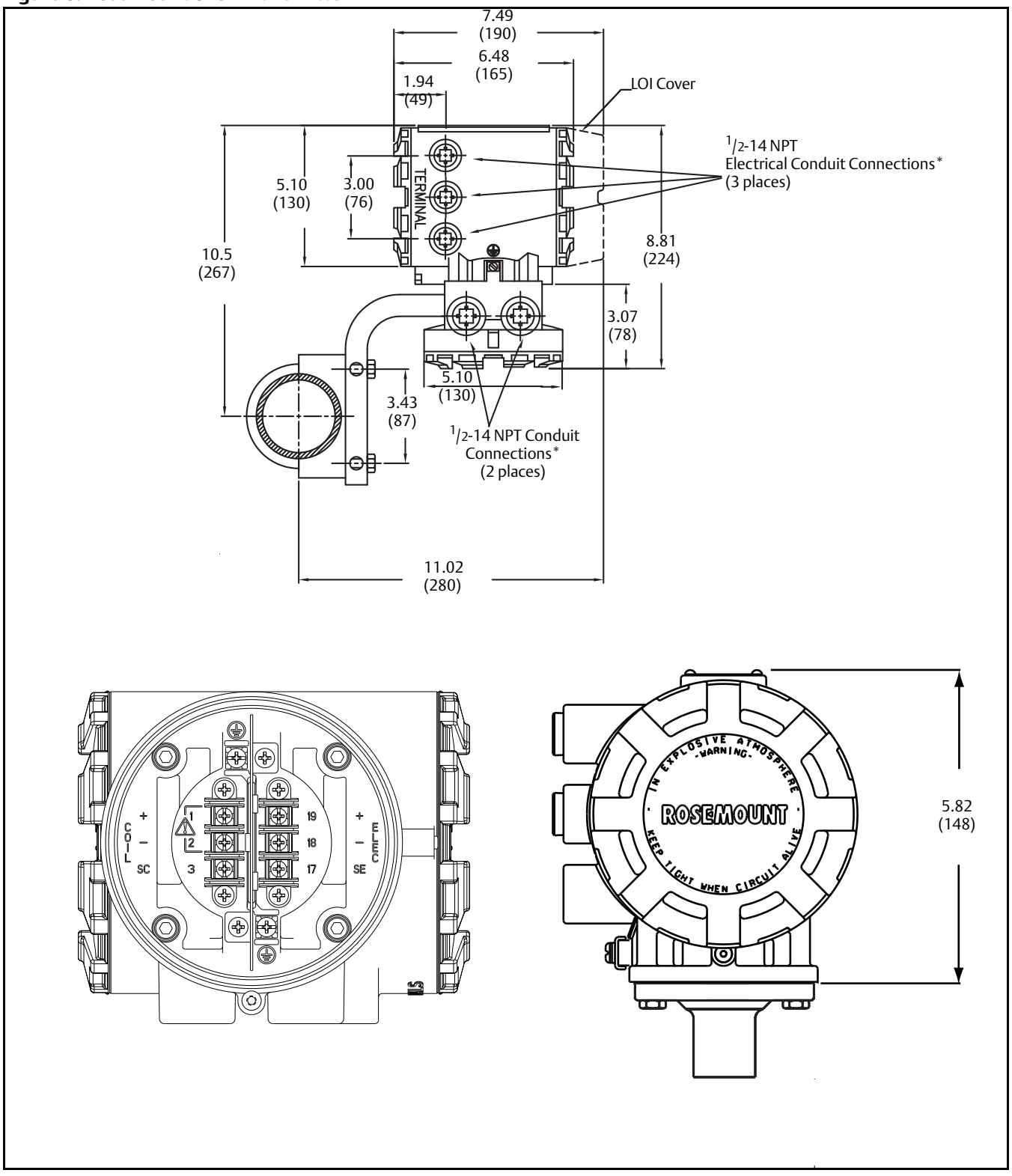
Maximum ambient temperature	Maximum process temperature °F (°C) per temperature class			
	T3	T4	T5	T6
2-in. sensor size				
149 °F (65 °C)	289.4 °F (143 °C)	163.4 °F (73 °C)	95 °F (35 °C)	66.2 °F (19 °C)
140 °F (60 °C)	300.2 °F (149 °C)	172.4 °F (78 °C)	104 °F (40 °C)	75.2 °F (24 °C)
131 °F (55 °C)	309.2 °F (154 °C)	183.2 °F (84 °C)	114.8 °F (46 °C)	84.2 °F (29 °C)
122 °F (50 °C)	318.2 °F (159 °C)	192.2 °F (89 °C)	123.8 °F (51 °C)	95 °F (35 °C)
113 °F (45 °C)	329 °F (165 °C)	201.2 °F (94 °C)	134.6 °F (57 °C)	104 °F (40 °C)
104 °F (40 °C)	338 °F (170 °C)	212 °F (100 °C)	143.6 °F (62 °C)	114.8 °F (46 °C)
95 °F (35 °C)	348.8 °F (176 °C)	221 °F (105 °C)	152.6 °F (67 °C)	123.8 °F (51 °C)
86 °F (30 °C)	350.6 °F (177 °C)	231.8 °F (111 °C)	163.4 °F (73 °C)	134.6 °F (57 °C)
77 °F (25 °C)	350.6 °F (177 °C)	240.8 °F (116 °C)	172.41 °F (78 °C)	143.6 °F (62 °C)
68 °F (20 °C)	350.6 °F (177 °C)	251.6 °F (122 °C)	183.2 °F (84 °C)	152.6 °F (67 °C)
3-in. to 60-in. sensor size				
149 °F (65 °C)	350.6 °F (177 °C)	210.2 °F (99 °C)	116.6 °F (47 °C)	75.2 °F (24 °C)
140 °F (60 °C)	350.6 °F (177 °C)	222.8 °F (106 °C)	129.2 °F (54 °C)	89.6 °F (32 °C)
131 °F (55 °C)	350.6 °F (177 °C)	237.2 °F (114 °C)	143.6 °F (62 °C)	102.2 °F (39 °C)
122 °F (50 °C)	350.6 °F (177 °C)	249.8 °F (121 °C)	156.2 °F (69 °C)	116.6 °F (47 °C)
113 °F (45 °C)	350.6 °F (177 °C)	264.2 °F (129 °C)	170.6 °F (77 °C)	129.2 °F (54 °C)
104 °F (40 °C)	350.6 °F (177 °C)	266 °F (130 °C)	183.2 °F (84 °C)	143.6 °F (62 °C)
95 °F (35 °C)	350.6 °F (177 °C)	266 °F (130 °C)	197.6 °F (92 °C)	156.2 °F (69 °C)
86 °F (30 °C)	350.6 °F (177 °C)	266 °F (130 °C)	203 °F (95 °C)	170.6 °F (77 °C)
77 °F (25 °C)	350.6 °F (177 °C)	266 °F (130 °C)	203 °F (95 °C)	176 °F (80 °C)
68 °F (20 °C)	350.6 °F (177 °C)	266 °F (130 °C)	203 °F (95 °C)	176 °F (80 °C)

(1) This table is applicable for N1 option codes only.

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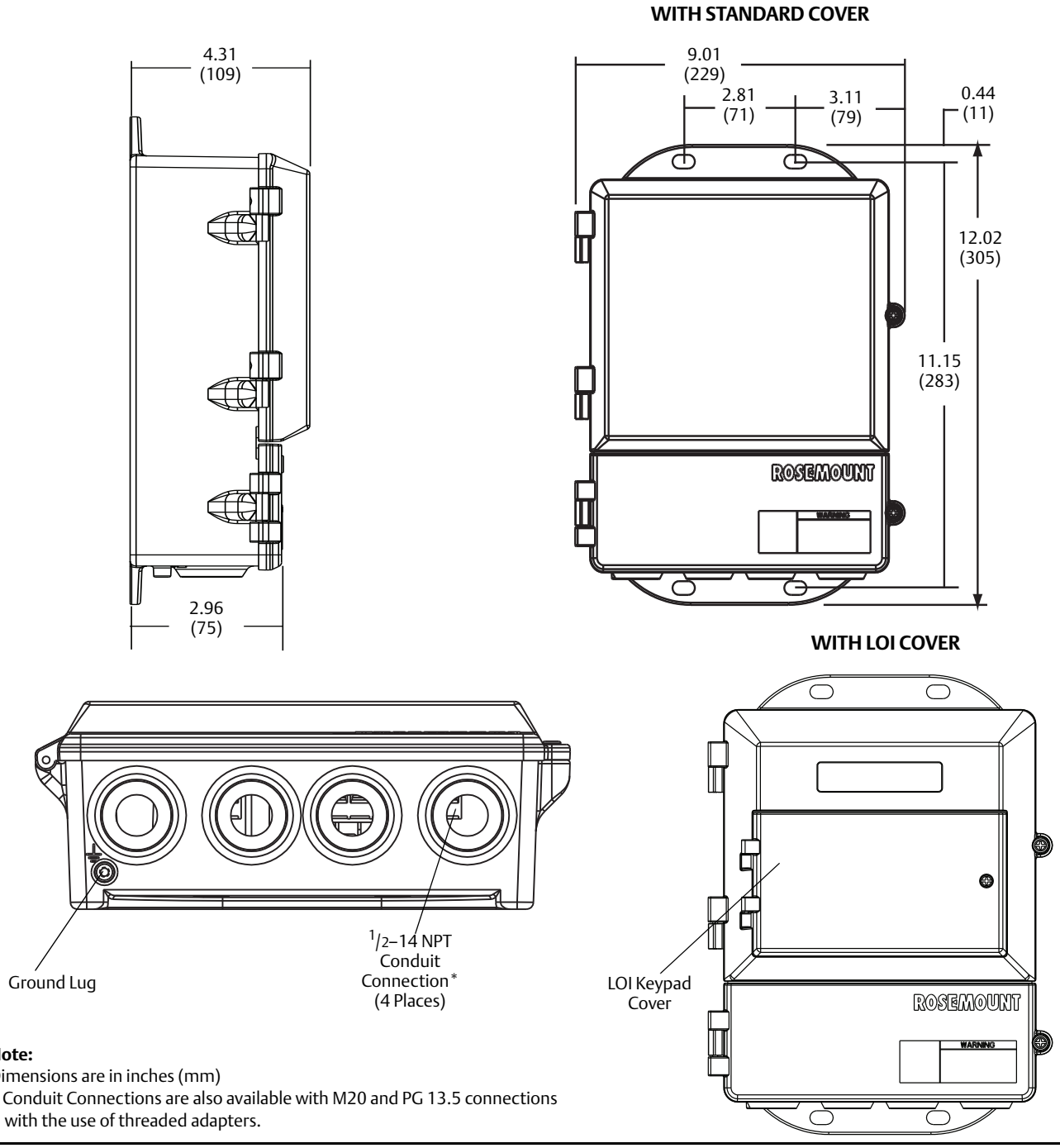
Dimensional drawings

Figure 8. Rosemount 8732 Transmitter



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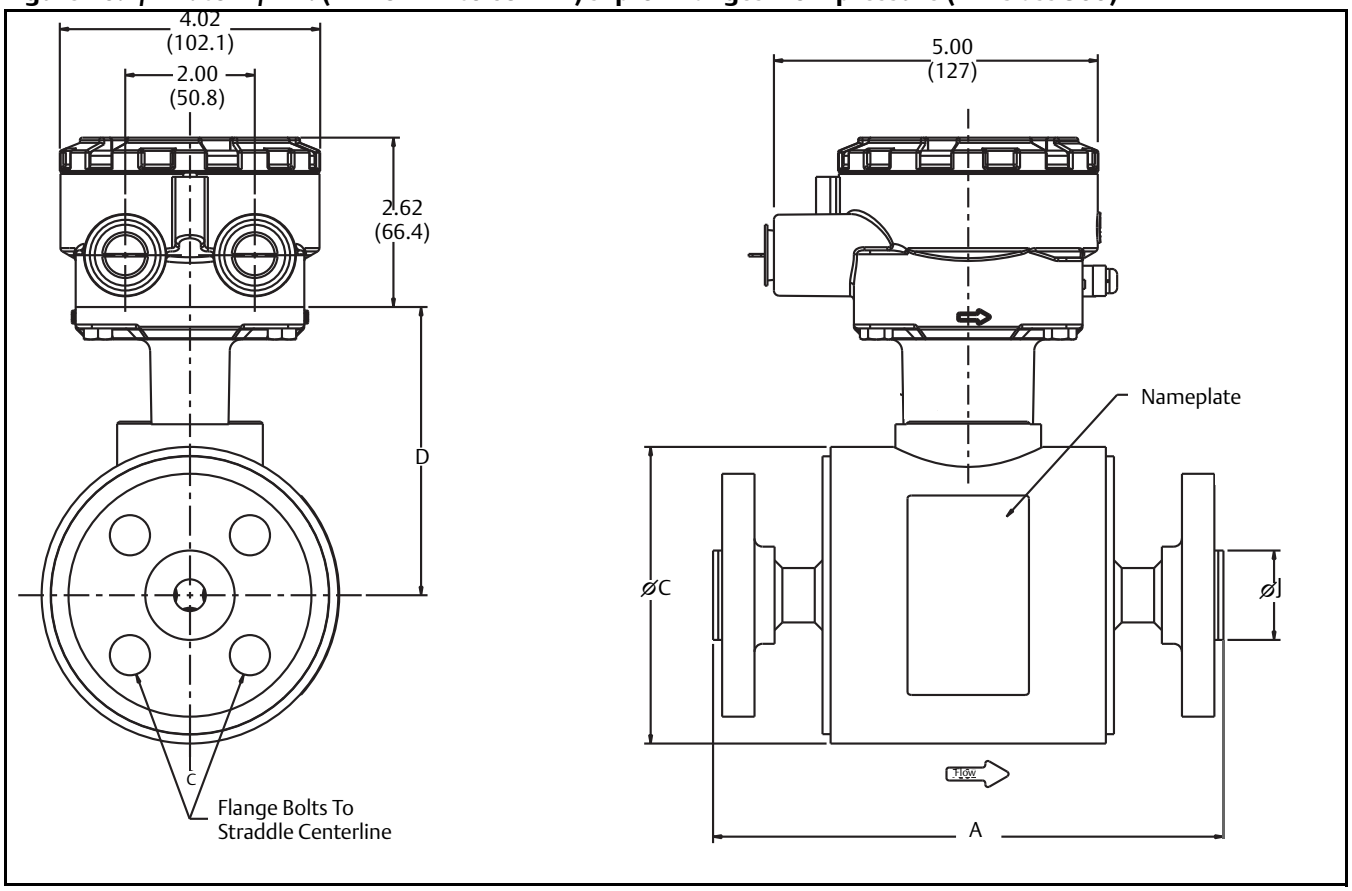
Figure 9. Rosemount 8712/8712H Transmitter



Note:
Dimensions are in inches (mm)
* Conduit Connections are also available with M20 and PG 13.5 connections with the use of threaded adapters.

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Figure 10. 1/2-in. to 2 1/2-in. (DN15 mm to 65 mm) slip-on flanges - low pressure (P ≤ Class 300)



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Table 31. 1/2-in. to 2 1/2-in. slip-on flanges (inches)

Size, description	Overall length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Tube weight (lbs)
	Dim "A" PTFE	Dim "A" ETFE	Dim "A" Neoprene	Dim "A" Linatex	Dim "A" Poly	Dim "A" PFA				
1/2 (15) ASME - 150#	7.88	7.88	7.88	7.98	7.88	7.88	4.50	4.41	1.38	9
1/2 (15) ASME - 300#	7.88	7.88	7.88	7.98	7.88	7.88	4.50	4.41	1.38	10
1/2 (15) EN 1092-1 - PN40	7.88	7.88	7.88	7.98	7.88	7.88	4.50	4.41	1.77	10
1/2 (15) AS2129 TABLE D	7.88		7.88	7.98	7.88		4.50	4.41	1.85	8
1/2 (15) AS2129 TABLE E	7.88		7.88	7.98	7.88		4.50	4.41	1.85	8
1/2 (15) JIS B2220 - 10K,	7.90		7.88	7.98	7.88		4.50	4.41	1.77	10
1/2 (15) JIS B2220 - 20K	7.90		7.88	7.98	7.88		4.50	4.41	1.77	10
1/2 (15) JIS B2220 - 40K	8.40		8.38	8.48	8.38		4.50	4.41	1.77	13
1 (25) ASME - 150#	7.88	7.88	7.88	7.97	7.88	7.88	4.50	4.41	2.00	11
1 (25) ASME - 300#	7.88	7.88	7.88	7.97	7.88	7.88	4.50	4.41	2.00	14
1 (25) EN 1092-1 - PN40	7.88	7.88	7.88	7.97	7.88	7.88	4.50	4.41	2.68	14
1 (25) AS2129 TABLE D	7.88	7.88	7.88	7.97	7.88		4.50	4.41	2.56	10
1 (25) AS2129. TABLE E	7.88	7.88	7.88	7.97	7.88		4.50	4.41	2.48	10
1 (25) JIS B2220 - 10K	7.91		7.88	7.97	7.88		4.50	4.41	2.64	13
1 (25) JIS B2220 - 20K	7.91		7.88	7.97	7.88		4.50	4.41	2.64	14
1 (25) JIS B2220 - 40K	8.65		8.67	8.76	8.67		4.50	4.41	2.76	17
1 1/2 (40) ASME - 150#	7.87	7.87	7.85	7.95	7.87	7.87	5.21	4.82	2.88	15
1 1/2 (40) ASME - 300#	7.87	7.87	7.85	7.95	7.87	7.87	5.21	4.82	2.88	21
1 1/2 (40) EN 1092-1 - PN40	7.87	7.87	7.85	7.95	7.87	7.87	5.21	4.82	3.46	19
1 1/2 (40) AS2129 TABLE D	7.87		7.85	7.95	7.87		5.21	4.82	3.07	12
1 1/2 (40) AS2129 TABLE E	7.87		7.85	7.95	7.87		5.21	4.82	3.07	13
1 1/2 (40) JIS B2220 - 10K	7.92		7.85	7.95	7.87		5.21	4.82	3.19	16
1 1/2 (40) JIS B2220 - 20K	7.92		7.85	7.95	7.87		5.21	4.82	3.19	17
1 1/2 (40) JIS B2220 -40K	8.69		8.62	8.72	8.63		5.21	4.82	3.54	24
2 (50) ASME - 150#	7.87	7.87	7.82	7.92	7.87	7.87	5.21	4.82	3.62	20
2 (50) ASME - 300#	7.87	7.87	7.82	7.92	7.87	7.87	5.21	4.82	3.62	23
2 (50) EN 1092-1 - PN40	7.87	7.87	7.82	7.92	7.87	7.87	5.21	4.82	4.02	23
2 (50) AS2129 TABLE D	7.87		7.82	7.92	7.87		5.21	4.82	3.54	14
2 (50) AS2129 TABLE E	7.87		7.82	7.92	7.87		5.21	4.82	3.54	15
2 (50) JIS B2220 - 10K	7.89		7.82	7.92	7.87		5.21	4.82	3.78	18
2 (50) JIS B2220 - 20K	7.89		7.82	7.92	7.87		5.21	4.82	3.78	19
2 (50) JIS B2220 - 40K	8.81		8.84	8.84	8.78		5.21	4.82	4.13	27
2 (50) AS4087 PN16	7.87		7.80	7.900	7.87		5.21	4.82	3.54	16
2 (50) AS4087 PN21	7.87		7.80	7.900	7.87		5.21	4.82	4.06	34
2 (50) AS4087 PN35	7.87		7.80	7.900	7.87		5.21	4.82	4.06	96
2 1/2 (65) ASME - 150#	7.82		7.76				6.31	5.37	4.12	27
2 1/2 (65) ASME - 300#	7.82		7.76				6.31	5.37	4.12	32
2 1/2 (65) EN 1092-1 - PN16	7.82		7.76				6.31	5.37	4.80	27
2 1/2 (65) EN 1092-1 - PN40	7.82		7.76				6.31	5.37	4.80	31
2 1/2 (65) AS2129 TABLE D	7.82		7.76				6.31	5.37	4.06	17
2 1/2 (65) AS2129 TABLE E	7.82		7.76				6.31	5.37	4.06	19
2 1/2 (65) JIS B2220 - 10K	7.82		7.76				6.31	5.37	4.57	25
2 1/2 (65) JIS B2220 - 20K	7.82		7.76				6.31	5.37	4.57	26
2 1/2 (65) JIS B2220 - 40K	7.82		7.76				6.31	5.37	5.12	40
2 1/2 (65) AS4087 PN16	7.82		7.76				6.31	5.37	4.06	18
2 1/2 (65) AS4087 PN21	7.82		7.76				6.31	5.37	4.80	24
2 1/2 (65) AS4087 PN35	7.82		7.76				6.31	5.37	4.80	27

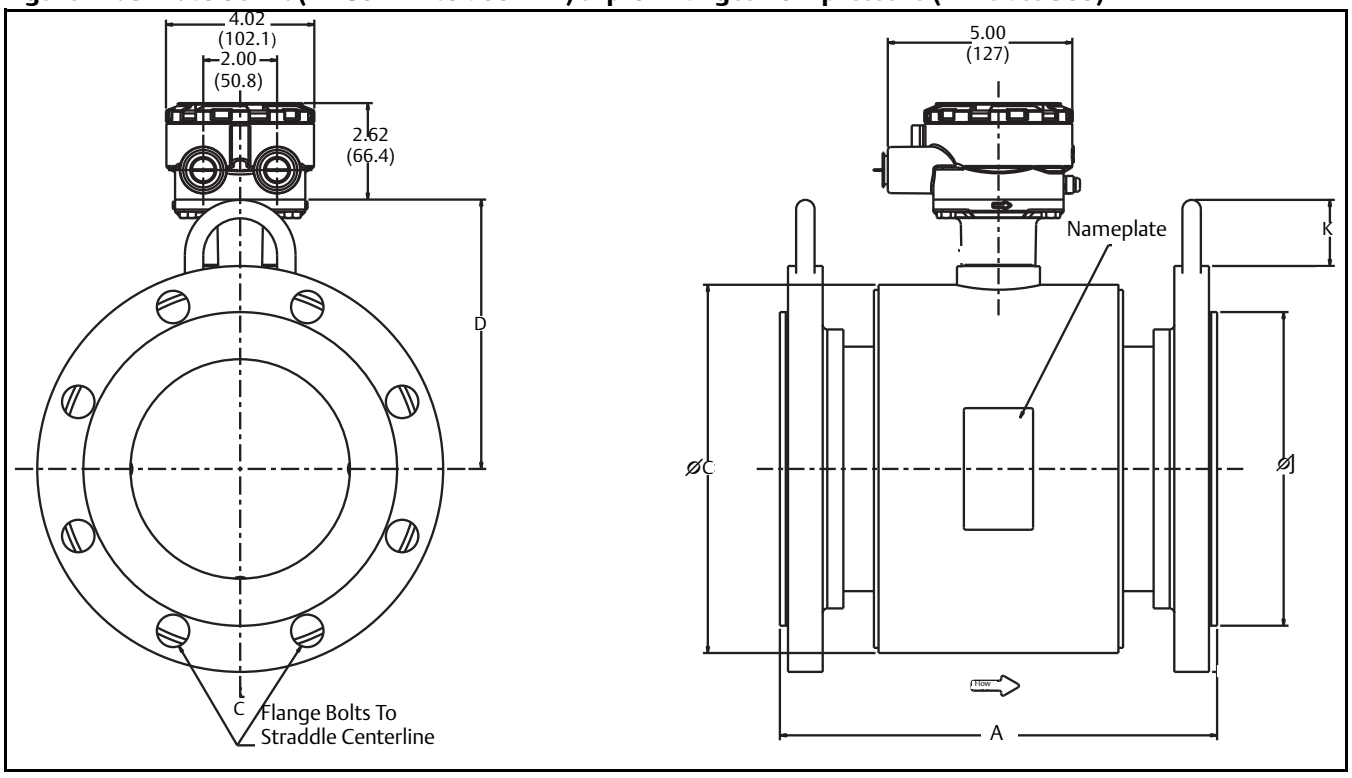
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Table 32. DN15 mm to 65 mm Slip-on flanges (mm)

Size, description	Overall length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Flow tube weight (Lbs)
	Dim "A" PTFE	Dim "A" ETFE	Dim "A" Neoprene	Dim "A" Linatex	Dim "A" Poly	Dim "A" PFA				
1/2 (15) ASME - 150#	200	200	200	203	200	200	114	112	35	4.0
1/2 (15) ASME - 300#	200	200	200	203	200	200	114	112	35	4.5
1/2 (15) EN 1092-1 - PN40	200	200	200	203	200	200	114	112	45	4.7
1/2 (15) AS2129 TABLE D	200		200	203	200		114	112	47	3.7
1/2 (15) AS2129 TABLE E	200		200	203	200		114	112	47	3.8
1/2 (15) JIS B2220 - 10K	201		200	203	200		114	112	45	4.4
1/2 (15) JIS B2220 - 20K	201		200	203	200		114	112	45	4.6
1/2 (15) JIS B2220 - 40K	213		213	213	213		114	112	45	6.1
1 (25) ASME - 150#	200	200	200	202	200	200	114	112	51	5.1
1 (25) ASME - 300#	200	200	200	202	200	200	114	112	51	6.3
1 (25) EN 1092-1 - PN40	200	200	200	202	200	200	114	112	68	6.3
1 (25) AS2129 TABLE D	200	200	200	202	200		114	112	65	4.4
1 (25) AS2129. TABLE E	200	200	200	202	200		114	112	63	4.7
1 (25) JIS B2220 - 10K	201		200	202	200		114	112	67	5.9
1 (25) JIS B2220 - 20K	201		200	202	200		114	112	67	6.3
1 (25) JIS B2220 - 40K	220		220	223	220		114	112	70	7.8
1 1/2 (40) ASME - 150#	200	200	199	202	200	200	132	122	73	6.9
1 1/2 (40) ASME - 300#	200	200	199	202	200	200	132	122	73	9.3
1 1/2 (40) EN 1092-1 - PN40	200	200	199	202	200	200	132	122	88	8.8
1 1/2 (40) AS2129 TABLE D	200		199	202	200		132	122	78	5.5
1 1/2 (40) AS2129 TABLE E	200		199	202	200		132	122	78	6.0
1 1/2 (40) JIS B2220 - 10K	201		199	202	200		132	122	81	7.4
1 1/2 (40) JIS B2220 - 20K	201		199	202	200		132	122	81	7.8
1 1/2 (40) JIS B2220 -40K	201		219	221	219		132	122	90	11.1
2 (50) ASME - 150#	200	200	199	201	200	200	132	122	92	8.9
2 (50) ASME - 300#	200	200	199	201	200	200	132	122	92	10.5
2 (50) EN 1092-1 - PN40	200	200	199	201	200	200	132	122	102	10.6
2 (50) AS2129 TABLE D	200		199	201	200		132	122	90	6.4
2 (50) AS2129 TABLE E	200		199	201	200		132	122	90	6.9
2 (50) JIS B2220 - 10K	200		199	201	200		132	122	96	8.4
2 (50) JIS B2220 - 20K	200		199	201	200		132	122	96	8.7
2 (50) JIS B2220 - 40K	224		222	224	223		132	122	105	12.3
2 (50) AS4087 PN16	200		200	200	200		132	122	90	7
2 (50) AS4087 PN21	201		200	200	200		132	122	103	15
2 (50) AS4087 PN35	202		200	200	200		132	122	103	15
2 1/2 (65) ASME - 150#	199		197				160	136	105	12.4
2 1/2 (65) ASME - 300#	199		197				160	136	105	14.6
2 1/2 (65) EN 1092-1 - PN16	199		197				160	136	122	12.4
2 1/2 (65) EN 1092-1 - PN40	199		197				160	136	122	13.9
2 1/2 (65) AS2129 TABLE D	199		197				160	136	103	7.9
2 1/2 (65) AS2129 TABLE E	199		197				160	136	103	8.4
2 1/2 (65) JIS B2220 - 10K	199		197				160	136	116	11.2
2 1/2 (65) JIS B2220 - 20K	199		197				160	136	116	11.7
2 1/2 (65) JIS B2220 - 40K	199		197				160	136	130	18.3
2 1/2 (65) AS4087 PN16	199		197				160	136	103	8.3
2 1/2 (65) AS4087 PN21	199		197				160	136	122	10.9
2 1/2 (65) AS4087 PN35	199		197				160	136	122	12.2

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Figure 11. 3-in. to 36-in. (DN80 mm to 900 mm) slip-on flanges -low pressure (P ≤ Class 300)



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Table 33. 3-in. to 36-in. slip-on flanges (inches)

Size, description	Overall length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Tube weight (Lbs)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly	DIM "A" PFA					
3 (80) ASME - 150#	7.87	7.87	7.75	7.84	7.87	7.83	7.21	5.82	5.00	1.70	34
3 (80) ASME - 300#	8.63	8.63	8.51	8.60	8.63	8.60	7.21	5.82	5.00	1.70	43
3 (80) EN 1092-1 - PN40	7.87	7.87	7.75	7.84	7.87	7.87	7.21	5.82	5.43	1.70	38
3 (80) AS2129 TABLE D	7.87		7.75	7.84	7.87		7.21	5.82	4.80	1.70	24
3 (80) AS2129 TABLE E	7.87		7.75	7.84	7.87		7.21	5.82	4.80	1.70	24
3 (80) JIS B2220 - 10K	7.91		7.75	7.84	7.87		7.21	5.82	4.96	1.70	28
3 (80) JIS B2220 - 20K	7.91		7.75	7.84	7.87		7.21	5.82	5.20	1.70	34
3 (80) JIS B2220 - 40K	12.40		12.29	12.39	12.40		7.21	5.82	55.1	1.70	52
3 (80) AS4087 PN16	7.87		7.75	7.84	7.87		7.21	5.82	4.80	1.70	20
3 (80) AS4087 PN21	7.87		7.75	7.84	7.87		7.21	5.82	5.55	1.70	56
3 (80) AS4087 PN35	7.87		7.75	7.84	7.87		7.21	5.82	5.55	1.70	109
4 (100) ASME - 150#	9.84	9.84	9.69	9.78	9.84	9.84	7.91	6.17	6.19	1.70	45
4 (100) ASME- 300#	10.88	10.88	10.73	10.82	10.88	10.88	7.91	6.17	6.19	1.70	65
4 (100) EN 1092-1 - PN16	9.84	9.84	9.69	9.78	9.81	9.81	7.91	6.17	6.22	1.70	41
4 (100) EN 1092-1 - PN40	9.84	9.84	9.69	9.78	9.81	9.81	7.91	6.17	6.38	1.70	49
4 (100) AS2129 TABLE D	9.84	9.84	9.69	9.78	9.84		7.91	6.17	6.06	1.70	31
4 (100) AS2129 TABLE E	9.84	9.84	9.69	9.78	9.84		7.91	6.17	6.06	1.70	33
4 (100) JIS B2220 - 10K	9.84		9.69	9.78	9.84		7.91	6.17	5.95	1.70	35
4 (100) JIS B2220 - 20K	9.84		9.69	9.78	9.84		7.91	6.17	6.30	1.70	44
4 (100) JIS B2220 - 40K	12. 83		12.70	12.79	12.83		7.91	6.17	6.50	1.70	75
4 (100) AS4087 PN16	9.84		9.69	9.78	9.84		7.91	6.17	6.06	1.70	28
4 (100) AS4087 PN21	9.84		9.69	9.78	9.84		7.91	6.17	6.57	1.70	68
4 (100) AS4087 PN35	9.84		9.69	9.78	9.84		7.91	6.17	6.57	1.70	119
5 (125) ASME - 150#	9.79		9.71				9.61	7.02	7.31	1.70	54
5 (125) ASME - 300#	10.94		10.86				9.61	7.02	7.31	1.70	89
5 (125) EN 1092-1 - PN16	9.79		9.50				9.61	7.02	7.40	1.70	55
5 (125) EN 1092-1 - PN40	9.79		9.71				9.61	7.02	7.40	1.70	65
5 (125) AS2129 TABLE D	9.79		9.71				9.61	7.02	7.32	1.70	43
5 (125) AS2129 TABLE E	9.79		9.71				9.61	7.02	7.32	1.70	44
5 (125) JIS B2220 - 10K	9.79		9.71				9.61	7.02	7.17	1.70	49
5 (125) JIS B2220 - 20K	9.79		9.71				9.61	7.02	7.68	1.70	64
5 (125) JIS B2220 - 40K	10.94		10.86				9.61	7.02	7.87	1.70	112
5 (125) AS4087 PN16											
5 (125) AS4087 PN21											
5 (125) AS4087 PN35											
6 (150) ASME - 150#	11.81	11.75	11.61	11.71	11.73	11.81	9.98	7.30	8.50	1.70	68
6 (150) ASME - 300#	13.06	13.02	12.88	12.97	13.00	13.06	9.98	7.30	8.50	1.70	117
6 (150) EN 1092-1 - PN16	11.81	11.81	11.61	11.71	11.73	11.81	9.98	7.30	8.35	1.70	67
6 (150) EN 1092-1 - PN25	11.81	11.81	11.66	11.75	11.78	11.81	9.98	7.30	8.58	1.70	83
6 (150) EN 1092-1 - PN40	13.06	13.06	12.88	12.97	13.00	13.06	9.98	7.30	8.58	1.70	95
6 (150) AS2129 TABLE D	11.81		11.61	11.71	11.73		9.98	7.30	8.31	1.70	52
6 (150) AS2129 TABLE E	11.81		11.61	11.71	11.73		9.98	7.30	8.15	1.70	57
6 (150) JIS B2220 - 10K	11.81		11.61	11.71	11.73		9.98	7.30	8.35	1.70	64
6 (150) JIS B2220 - 20K	11.81		11.61	11.71	11.73		9.98	7.30	9.06	1.70	83
6 (150) JIS B2220 - 40K	14.23		14.05	14.14	14.17		9.98	7.30	9.45	1.70	161
6 (150) AS4087 PN16	11.81		11.61	11.71	11.73		9.98	7.30	8.31	1.70	46
6 (150) AS4087 PN21	11.81		11.61	11.71	11.73		9.98	7.30	9.13	1.70	98
6 (150) AS4087 PN35	11.81		11.61	11.71	11.73		9.98	7.30	9.13	1.70	186

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Table 33. 3-in. to 36-in. slip-on flanges (inches)

Size, description	Overall length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Tube weight (lbs)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly"	DIM "A" PFA					
8 (200) ASME - 150#	13.78	13.69	13.53	13.63	13.65	13.78	11.92	8.27	10.62	1.70	105
8 (200) ASME - 300#	15.60	15.54	15.42	15.51	15.54	15.60	11.92	8.27	10.62	1.70	183
8 (200) EN 1092-1 - PN10	13.78	13.69	13.53	13.63	13.65	13.78	11.92	8.27	10.55	1.70	97
8 (200) EN 1092-1 - PN16	13.78	13.69	13.53	13.63	13.65	13.78	11.92	8.27	10.55	1.70	96
8 (200) EN 1092-1 - PN25	13.78	13.69	13.53	13.63	13.65	13.78	11.92	8.27	10.94	1.70	120
8 (200) EN 1092-1 - PN40	15.60	15.54	15.42	15.51	15.54	15.60	11.92	8.27	11.22	1.70	158
8 (200) AS2129 TABLE D	13.78		13.53	13.63	13.65		11.92	8.27	10.55	1.70	77
8 (200) AS2129 TABLE E	13.78		13.53	13.63	13.65		11.92	8.27	10.39	1.70	86
8 (200) JIS B2220 - 10K	13.90		13.53	13.63	13.65		11.92	8.27	10.32	1.70	81
8 (200) JIS B2220 - 20K	15.60		15.42	15.51	15.54		11.92	8.27	10.83	1.70	134
8 (200) JIS B2220 - 40K	16.72		16.54	16.63	16.66		11.92	8.27	11.42	1.70	232
8 (200) AS4087 PN16	13.78		13.53	13.63	13.65		11.92	8.27	10.55	1.70	73
8 (200) AS4087 PN21	13.78		13.53	13.63	13.65		11.92	8.27	11.65	1.70	136
8 (200) AS4087 PN35	15.60		15.42	15.51	15.54		11.92	8.27	10.24	1.70	241
10 (250) ASME - 150#	15.00	14.85	14.63	14.73	14.75	15.00	14.64	9.69	12.75	2.00	152
10 (250) ASME - 300#	17.13	17.08	16.86	16.95	16.95	17.13	14.64	9.69	12.75	2.00	267
10 (250) EN 1092-1 - PN10	15.00	14.85	14.63	14.73	14.75	15.00	14.64	9.69	12.60	2.00	134
10 (250) EN 1092-1 - PN16	15.00	14.85	14.63	14.73	14.75	15.00	14.64	9.69	12.60	2.00	138
10 (250) EN 1092-1 - PN25	15.00	14.85	14.63	14.73	14.75	15.00	14.64	9.69	13.19	2.00	174
10 (250) EN 1092-1 - PN40	17.13		16.86	16.95	16.98	17.13	14.64	9.69	13.58	2.00	244
10 (250) AS2129 TABLE D	15.00		14.63	14.73	14.75		14.64	9.69	12.91	2.00	122
10 (250) AS2129 TABLE E	15.00		14.63	14.73	14.75		14.64	9.69	12.91	2.00	137
10 (250) JIS B2220 - 10K	15.00		14.63	14.73	14.75		14.64	9.69	12.76	1.70	129
10 (250) JIS B2220 - 20K	17.13		16.86	16.95	16.98		14.64	9.69	13.58	3.13	218
10 (250) JIS B2220 - 40K	19.54		19.34	19.43	19.46		14.64	9.69	13.98	2.00	382
10 (250) AS4087 PN16	15.00		14.63	14.73	14.75		14.64	9.69	12.91	2.00	96
10 (250) AS4087 PN21	15.00		14.63	14.73	14.75		14.64	9.69	13.74	2.00	176
10 (250) AS4087 PN35	17.13		16.86	16.95	16.98		14.64	9.69	12.24	2.00	299
12 (300) ASME - 150#	18.01	17.90	17.68	17.78	17.80	18.00	16.80	10.77	15.00	2.00	231
12 (300) ASME - 300 #	20.14	20.02	19.80	19.89	19.92	20.14	16.80	10.77	15.00	2.00	387
12 (300) EN 1092-1 PN10	18.01	17.90	17.68	17.78	17.80	18.00	16.80	10.77	14.57	2.00	178
12 (300) EN 1092-1 PN10	18.01	17.90	17.68	17.78	17.80	18.00	16.80	10.77	14.88	2.00	192
12 (300) EN 1092-1 PN25	18.01	17.90	17.68	17.78	17.80	18.00	16.80	10.77	15.55	2.00	242
12 (300) EN 1092-1 PN40	20.14		19.80	19.89	19.92	20.14	16.80	10.77	16.14	2.00	351
12 (300) AS2129 TABLE D	18.01		17.68	17.78	17.80		16.80	10.77	14.88	2.00	172
12 (300) AS2129 TABLE E	18.01		17.68	17.78	17.80		16.80	10.77	14.72	2.00	185
12 (300) JIS B2220 - 10K	18.01		17.68	17.78	17.80		16.80	10.77	14.49	2.00	166
12 (300) JIS B2220 - 20K	20.14		19.80	19.89	19.92		16.80	10.77	15.55	2.00	285
12 (300) JIS B2220 - 40K	22.08		21.88	21.98	22.00		16.80	10.77	16.14	2.00	546
12 (300) AS4087 PN16	18.01		17.68	17.78	17.80		16.80	10.77	14.88	2.00	138
12 (300) AS4087 PN21	18.01		17.68	17.78	17.80		16.80	10.77	15.98	2.00	225
12 (300) AS4087 PN35	20.14		19.80	19.89	19.92		16.80	10.77	14.25	2.00	370
14 (350) ASME - 150#	20.91	20.93	20.71	20.80	20.83	21.00	18.92	11.83	16.25	2.00	300
14 (350) ASME - 300#	23.16	23.18	22.96	23.05	23.08		18.92	11.83	16.25	2.00	517
14 (350) EN 1092-1 - PN10	20.91	20.93	20.71	20.80	20.83	21.00	18.92	11.83	16.93	2.00	252
14 (350) EN 1092-1 - PN16	20.91		20.71	20.80	20.83	21.00	18.92	11.83	17.24	2.00	276
14 (350) EN 1092-1 - PN25	20.91		20.71	20.80	20.83		18.92	11.83	17.72	2.00	359
14 (350) EN 1092-1 - PN40	23.16		22.96	23.05	23.08		18.92	11.83	18.31	2.00	480
14 (350) AS2129 TABLE D	20.91		20.71	20.80	20.83		18.92	11.83	17.24	2.00	230
14 (350) AS2129 TABLE E	20.91		20.71	20.80	20.83		18.92	11.83	17.24	2.00	257

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Table 33. 3-in. to 36-in. slip-on flanges (inches)

Size, description	Overall length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Tube weight (lbs)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly"	DIM "A" PFA					
14 (350) JIS B2220 - 10K	20.91		20.71	20.80	20.83		18.92	11.83	16.26	2.00	221
14 (350) JIS B2220 - 20K	23.16		22.96	23.05	23.08		18.92	11.83	17.32	2.00	385
14 (350) JIS B2220 - 40K	25.74		25.54	25.64	25.66		18.92	11.83	17.91	2.00	702
14 (350) AS4087 PN16	20.91		20.71	20.80	20.83		18.92	11.83	17.24	2.00	219
14 (350) AS4087 PN21	20.91		20.71	20.80	20.83		18.92	11.83	18.07	2.00	294
14 (350) AS4087 PN35	23.16		22.96	23.05	23.08		18.92	11.83	16.50	2.00	497
16 (400) ASME - 150#	23.88	23.90	23.68	23.77	23.80		20.94	12.84	18.50	3.13	388
16 (400) ASME - 300#	26.13		25.93	26.02	26.05		20.94	12.84	18.50	3.13	705
16 (400) EN 1092-1 - PN10	23.88	23.90	23.68	23.77	23.80		20.94	12.84	18.98	3.13	318
16 (400) EN 1092-1 - PN16	23.88	23.90	23.68	23.77	23.80		20.94	12.84	19.28	3.13	354
16 (400) EN 1092-1 - PN25	26.13		25.93	26.02	26.05		20.94	12.84	19.88	3.13	581
16 (400) EN 1092-1 - PN40	26.13		25.93	26.02	23.80		20.94	12.84	21.06	3.13	696
16 (400) AS2129 TABLE D	23.88		23.68	23.77	23.80		20.94	12.84	19.25	3.13	283
16 (400) AS2129 TABLE E	23.88		23.68	23.77	23.80		20.94	12.84	19.25	3.13	327
16 (350) JIS B2220 - 10K	23.88		23.68	23.77	23.80		20.94	12.84	18.70	3.13	296
16 (350) JIS B2220 - 20K	26.13		25.93	26.02	26.05		20.94	12.84	19.49	3.13	561
16 (350) JIS B2220 - 40K	29.24		29.04	29.14	28.91		20.94	12.84	20.28	3.13	961
16 (400) AS4087 PN16	23.88		23.68	23.77	23.80		20.94	12.84	19.25	3.13	292
16 (400) AS4087 PN21	23.88		23.68	23.77	23.80		20.94	12.84	20.31	3.13	387
16 (400) AS4087 PN35	26.13		25.93	26.02	26.05		20.94	12.84	19.02	3.13	631
18 (450) ASME - 150#	26.85		26.65	26.74	26.77		23.46	14.10	21.00	3.13	451
18 (450) ASME - 300#	29.97		29.77	29.86	29.89		23.46	14.10	21.00	3.13	907
18 (450) EN 1092-1 - PN10	26.85		26.65	26.74	26.77		23.46	14.10	20.94	3.13	381
18 (450) EN 1092-1 - PN16	26.85		26.65	26.74	26.77		23.46	14.10	21.65	3.13	434
18 (450) EN 1092-1 - PN25	29.97		29.77	29.86	29.89		23.46	14.10	21.85	3.13	744
18 (450) EN 1092-1 - PN40	29.97		26.65	29.86	29.89		23.46	14.10	22.05	3.13	817
18 (450) AS2129 TABLE D	26.85		26.65	26.74	26.77		23.46	14.10	20.94	3.13	356
18 (450) AS2129 TABLE E	26.85		26.65	26.74	26.77		23.46	14.10	21.73	3.13	414
18 (450) JIS B2220 - 10K	26.85		26.65	26.74	26.77		23.46	14.10	20.87	3.13	373
18 (450) JIS B2220 - 20K	29.97		29.77	29.86	29.89		23.46	14.10	22.05	3.13	751
18 (450) AS4087 PN16	26.85		26.65	26.74	26.77		23.46	14.10	21.73	3.13	323
18 (450) AS4087 PN21	26.85		26.65	26.74	26.77		23.46	14.10	22.48	3.13	453
18 (450) AS4087 PN35	29.97		29.77	29.86	29.89		23.46	14.10	20.98	3.13	917
20 (500) ASME - 150#	29.78		29.58	29.67	29.70		25.48	15.11	23.00	3.13	569
20 (500) ASME - 300#	33.04		32.84	32.93	32.96		25.48	15.11	23.00	3.13	1127
20 (500) EN 1092-1 - PN10	29.78		29.58	29.67	29.70		25.48	15.11	23.03	3.13	473
20 (500) EN 1092-1 - PN16	29.78		29.58	29.67	29.70		25.48	15.11	24.02	3.13	567
20 (500) EN 1092-1 - PN25	33.04		32.84	32.93	32.96		25.48	15.11	24.21	3.13	932
20 (500) EN 1092-1 - PN40	33.04		32.84	32.93	32.96		25.48	15.11	24.21	3.13	1013
20 (500) AS2129 TABLE D	29.78		29.58	29.67	29.70		25.48	15.11	23.98	3.13	471
20 (500) AS2129 TABLE E	29.78		29.58	29.67	29.70		25.48	15.11	23.98	3.13	528
20 (500) JIS B2220 - 10K	29.78		29.58	29.67	29.70		25.48	15.11	23.03	3.13	453
20 (500) JIS B2220 - 20K	33.04		32.84	32.93	32.96		25.48	15.11	24.21	3.13	919
20 (500) AS4087 PN16	29.78		29.58	29.67	29.70		25.48	15.11	23.98	3.13	453
20 (500) AS4087 PN21	29.78		29.58	29.67	29.70		25.48	15.11	24.96	3.13	627
20 (500) AS4087 PN35	33.04		32.84	32.93	32.96		25.48	15.11	23.50	3.13	1074

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Table 33. 3-in. to 36-in. slip-on flanges (inches)

Size, description	Overall length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Tube weight (lbs)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly"	DIM "A" PFA					
24 (600) ASME - 150#	35.75		35.55	35.64	35.67		30.03	17.39	27.25	3.13	828
24 (600) ASME - 300#	39.38		39.18	39.28	39.30		30.03	17.39	27.25	3.13	1729
24 (600) EN 1092-1 - PN10	35.75		35.55	35.64	35.67		30.03	17.39	26.97	3.13	661
24 (600) EN 1092-1 - PN16	35.75		35.55	35.64	35.67		30.03	17.39	28.54	3.13	832
24 (600) EN 1092-1 - PN25	39.38		39.18	39.27	39.30		30.03	17.39	28.35	3.13	1352
24 (600) EN 1092-1 - PN40	39.38		39.18	39.27	39.30		30.03	17.39	28.94	3.13	1628
24 (600) AS2129 TABLE D	35.75		35.55	35.64	35.67		30.03	17.39	28.35	3.13	693
24 (600) AS2129 TABLE E	35.75		35.55	35.64	35.67		30.03	17.39	28.23	3.13	815
24 (600) JIS B2220 - 10K	35.75		35.55	35.64	35.67		30.03	17.39	27.17	3.13	659
24 (600) JIS B2220 - 20K	39.38		39.18	39.27	39.30		30.03	17.39	28.35	3.13	1353
24 (600) AS4087 PN16	35.75		35.55	35.64	35.67		30.03	17.39	28.35	3.13	709
24 (600) AS4087 PN21	39.38		39.18	39.27	39.30		30.03	17.39	29.09	3.13	1293
24 (600) AS4087 PN35	39.38		39.18	39.27	39.30		30.03	17.39	27.52	3.13	1528
30 (750) AWWA CLASS D	37.00		36.80	36.89	37.04		35.50	20.13	33.75	3.13	897
30 (750) MSS SP44 - 150#	41.56		41.36	41.45	41.48		35.50	20.13	33.75	3.13	1562
30 (750) MSS SP44 - 300#	47.25		47.05	47.14	47.17		35.50	20.13	33.75	3.13	2951
30 (750) AS2129 TABLE D	37.00		36.80	36.89	37.04		35.50	20.13	34.96	3.13	1037
30 (750) AS2129 TABLE E	41.56		41.36	41.45	41.48		35.50	20.13	33.75	3.13	1275
30 (750) AS4087 PN16	37.00		36.80	36.89	36.92		35.50	20.13	34.96	3.13	1083
30 (750) AS4087 PN21	41.56		41.36	41.45	41.48		35.50	20.13	3.00	3.13	1071
30 (750) AS4087 PN35	47.25		47.05	47.14	47.17		35.50	20.13	35.35	3.13	2452
36 (900) AWWA CLASS D	40.63		40.43	40.52	40.67		43.37	24.00	40.25	3.13	1267
36 (900) MSS SP44 - 150#	47.25		47.05	47.14	47.17		43.37	24.00	40.25	3.13	2551
36 (900) MSS SP44 - 300#	53.17		52.97	53.06	53.09		43.37	24.00	40.25	3.13	4584
36 (900) AS2129 TABLE D	40.63		40.43	40.52	40.67		43.37	24.00	41.34	3.13	1515
36 (900) AS2129 TABLE E	47.25		47.05	47.14	47.17		43.37	24.00	41.34	3.13	2106
36 (900) AS4087 PN16	40.63		40.43	40.52	40.55		43.37	24.00	41.34	3.13	1559
36 (900) AS4087 PN21	47.25		47.05	47.14	47.17		43.37	24.00	41.73	3.13	2061
36 (900) AS4087 PN35	53.17		52.97	53.06	53.09		43.37	24.00	40.55	3.13	3701

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Table 34. DN80 mm to 900 mm slip-on flanges (mm)

Size, description	Overall length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Tube weight (Kg)
	Dim "A" PTFE	Dim "A" ETFE	Dim "A" Neoprene	Dim "A" Linatex	Dim "A" Poly	Dim "A" PFA					
3 (80) ASME - 150#	200	200	197	199	200	200	183	148	127	43	15
3 (80) ASME - 300#	219	219	217	219	219	219	183	148	127	43	19
3 (80) EN 1092-1 - PN40	200	200	197	199	200	200	183	148	138	43	17
3 (80) AS2129 TABLE D	200		197	199	200		183	148	122	43	11
3 (80) AS2129 TABLE E	200		197	199	200		183	148	122	43	11
3 (80) JIS B2220 - 10K	200		197	199	200		183	148	126	43	13
3 (80) JIS B2220 - 20K	200		197	199	200		183	148	132	43	16
3 (80) JIS B2220 - 40K	315		312	315	315		183	148	140	43	24
3 (80) AS4087 PN16	200		197	199	200		183	148	122	43	9
3 (80) AS4087 PN21	200		197	199	200		183	148	141	43	25
3 (80) AS4087 PN35	200		197	199	200		183	148	141	43	49
4 (100) ASME- 150#	250	250	246	249	250		201	157	157	43	20
4 (100) ASME - 300#	276	276	273	275	276		201	157	157	43	29
4 (100) EN 1092-1 - PN16	250	250	246	249	250		201	157	158	43	19
4 (100) EN 1092-1 - PN40	250	250	246	249	250		201	157	162	43	22
4 (100) AS2129 TABLE D	250	250	246	249	250		201	157	157	43	14
4 (100) AS2129 TABLE E	250	250	246	249	250		201	157	157	43	15
4 (100) JIS B2220 - 10K	250		246	249	250		201	157	151	43	16
4 (100) JIS B2220 - 20K	250		246	249	250		201	157	160	43	20
4 (100) JIS B2220 - 40K	326		323	325	326		201	157	165	43	34
4 (100) AS4087 PN16	250		246	249	250		201	157	154	43	13
4 (100) AS4087 PN21	250		246	249	250		201	157	167	43	31
4 (100) AS4087 PN35	250		246	249	250		201	157	167	43	54
5 (125) ASME - 150#	249		247				244	178	186	43	24
5 (125) ASME - 300#	278		276				244	178	186	43	40
5 (125) EN 1092-1 - PN16	249		247				244	178	188	43	25
5 (125) EN 1092-1 - PN40	249		247				244	178	188	43	29
5 (125) AS2129 TABLE D	249		247				244	178	186	43	20
5 (125) AS2129 TABLE E	249		247				244	178	186	43	20
5 (125) JIS B2220 - 10K	249		247				244	178	182	43	22
5 (125) JIS B2220 - 20K	249		247				244	178	195	43	29
5 (125) JIS B2220 - 40K	278		276				244	178	200	43	51
5 (125) AS4087 PN16											
5 (125) AS4087 PN21											
5 (125) AS4087 PN35											
6 (150) ASME - 150#	300	298	295	297	298	300	253	185	216	43	31
6 (150) ASME - 300#	332	331	327	330	330	332	253	185	216	43	53
6 (150) EN 1092-1 PN16	300	298	295	297	298	300	253	185	212	43	31
6 (150) EN 1092-1 PN25	300	300	296	299	299	301	253	185	218	43	38
6 (150) EN 1092-1 PN40	332	331	327	330	330	332	253	185	218	43	43
6 (150) AS2129 TABLE D	300		295	297	298		253	185	211	43	24
6 (150) AS2129 TABLE E	300		295	297	298		253	185	207	43	26
6 (150) JIS B2220 - 10K	300		295	297	298		253	185	212	43	29
6 (150) JIS B2220 - 20K	300		295	297	298		253	185	230	43	37
6 (150) JIS B2220 - 40K	361		357	359	360		253	185	240	43	73
6 (150) AS4087 PN16	300		295	297	298		253	185	211	43	21
6 (150) AS4087 PN21	300		295	297	298		253	185	232	43	45
6 (150) AS4087 PN35	300		295	297	298		253	185	232	43	84

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Table 34. DN80 mm to 900 mm slip-on flanges (mm)

Size, description	Overall length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Tube weight (Kg)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly	DIM "A" PFA					
8 (200) ASME - 150#	350	348	344	346	347	350	303	210	270	43	48
8 (200) ASME - 300#	396	395	392	394	395	396	303	210	270	43	83
8 (200) EN 1092-1 PN10	350	348	344	346	347	350	303	210	268	43	44
8 (200) EN 1092-1 PN16	350	348	344	346	347	350	303	210	268	43	43
8 (200) EN 1092-1 PN25	350	348	344	346	347	350	303	210	278	43	54
8 (200) EN 1092-1 PN40	396	395	392	394	395	396	303	210	285	43	72
8 (200) AS2129 TABLE D	350		344	346	347		303	210	268	43	35
8 (200) AS2129 TABLE E	350		344	346	347		303	210	264	43	39
8 (200) JIS B2220 - 10K	353		344	346	347		303	210	262	43	37
8 (200) JIS B2220 - 20K	396		392	394	395		303	210	275	43	61
8 (200) JIS B2220 - 40K	425		420	422	423		303	210	290	43	105
8 (200) AS4087 PN16	350		344	346	347		303	210	268	43	33
8 (200) AS4087 PN21	350		344	346	347		303	210	296	43	62
8 (200) AS4087 PN35	396		392	394	395		303	210	260	43	109
10 (250) ASME - 150#	381	377	372	374	375	381	372	246	324	51	69
10 (250) ASME - 300#	435	434	428	431	431	435	372	246	324	51	121
10 (250) EN 1092-1 PN10	381	377	372	374	375	381	372	246	320	51	61
10 (250) EN 1092-1 PN16	381	377	372	374	375	381	372	246	320	51	63
10 (250) EN 1092-1 PN25	381	377	372	374	375	381	372	246	335	51	79
10 (250) EN 1092-1 PN40	435		428	431	431	435	372	246	345	51	111
10 (250) AS2129 TABLE D	381		372	374	375		372	246	328	51	56
10 (250) AS2129 TABLE E	381		372	374	375		372	246	328	51	62
10 (250) JIS B2220 - 10K	381		372	374	375		372	246	324	43	58
10 (250) JIS B2220 - 20K	435		428	431	431		372	246	345	80	99
10 (250) JIS B2220 - 40K	496		491	494	494		372	246	355	51	173
10 (250) AS4087 PN16	381		372	374	375		372	246	328	51	44
10 (250) AS4087 PN21	381		372	374	375		372	246	349	51	80
10 (250) AS4087 PN35	435		428	431	431		372	246	311	51	136
12 (300) ASME - 150#	458	455	449	452	452	457	427	274	381	51	105
12 (300) ASME - 300#	512	508	503	505	506	512	427	274	381	51	175
12 (300) EN 1092-1 PN10	458	455	449	452	452	457	427	274	370	51	81
12 (300) EN 1092-1 PN16	458	455	449	452	452	457	427	274	378	51	87
12 (300) EN 1092-1 PN25	458	455	449	452	452	457	427	274	395	51	110
12 (300) EN 1092-1 PN40	512		503	505	506	512	427	274	410	51	159
12 (300) AS2129 TABLE D	458		449	452	452		427	274	378	51	78
12 (300) AS2129 TABLE E	458		449	452	452		427	274	374	51	84
12 (300) JIS B2220 - 10K	458		449	452	452		427	274	368	51	75
12 (300) JIS B2220 - 20K	512		503	505	506		427	274	395	51	129
12 (300) JIS B2220 - 40K	561		556	558	559		427	274	410	51	248
12 (300) AS4087 PN16	458		449	452	452		427	274	378	51	63
12 (300) AS4087 PN21	458		449	452	452		427	274	406	51	102
12 (300) AS4087 PN35	512		503	505	506		427	274	362	51	168
14 (350) ASME - 150#	531	532	526	528	529	533	481	300	413	51	136
14 (350) ASME - 300#	588	589	583	586	586		481	300	413	51	234
14 (350) EN 1092-1 PN10	531	532	526	528	529	533	481	300	430	51	114

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Table 34. DN80 mm to 900 mm slip-on flanges (mm)

Size, description	Overall Length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Tube weight (Kg)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly	DIM "A" PFA					
14 (350) EN 1092-1 PN16	531		526	528	529	533	481	300	438	51	125
14 (350) EN 1092-1 PN2	531		526	528	529		481	300	450	51	163
14 (350) EN 1092-1 PN40	588		583	586	586		481	300	465	51	218
14 (350) AS2129 TABLE D	531		526	528	529		481	300	438	51	104
14 (350) AS2129 TABLE E	531		526	528	529		481	300	438	51	116
14 (350) JIS B2220 - 10K	531		526	528	529		481	300	413	51	100
14 (350) JIS B2220 - 20K	588		583	586	586		481	300	440	80	175
14 (350) JIS B2220 - 40K	654		649	651	652		481	300	455	51	318
14 (350) AS4087 PN16	531		526	528	529		481	300	438	51	99
14 (350) AS4087 PN21	531		526	528	529		481	300	459	51	133
14 (350) AS4087 PN35	588		583	586	586		481	300	419	51	226
16 (400) ASME - 150#	607	607	601	604	604		532	326	470	80	176
16 (400) ASME - 300#	664		659	661	662		532	326	470	80	320
16 (400) EN 1092-1 PN10	607	607	601	604	604		532	326	482	80	144
16 (400) EN 1092-1 PN16	607	607	601	604	604		532	326	490	80	161
16 (400) EN 1092-1 PN25	664		659	661	662		532	326	505	80	264
16 (400) EN 1092-1 PN40	664		659	661	662		532	326	535	80	316
16 (400) AS2129 TABLE D	607		601	604	604		532	326	489	80	129
16 (400) AS2129 TABLE E	607		601	604	604		532	326	489	80	148
16 (400) JIS B2220 - 10K	607		601	604	604		532	326	475	51	134
16 (400) JIS B2220 - 20K	664		659	661	662		532	326	495	80	254
16 (400) JIS B2220 - 40K	743		738	740	741		532	326	515	80	436
16 (400) AS4087 PN16	607		601	604	604		532	326	489	80	119
16 (400) AS4087 PN21	607		601	604	604		532	326	516	80	175
16 (400) AS4087 PN35	664		659	661	662		532	326	483	80	286
18 (450) ASME - 150#	682		677	679	680		596	358	533	80	205
18 (450) ASME - 300#	761		756	758	759		596	358	533	80	411
18 (450) EN 1092-1 PN10	682		677	679	680		596	358	532	80	173
18 (450) EN 1092-1 PN16	682		677	679	680		596	358	550	80	197
18 (450) EN 1092-1 PN25	761		756	758	759		596	358	555	80	338
18 (450) EN 1092-1 PN40	761		756	758	759		596	358	560	80	371
18 (450) AS2129 TABLE D	682		677	679	680		596	358	532	80	161
18 (450) AS2129 TABLE E	682		677	679	680		596	358	552	80	188
18 (450) JIS B2220 - 10K	682		677	679	680		596	358	530	80	169
18 (450) JIS B2220 - 20K	761		756	758	759		596	358	560	80	340
18 (450) AS4087 PN16	682		677	679	680		596	358	552	80	146
18 (450) AS4087 PN21	682		677	679	680		596	358	571	80	205
18 (450) AS4087 PN35	761		756	758	759		596	358	533	80	416
20 (500) ASME - 150#	756		751	754	754		647	384	584	80	258
20 (500) ASME - 300#	839		834	836	837		647	384	584	80	511
20 (500) EN 1092-1 PN10	756		751	754	754		647	384	585	80	215
20 (500) EN 1092-1 PN16	756		751	754	754		647	384	610	80	257
20 (500) EN 1092-1 PN25	839		834	836	837		647	384	615	80	423
20 (500) EN 1092-1 PN40	839		834	836	837		647	384	615	80	459
20 (500) AS2129 TABLE D	756		751	754	754		647	384	609	80	214
20 (500) AS2129 TABLE E	756		751	754	754		647	384	609	80	239
20 (500) JIS B2220 - 10K	756		751	754	754		647	384	585	80	206

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Table 34. DN80 mm to 900 mm Slip-on flanges (mm)

Size, description	Overall length						Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Tube weight (Kg)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly	DIM "A" PFA					
20 (500) JIS B2220 - 20K	839		834	836	837		647	384	615	80	417
20 (500) AS4087 PN16	756		751	754	754		647	384	609	80	205
20 (500) AS4087 PN21	756		751	754	754		647	384	634	80	285
20 (500) AS4087 PN35	839		834	836	837		647	384	597	80	487
24 (600) ASME - 150#	908		903	905	906		763	442	692	80	375
24 (600) ASME - 300#	1000		995	997	998		763	442	692	80	784
24 (600) EN 1092-1 PN10	908		903	905	906		763	442	685	80	300
24 (600) EN 1092-1 PN16	908		903	905	906		763	442	725	80	377
24 (600) EN 1092-1 PN25	1000		995	997	998		763	442	720	80	613
24 (600) EN 1092-1 PN40	1000		995	997	998		763	442	735	80	738
24 (600) AS2129 TABLE D	908		903	905	906		763	442	720	80	314
24 (600) AS2129 TABLE E	908		903	905	906		763	442	717	80	370
24 (600) JIS B2220 - 10K	908		903	905	906		763	442	690	80	299
24 (600) JIS B2220 - 20K	1000		995	997	998		763	442	720	80	614
24 (600) AS4087 PN16	908		903	905	906		763	442	720	80	322
24 (600) AS4087 PN21	1000		995	997	998		763	442	739	80	587
24 (600) AS4087 PN35	1000		995	997	998		763	442	699	80	693
30 (750) AWWA CLASS D	940		935	937	941		902	511	857	80	407
30 (750) MSS SP44 - 150#	1056		1050	1053	1053		902	511	857	80	708
30 (750) MSS SP44 - 300#	1200		1195	1197	1198		902	511	857	80	1338
30 (750) AS2129 TABLE D	940		935	937	941		902	511	888	80	470
30 (750) AS2129 TABLE E	1056		1050	1053	1053		902	511	857	80	578
30 (750) AS4087 PN16	940		935	937	938		902	511	888	80	491
30 (750) AS4087 PN21	1056		1050	1053	1053		902	511	76	80	486
30 (750) AS4087 PN35	1200		1195	1197	1198		902	511	898	80	1112
36 (900) AWWA CLASS D	1032		1027	1029	1033		1102	610	1022	80	575
36 (900) MSS SP44 - 150#	1200		1195	1197	1198		1102	610	1022	80	1157
36 (900) MSS SP44 - 300#	1351		1345	1348	1348		1102	610	1022	86	2079
36 (900) AS2129 TABLE D	1032		1027	1029	1033		1102	610	1050	80	687
36 (900) AS2129 TABLE E	1200		1195	1197	1198		1102	610	1050	80	955
36 (900) AS4087 PN16	1032		1027	1029	1030		1102	610	1050	80	707
36 (900) AS4087 PN21	1200		1195	1197	1198		1102	610	1060	80	935
36 (900) AS4087 PN35	1351		1345	1348	1348		1102	610	1030	86	1679

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Figure 12. 1/2-in. to 36-in. (DN15 mm to 900 mm) with W3 option

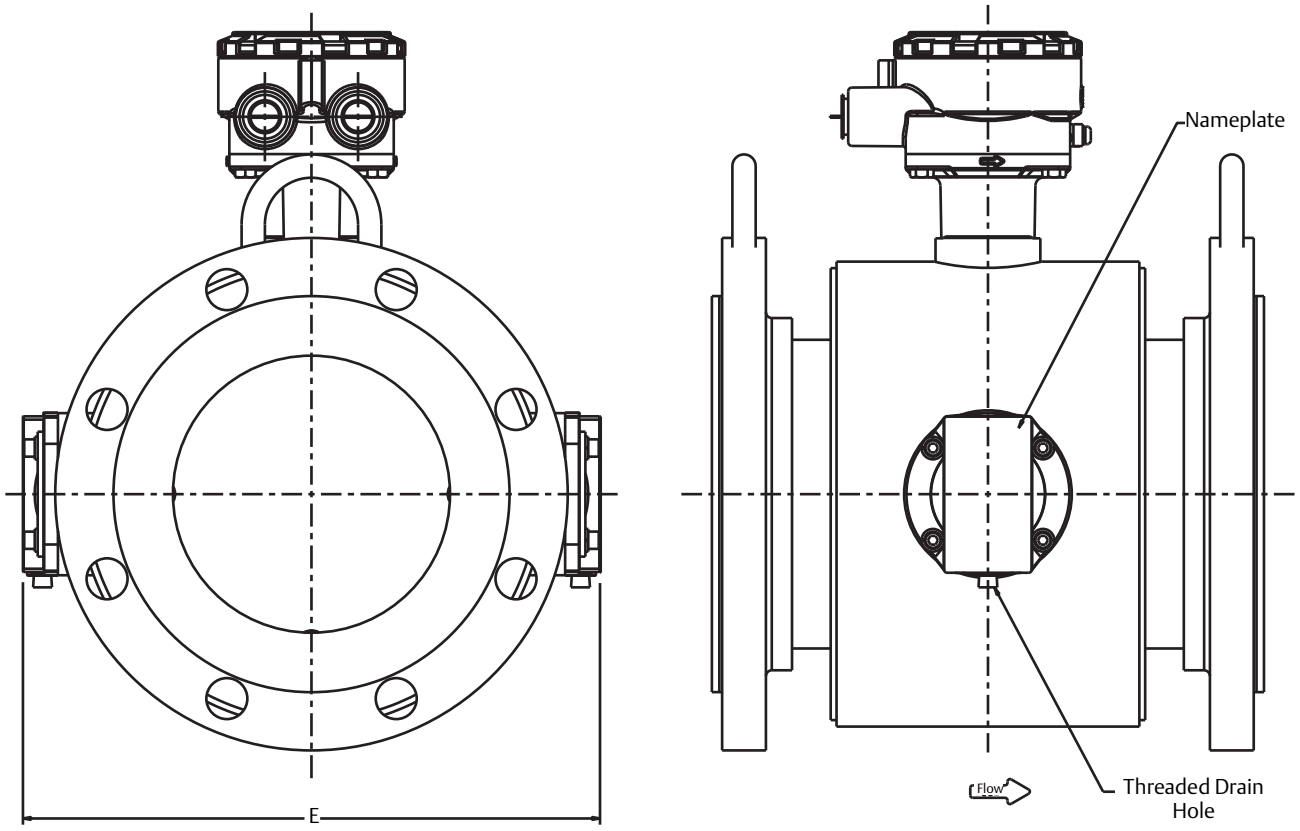


Table 35. Body width with electrode access (W3)

Size -- in (mm) all flanges	Body width with W3 DIM "E" (in.)	Body width with W3 DIM "E" (mm)
1/2 (15)	6.22	158
1 (25)	6.68	170
1 1/2 (40)	7.47	190
2 (50)	7.47	190
3 (80)	9.45	240
4 (100)	10.15	258
6 (150)	12.34	313
8 (200)	14.28	363
10 (250)	17.00	432
12 (300)	19.15	486
14 (350)	21.28	541
16 (400)	23.30	592
18 (450)	25.82	656
20 (500)	27.84	707
24 (600)	32.39	823
30 (750)	38.04	966
36 (900)	45.91	1166

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Figure 13. Lining protector / grounding ring assembly

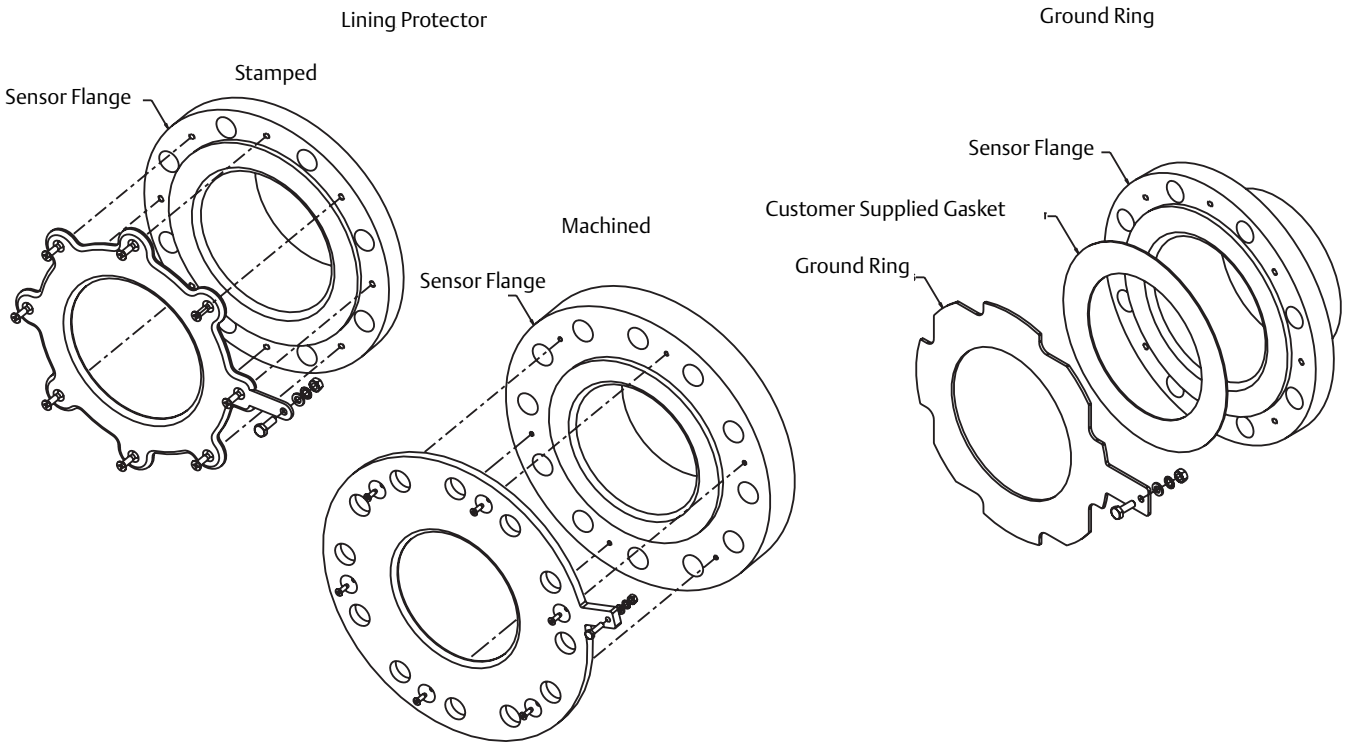


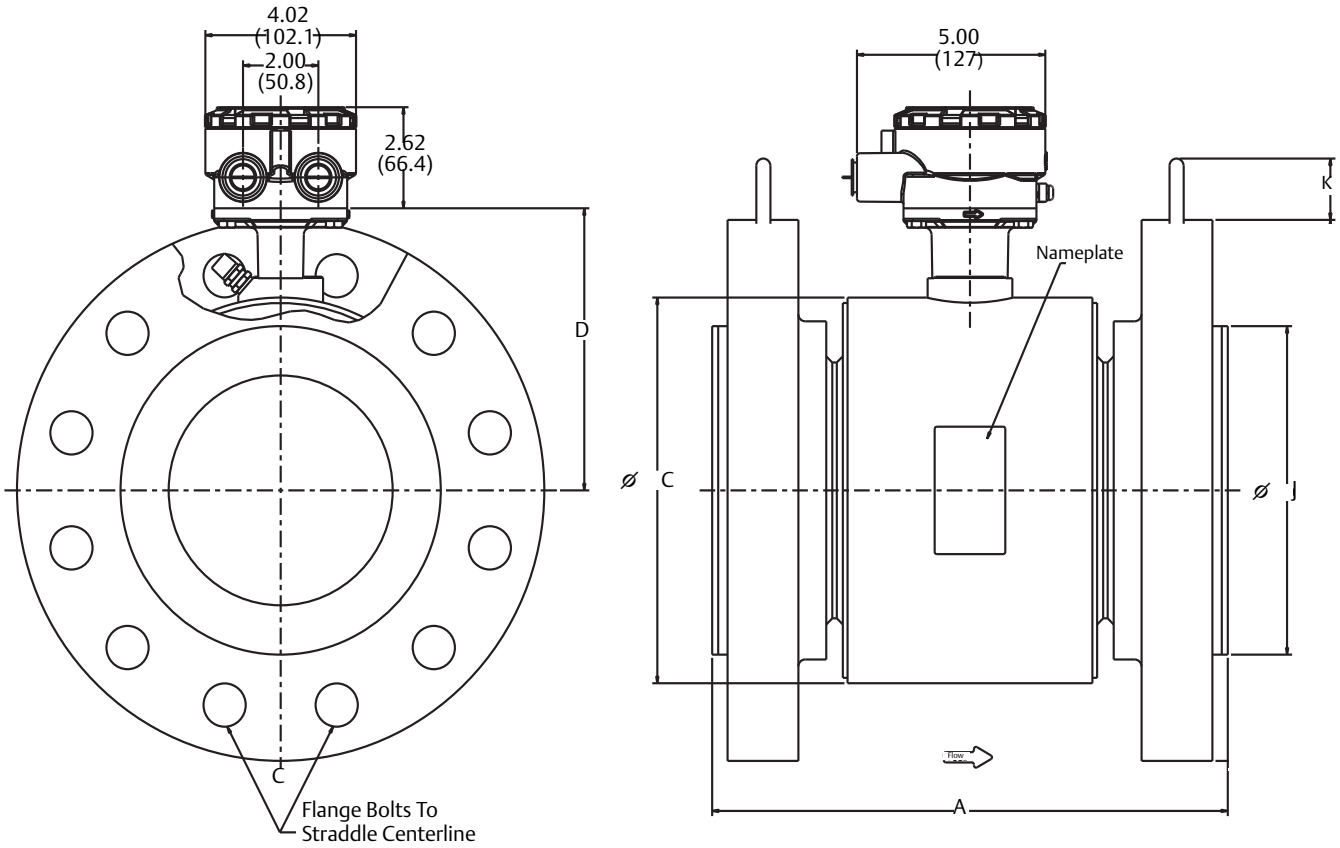
Table 36. Lay length adjustments for 316SST and Ni-Alloy C-276(1)

	Line size	Quantity (1)	Quantity (2)
Ground ring (inches)	1/2 -in. to12-in.	0.12	0.25
	14-in. +	0.25	0.50
Lining protector			
ASME (inches)	1/2-in. to10-in.	0.12	0.25
	12-in. to 24-in.	0.30	0.60
	30-in.	0.38	0.75
	36-in.	0.50	1.00
EN 1092-1(mm)	15 mm to 200mm	3.1	6.3
	250 mm	9.6	19.0
	300 mm	12.7	25.4
	350 mm to 600 mm	7.6	15.2
	750 mm	7.6	19.0
	900 mm	12.7	25.4

(1) Additional length does not include customer supplied gasket thickness.

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Figure 14. 1/2-in. to 24-in. (DN15 mm to 600 mm) with slip-on flanges - high pressure meters (Class 600 - 900)



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Table 37. 1/2-in. to 24-in. with slip-on flanges (inches) high pressure (Class 600 - 900)

Size, description	Overall length					Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on Face DIM "J"	Lift ring height DIM "K"	Tube weight (lbs)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly					
1/2 (15) ASME - 600# DERAT. SO / RF	8.38	8.38	8.38	8.48	8.38	4.50	4.41	1.38		10
1 (25) ASME - 600# DERAT. SO / RF	8.67	8.67	8.67	8.76	8.67	4.50	4.41	2.00		15
1 (25) ASME - 600# FULL, SO / RF			8.53	8.53	8.53	4.50	4.41	1.63		15
1 (25) ASME - 900# SO / RF			9.49	9.49	9.49	4.50	4.41	1.63	1.70	24
1 1/2 (40) ASME - 600# DERAT. SO / RF	8.63	8.63	8.62	8.72	8.63	5.21	4.82	2.88		23
1 1/2 (40) ASME - 600# FULL, SO / RF			8.49	8.49	8.49	5.21	4.82	2.50		23
1 1/2 (40) ASME - 900# SO / RF			9.49	9.49	9.49	5.21	4.82	2.50	1.70	34
2 (50) ASME - 600# DERAT. SO / RF	8.78	8.78	8.74	8.84	8.78	5.21	4.82	3.62		28
2 (50) ASME - 600# FULL. SO / RF			8.61	8.61	8.61	5.21	4.82	3.25		27
2 (50) ASME - 900# SO / RF			10.23	10.23	10.23	5.21	4.82	3.25	1.70	57
2 1/2 (65) ASME - 600 DERAT., SO / RF	8.86		8.80			6.31	5.37	4.12		40
2 1/2 (65) ASME - 600 FULL, SO / RF			8.61			6.31	5.37	3.75		41
2 1/2 (65) ASME - 900, SO / RF			10.23			6.31	5.37	3.75	1.70	82
3 (80) ASME - 600# DERAT. SO / RF	12.40	12.40	12.30	12.40	12.40	7.21	5.82	5.00	1.70	53
3 (80) ASME - 600# FULL, SO / RF			12.17	12.17	12.17	7.21	5.82	4.63	1.70	53
3 (80) ASME - 900# SO / RF			12.79	12.79	12.79	7.21	5.82	4.63	1.70	74
4 (100) ASME - 600# DERAT. SO / RF	12.83	12.83	12.73	12.83	12.83	7.91	6.17	6.19	1.70	94
4 (100) ASME - 600# FULL, SO / RF			12.60	12.60	12.65	7.91	6.17	5.81	1.70	93
4 (100) ASME - 900# SO / RF			13.86	13.86	13.89	7.91	6.17	5.81	2.00	123
5 (125) ASME - 600# DERAT. SO / RF	12.89		12.81			9.61	7.02	7.31	1.70	157
5 (125) ASME - 600# FULL. SO / RF			12.60			9.61	7.02	6.91	1.70	156
5 (125) ASME - 900# SO / RF			13.86			9.61	7.02	6.91	1.70	201
6 (150) ASME - 600# DERAT., / RF	14.23	14.23	14.09	14.19	14.21	9.98	7.30	8.50	1.70	178
6 (150) ASME - 600# FULL, SO / RF			13.96	13.96	13.96	9.98	7.30	8.00	1.70	189
6 (150) ASME - 900# SO / RF			17.55	17.55	17.55	9.98	7.30	8.00	2.00	254
8 (200) ASME - 600# DERAT. SO / RF	16.72	16.70	16.57	16.57	16.69	11.92	8.27	10.62	1.70	272
8 (200) ASME - 600# FULL, SO / RF			16.44	16.44	16.44	11.92	8.27	10.00	1.70	292
8 (200) ASME - 900# SO / RF			20.58	20.58	20.58	11.92	8.27	10.00	3.13	444
10 (250) ASME - 600# DERAT. SO / RF	19.54	19.40	19.18	19.28	19.30	14.64	9.69	12.75	2.00	462
10 (250) ASME - 600# FULL, SO / RF			19.05	19.05	19.05	14.64	9.69	12.00	2.00	476
10 (250) ASME - 900# SO / RF			21.54	21.54	21.54	14.64	9.69	12.00	3.13	650
12 (300) ASME - 600# DERAT., SO / RF	22.08	22.10	21.88	21.98	21.77	16.80	10.77	15.00	2.00	623
12 (300) ASME - 900# FULL, SO / RF			21.75	21.75	21.75	16.80	10.77	14.00	2.00	620
12 (300) ASME - 900# SO / RF			25.15	25.15	25.15	16.80	10.77	14.00	2.00	907
14 (350) ASME - 600# DERAT., SO / RF	25.74					18.92	11.83	16.25	2.00	773
14 (350) ASME - 600# FULL, SO / RF			25.41	25.41	25.41	18.92	11.83	15.25	2.00	771
16 (400) ASME - 600# DERAT., SO / RF	29.24					20.94	12.84	18.50	3.13	1102
16 (400) ASME - 600# FULL, SO / RF			28.91	28.91	28.91	20.94	12.84	17.50	3.13	1100
18 (450) ASME - 600# DERAT., SO / RF	32.72					23.46	14.10	21.00	3.13	1407
18 (450) ASME - 600# FULL, SO / RF			32.39	32.39	32.39	23.46	14.10	20.00	3.13	1405
20 (500) ASME - 600# DERAT., SO / RF	36.85					25.48	15.11	23.00	3.13	1824
20 (500) ASME - 600# FULL, SO / RF			36.52	36.52	36.52	25.48	15.11	22.00	3.13	1822
24 (600) ASME - 600# DERAT., SO / RF	41.35					30.03	17.39	27.25	3.13	2690
24 (600) ASME - 600# FULL, SO / RF			41.02	41.02	41.02	30.03	17.39	26.00	3.13	2692

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Table 38. DN 15 mm to 600 mm with slip-on flanges (mm) high pressure (Class 600 - 900)

Size, description	Overall length					Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Sensor weight (Kg)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly					
1/2 (15) ASME - 600# DERAT. SO / RF	213	213	213	215	213	114	112	35		5
1 (25) ASME - 600# DERAT. SO / RF	220	220	220	223	220	114	112	51		7
1 (25) ASME - 600# FULL, SO / RF			217	217	217	114	112	41		7
1 (25) ASME - 900# SO / RF			241	241	241	114	112	41		11
1 1/2 (40) ASME - 600# DERAT. SO / RF	219	219	219	221	219	132	122	73		11
1 1/2 (40) ASME - 600# FULL, SO / RF			216	216	216	132	122	64		11
1 1/2 (40) ASME - 900# SO / RF			241	241	241	132	122	64	43	16
2 (50) ASME - 600# DERAT. SO / RF	223	223	222	224	223	132	122	92		13
2 (50) ASME - 600# FULL, SO / RF			219	219	219	132	122	83		12
2 (50) ASME - 900# SO / RF			260	260	260	132	122	83	43	26
2 1/2 (65) ASME - 600# DERAT. SO / RF	225		224			160	136	105		18
2 1/2 (65) ASME - 600# FULL, SO / RF			219			160	136	95		19
2 1/2 (65) ASME - 900# SO / RF			260			160	136	95	43	37
3 (80) ASME - 600# DERAT. SO / RF	315	315	312	315	315	183	148	127	43	24
3 (80) ASME - 600# FULL, SO / RF			309	309	309	183	148	118	43	24
3 (80) ASME - 900# SO / RF			325	325	325	183	148	118	43	34
4 (100) ASME - 600# DERAT. SO / RF	326	326	323	326	326	201	157	157	43	24
4 (100) ASME - 600# FULL, SO / RF			320	320	320	201	157	148	43	24
4 (100) ASME - 900# SO / RF			352	352	352	201	157	148	43	24
5 (125) ASME - 600# DERAT. SO / RF	327		325			244	178	186	43	71
5 (125) ASME - 600# FULL, SO / RF			320			244	178	176	43	71
5 (125) ASME - 900# SO / RF			352			244	178	176	43	71
6 (150) ASME - 600# DERAT. SO / RF	361	361	358	360	361	253	185	216	43	81
6 (150) ASME - 600# FULL, SO / RF			354	354	354	253	185	203	43	86
6 (150) ASME - 900# SO / RF			446	446	446	253	185	203	51	115
8 (200) ASME - 600# DERAT. SO / RF	425	424	421	423	424	303	210	270	43	123
8 (200) ASME - 600# FULL, SO / RF			417	417	424	303	210	254	43	132
8 (200) ASME - 900# SO / RF			523	523	529	303	210	254	80	202
10 (250) ASME - 600# DERAT. SO / RF	496	493	487	490	490	372	246	324	51	210
10 (250) ASME - 600# FULL, SO / RF			484	484	484	372	246	305	51	216
10 (250) ASME - 900# SO / RF			547	547	547	372	246	305	80	295
12 (300) ASME - 600# DERAT., SO / RF	561	561	556	558	553	427	274	381	51	283
12 (300) ASME - 600# FULL, SO / RF			552	552	552	427	274	356	51	281
12 (300) ASME - 900# SO / RF			639	639	639	427	274	356	80	412
14 (350) ASME - 600# DERAT, SO / RF	654					481	300	413	51	351
14 (350) ASME - 600# FULL, SO / RF			645	645	645	481	300	387	51	350
16 (400) ASME - 600# DERAT., SO / RF	743					532	326	470	80	500
16 (400) ASME - 600# FULL, SO / RF			734	734	734	532	326	445	80	499
18 (450) ASME - 600# DERAT., SO / RF	831					596	358	533	80	827
18 (450) ASME - 600# FULL, SO / RF			823	823	823	596	384	508	80	826
20 (500) ASME - 600# DERAT., SO / RF	936					647	384	584	80	1220
20 (500) ASME - 600# FULL, SO / RF			928	928	928	647	384	559	80	1221
24 (600) ASME - 600# DERAT., SO / RF	1050					763	442	692	80	1220
24 (600) ASME - 600# FULL, SO / RF			1042	1042	1042	763	442	660	80	1221

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Figure 15. 1-in. to 24-in. weld neck flanges - high pressure meters (Class 600 - 2500)

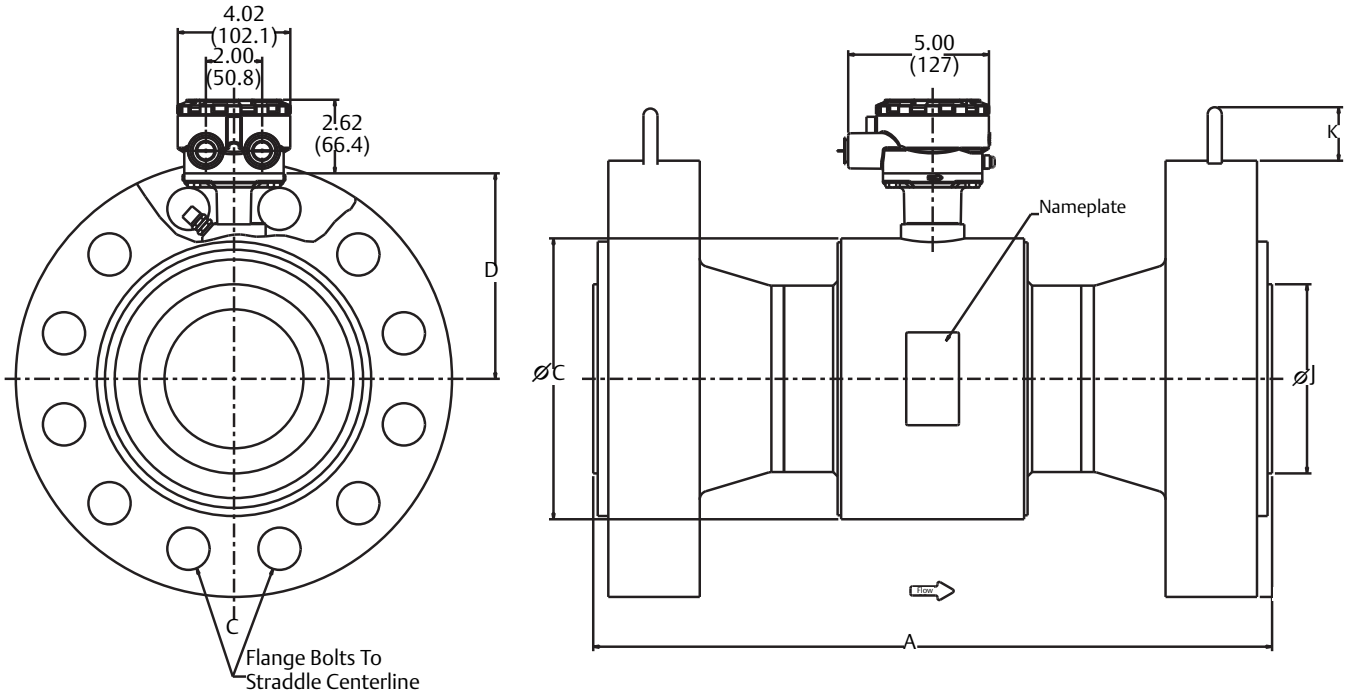


Table 39. 1-in. to 4-in. weld neck flanges inches (mm)

Size, description	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly	Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Sensor weight in lbs. (kg)
1 (25) ASME - 1500# WN / RF	12.87 (327)	12.87 (327)	12.87 (327)	4.5 (114)	4.41 (112)	1.63 (41)	1.70 (43)	25 (11.5)
1 1/2 (40) ASME - 600# WN / RF	11.56 (294)	11.56 (294)	11.56 (294)	5.21 (132)	4.82 (122)	2.50 (64)		26 (12.0)
1 1/2 (40) ASME - 1500# WN / RF	13.09 (332)	13.09 (332)	13.09 (332)	5.21 (132)	4.82 (122)	2.50 (64)	1.70 (43)	39 (17.5)
1 1/2 (40) ASME - 2500# WN / RF	15.51 (394)	15.51 (394)	15.51 (394)	5.21 (132)	4.82 (122)	2.38 (60)	1.70 (43)	66 (30.1)
1 1/2 (40) ASME - 1500# WN / RTJ	13.12 (333)	13.12 (333)	13.12 (333)	5.21 (132)	4.82 (122)	1.92 (49)	1.70 (43)	39 (17.6)
1 1/2 (40) ASME - 2500# WN / RTJ	15.66 (398)	15.66 (398)	15.66 (398)	5.21 (132)	4.82 (122)	1.84 (47)	1.70 (43)	68 (30.8)
2 (50) ASME - 600# FULL, WN / RTJ	11.99 (301)	11.99 (301)	11.99 (301)	5.21 (132)	4.82 (122)	3.25 (124)		32 (14.4)
2 (50) ASME - 1500# WN / RF	14.82 (376)	14.82 (376)	14.82 (376)	5.21 (132)	4.82 (122)	3.25 (83)	1.70 (43)	69 (31.4)
2 (50) ASME - 2500# WN / RF	16.86 (428)	16.86 (428)	16.86 (428)	5.21 (132)	4.82 (122)	3.12 (79)	1.70 (43)	69 (43.4)
2 (50) ASME - 1500# WN / RTJ	14.92 (379)	14.92 (379)	14.92 (379)	5.21 (132)	4.82 (122)	2.34 (60)	1.70 (43)	70 (31.9)
2 (50) ASME - 2500# WN / RTJ	17.01 (432)	17.01 (432)	17.01 (432)	5.21 (132)	4.82 (122)	2.59 (66)	1.70 (43)	98 (44.3)
3 (80) ASME - 600# FULL, WN / RF	12.78 (325)	12.78 (325)	12.78 (325)	7.21 (183)	5.82 (148)	4.63 (168)	1.70 (43)	59 (26.8)
3 (80) ASME - 1500# WN / RF	16.27 (413)	16.27 (413)	16.27 (413)	7.21 (183)	5.82 (148)	4.33 (105)	1.70 (43)	125 (56.5)
3 (80) ASME - 2500# WN / RF	20.42 (519)	20.42 (519)	20.42 (519)	7.21 (183)	5.82 (148)	4.15 (105)	1.70 (43)	211 (95.6)
3 (80) ASME - 1500# WN / RTJ	16.42 (417)	16.42 (417)	16.42 (417)	7.21 (183)	5.82 (148)	3.97 (101)	1.70 (43)	127 (57.8)
3 (80) ASME - 2500# WN / RTJ	20.70 (526)	20.70 (526)	20.70 (526)	7.21 (183)	5.82 (148)	3.41 (87)	1.70 (43)	214 (97.2)
4 (100) ASME - 600# FULL, WN / RF	15.57(396)	15.57(396)	15.57(396)	7.91 (201)	6.17 (157)	5.81 (148)	1.70 (43)	108 (49.1)
4 (100) ASME - 1500# WN / RF	18.18 (462)	18.18 (462)	18.18 (462)	7.91 (201)	6.17 (157)	5.71 (145)	2.00 (51)	188 (85.2)
4 (100) ASME - 2500# WN / RF	23.71 (602)	23.71 (602)	23.71 (602)	7.91 (201)	6.17 (157)	5.54 (141)	2.00 (51)	331 (150.2)
4 (100) ASME - 1500# WN / RTJ	18.33 (466)	18.33 (466)	18.33 (466)	7.91 (201)	6.17 (157)	5.54 (141)	2.00 (51)	191 (86.7)
4 (100) ASME - 2500# WN / RTJ	24.12 (613)	24.12 (613)	24.12 (613)	7.91 (201)	6.17 (157)	4.38 (111)	2.00 (51)	337 (153.1)

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Table 40. 6-in. to 24-in. weld neck flanges inches (mm)

Size, description	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly	Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Lift ring height DIM "K"	Sensor weight in lbs. (kg)
6 (150) AMSE - 600# FULL, WN / RF	18.73 (476)	18.73 (476)	18.73 (476)	9.98 (253)	7.30 (185)	8.00 (203)	1.70 (43)	230 (104.2)
6 (150) AMSE - 900#, WN / RF	20.58 (523)	20.58 (523)	20.58 (523)	9.98 (253)	7.30 (185)	8.00 (203)	2.00 (51)	296 (134.5)
6 (150) AMSE -1500#, WN / RF	23.84 (605)	23.84 (605)	23.84 (605)	9.98 (253)	7.30 (185)	7.70 (196)	2.00 (51)	428 (194.3)
6 (150) AMSE -2500#, WN / RF	31.79 (807)	31.57 (600)	31.57 (600)	9.98 (253)	7.30 (185)	7.30 (185)	2.00 (51)	847 (384.4)
6 (150) AMSE -1500#, WN / RTJ	24.12 (613)	24.12 (613)	24.12 (613)	9.98 (253)	7.30 (185)	6.73 (171)	2.00 (51)	433 (196.5)
6 (150) AMSE -2500#, WN / RTJ	32.32 (821)	32.32 (821)	32.32 (821)	9.98 (253)	7.30 (185)	666 (169)	2.00 (51)	863 (391.6)
8 (200) AMSE - 600# FULL, WN / RF	21.59 (548)	21.59 (548)	21.59 (548)	11.92 (303)	8.27 (210)	10.00 (254)	170 (43)	355 (160.8)
8 (200) AMSE - 900#, WN / RF	24.09 (612)	24.09 (612)	24.09 (612)	11.92 (303)	8.27 (210)	10.00 (254)	3.13 (80)	521 (263.3)
8 (200) AMSE -1500#, WN / RF	28.70 (729)	28.70 (729)	28.70 (729)	11.92 (303)	8.27 (210)	9.76 (248)	3.13 (80)	721 (342.4)
8 (200) AMSE -2500#, WN / RF	36.88 (937)	36.88 (937)	36.88 (937)	11.92 (303)	8.27 (210)	9.20 (234)	3.13 (80)	13.52 (613.1)
8 (200) AMSE - 900#, WN / RTJ	24.25 (616)	24.25 (616)	24.25 (616)	11.92 (303)	8.27 (210)	9.13 (232)	3.13 (80)	525 (238.3)
8 (200) AMSE -1500#, WN / RTJ	29.11 (739)	29.11 (739)	29.11 (739)	11.92 (303)	8.27 (210)	8.66(220)	3.13 (80)	767 (347.8)
8 (200) AMSE -2500#, WN / RTJ	37.53 (953)	37.53 (953)	37.53 (953)	11.92 (303)	8.27 (210)	8.28(210)	3.13 (80)	1377 (624.8)
10 (250) AMSE - 600# FULL, WN / RF	23.34 (593)	23.34 (593)	23.34 (593)	14.64 (372)	9.69 (246)	12.00 (305)	2.00 (51)	580 (262.9)
10 (250) AMSE - 900#, WN / RF	26.12 (663)	26.12 (663)	26.12 (663)	14.64 (372)	9.69 (246)	12.00 (305)	3.13 (80)	797 (361.7)
10 (250) AMSE -1500#, WN / RF	32.03 (813)	32.03 (813)	32.03 (813)	14.64 (372)	9.69 (246)	11.50 (292)	3.13 (80)	1317 (597.3)
10 (250) AMSE -2500#, WN / RF	44.95 (1142)	44.95 (1142)	44.95 (1142)	14.64 (372)	9.69 (246)	10.65 (271)	3.13 (80)	2597 (1152.8)
10 (250) AMSE -1500#, WN / RTJ	32.44 (824)	32.44 (824)	32.44 (824)	14.64 (372)	9.69 (246)	10.78 (274)	3.13 (80)	1333 (604.6)
10 (250) AMSE -2500#, WN / RTJ	45.86 (1165)	45.86 (1165)	45.86 (1165)	14.64 (372)	9.69 (246)	9.94 (252)	3.13 (80)	2597 (1178.0)
12 (300) AMSE - 600# FULL, WN / RF	26.59 (675)	26.59 (675)	26.59 (675)	16.50 (419)	10.77 (274)	14.00 (356)	2.00 (51)	759 (344.2)
12 (300) AMSE - 900#, WN / RF	30.33 (770)	30.33 (770)	30.33 (770)	16.50 (419)	10.77 (274)	14.00 (356)	3.13 (80)	1112 (504.5)
12 (300) AMSE -1500#, WN / RF	37.11 (942)	37.11 (942)	37.11 (942)	16.50 (419)	10.77 (274)	13.18 (335)	3.13 (80)	2032 (921.5)
12 (300) AMSE -2500#, WN / RF	51.50 (1308)	51.50 (1308)	51.50 (1308)	16.50 (419)	10.77 (274)	12.20 (310)	3.13 (80)	3860 (1750.8)
12 (300) AMSE -1500#, WN / RTJ	37.76 (959)	37.76 (959)	37.76 (959)	16.50 (419)	10.77 (274)	12.28 (312)	3.13 (80)	2065 (936.6)
12 (300) AMSE -2500#, WN / RTJ	52.41 (1331)	52.41 (1331)	52.41 (1331)	16.50 (419)	10.77 (274)	12.06 (306)	3.13 (80)	3938 (1786.2)
14 (350) AMSE - 600# FULL, WN / RF	29.95 (761)	29.95 (761)	29.95 (761)	18.92 (481)	11.83 (300)	15.25 (387)	2.00 (51)	940 (426.3)
14 (350) AMSE -1500#, WN / RF	40.82 (1037)	40.82 (1037)	40.82 (1037)	18.92 (481)	11.83 (300)	14.06 (357)	3.13 (80)	2662 (1207.4)
16 (400) AMSE - 600# FULL, WN / RF	33.23 (844)	33.23 (844)	33.23 (844)	20.94 (532)	12.84 (326)	17.50 (445)	3.13 (80)	1322 (599.6)
16 (400) AMSE -1500#, WN / RF	43.96 (1116)	43.96 (1116)	43.96 (1116)	20.94 (532)	12.84 (326)	18.50 (470)	3.13 (80)	3485 (1580.7)
18 (450) AMSE - 600# FULL, WN / RF	34.89 (886)	34.89 (886)	34.89 (886)	23.46 (596)	14.10 (358)	20.00 (508)	3.13 (80)	1642 (744.6)
18 (450) AMSE -1500#, WN / RF	46.23 (1174)	46.23 (1174)	46.23 (1174)	23.46 (596)	14.10 (358)	21.00 (533)	3.38 (86)	4416 (2003.0)
20 (500) AMSE - 600# FULL, WN / RF	37.93 (963)	37.93 (963)	37.93 (963)	25.48 (647)	15.11 (384)	22.00 (599)	3.13 (80)	2091 (948.5)
20 (500) AMSE -1500#, WN / RF	50.81 (1290)	50.81 (1290)	50.81 (1290)	25.48 (647)	15.11 (384)	21.10 (536)	3.38 (86)	5478 (2484.9)
24 (600) AMSE - 600# FULL, WN / RF	41.99 (1067)	41.99 (1067)	41.99 (1067)	30.03 (763)	17.39 (442)	26.00 (660)	3.13 (80)	3053 (1384.6)
24 (600) AMSE -1500#, WN / RF	57.94 (1472)	57.94 (1472)	57.94 (1472)	30.03 (763)	17.39 (442)	25.50 (648)	3.38 (86)	8822 (4001.6)

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Figure 16. Standard wafer magmeters

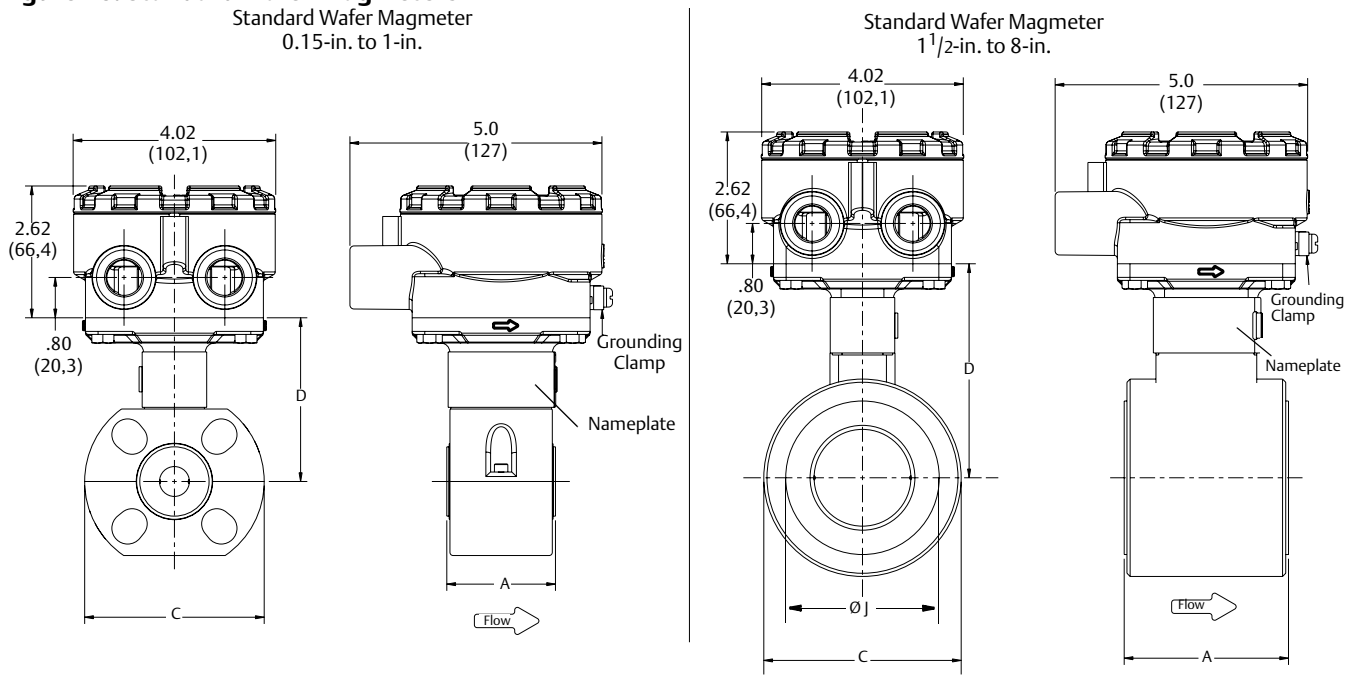


Table 41. 0.15-in. to 8-in. wafer (mm)

Size, description	Overall length			Body Ø DIM "C"	CL to UMB DIM "D"	Liner Ø on face DIM "J"	Sensor weight in lbs. (kg)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" PFA				
0.15 (4) WAFER UP TO ASME - 150# / EN 1092-1 PN16			2.17 (55)	3.56 (90)	3.25 (83)	1.37 (35)	4 (1.8)
0.30 (8) WAFER UP TO ASME - 150# / EN 1092-1 PN16			2.17 (55)	3.56 (90)	3.25 (83)	1.37 (35)	4 (1.8)
1/2 (15) WAFER UP TO ASME - 300# / EN 1092-1 PN40	2.21 (56)	2.16 (55)		3.56 (90)	3.25 (83)	1.38 (35)	4 (1.8)
1 (25) WAFER UP TO ASME - 300# / EN 1092-1 PN40	2.26 (57)	2.13 (54)		4.50 (114)	3.56 (90)	1.94 (49)	5 (2.3)
1 1/2 (40) WAFER UP TO ASME - 300# / EN 1092-1 PN40	2.88 (73)	2.73 (69)		3.29 (84)	4.00 (102)	2.42 (61)	5 (2.3)
2 (20) WAFER UP TO ASME - 300# / EN 1092-1 PN40	3.32 (84)	3.26 (83)		3.92 (99)	4.23 (107)	3.05 (77)	7 (3.2)
3 (80) WAFER UP TO ASME - 300# / EN 1092-1 PN40	4.82 (122)	4.62 (117)		5.17 (131)	4.87 (124)	4.41 (112)	13 (5.9)
4 (100) WAFER UP TO ASME - 300# / EN 1092-1 PN40	6.03 (153)	5.83 (148)		6.39 (162)	5.50 (140)	5.80 (147)	22 (10.0)
6 (150) WAFER UP TO ASME - 300# / EN 1092-1 PN40	7.08 (180)	6.87 (174)		8.57 (218)	6.22 (158)	7.86 (200)	35 (15.9)
8 (200) WAFER UP TO ASME - 300# / EN 1092-1 PN40	9.06 (230)	8.86 (225)		10.63 (270)	7.25 (184)	9.86 (250)	60 (27.2)

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Figure 17. Dimensional drawings of Rosemount 8721 sensors typical of 1-in. to 4-in. (25 mm to 100 mm) line sizes.

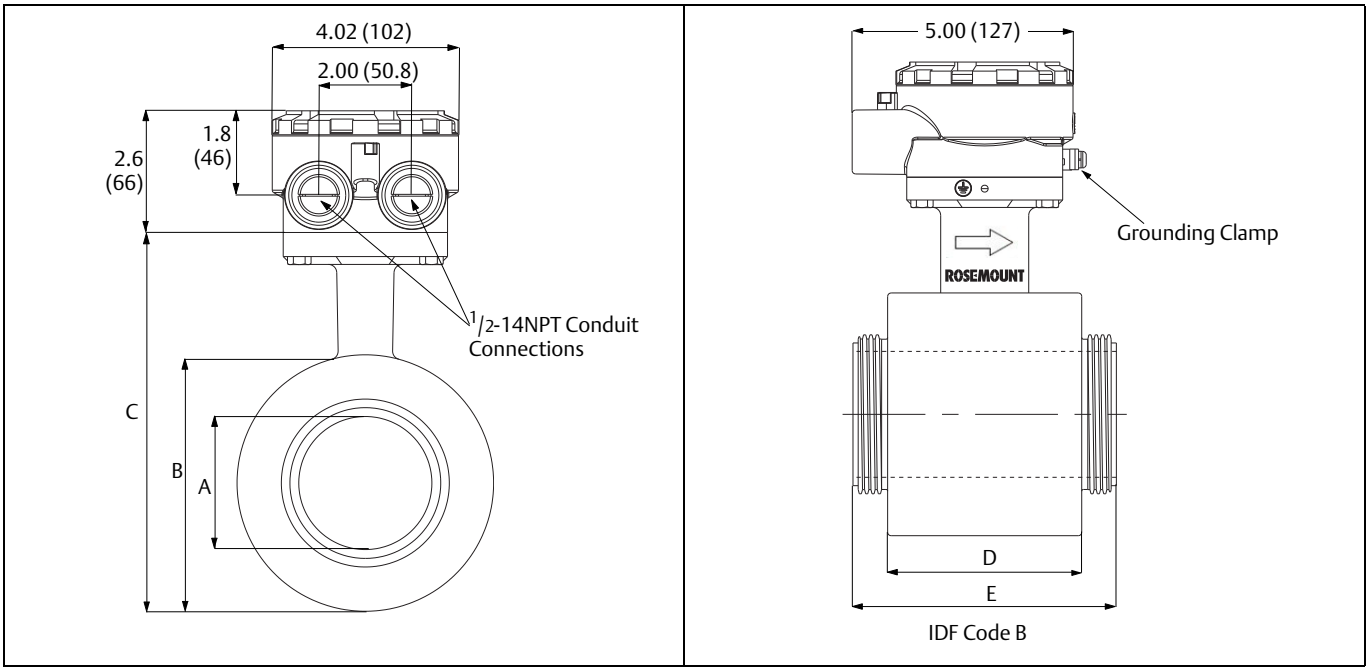


Table 42. Rosemount 8721 dimensions in inches (mm). Refer to Figure 17.

Line size	Sensor dimensions A	Body diameter B	Sensor height C	Body length D	IDF length E
1/2 (15)	0.62 (15.8)	2.87 (73.0)	5.51 (140.0)	2.13 (54.0)	3.66 (93.0)
1 (25)	0.87 (22.2)	2.87 (73.0)	5.51 (140.0)	2.13 (54.0)	3.66 (93.0)
1 1/2 (40)	1.37 (34.9)	3.50 (88.9)	6.14 (155.9)	2.40 (61.0)	3.96 (100.5)
2 (50)	1.87 (47.6)	4.00 (101.5)	6.63 (168.5)	2.83 (72.0)	4.41 (112.0)
2 1/2 (65)	2.38 (60.3)	4.53 (115.0)	7.17 (182.0)	3.58 (91.0)	5.23 (133.0)
3 (80)	2.87 (73.0)	5.57 (141.5)	8.21 (208.5)	4.41 (112.0)	5.98 (152.0)
4 (100)	3.84 (97.6)	6.98 (177.0)	9.61 (244.0)	5.20 (132.0)	6.77 (172.0)

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Figure 18. Dimensional drawings of Rosemount 8721 sensors typical of 1-in. to 4-in. (25 mm to100 mm) line sizes.

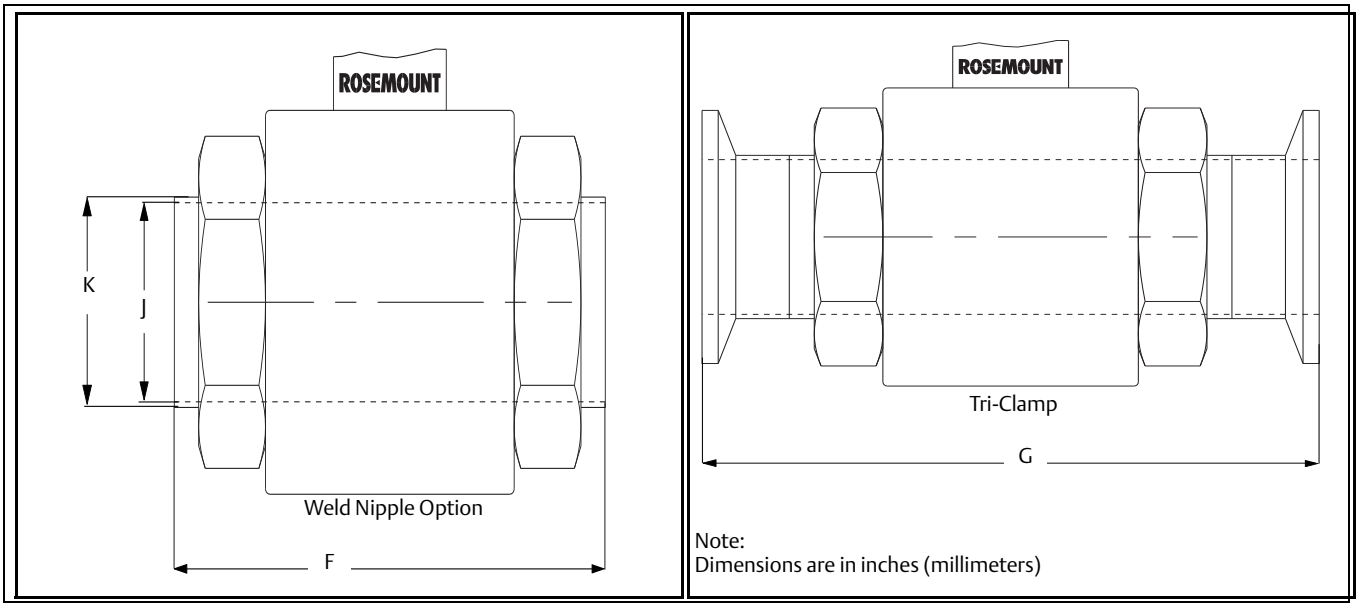


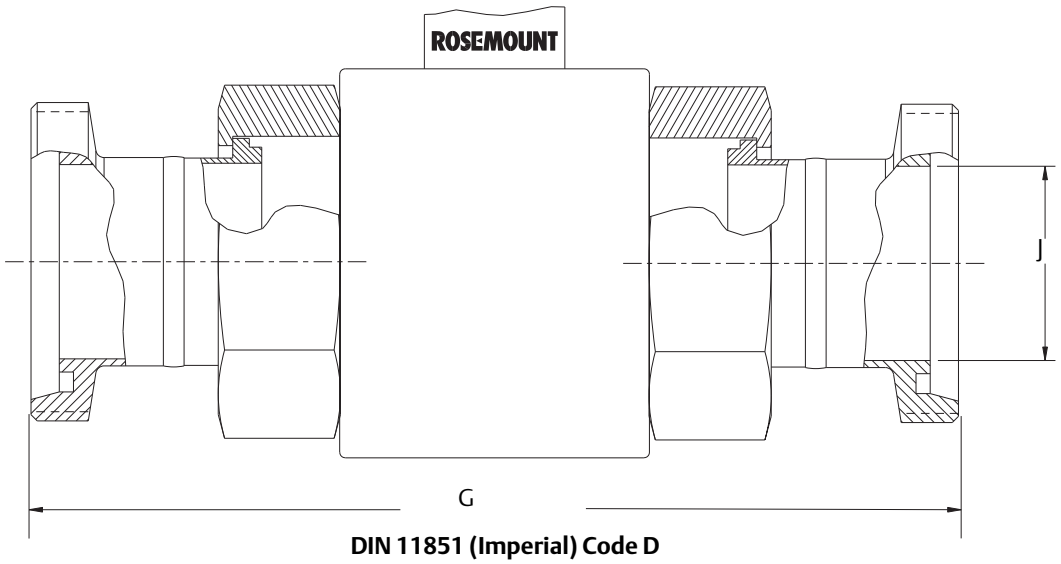
Table 43. Rosemount 8721 process connection lay length in inches (mm). Refer to Figure 18.

Line size	Weld nipple length F	Weld nipple sensor ID J	Weld nipple sensor OD K	Tri clamp length G	HP option length G	DIN 11851 (metric & imp) length G	DIN 11851 (imp) ID J	DIN 11851 (metric) ID J
1/2 (15)	5.61 (142)	0.62 (15.75)	0.75 (19.05)	8.31 (211)	NA	8.33 (211)	0.62 (15.75)	0.79 (19.99)
1 (25)	5.61 (142)	0.87 (22.2)	1.00 (25.65)	7.85 (199)	9.85 (250)	7.89 (200)	0.85 (21.52)	1.02 (26.01)
1 1/2 (40)	5.92 (150)	1.37 (34.9)	1.51 (38.3)	8.17 (207)	9.91 (252)	8.53 (217)	1.37 (34.85)	1.50 (38.00)
2 (50)	6.35 (161)	1.87 (47.6)	2.01 (51.05)	8.60 (218)	9.91 (252)	9.10 (231)	1.87 (47.60)	1.97 (50.01)
2 1/2 (65)	7.18 (182)	2.37 (60.3)	2.51 (63.75)	9.43 (239)	9.91 (252)	10.33 (262)	2.37 (60.30)	2.60 (65.99)
3 (80)	7.93 (201)	2.87 (73.0)	3.01 (76.45)	10.18 (258)	9.91 (252)	11.48 (291)	2.87 (72.97)	3.19 (81.03)
4 (100)	9.46 (240)	3.84 (97.6)	4.01 (101.85)	11.70 (297)	NA	13.72 (349)	3.84 (97.61)	3.94 (100.00)

Line size	DIN 11864-1 length G	DIN 11864-2 length g	SMS 1145 length G	Cherry-Burrell I-line length G
1/2 (15)	NA	NA	NA	NA
1 (25)	8.98 (228.0)	8.86 (225.0)	6.87 (174)	7.17 (182)
1 1/2 (40)	9.72 (247.0)	9.57 (243.0)	7.50 (190)	7.80 (198)
2 (50)	10.16 (258.0)	10.00 (254.0)	7.93 (201)	8.42 (214)
2 1/2 (65)	11.89 (302.0)	11.54 (293.0)	9.07 (230)	9.49 (241)
3 (80)	12.95 (329.0)	12.44 (316.0)	9.82 (249)	10.37 (263)
4 (100)	14.57 (370.0)	14.21 (361.0)	11.67 (296)	12.15 (309)

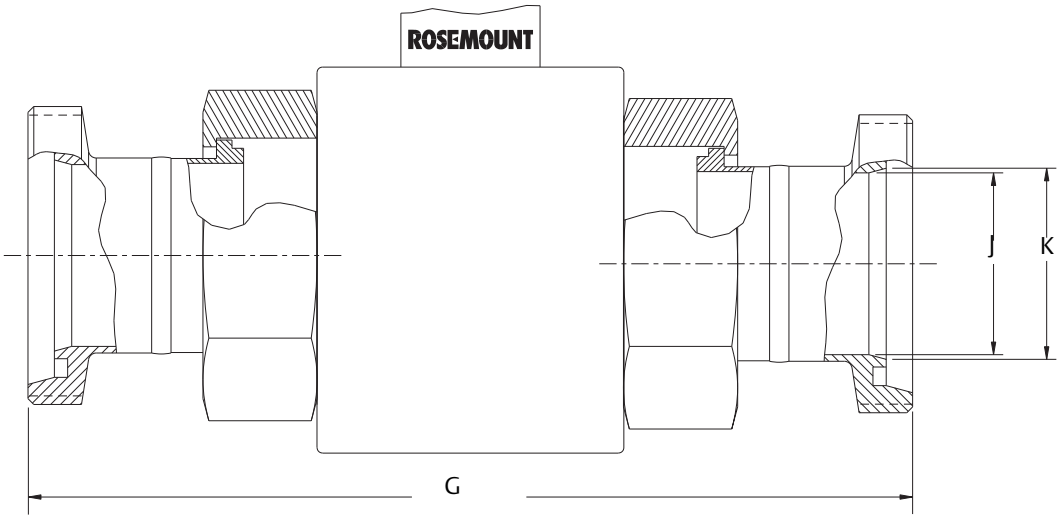
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Figure 19.



DIN 11851 (Imperial) Code D

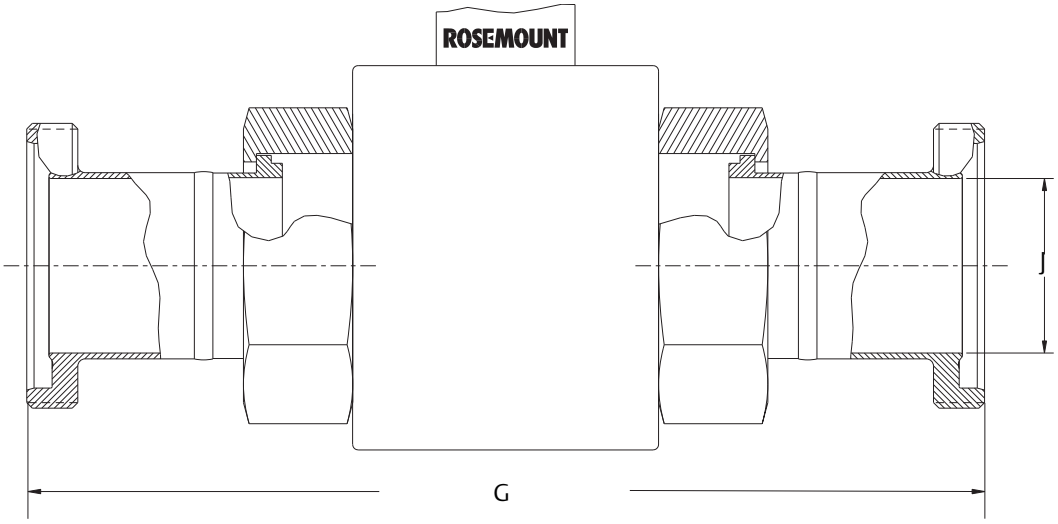
Figure 20.



DIN 11851 (Metric) Code E

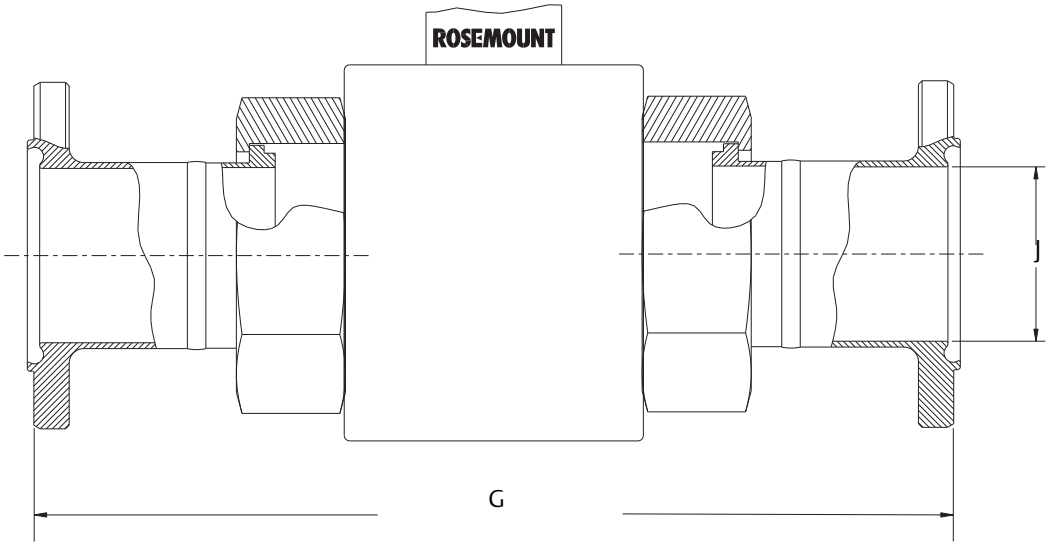
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Figure 21.



11864-1

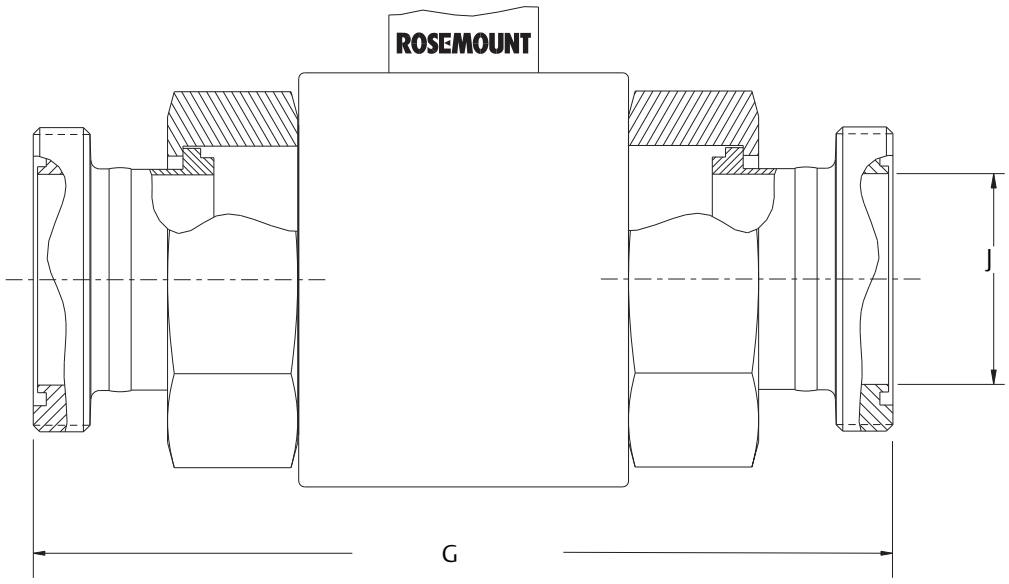
Figure 22.



11864-2

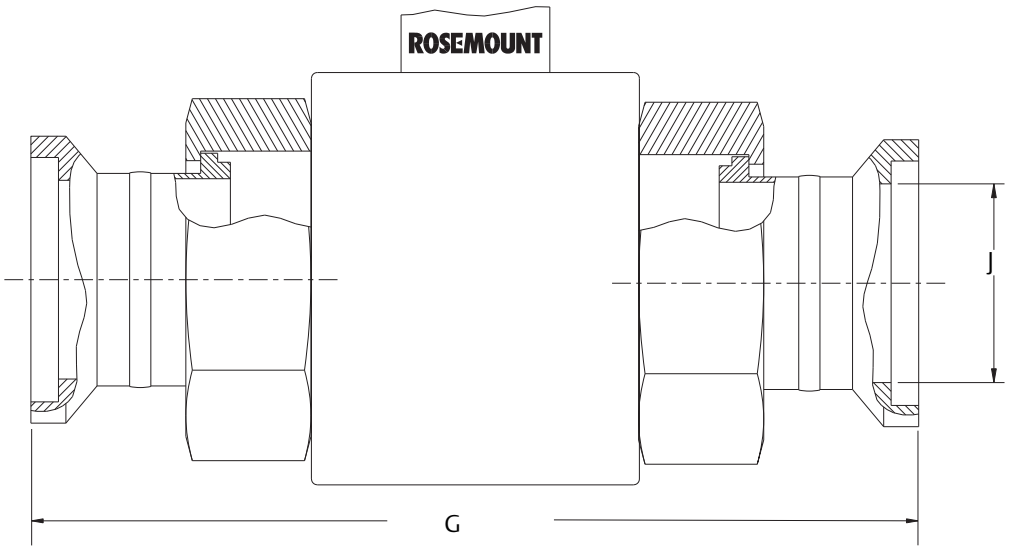
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Figure 23.



SMS1145 Code H

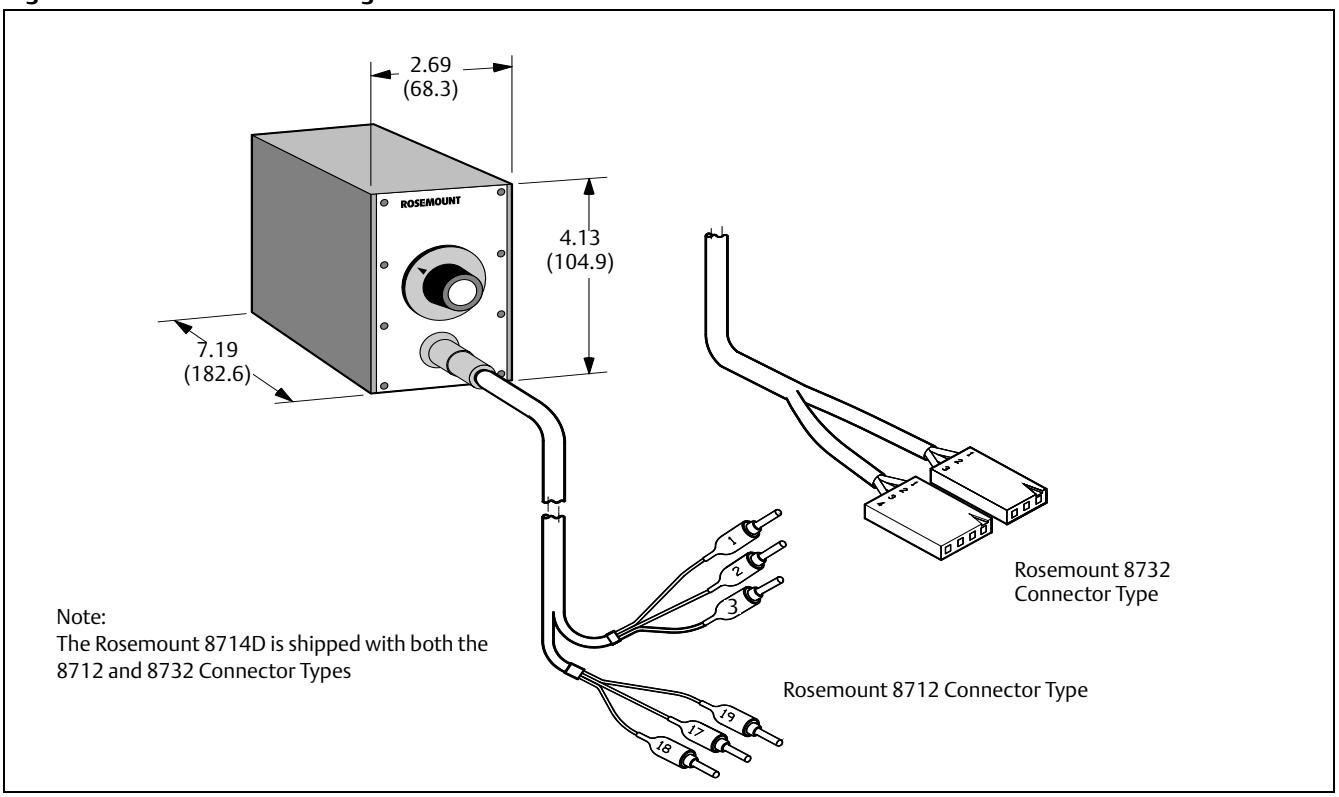
Figure 24.



Cherry Burrell I-Line Code J

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Figure 25. Rosemount 8714D Magnetic Flowmeter Simulator - calibration standard



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