

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, I.S. Outputs, 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 (standard ISO lay length)
- Rosemount 8711 Wafer sensor - Economical, compact, and lightweight sensor, provided with alignment rings for easy installation
- Rosemount 8721 Hygienic sensor - Specifically designed for food, beverage, and life sciences applications



Contents

Product Selection Guide	page 2
Magnetic Flowmeter Sizing.	page 4
Ordering Information.	page 6
Rosemount 8700 Series Product Specifications Overview.	page 25
Product Certifications	page 48
Dimensional Drawings	page 60

Rosemount 8700 Series

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 18 for information on liner types, Table 19 for information on electrode materials and electrode types, Table 20 and Table 21 for grounding options and installation, and Table 1 for transmitter selection. Other material options not mentioned here are 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
8732E 	<ul style="list-style-type: none"> • 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)
8712E 	<ul style="list-style-type: none"> • Remote mount transmitter • Easy to use LOI with dedicated configuration buttons • Advanced Diagnostics available
8712H 	<ul style="list-style-type: none"> • Remote mount transmitter • High-Signal Pulsed DC for use with the High-Signal 8707 Sensor • Ideal for noisy applications - mining/pulp stock/other slurries • 115 V AC power only • Not CE Marked

Table 2. Sensor Selection

Sensor	General Characteristics
8705 	<ul style="list-style-type: none"> • Standard Process Sensor • Flanged Process Connections • Welded, sealed coil housing • 1/2-in. (15mm) to 36-in. (900mm) • Pulse DC Technology • Standard, grounding, and bulletnose electrodes available
8707 	<ul style="list-style-type: none"> • 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 noise applications • Standard, grounding, and bulletnose electrodes available
8711 	<ul style="list-style-type: none"> • 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 bulletnose electrodes available
8721 	<ul style="list-style-type: none"> • 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

Rosemount Magmeter Diagnostics Power PlantWeb



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	8732E	8712E	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	•	•	
Electrode Coating	Maintenance	April 2010		
Advanced (Suite 2)		DA2 / D01	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.

Access diagnostics through the LOI for quicker installation, maintenance, and meter verification⁽¹⁾

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.

Rosemount 8700 Series

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 = 492.0) Normal Flow Rate: 800 L/min
Velocity = $\frac{800 \text{ (L/min)}}{492.0}$
Velocity = 1.7 m/s

Example: English Units
Magmeter Size: 4 in. (factor from Table 4 = 39.679) Normal Flow Rate: 300 GPM
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	0.683
0.30 (8)	0.220	2.732
½ (15)	0.947	11.745
1 (25)	2.693	33.407
1½ (40)	6.345	78.69
2 (50)	10.459	129.7
2 ½ (65)	14.922	185.0
3 (80)	23.042	285.7
4 (100)	39.679	492.0
6 (150)	90.048	1,116
8 (200)	155.94	1,933
10 (250)	245.78	3,048
12 (300)	352.51	4,371
14 (350)	421.70	5,229
16 (400)	550.80	6,830
18 (450)	697.19	8,645
20 (500)	866.51	10,745
24 (600)	1,253.2	15,541
30 (750)	2,006.0	24,877
36 (900)	2,935.0	36,398

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

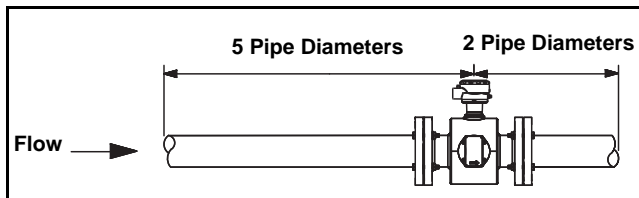
Table 5. Line Size vs. Velocity/Rate

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 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)
.15 (4)	0.002	0.055	0.16	2.14	0.01	0.21	0.68	8.16
.30 (8)	0.009	0.220	0.66	8.58	0.03	0.83	2.73	32.76
1/2 (15)	0.038	0.947	2.84	36.93	0.14	3.58	11.74	140.88
1 (25)	0.108	2.694	8.08	105.07	0.41	10.18	33.40	424.80
1 1/2 (40)	0.254	6.345	19.03	247.46	0.96	23.98	78.69	944.28
2 (50)	0.418	10.459	31.37	407.90	1.58	39.54	129.7	1,556
2 1/2 (65)	0.597	14.922	44.77	582.0	2.22	55.51	185.0	2,220
3 (80)	0.922	23.042	69.12	898.64	3.49	87.10	285.7	3,428
4 (100)	1.588	39.667	119.0	1547.0	6.00	138.6	492.0	5,904
6 (150)	3.600	90.048	270.1	3511.8	13.61	340.3	1,116	13,400
8 (200)	6.240	155.94	467.7	6081.7	23.59	589.4	1,933	23,204
10 (250)	9.840	245.78	737.3	9585.4	37.20	929.0	3,048	36,576
12 (300)	14.200	352.51	1,059	13,747	53.68	1,332	4,371	52,548
14 (350)	16.800	421.70	1,265	16,446	63.50	1,594	5,230	62,755
16 (400)	22.000	550.80	1,652	21,481	83.16	2,082	6,830	81,964
18 (450)	27.800	697.19	2,091	27,190	105.0	2,635	8,646	103,750
20 (500)	34.600	866.51	2,599	33,793	130.7	3,275	10,740	128,948
24 (600)	50.200	1,253.2	3,759	48,874	189.7	4,737	15,540	186,496
30 (750)	80.200	2,006.0	6,018	78,234	303.1	7,582	24,880	298,527
36 (900)	117.40	2,935.0	8,805	114,465	443.7	11,094	36,390	436,779

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 from 0 to 5 pipe diameters are possible. In reduced straight pipe 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, grounding electrodes, and lining protectors are available with 8700 Series sensors to ensure proper grounding. See Table 6 and Table 21.

Rosemount 8700 Series

Ordering Information



Rosemount 8732E

The Rosemount 8732E 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 8712E

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 16 character operator interface, with quick access to all diagnostic information, and instant access to basic configuration setup through dedicated keys.

Table 6. Rosemount 8732E/8712E 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	8732E	8712E	
8732E	Magnetic Flowmeter Transmitter	•		
8712E	Remote Mount Transmitter		•	
Transmitter Style				
Standard				
S	Standard	•	•	★
Transmitter Mount				
Standard				
T	Integral Mount	•		★
R	Remote Mount for 2 in. pipe or panel (includes CS mounting bolts and 304 SST bracket)	•	•	★
Transmitter Power Supply				
Standard				
1	AC Power Supply (90 to 250 V AC, 50-60Hz)	•	•	★
2	DC Power Supply (12 to 42 V DC)	•	•	★
Outputs				
Standard				
A	4-20 mA Digital Electronics (HART Protocol)	•	•	★
B	4-20 mA Digital Electronics (HART Protocol) with Intrinsically Safe Output ⁽¹⁾	•		★
F	FOUNDATION fieldbus digital electronics with FISCO Intrinsically Safe Output	•		★
P	Profibus-PA fieldbus digital electronics with FISCO Intrinsically Safe Output	•		★

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

Table 6. Rosemount 8732E/8712E 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.

		8732E	8712E	
Expanded				
G	FOUNDATION fieldbus digital electronics (Available with approval code NA only)	•		
U	Profibus-PA fieldbus digital electronics (Available with approval code NA only)	•		
Conduit Entry				
8732E - 2 Conduits / 8712E - 4 Conduits				
Standard				
1	1/2 - 14 NPT	•	•	★
Expanded				
2	CM20 ⁽²⁾	•	•	
3	PG 13.5 ⁽²⁾	•	•	
3 Conduits				
Standard				
4	1/2 - 14 NPT	•		★
Expanded				
5	CM20 ⁽²⁾	•		
6	PG 13.5 ⁽²⁾	•		
Safety Approvals⁽³⁾				
Standard				
NA	CE Marked, No Approvals	•	•	★
FM & CSA				
Standard				
N0	FM Class 1 Div 2 for non-flammable: CSA Class 1 Div 2	•	•	★
N5	FM Class 1 Div 2 for flammable fluids	•	•	★
E5	FM Class 1 Div 1, explosion-proof	•		★
ATEX				
Standard				
ED	ATEX flameproof Ex de IIB T6, and ATEX Dust Approval; Ex de [ia] IIB T6 with IS Output	•		★
ND	ATEX Dust Ex tD A20 IP66 T100 °C	•		★
Expanded				
E1	ATEX flameproof Ex de IIC T6, and ATEX Dust Approval; Ex de [ia] IIC T6 with IS Output	•		
N1	ATEX Type Ex nA nL IIC T4 or Ex nA nL [ia] IIC T4	•	•	
IECEX				
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	Ex tD A20 IP66 T100 °C or Ex tD A20 IP66 T100 °C [Ex ia Ga] IIC	•		★
Expanded				
E7	IECEX flameproof Ex de IIC T6 Gb and IECEX Dust Approval; Exde [ia Ga] IIC T6 Gb with IS Output	•		
N7	Ex nA nL IIC T4 and IECEX Dust; Ex nA nL [ia] IIC T4 with FISCO/FNICO outputs	•	•	
NEPSI and CMC (China)				
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	•		
InMetro (Brazil)				
Standard				
EB	InMetro flameproof BR-Ex de IIB T6; BR- Ex de [ia] IIB T6 with IS outputs	•		★
Expanded				
E2	InMetro flameproof BR-Ex de IIC T6; BR- Ex de [ia] IIC T6 with IS outputs	•		

Rosemount 8700 Series

Table 6. Rosemount 8732E/8712E 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.

GOST (Russia)		8732E	8712E	
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	•		
KOSHA (Korea)				
Standard				Standard
EK	KOSHA flameproof EX de IIB T6; Ex de [ia] IIB T6 with IS outputs	•		★
Expanded				
E9	KOSHA 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 ⁽⁴⁾	Magmeter HART Diagnostic Suite 1: High Process Noise Detection, Ground/Wiring Fault Detection, and Coated Electrode 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	DI/DO, see page 31 for more details ⁽⁵⁾⁽⁶⁾	•	•	★
Other Options				
Standard				Standard
M4	Local Operator Interface (HART and Profibus-PA only)	•	•	★
M5	Local Display (HART and FOUNDATION fieldbus only)	•		★
Expanded				
C1	Custom Configuration (CDS Required)	•	•	
D1	High Accuracy Calibration (0.15% of rate for matched sensor and transmitter) ⁽⁷⁾	•	•	
DT	Heavy Duty Tagging	•	•	
B6	316L Stainless Steel 4-bolt Kit for 2-in. Remote Pipe Mount	•	•	
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)	•	•	
Q4	Inspection certificate; calibration data, ISO10474 3.1B	•	•	
QIG Language		8732E	8712E	
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	•	•	

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

Table 6. Rosemount 8732E/8712E 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.

YN	Norwegian	•	•	
YP	Portuguese	•	•	
YS	Spanish	•	•	
YR	Russian	•	•	
YW	Swedish	•	•	
Typical Model Number: 8732E S T 1 A 1 N0 DA1 DA2 M4				

(1) I.S. Output must be externally powered.

(2) Adapters are used for this conduit entry type.

(3) All product, ordered with or without Safety approvals, is compliant with local CE Marking and C-tick requirements unless specifically noted as a special.

(4) Coated electrode detection is only available on the 8732E (April 2010).

(5) Not available with intrinsically safe outputs (output option B).

(6) Not available on the 8732E with conduit entry codes 1, 2 or 3.

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

Rosemount 8700 Series



Rosemount 8712H High-Signal Magmeter System⁽¹⁾

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.

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 (2-in. pipe or surface mounting)	★
Power Supply Voltage		
Standard		Standard
12	115 V ac, 50–60 Hz	★
Product Certifications		
Standard		Standard
N0	Factory Mutual (FM) Class I, Division 2 Approval for nonflammable fluids; Canadian Standards Association (CSA) Class I, Division 2 Approval	★
N5	Factory Mutual (FM) Class I, Division 2 Approval for flammable fluids	★
NA	CE Marked, No Approvals	★

Options (Include with selected model number)

Standard		Standard
M4	Local Operator Interface (LOI)	★
Expanded		
B6	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	
Quick Installation Guide (QIG) Language Options (Default is English)		
Expanded		
YA	Danish	
YB	Hungarian	
YC	Czech	
YD	Dutch	
YE	Bulgarian	
YF	French	
YG	German	
YH	Finnish	

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

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

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.

YI	Italian	
YJ	Japanese	
YL	Polish	
YM	Mandarin	
YN	Norwegian	
YP	Portuguese	
YS	Spanish	
YR	Russian	
YW	Swedish	
Typical Model Number: 8712H R 12 N 0 M 4		

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

Rosemount 8700 Series



Rosemount 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.



Rosemount 8707/8712H 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.

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 ⁽¹⁾	
8705	Magnetic Flowmeter Sensor	
8707	High-Signal Magnetic Flowmeter Sensor	
Lining Material		
Standard		Standard
T	PTFE ⁽²⁾	★
P	Polyurethane ⁽³⁾	★
Expanded		
A	PFA ⁽⁴⁾	
F	ETFE ⁽⁵⁾	
N	Neoprene ⁽³⁾	
L	Linatex ⁽³⁾	
Electrode Material		
Standard		Standard
S	316L Stainless Steel	★
H	Nickel Alloy 276 (UNS N10276)	★
T	Tantalum	★
P	80% Platinum - 20% Iridium	★
Expanded		
N	Titanium	

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

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.

Electrode Type		Electrode Material (From Above)					
		Code S	Code H	Code T	Code P	Code N	
Standard							Standard
A	2 Electrodes - Standard	•	•	•	•	•	★
E	3rd Grounding Electrode	•	•	•	•	•	★
Expanded							
B	2 Electrodes - Bullet Nose	•	•				
F	3rd Grounding Electrode Bullet Nose	•	•				
Line Size ⁽⁶⁾		Lining Material (From Above)					
		Code A	Code T	Code F	Code P	Code N and L	
005	1/2-in. (15 mm) (8705 only)	•	•	•	NA	NA	
010	1-in. (25 mm) (8705 only)	•	•	•	•	•	
015	1 1/2-in. (40 mm) (8705 only)	•	•	•	•	•	
020	2-in. (50 mm) (8705 only)	•	•	•	•	•	
030	3-in. (80 mm)	•	•	•	•	•	
040	4-in. (100 mm)	•	•	•	•	•	
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 Type ⁽⁶⁾							
C	Carbon Steel Raised Face Slip-On						
S	Stainless Steel (304/304L) Raised Face Slip-On						
P	Stainless Steel (316/316L) Raised Face Slip-On						
J ⁽⁷⁾	Carbon Steel Ring Type Joint (RTJ) Weld Neck						
K ⁽⁷⁾	Stainless Steel (304/304L) Ring Type Joint (RTJ) Weld Neck						

Rosemount 8700 Series

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 ⁽⁶⁾		Availability			
1	ASME B16.5 ANSI Class 150 (30 and 36 in. AWWA C207 Class D Flat Face)	Refer to Table 9 on page 17 for carbon steel flange material availability	Refer to Table 10 on page 17 for stainless steel flange material availability		
2	MSS SP44 Class 150 (30 and 36 in. line sizes only)				
3	ASME B16.5 (ANSI) Class 300/MSS-SP44 Class 300 (30-in only)				
6	ASME B16.5 (ANSI) Class 600 (Maximum Pressure: 1000 psig) ⁽⁸⁾				
7	ASME B16.5 (ANSI) Class 600 ⁽⁹⁾				
9	ASME B16.5 (ANSI) Class 900 ⁽⁹⁾⁽¹⁰⁾				
M	ASME B16.5 (ANSI) Class 1500 ⁽¹¹⁾				
N	ASME B16.5 (ANSI) Class 2500 ⁽¹¹⁾				
D	EN 1092-1 (DIN) PN 10			Refer to Table 11 on page 18 for flange material availability	
E	EN 1092-1 (DIN) PN 16				
F	EN 1092-1 (DIN) PN 25				
H	EN 1092-1 (DIN) PN 40				
K	AS2129 Table D ⁽¹²⁾				
L	AS2129 Table E ⁽¹²⁾				
P	JIS B 2220, nominal pressure 10K ⁽¹³⁾	Refer to Table 12 on page 18 for flange material availability			
R	JIS B 2220, nominal pressure 20K ⁽¹³⁾				
Electrode Housing Configuration					
Standard				Standard	
W0	Sealed, Welded Housing ⁽¹⁴⁾			★	
Expanded					
W1	Sealed, Welded Housing with Pressure Relief				
W3	Sealed, Welded Housing with Separate Electrode Compartments ⁽¹⁵⁾				
Hazardous Area Approvals		8705	8707		
Standard				Standard	
NA	CE Marked, No Approvals	•	•	★	
FM & CSA					
Standard				Standard	
N0	FM Class 1 Div 2 for Non-Flammable fluids; CSA Class 1 Div 2	•	•	★	
N5	FM Class 1 Div 2 for Flammable fluids	•	•	★	
Expanded					
E5 ⁽¹⁶⁾	FM Class 1 Div 1, Explosion Proof	•			
ATEX					
Standard				Standard	
N1	ATEX EEx nA [L] IIC Type n Approval	•		★	
Expanded					
E1	ATEX EEx e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	•			
KD	ATEX EEx e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes)	•			
ND	ATEX Dust Approval	•			
NEPSI					
Expanded					
E3	NEPSI Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	•			
EP	NEPSI Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes)	•			

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

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.

KOSHA		8705	8707	
Expanded				
E9	KOSHA Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	•		
EK	KOSHA Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes)	•		
INMETRO				
Expanded				
E2	InMetro BR-Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	•		
EB	InMetro BR-Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes)	•		
GOST				
E8	GOST Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	•		
EM	GOST Ex e ia IIC T3..T6, Increased Safety Approval (with I.S. electrodes)	•		

Options (Include with selected model number)

Certifications				
Expanded				
CR ⁽¹⁷⁾	Canadian Registration Number (CRN) certification	•	•	
PD	Pressure Equipment Directive Certification (PED, per 97/23/EC)	•	•	
DW	NSF Drinking Water Certification ⁽¹⁸⁾	•	•	
Optional Grounding Rings⁽¹⁹⁾				
Standard				Standard
G1	(2) 316L SST Ground Rings	•	•	★
G2	(2) Nickel Alloy 276 (UNS N10276) Ground Rings ⁽²⁰⁾	•	•	★
G5	(1) 316L SST Ground Rings	•	•	★
G6	(1) Nickel Alloy 276 (UNS N10276) Ground Rings ⁽²⁰⁾	•	•	★
Expanded				
G3	(2) Titanium Ground Rings ⁽²⁰⁾	•	•	
G4	(2) Tantalum Ground Rings ⁽²¹⁾	•	•	
G7	(1) Titanium Ground Rings ⁽²⁰⁾	•	•	
G8	(1) Tantalum Ground Rings ⁽²¹⁾	•	•	
Optional Lining Protectors⁽¹⁹⁾				
Standard				Standard
L1	(2) 316L SST Lining Protectors	•	•	★
L2	(2) Nickel Alloy 276 (UNS N10276) Lining Protectors ⁽²⁰⁾	•	•	★
Expanded				
L3	(2) Titanium Lining Protectors ⁽²⁰⁾	•	•	
H1	Lay-length matching 8701 using spool piece ⁽²⁰⁾	•	•	
H2	Lay-length matching 8701 ⁽²²⁾	•	•	
H5	Lay-length matching Foxboro 2800 using spool piece ⁽²³⁾	•	•	
H7	Lay-length ABB CopaX and MagX using spool piece ⁽²⁰⁾	•	•	
Other Options				
Standard				Standard
B3	Integral Mount with 8732	•		★
Expanded				
D1	High Accuracy Calibration (0.15% of rate for matched sensor and E-Series transmitter) ⁽²⁴⁾ (0.25% of rate for matched 8707 and 8712H)	•	•	
DT	Heavy Duty Tagging	•	•	
J1	CM 20 Conduit Adapter	•	•	
J2	PG 13.5 Conduit Adapter	•	•	
SC	304 SST Junction Box, fully welded to housing	•	•	

Rosemount 8700 Series

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.

		8705	8707	
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)	•	•	
Q4	Calibration Certificate per ISO 10474 3.1B	•	•	
Q8	Material Traceability 3.1B	•	•	
Q9	Material Traceability Electrode only 3.1B	•	•	
Q66	Welding Procedure Qualification Record Documentation	•	•	
Q67	Welding Performance Qualification Record Documentation	•	•	
Q70	Weld Examination Inspection Certificate, ISO 10474 3.1B	•	•	
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 ANSI 150, ANSI 300, and DIN Flanges. Available in 1 in. to 10 in. ANSI 600 Derated only.
- (3) Available in 1 in. to 24 in. line sizes ANSI 150, ANSI 300, and DIN Flanges. Available in 30 and 36 in. AWWA Class 125 and ANSI 150. Available in 1 in. to 24 in. ANSI 600 full rated. Available in 1 to 12 in. ANSI 900, ANSI 1500, and ANSI 2500.
- (4) Available in 1/2 in. to 12 in. line sizes ANSI 150, ANSI 300, and DIN Flanges. Available in 14 in. ANSI 150 only. Not available with electrode housing code W3.
- (5) Available in 1/2 in. to 14 in. line sizes ANSI 150, ANSI 300, and DIN Flanges. Available in 16 in. ANSI 150 only. Available in 1 to 10 in. ANSI 600 Derated only.
- (6) Refer to Table 9, Table 10, and Table 11 on page 17 and page 18 for Standard vs. Expanded offering.
- (7) Available in ANSI 1500 and ANSI 2500 only.
- (8) Electrode type options limited to two measurement electrodes or two measurement electrodes + third grounding electrode.
- (9) Electrode type options limited to two measurement electrodes only.
- (10) Lining protectors not available.
- (11) Available with liner options P, N or L line size limited to 1.5 in. to 12 in. for ANSI 1500 and 2 in. to 12 in. for ANSI 2500, available with two measurement electrodes only, not available with ground rings or lining protectors.
- (12) Liner material options limited to T, P, or F; cannot be ordered with ground rings, lining protectors, or H (x) options.
- (13) Available with liner option T only, line size 1/2-in. to 8-in. only, not available with grounding rings or lining protectors.
- (14) Available with ANSI 150, ANSI 300, and DIN flanges.
- (15) Available in 3-in. and larger meters for the 8705. Available in 8-in. and larger meters for 8707.
- (16) Available in sensor line sizes 0.5 through 8 in. (15 through 200 mm).
- (17) CRN Approval covers Alberta and Ontario as a standard. Consult the Factory for availability of other Provinces.
- (18) Only available with PTFE or Polyurethane Liner Material with 316L SST Electrode Material.
- (19) Grounding Rings and Lining Protectors provide the same fluid grounding function. Lining Protectors available for PTFE and ETFE only.
- (20) Available in sensor line sizes 0.5 through 12 in. (15 through 300 mm).
- (21) Available in sensor line sizes 0.5 through 8 in. (15 through 200 mm).
- (22) Available in sensor line sizes 0.5 through 16 in. (15 through 400 mm).
- (23) Available in sensor line sizes 3 through 18 in. (80 through 450 mm).
- (24) D1 Option Code must be ordered with sensor and transmitter.

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

Table 9. Carbon Steel ASME B16.5 (ANSI) Flange Rating Availability⁽¹⁾

Line Size Code	Line Size Inches (mm)	Class 150 (C1)	MSS-SP44 Class 150 (C2)	Class 300 (C3)	Class 600 (C6)	Class 600 (C7)	Class 900 (C9)	Class 1500 (JM)	Class 2500 (JN)
005	0.5 (15)	★	NA	★	•	NA	NA	NA	NA
010	1 (25)	★	NA	★	•	•	•	NA	NA
015	1.5 (40)	★	NA	★	•	•	•	•	•
020	2 (50)	★	NA	★	•	•	•	•	•
030	3 (80)	★	NA	★	•	•	•	•	•
040	4 (100)	★	NA	★	•	•	•	•	•
060	6 (150)	★	NA	★	•	•	•	•	•
080	8 (200)	★	NA	★	•	•	•	•	•
100	10 (250)	★	NA	★	•	•	•	•	•
120	12 (300)	★	NA	★	CF	•	•	•	•
140	14 (350)	•	NA	•	CF	•	NA	NA	NA
160	16 (400)	•	NA	•	CF	•	NA	NA	NA
180	18 (450)	•	NA	•	CF	•	NA	NA	NA
200	20 (500)	•	NA	•	CF	•	NA	NA	NA
240	24 (600)	•	NA	•	CF	•	NA	NA	NA
300 ⁽²⁾	30 (750)	•	•	•	NA	NA	NA	NA	NA
360 ⁽³⁾	36 (900)	•	•	NA	NA	NA	NA	NA	NA

(1) Stars (★) represent a Standard offering while dots represent an Expanded offering.

(2) MSS-SP44 Class 300 Flanges for option C3

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

Table 10. Stainless Steel ASME B16.5 (ANSI) Flange Rating Availability⁽¹⁾

Line Size Code	Line Size Inches (mm)	Class 150 (S1)	MSS-SP44 Class 150 (S2)	Class 300 (S3)	Class 600 (S6)	Class 600 (S7)	Class 900 (S9)	Class 1500 (KM)	Class 2500 (KN)	Class 1500 (P1)	MSS-SP44 Class 150 (P2)	Class 300 (P3)
005	0.5 (15)	★	NA	•	•	NA	NA	NA	NA	•	NA	•
010	1 (25)	★	NA	•	•	•	•	NA	NA	•	NA	•
015	1.5 (40)	★	NA	•	•	•	•	•	•	•	NA	•
020	2 (50)	★	NA	•	•	•	•	•	•	•	NA	•
030	3 (80)	★	NA	•	•	•	•	•	•	•	NA	•
040	4 (100)	★	NA	•	•	•	•	•	•	•	NA	•
060	6 (150)	★	NA	•	•	•	•	•	•	•	NA	•
080	8 (200)	★	NA	•	•	•	•	•	•	•	NA	•
100	10 (250)	★	NA	•	•	•	•	•	•	•	NA	•
120	12 (300)	★	NA	•	CF	•	•	•	•	•	NA	•
140	14 (350)	•	NA	•	CF	•	NA	NA	NA	•	NA	•
160	16 (400)	•	NA	•	CF	•	NA	NA	NA	•	NA	•
180	18 (450)	•	NA	•	CF	•	NA	NA	NA	•	NA	•
200	20 (500)	•	NA	•	CF	•	NA	NA	NA	•	NA	•
240	24 (600)	•	NA	•	CF	•	NA	NA	NA	•	NA	•
300 ⁽²⁾	30 (750)	•	•	•	NA	NA	NA	NA	NA	•	•	•
360 ⁽³⁾	36 (900)	•	•	NA	NA	NA	NA	NA	NA	•	•	NA

(1) Stars (★) represent a Standard offering while dots represent an Expanded offering.

(2) MSS-SP44 Class 300 Flanges for option S3 or P3

(3) AWWA C207 Class D Flat Face Flange for option S1 or P1 Only

Rosemount 8700 Series

Table 11. EN 1092-1 (DIN) Flange Rating Availability⁽¹⁾

Line Size Code	Line Size Inches (mm)	Carbon Steel PN 10 (CD)	Carbon Steel PN 16 (CE)	Carbon Steel t PN 25 (CF)	Carbon Steel PN 40 (CH)	Carbon Steel Table D (CK)	Carbon Steel Table E (CL)	Stainless Steel PN 10 (SD)	Stainless Steel PN 16 (SE)	Stainless Steel PN 25 (SF)	Stainless Steel PN 40 (SH)
005	0.5 (15)	NA	NA	NA	★	•	•	NA	NA	NA	★
010	1 (25)	NA	NA	NA	★	•	•	NA	NA	NA	★
015	1.5 (40)	NA	NA	NA	★	•	•	NA	NA	NA	★
020	2 (50)	NA	NA	NA	★	•	•	NA	NA	NA	★
030	3 (80)	NA	NA	NA	★	•	•	NA	NA	NA	★
040	4 (100)	NA	★	NA	★	•	•	NA	★	NA	★
060	6 (150)	NA	★	NA	★	•	•	NA	★	NA	★
080	8 (200)	★	★	•	★	•	•	•	★	•	★
100	10 (250)	★	★	•	•	•	•	•	•	•	•
120	12 (300)	★	★	•	•	•	•	•	•	•	•
140	14 (350)	•	•	•	•	•	•	•	CF	CF	CF
160	16 (400)	•	•	•	•	•	•	•	CF	CF	CF
180	18 (450)	•	•	•	•	•	•	•	CF	CF	CF
200	20 (500)	•	•	•	•	•	•	•	CF	CF	CF
240	24 (600)	•	•	•	•	•	CF	•	CF	CF	CF

(1) Stars (★) represent a Standard offering while dots represent an Expanded offering.

Table 12. JIS 2220 B Flange Rating Availability

Line Size Code	Line Size Inches (mm)	Carbon Steel 10 K (CP)	Carbon Steel 20 K (CR)	304 SST 10 K (SP)	304 SST 20 K (SR)
005	0.5 (15)	•	•	•	•
010	1 (25)	•	•	•	•
015	1.5 (40)	•	•	•	•
020	2 (50)	•	•	•	•
030	3 (80)	•	•	•	•
040	4 (100)	•	•	•	•
060	6 (150)	•	•	•	•
080	8 (200)	•	•	•	•



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 rings provided with every 8711, center the sensor in the process line and makes installation easier.

Table 13. 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
T	ETFE ⁽¹⁾	★
Expanded		
A	PFA ⁽²⁾	
S	PTFE ⁽³⁾	
Electrode Material		
Standard		Standard
S	316L Stainless Steel	★
H	Nickel Alloy 276 (UNS N10276)	★
T	Tantalum	★
P	80% Platinum - 20% Iridium	★
Expanded		
N	Titanium	
Electrode Type		
Standard		Standard
A	2 Electrodes - Standard	★
E	3rd Grounding Electrode - Standard	★
Expanded		
B	2 Electrodes - Bullet Nose ⁽⁴⁾	
F	3rd Grounding Electrode Bullet Nose ⁽⁴⁾	
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)	
30F	0.3 in. (8 mm)	

Rosemount 8700 Series

Table 13. 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 8732E Transmitter	★
Mounting Kit		
Expanded Kit: Includes two alignment rings (where applicable), threaded SST studs, and nuts		
Standard		Standard
1	ASME B16.5 (ANSI) Class 150	★
2	EN 1092-1 (DIN) PN 10/16 ⁽⁵⁾	★
3	ASME B16.5 (ANSI) Class 300	★
4	EN 1092-1 (DIN) PN 25/40 ⁽⁶⁾	★
Standard Kit: Includes two alignment rings (where applicable)		
Standard		Standard
5	ASME B16.5 (ANSI) Class 150	★
6	EN 1092-1 (DIN) PN 10/16 ⁽⁵⁾	★
7	ASME B16.5 (ANSI) Class 300	★
8	EN 1092-1 (DIN) PN 25/40 ⁽⁶⁾	★
Hazardous Area Approval		
Standard		Standard
NA	CE Marked, No Approvals	★
FM & CSA		
Standard		Standard
N0	FM Class 1 Div 2 for Non-Flammable fluids; CSA Class 1 Div 2	★
N5	FM Class 1 Div 2 for Flammable fluids	★
E5	FM Class 1 Div 1, Explosion Proof	★
ATEX		
Expanded		
E1	ATEX EEx e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	
KD	ATEX EEx e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes)	
N1	ATEX EEx nA [L] IIC Type n Approval	
ND	ATEX Dust Approval	
NEPSI		
Expanded		
E3	NEPSI Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	
EP	NEPSI Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes)	
KOSHA		
Expanded		
E9	KOSHA Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	
EK	KOSHA Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes)	
InMetro		
Expanded		
E2	InMetro BR-Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	
EB	InMetro BR-Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes)	
GOST		
Expanded		
E8	GOST Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes), integral mount with 8732E only	
EM	GOST Ex e ia IIC T3... T6, Increased Safety Approval (with I.S. electrodes)	

Table 13. 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 ⁽⁷⁾	
Optional Grounding Rings		
Standard		Standard
G1	(2) 316L SST Ground Rings	★
G5	Single 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	Single Nickel Alloy 276 (UNS N10276) Ground Ring	
G7	Single Titanium Ground Ring	
G8	Single Tantalum Ground Ring	
Other Options		
Expanded		
D1	High Accuracy Calibration (0.15% of rate for matched sensor and transmitter) ⁽⁸⁾	
DT	Heavy Duty Tagging	
Q4	Calibration Certificate per ISO 10474 3.1B	
Q8	Material Traceability 3.1B	
Q9	Material Traceability Electrode only 3.1B	
Q66	Welding Procedure Qualification Record Documentation ⁽⁹⁾	
Q67	Welding Performance Qualification Record Documentation ⁽⁹⁾	
Q70	Weld Examination Inspection Certificate, ISO 10474 3.1B ⁽⁹⁾	
Typical Model Number: 8711 TSA 020 R 5 N0		

- (1) Not available with 0.15 and 0.30 in. (4 and 8 mm) line sizes.
- (2) Available with 0.15 and 0.30 in. (4 and 8 mm) line sizes only.
- (3) Not available with 0.15 and 0.30 in. (4 and 8 mm) line sizes.
- (4) Bullet nose electrodes are available in 1.5 in. to 8 in. meters (40 mm to 200 mm).
- (5) 8 in. (200 mm) has a PN 10 mounting kit only.
- (6) 8 in. (200 mm) has a PN 25 mounting kit only.
- (7) Only available with PTFE Liner Material with 316L SST Electrode Material.
- (8) D1 Option Code must be ordered with sensor and transmitter.
- (9) 6 and 8 in. (150 and 200 mm) line sizes only.

Rosemount 8700 Series



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 14. 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	15 mm (1/2 in.)	★
010	25 mm (1 in.)	★
015	40 mm (1 1/2 in.)	★
020	50 mm (2.0 in.)	★
025	65 mm (2 1/2 in.)	★
030	80 mm (3.0 in.)	★
040	100 mm (4.0 in.)	★
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)	★
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)	

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

Table 14. 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.

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
NA	CE Marked, No Approvals	★
N0	Factory Mutual (FM) Ordinary Location; CSA; CE Marking; 3-A; EHEDG Type EL ⁽³⁾	★

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	
D3	High Velocity Meter Verification. Calibration verified at 1, 3, 10 and 20 ft/sec (0.3, 1, 3, and 6 m/s)	
HD	DanFoss Lay Length	
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	
Q8	Material Traceability Certificate per ISO 10474 3.1B (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-2002

(2) IDF Specification per BS4825 Part 4

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



Rosemount 8714D

The Rosemount 8714D Calibration Standard attaches to an 8712D, 8712E, 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 15. Rosemount 8714D Ordering Information

Model	Description
8714DQ4	Reference Calibration Standard

Rosemount 8700 Series

Tagging

The sensor and transmitter will be tagged, at no charge, in accordance with customer requirements.

Transmitter tag character height is 0.125 in. (3.18 mm). Sensor tag: 40 character maximum.

Transmitter tag: see Configuration Data Sheet for character maximum.

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:	Off
Sensor Calibration Number:	1000005010000000

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

Cable Requirements for Remote Transmitters

Description	Length	P/N
Signal Cable (20 AWG) Belden 8762, Alpha 2411 equivalent	ft	08712-0061-0001
	m	08712-0061-2003
Coil Drive Cable (14 AWG) Belden 8720, Alpha 2442 equivalent	ft	08712-0060-0001
	m	08712-0060-2003
Combination Signal and Coil Drive Cable (18 AWG) ⁽¹⁾	ft	08712-0752-0001
	m	08712-0752-2003

(1) Combination signal and coil drive cable is not recommended for high-signal magmeter system. For remote mount installations, combination signal and coil drive cable should be limited to less than 330 ft (100 m).

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

Lengths from 5 to 1,000 ft. (1.5 to 300 m) may be specified, and will be shipped with the sensor. Cable longer than 100 ft. (30 m) is not recommended for high-signal systems.




Custom Configuration (Option Code C1)

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

Rosemount 8700 Series Product Specifications Overview

Listed below are tables that outline some of the basic performance, physical, and functional specifications of the Rosemount 8700 Series Magnetic Flowmeter products. Table 16 provides an overview of the Rosemount 8700 Series Transmitter products. Table 17 provides an overview of the Rosemount 8700 Series Sensor products.





Table 16. Rosemount 8700 Series Transmitter Specifications

	Model	Base Accuracy ⁽¹⁾	Mounting	Power Supply	User Interface	Communication Protocol	Diagnostics	Sensor Compatibility	Page for Detailed Specifications	Page for Ordering Information
	8732E	0.25% Standard 0.15% High Accuracy Option	Integral or Remote	Global AC or DC	4 Optical Switch LOI Display Only	HART FOUNDATION fieldbus	Basic plus DA1 and DA2 Suite Basic plus D01 and D02 Suite	All Rosemount plus other manufacturers	page 29	page 6
	8712E	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 37	page 6
	8712H	0.5% Standard 0.25% High Accuracy Option	Remote	115 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.

Rosemount 8700 Series

Table 17. Rosemount 8700 Series Sensor Specifications

	Model	Style	Base Accuracy ⁽¹⁾	Line Sizes	Coil Drive Power	Design Features	Page for Detailed Specifications	Page for Ordering Information
	8705	Flanged	0.25% Standard 0.15% High Accuracy Option	0.5 to 36 in. (15 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 to 36 in. (15 to 900 mm)	High-Signal Pulsed DC	Superior signal stability for Noisy Applications	page 40	page 12
	8711	Wafer	0.25% Standard 0.15% High Accuracy Option	0.15 to 8 in. (4 to 200 mm)	Pulsed DC	Compact, Light Weight	page 44	page 19
	8721	Hygienic	0.5% Standard 0.25% High Accuracy Option	0.5 to 4 in. (15 to 100 mm)	Pulsed DC	3-A and EHEDG CIP/SIP	page 46	page 22




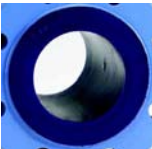


(1) For complete accuracy specifications, please refer to the sensor detailed specifications.

Product Data Sheet

00813-0100-4727, Rev UC
June 2010

Rosemount 8700 Series

Table 18. Lining Material Selection

	Liner Material	General Characteristics
	<p>PFA</p> 	<ul style="list-style-type: none"> • Best chemical resistance • Better abrasion resistance than PTFE • Best high temperature capabilities • -20 to 350°F (-29 to 177°C)
	<p>PTFE</p> 	<ul style="list-style-type: none"> • Highly chemical resistant • Excellent high temperature capabilities • -20 to 350°F (-29 to 177°C)
	<p>ETFE</p> 	<ul style="list-style-type: none"> • Excellent chemical resistance • Better abrasion resistance than PTFE • -20 to 300°F (-29 to 149°C)
	<p>Polyurethane</p> 	<ul style="list-style-type: none"> • 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
	<p>Neoprene</p> 	<ul style="list-style-type: none"> • 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
	<p>Linatex Rubber</p> 	<ul style="list-style-type: none"> • 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

Rosemount 8700 Series

Table 19. 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 hydrofluoric 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
Electrode Type	General Characteristics
Standard Measurement	• Lowest cost
	• Good for most applications
Standard Measurement + Grounding (Also see Table 20 and Table 21 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
Bulb-nose	• Slightly more expensive
	• Best option for coating processes

Table 20. Grounding Options

Grounding Options	General Characteristics
No Grounding Options (grounding straps)	• Acceptable for conductive unlined pipe
	• Grounding straps provided at no cost
Grounding Electrodes	• 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 grounding electrode

Table 21. Grounding Installation

Type of Pipe	Grounding Options No Grounding Option (Straps Only)	Grounding Rings	Grounding Electrode	Lining Protectors
Conductive Unlined Pipe	Acceptable	Not Required	Not Required	Acceptable (Not Required)
Conductive Lined Pipe	Not Acceptable	Acceptable	Acceptable	Acceptable
Non-Conductive Pipe	Not Acceptable	Acceptable	Acceptable	Acceptable

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.

Sensor Coil Resistance

350 Ω maximum

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. Excludes the effect of interconnecting cable length in remote mount transmitter installations.

Power Supply

90-250 V AC, 50-60 Hz or 12-42 V DC

AC Power Supply Requirements

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

Figure 2. AC Current Requirements

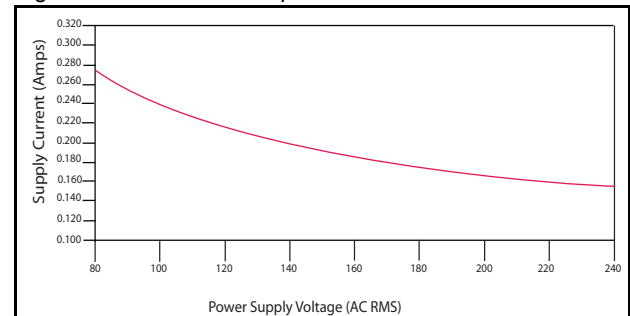
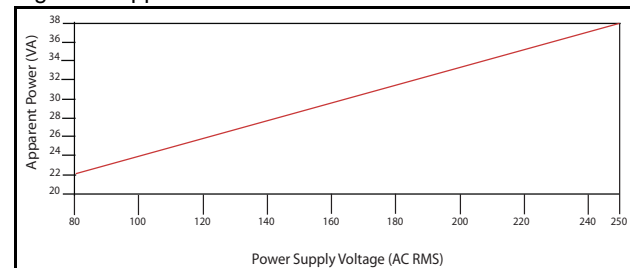


Figure 3. Apparent Power

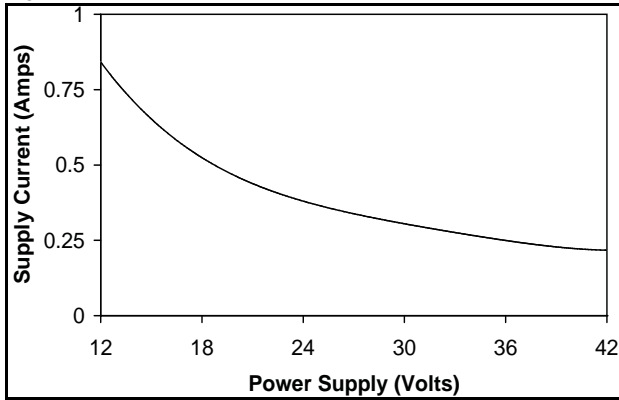


Rosemount 8700 Series

DC Supply Current Requirements

Units powered by 12-42 V DC power supply may draw up to 1 amp of current steady state.

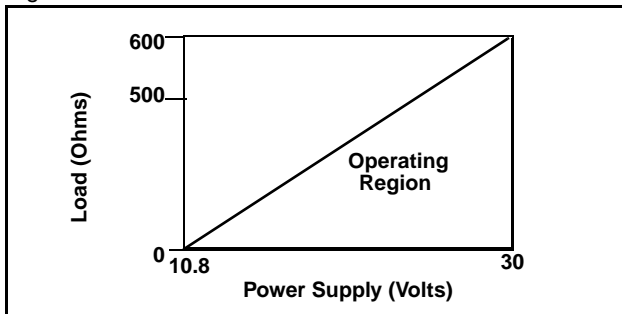
Figure 4. DC Current Requirements



DC Load Limitations (Analog Output)

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

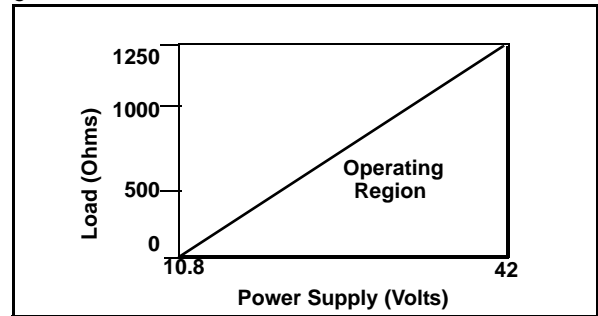
Figure 5. 8732E DC Load Limitations



$$R_{max} = 31.25 (V_{ps} - 10.8)$$

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

Figure 6. 8712E 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

10 watts maximum

Switch-on current

AC: Maximum 26 A (< 5 ms) at 250 V AC

DC: Maximum 30 A (< 5 ms) at 42 V DC

8732E Ambient Temperature Limits

Operating

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

13 to 149 °F (-25 to 65 °C) with local operator interface

Storage

-40 to 185 °F (-40 to 85 °C)

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

8732E Humidity Limits

0-100% RH to 150 °F (65 °C)

8712E Ambient Temperature Limits

Operating

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

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

Storage

-40 to 176 °F (-40 to 80 °C)

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

8712E Humidity Limits

0-100% RH to 120 °F (49 °C), decreases linearly to 10% RH at 130 °F (54 °C)

Enclosure Rating

Type 4X, IEC 60529, IP66 (transmitter)

Transient Protection Rating

The 8732E has built in transient protection that conforms to EN 61000-4-4 for burst currents and 61000-4-5 for surge currents. For CE testing the transmitter is compliant with IEC 611185-2.2000 Class 3 which is 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

Low Flow Cutoff

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
- Coated Electrode Detection⁽¹⁾

SMART Meter Verification (DA2/D02)

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

Output Signals

8732E HART / Pulse Specifications

Analog Output Adjustment⁽²⁾

4–20 mA, switch-selectable as internally or externally powered 10 to 30 V DC; 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 30 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 m/s. Local operator interface automatically calculates and displays maximum allowable output frequency.

8712E HART / Pulse Specifications

Analog Output Adjustment⁽³⁾

4–20 mA, switch-selectable as internally or externally powered 5 to 24 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.

(1) Only available on the 8732E 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.

Rosemount 8700 Series

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. Local operator interface automatically calculates and displays maximum allowable output frequency.

Optional Digital Output Function (AX option)

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.

Empty Pipe⁽¹⁾:

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

Transmitter Faults⁽¹⁾:

Activates switch closure output when a transmitter fault is detected.

Flow Limits (2)⁽¹⁾:

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⁽¹⁾:

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

Diagnostic Status⁽¹⁾:

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

Optional Digital Input Function (AX option)

Externally powered at 5 to 24 V DC, transistor switch closure up to 3 W 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. Activated by applying a contact closure.

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.

(1) Available on the 8732E HART in August 2010.

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 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.

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

Arithmetic Block

Provides pre-defined 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.

Totalizer

Non-volatile totalizer for net, gross, forward and reverse totals.

Rosemount 8700 Series

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 8732E 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 8732E 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.

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.

8732E 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.)

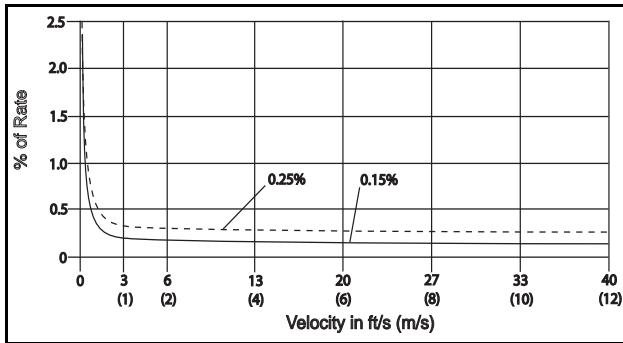
Accuracy

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

Rosemount E Series with 8705/8707 Sensor:

Standard system accuracy is $\pm 0.25\%$ 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 $\pm 0.25\%$ of rate ± 1.5 mm/sec.

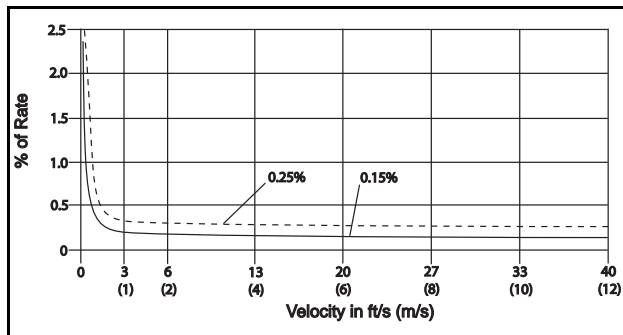
Optional high accuracy is $\pm 0.15\%$ of rate ± 1.0 mm/sec from 0.04 to 13 ft/s (0.01 to 4 m/s); above 13 ft/s (4 m/s), the system has an accuracy of $\pm 0.18\%$ of rate.⁽¹⁾



Rosemount E-Series with 8711 Sensor:

Standard system accuracy is $\pm 0.25\%$ of rate ± 2.0 mm/sec from 0.04 to 39 ft/s (0.01 to 12 m/s).

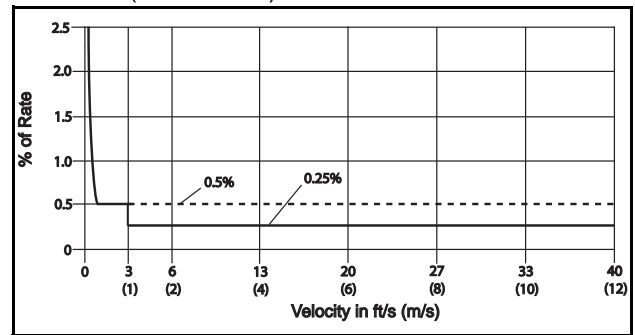
Optional high accuracy is $\pm 0.15\%$ of rate ± 1.0 mm/sec from 0.04 to 13 ft/s (0.01 to 4 m/s); above 13 ft/s (4 m/s), the system has an accuracy of $\pm 0.18\%$ of rate.



Rosemount E-Series with 8721 Sensor:

Standard system accuracy is $\pm 0.5\%$ 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 $\pm 0.25\%$ of rate from 3 to 39 ft/s (1 to 12 m/s).



Rosemount E-Series with Legacy 8705/8707 Sensors:

Standard system accuracy is $\pm 0.5\%$ 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).

Rosemount E-Series with Legacy 8711 Sensors:

Standard system accuracy is $\pm 0.5\%$ of rate from 3 to 39 ft/s (1 to 12 m/s); between 0.04 and 3.0 ft/s (0.01 and 1 m/s), the system has an accuracy of ± 0.015 ft/s (0.005 m/s).

Rosemount E-Series with 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.

Analog Output Effect

Analog output has the same accuracy as frequency output plus an additional $\pm 4\mu\text{A}$.

Vibration Effect

IEC 60770-1

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

Rosemount 8700 Series

Repeatability

±0.1% of reading

Response Time (Analog Output)

50 ms maximum 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

EN61326-1: 2006 (Industrial) electromagnetic compatibility (EMC) for process and laboratory apparatus.

8732E Physical Specifications

Materials of Construction

Housing

Low copper aluminum, Type 4X and IEC 60529 IP66

Paint

Polyurethane

Cover Gasket

Rubber

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.

Transmitter Weight

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

8712E Physical Specifications

Materials of Construction

Housing

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

Paint

Polyurethane

Cover Gasket

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

90–250 V ac systems

2 amp, Quick-acting Bussman AGCI or equivalent

12–42 V DC systems

3 amp, Quick-acting Bussman AGCI or equivalent

Transmitter Weight

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



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.

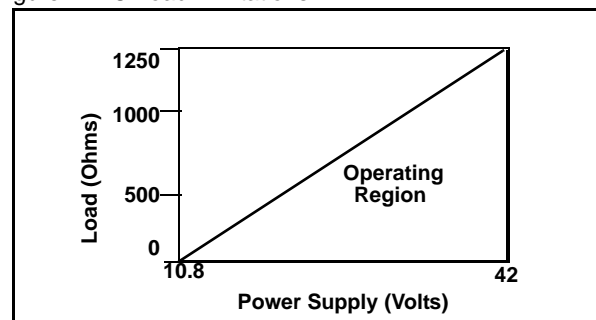
Power Supply

115 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



$$R_{\max} = 41.7(V_{\text{ps}} - 10.8)$$

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) with or without local operator interface

Storage

-40 to 176 °F (-40 to 80 °C)

Humidity Limits

0-100% RH at 120 °F (49 °C), decreases linearly to 10% RH at 130 °F (54 °C)

Enclosure Ratings

Type 4X, IP66

Rosemount 8700 Series

Output Signals

Analog Output Adjustment

4–20 mA, switch-selectable as internally or externally powered 5 to 24 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 -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 m/s. Local operator interface automatically calculates and displays maximum allowable output frequency.

Auxiliary Output Function

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 Cutoff

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. 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.

Performance Specifications

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

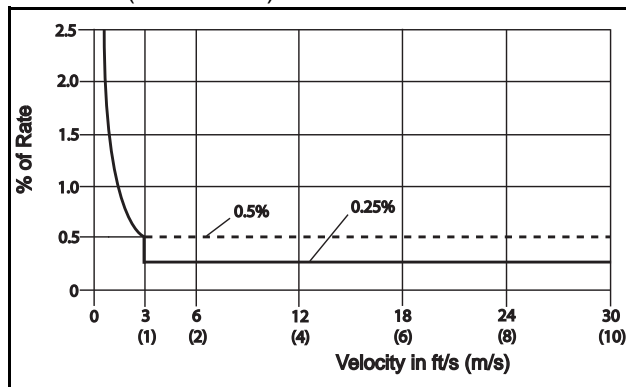
Accuracy

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

Rosemount High Signal Flowmeter System

System accuracy is $\pm 0.5\%$ 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 $\pm 0.25\%$ of rate from 3 to 30 ft/s (1 to 10 m/s).



Analog Output Effect

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

Vibration Effect

$\pm 0.1\%$ of span per SAMA PMC 31.1, Level 2

Repeatability

$\pm 0.1\%$ of reading

Response Time

0.2 seconds maximum response to step change in input

Stability

$\pm 0.1\%$ of rate over six months

Ambient Temperature Effect

$\pm 1\%$ per 100 °F (37.8 °C)

EMC Compliance

EN61326-1: 2006 (Industrial) electromagnetic compatibility (EMC) for process and laboratory apparatus.

Physical Specifications

Materials of Construction

Housing

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

Paint

Polyurethane

Cover Gasket

Rubber

Electrical Connections

Four $\frac{1}{2}$ -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

115 V ac systems

5 amp, Quick-acting Bussman AGCI or equivalent.

Transmitter Weight

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

Rosemount 8700 Series



Rosemount Flanged Sensor Specifications

Functional Specifications

Service

Conductive liquids and slurries

Line Sizes

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

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

Interchangeability

Rosemount 8705 Sensors are interchangeable with 8732, and 8712E Transmitters. Rosemount 8707 High-Signal Sensors are interchangeable with 8732, 8712E, 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 8732E can be configured using the DeltaV™ fieldbus configuration tool or another FOUNDATION fieldbus configuration device. No further calibration is necessary.

Upper Range Limit

39 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)

Ambient Temperature Limits

–30 to 150 °F (–34 to 65 °C)

Pressure Limits

See Table 22 and Table

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.

(1) Available for Rosemount 8705 Sensors only.

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

Conductivity Limits

Process liquid must have a 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. Excludes the effect of interconnecting cable length in remote mount transmitter installations.

Table 22. Temperature vs. Pressure Limits⁽¹⁾

Sensor Temperature vs. Pressure Limits for ASME B16.5 Class Flanges (1/2- to 36-in. line sizes) ⁽²⁾					
Flange Material	Flange Rating	Pressure			
		@ -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
304 Stainless Steel	Class 2500	6170 psi	5625 psi	5470 psi	5375 psi
	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), respectively.

(2) 30- and 36-in. AWWA C207 Table 23 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 23. Temperature vs. Pressure Limits⁽¹⁾

Sensor Temperature vs. Pressure Limits for AS2129 Table D and E Flanges (4- to 24-in. line sizes)					
Flange Material	Flange Rating	Pressure			
		@ -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), respectively.

Rosemount 8700 Series

Table 24. Temperature vs. Pressure Limits ⁽¹⁾

Sensor Temperature vs. Pressure Limits for DIN Flanges (15 to 600 mm line sizes)					
Flange Material	Flange Rating	Pressure			
		@ -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.

Physical Specifications

Non-Wetted Materials

Sensor

AISI Type 304 SST or Type 316L SST

Flanges

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

Housing

Welded steel

Paint

Polyurethane

Process Wetted Materials

Lining

PFA, PTFE, ETFE, polyurethane, neoprene, Linatex

Electrodes

316L SST, Nickel Alloy 276 (UNS N10276), tantalum, 80% platinum-20% iridium, titanium

Process Connections

ASME B16.5 (ANSI) Class 150, Class 300, Class 600, Class 900, Class 1500, or Class 2500

0.5- to 36-in. (Class 150)

0.5- to 30-in. (Class 300)

0.5- to 24-in. (Class 600)⁽¹⁾

1- to 12-in. (Class 900)⁽²⁾

1.5- to 12-in. (Class 1500)⁽²⁾

2- to 12-in. (Class 2500)⁽²⁾

AWWA C207 Table 3 Class D

30 and 36 in.

EN 1092 (DIN) PN 10, 16, 25, and 40

PN10: Not available for flange sizes from 15 to 150 mm

PN16: Not available for flange sizes from 15 to 80 mm

PN 25: Not available for flange sizes from 15 to 150 mm

PN40: Available for all flange sizes

AS 2129 Table D and E

0.5 to 36 in.

(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.

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

Electrical Connections

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

Grounding Electrode

An optional grounding 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 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 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 18.

Weight

See dimensional tables starting with Table 33 on page 63.

Rosemount 8700 Series



Rosemount 8711 Wafer Sensor Specifications

SPECIFICATIONS

Functional Specifications

Service

Conductive liquids and slurries

Line Sizes

0.15 in. through 8 in. (4 through 200 mm)

Interchangeability

Rosemount 8711 Sensors are interchangeable with 8732 and 8712E 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 8732E can be configured using any compatible digital fieldbus configuration tool. No further calibration is necessary.

Upper Range Limit

39 ft/s (12 m/s)

Process Temperature Limits

ETFE Lining

-20 to 300 °F (-29 to 149 °C) for 0.5- through 8-in. (15–200 mm) line sizes

PTFE Lining

-20 to 350 °F (-29 to 177 °C)

PFA Lining

-20 to 200 °F (-29 to 93 °C)

Ambient Temperature Limits

-30 to 150 °F (-34 to 65 °C)

Maximum Safe Working Pressure at 100 °F (38 °C)

ETFE Lining

Full vacuum to 740 psi (5.1 MPa) for 0.5- through 8-in. (15 through 200 mm) sensors

PTFE Lining

Full vacuum through 4-in. (100 mm) line sizes. Consult factory for vacuum applications with line sizes of 6 inches (150 mm) or larger.

PFA Lining

Full vacuum to 285 psi (1.96 MPa) for 0.15- and 0.30-in. (4 and 8 mm) sensors

Conductivity Limits

Process liquid must have a conductivity of 5 microsiemens/cm (5 micromhos/cm) or greater for 8711. Excludes the effect of interconnecting cable length in remote mount transmitter installations.

Physical Specifications

Non-Wetted Materials

Sensor

303 SST (ASTM A582)
CF3M or CF8M (ASTM A351)

Coil Housing

Investment cast steel (ASTM A-27)
ASTM A732 (cast), A519, A513, A53 (pipe),
A569, A570 (sheet)

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 (ANSI): Class 150, 300

EN 1092 (DIN): PN 10 and 25

BS: 10 Table D, E, and F

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

Studs, Nuts, and Washers⁽¹⁾

ASME B16.5 (ANSI)

0.15- through 1-in. (4 through 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.

1.5- through 8-in. (40 through 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 (DIN)

4 through 25 mm (0.15- through 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 through 200 mm (1.5- through 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.

Grounding Electrode

An optional grounding 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 25.

(1) 0.15 and 0.30 in. (4 and 80 mm) sensors mount between 1/2-in. flange.

Rosemount 8700 Series



Rosemount 8721 Sanitary Sensor Specifications

Functional Specifications

Service

Conductive liquids and slurries

Line Sizes

1/2 - 4 in. (15–100 mm)

Sensor Compatibility and Interchangeability

The Rosemount 8721 Sensors are interchangeable with Rosemount 8732 and 8712E 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 the transmitter through the Local Operator Interface (LOI) or the Field Communicator. In a digital fieldbus environment, the 8732E can be configured using compatible digital fieldbus configuration tool. No further calibration is necessary.

Conductivity Limits

Process liquid must have a 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

5 Ω to 10 Ω (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.

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 25. 8721 Sensor Weight

Line Size	Sensor Only	008721-0350 Tri-Clamp fitting (each)
0.5	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)
1.5	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)
2.5	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 Electropolished 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.

Product Certifications

Approved Manufacturing Locations

Rosemount Inc. — Eden Prairie, Minnesota, USA
Fisher-Rosemount Tecnologias de Flujo, S.A. de C.V. —
Chihuahua Mexico
Emerson Process Management Flow — Ede, The Netherlands
Asia Flow Technologies 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 8732E 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 8712E 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. - 24 in. with all DIN flanges and ANSI 150 and ANSI 300 flanges. Also available with ANSI 600 flanges in limited line sizes.

Line Size: 30 in. - 36 in. with AWWA 125 flanges
QS Certificate of Assessment - EC No. PED-H-100
Module H Conformity Assessment

Rosemount 8711 Magnetic Flowmeter Sensors Line Sizes: 1.5, 2, 3, 4, 6, and 8 in.

QS 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 8732E, 8712E, and 8712D 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 08712-0752-0001 (ft) or 08712-0752-0003 (m) is required to be used to meet EMC requirements.

Low Voltage Directive (2006/95/EC)

Model 8732E, 8712E, and 8712D - EN 61010 -1: 2001

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

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 8732E 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 8712E transmitters:

IEC 60079-0: 2004

IEC 60079-15: 2005-03

Rosemount 8700 Series

HAZARDOUS LOCATIONS PRODUCT APPROVALS 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 Hazardous Location Certifications starting on page 53.

Table 26. Factory Mutual (FM) Approvals Offering

	Transmitter	8732E			8712E ⁽¹⁾			8712H ⁽¹⁾
	Sensor	8705	8707	8711	8705	8707	8711	8707
Hazardous Area Approval Code								
Non-Classified Locations								
Transmitter	NA	NA	NA	NA	NA	NA	NA	N0
Sensor	NA	N0	NA	NA	NA	N0	NA	N0
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	N0
Sensor: Groups A,B,C,D T5	N0	N0 ⁽⁴⁾	N0	N0	N0 ⁽⁴⁾	N0	N0	N0 ⁽⁴⁾
Flammable Fluids								
Trans: Groups A,B,C,D T4	N5	N5	N5	N5	N5	N5	N5	N5
Sensor: Groups A,B,C,D T5	N5	N5 ⁽⁴⁾	N5	N5	N5 ⁽⁴⁾	N5	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	CR
European Pressure Equipment Directive (PED)	PD	-	PD	PD	-	PD	-	-
NSF 61 Drinking Water ⁽⁶⁾	DW	-	DW	DW	-	DW	-	-

(1) Remote Transmitter Only.

(2) Available in line sizes 0.5 in. to 8 in. (15 mm to 200 mm) only.

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

(4) 8707 Sensor has Temp Code - T3C.

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

(6) Only available with PTFE or Polyurethane Lining Material and 316L SST Electrodes.

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

Table 27. Canadian Standards Association (CSA) Approvals Offering

	Transmitter	8732E			8712E ⁽¹⁾			8712H ⁽¹⁾
	Sensor	8705	8707	8711	8705	8707	8711	8707
Hazardous Area Approval Code								
Non-Classified Locations								
	Transmitter	NA	-	NA	NA	-	NA	-
	Sensor	NA	-	NA	NA	-	NA	-
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 ⁽⁴⁾	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.

(4) Only available with PTFE or Polyurethane Lining Material and 316L SST Electrodes.

Table 28. ATEX Approvals Offering

	Transmitter	8732E		8712E ⁽¹⁾	
	Sensor	8705	8711	8705	8711
Hazardous Area Approval Code					
Non-Hazardous					
	Trans: LVD and EMC	NA	NA	NA	NA
	Sensor: LVD and EMC	NA	NA	NA	NA
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: Ex 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: Ex 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: Ex 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 Ignition Proof	ND	ND	-	-
	Sensor: Dust Ignition Proof	ND	ND	-	-

Rosemount 8700 Series

Table 28. ATEX Approvals Offering

Other Certifications	Product Certification Code ⁽⁴⁾			
	CR	Standard	CR	Standard
Canadian Registration Number (CRN)	CR	Standard	CR	Standard
European Pressure Equipment Directive (PED)	PD	PD	PD	PD
NSF 61 Drinking Water ⁽⁵⁾	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, Output Code B or F must be ordered.
- (4) Product Certification Codes are added to the Sensor model number only.
- (5) Only available with PTFE or Polyurethane Lining Material and 316L SST Electrodes.

Table 29. IECEx Approvals Offering

	Transmitter	8732E ⁽¹⁾		8712E	
		Sensor	8705	8711	8705
Hazardous Area Approval Code					
Non-Hazardous					
Trans: Low Voltage and EMC		NA	NA	NA	NA
Sensor: Low Voltage and EMC		NA	NA	NA	NA
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 Ignition Proof		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 ⁽⁵⁾	DW	DW	DW	DW	

- (1) Available in remote mount configuration only. Requires equivalent ATEX approval on the sensor.
- (2) For I.S. Output, Output Code B or F 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.
- (5) Only available with PTFE or Polyurethane Lining Material and 316L SST Electrodes.

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

HAZARDOUS LOCATION 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.

North American Certifications Factory Mutual (FM)

NOTE

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

IS outputs for Class I, Division 1, Groups A, B, C, D.

Temp Code – T4 at 60°C

NOTE

For the 8732E transmitters with a local operator interface (LOI), the lower ambient temperature limit is -20 °C.

N0 Division 2 Approval (All transmitters)

Reference Rosemount Control Drawing 08732-1052 (8732E).

Class I, Division 2, Groups A, B, C, D

Temp Codes – T4 (8712 at 40°C),

T4 (8732 at 60°C: $-50\text{ °C} \leq T_a \leq 60\text{ °C}$)

Dust-ignition proof Class II/III, Division 1, Groups E, F, G

Temp Codes – T4 (8712 at 40°C), T5 (8732 at 60°C), T6

Enclosure Type 4X

N5 Division 2 Approval (All Transmitters)

For sensors with IS electrodes only

Reference Rosemount Control Drawing 08732-1052 (8732E).

Class I, Division 2, Groups A, B, C, D

Temp Codes – T4 (8712 at 40°C)

T4 (8732 at 60°C: $-50\text{ °C} \leq T_a \leq 60\text{ °C}$)

Dust-ignition proof Class II/III, Division 1, Groups E, F, G

Temp Codes – T4 (8712 at 40°C), T5 (8732 at 60°C),

Enclosure Type 4X

E5 Explosion-Proof Approval (8732 only)

Reference Rosemount Control Drawing 08732-1052

Explosion-Proof for Class I, Division 1, Groups C, D

Temp Code – T6 at 60°C

Dust-ignition proof Class II/III, Division 1, Groups E, F, G

Temp Code – T5 at 60°C

Class I, Division 2, Groups A, B, C, D

Temp Codes – T4 at 60°C

Enclosure Type 4X

Canadian Standards Association (CSA)

NOTE

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

IS outputs for Class I, Division 1, Groups A, B, C, D.

Temp Code – T4 at 60°C

N0 Division 2 Approval

Reference Rosemount Control Drawing 08732-1051 (8732E only)

Class I, Division 2, Groups A, B, C, D

Temp Codes – T4 (8732 at 60°C: $-50\text{ °C} \leq T_a \leq 60\text{ °C}$),

Dust-ignition proof Class II/III, Division 1, Groups E, F, G

Temp Codes – T4 (8712 at 40°C), T5 (8732 at 60°C)

Enclosure Type 4X

European Certifications

NOTE

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

IS outputs for Ex de [ia] IIB or IIC T6

E1 ATEX Flameproof

8732 - Certificate No.: KEMA 07ATEX0073 X  II 2G

Ex de IIC or Ex de [ia] IIC T6 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)

with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)

$V_{\max} = 250\text{ V AC}$ or 42 V DC

 0575

ED ATEX Flameproof

8732 - Certificate No.: KEMA 07ATEX0073 X  II 2G

Ex de IIB or Ex de [ia] IIB T6 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)

with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)

$V_{\max} = 250\text{ V AC}$ or 42 V DC

 0575

ND ATEX Dust

8732 - Certificate No.: KEMA 06ATEX0006

Ex tD A20 IP66 T 100 °C  II 1D

With IS: [Ex ia] IIC Ex Symbol II⁽¹⁾G

Amb. Temp. Limits: ($-20\text{ °C} \leq T_a \leq +65\text{ °C}$)

$V_{\max} = 250\text{ V AC}$ or 42 V DC

 0575

(1) Max surface temperature is 40 °C above the ambient temperature conditions. $T_{\max} = 100\text{ °C}$

Rosemount 8700 Series

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 31)

The electrical data is to be taken from the summary under (15 - electrical data) above. (See Table 30)

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.

INSTALLATION INSTRUCTIONS:

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 8732E 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

8712E - ATEX Certificate No: BASEEFA 05ATEX0170X

EEx nA nL IIC T4 (Ta = -40 °C to + 60 °C)

V_{max} = 42 V DC

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 EN 60079-15: 2005. This must be taken into account when installing the apparatus.

8732 HART

ATEX Certificate No: BASEEFA 07ATEX0203X Ⓢ II 3G

Ex nA nL IIC T4 (-50 °C ≤ Ta ≤ + 60 °C)

with LOI (-20 °C ≤ Ta ≤ + 60 °C)

V_{max} = 42 V DC

CE 0575

8732 digital fieldbus

ATEX Certificate No: BASEEFA 07ATEX0203X Ⓢ II 3(1)G

Ex nA nL [ia] IIC T4 (-50 °C ≤ Ta ≤ + 60 °C)

with LOI (-20 °C ≤ Ta ≤ + 60 °C)

V_{max} = 42 V DC

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.

International Certifications

IECEX

NOTE

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

IS outputs for Ex [ia] or IIC

E7 IECEX Flameproof

8732 - Certificate No.: KEM 07.0038X

Ex de IIC T6 Gb or Ex de [ia Ga] IIC T6 Gb

(-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 Gb

(-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 or

with IS: [Ex ia Ga] IIC

T6 (-50 °C ≤ Ta ≤ +60 °C)

with LOI (-20°C ≤ Ta ≤ +60 °C)

V_{max} = 250 V AC or 42 V DC

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

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 31)

The electrical data is to be taken from the summary under (15 - electrical data) above. (See Table 30)

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

8712E - Certificate No.: IECEx BAS 07.0036X
Ex nA nL IIC T4 ($T_a = -40\text{ °C}$ to $+60\text{ °C}$)
 $V_{\max} = 42\text{ V DC}$

SPECIAL CONDITIONS FOR SAFE USE (X)

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

8732 HART

Certificate No.: IECEx BAS 07.0062X
Ex nA nL IIC T4 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)
with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)
 $V_{\max} = 42\text{ V DC}$

8732 digital fieldbus

Certificate No.: IECEx BAS 07.0062X
Ex nA nL [ia] IIC T4 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)
with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)
 $V_{\max} = 42\text{ V DC}$

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 8732E output option code B, F or P must be selected.

IS outputs for Ex de [ia] IIB or IIC T6

E3 NEPSI Flameproof

8732 - Certificate No.: GYJ071438X
Ex de IIC or Ex de [ia] IIC T6 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)
with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)
 $V_{\max} = 250\text{ V AC}$ or 42 V DC

EP NEPSI Flameproof

8732 - Certificate No.: GYJ071438X
Ex de IIB or Ex de [ia] IIB T6 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)
with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)
 $V_{\max} = 250\text{ V AC}$ or 42 V DC

InMetro - Brazil

NOTE

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

IS outputs for Ex de [ia] IIB or IIC T6

E2 InMetro Flameproof

8732 - Certificate No.: NCC 5030/08
BR-Ex de IIC or BR-Ex de [ia] IIC T6 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)
with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)
 $V_{\max} = 250\text{ V AC}$ or 42 V DC

EB InMetro Flameproof

8732 - Certificate No.: NCC 5030/08
BR-Ex de IIB or BR-Ex de [ia] IIB T6 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)
with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)
 $V_{\max} = 250\text{ V AC}$ or 42 V DC

KOSHA - Korea

NOTE

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

IS outputs for Ex de [ia] IIB or IIC T6

E9 KOSHA Flameproof

8732 - Certificate No.: 2008-2094-Q1X
Ex de IIC or Ex de [ia] IIC T6 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)
with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)
 $V_{\max} = 250\text{ V AC}$ or 42 V DC

EK KOSHA Flameproof

8732 - Certificate No.: 2008-2094-Q1X
Ex de IIB or Ex de [ia] IIB T6 ($-50\text{ °C} \leq T_a \leq +60\text{ °C}$)
with LOI ($-20\text{ °C} \leq T_a \leq +60\text{ °C}$)
 $V_{\max} = 250\text{ V AC}$ or 42 V DC

Sensor Approval Information

North American Certifications

Factory Mutual (FM)

- N0 Division 2 Approval for Non-Flammable Fluids (All Sensors)**
 Class I, Division 2, Groups A, B, C, D
 Temp Code – T5 (8705/8711 at 60°C)
 Temp Code – T3C (8707 at 60°C)
 Dust-Ignition proof Class II/III, Division 1, Groups E, F, G
 Temp Code – T6 (8705/8711 at 60°C)
 Temp Code – T3C (8707 at 60°C)
 Enclosure Type 4X
- N0 for 8721 Hygienic Sensor**
 Factory Mutual (FM) Ordinary Location;
 CE Marking; 3-A Symbol Authorization #1222;
 EHEDG Type EL

- N5 Division 2 Approval for Flammable Fluids (All Sensors)**
 Class I, Division 2, Groups A, B, C, D
 Temp Code – T5 (8705/8711 at 60°C)
 Temp Code – T3C (8707 at 60°C)
 Dust-Ignition proof Class II/III, Division 1, Groups E, F, G
 Temp Code – T6 (8705/8711 at 60°C)
 Temp Code – T3C (8707 at 60°C)
 Enclosure Type 4X
- E5 Explosion-Proof (8705 and 8711 Only)**
 Explosion-Proof for Class I, Division 1, Groups C, D
 Temp Code – T6 at 60°C
 Dust-Ignition proof Class II/III, Division 1, Groups E, F, G
 Temp Code – T6 at 60°C
 Class I, Division 2, Groups A, B, C, D
 Temp Code – T5 at 60°C
 Enclosure Type 4X

Canadian Standards Association (CSA)

- N0** Suitable for Class I, Division 2, Groups A, B, C, D
 Temp Code – T5 (8705/8711 at 60°C)
 Temp Code – T3C (8707 at 60°C)
 Dust-Ignition proof Class II/III, Division 1, Groups E, F, G
 Enclosure Type 4X
- N0 for 8721 Hygienic Sensor**
 Canadian Standards Association (CSA) Ordinary Location;
 CE Marking; 3-A Symbol Authorization #1222;
 EHEDG Type EL

European Certifications

- ND** ATEX Dust Certificate No.: KEMA 06ATEX0006
 II 1D Ex tD IP6x T105°C (-50 ≤ T_{amb} ≤ 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 Non-Sparking/Non-incendive**
 Certificate No: KEMA02ATEX1302X II 3G
 EEx nA [L] IIC T3... T6
 Ambient Temperature Limits -20 to 65°C

SPECIAL CONDITIONS FOR SAFE USE (X):

The relation between ambient temperature, process temperature and temperature class is to be taken from the table under (15-description) above. - (See Table 13) The electrical data is to be taken from the summary under (15-electrical data above). (See Table 12)

E1, ATEX Increased Safety with IS Electrodes

- KD** Certificate No: KEMA03ATEX2052X II 1/2G
 EEx e ia IIC T3... T6 (Ta = -20 to +60°) (See Table 31)
 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 the table under (15-description) above. - (See Table 11) The electrical data is to be taken from the summary under (15-electrical data above). (See Table 12)

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 ≤ T_{amb} ≤ 65 °C)

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, NEPSI Increased Safety with IS Electrodes**
EP Certificate No: GYJ071438X
 Ex e ia IIC T3... T6 (Ta = -20 to +60°) (See Table 31)
 V_{max} = 40 V

InMetro - Brazil

- E2, InMetro Increased Safety with IS Electrodes**
EB Certificate No: NCC 5030/08
 BR-Ex e ia IIC T3... T6 (Ta = -20 to +60°) (See Table 31)
 V_{max} = 40 V

KOSHA - Korea

E9, KOSHA Increased Safety with IS Electrodes

EK Certificate No: 2005-2233-Q1X
 Ex e ia IIC T3... T6 (Ta = -20 to +60°) (See Table 31)
 V_{max} = 40 V

Table 30. 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 31. 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)	148°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.

Rosemount 8700 Series

Table 32. 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
0.5 in. sensor size				
149°F (65°C)	297°F (147°C)	138°F (59°C)	54°F (12°C)	18°F (-8°C)
140°F (60°C)	309°F (154°C)	151°F (66°C)	66°F (19°C)	28°F (-2°C)
131°F (55°C)	322°F (161°C)	163°F (73°C)	79°F (26°C)	41°F (5°C)
122°F (50°C)	334°F (168°C)	176°F (80°C)	90°F (32°C)	54°F (12°C)
113°F (45°C)	347°F (175°C)	189°F (87°C)	102°F (39°C)	66°F (19°C)
104°F (40°C)	351°F (177°C)	199°F (93°C)	115°F (46°C)	79°F (26°C)
95°F (35°C)	351°F (177°C)	212°F (100°C)	127°F (53°C)	90°F (32°C)
86°F (30°C)	351°F (177°C)	225°F (107°C)	138°F (59°C)	102°F (39°C)
77°F (25°C)	351°F (177°C)	237°F (114°C)	151°F (66°C)	115°F (46°C)
68°F (20°C)	351°F (177°C)	248°F (120°C)	163°F (73°C)	127°F (53°C)
1.0 in. sensor size				
149°F (65°C)	318°F (159°C)	158°F (70°C)	72°F (22°C)	34°F (1°C)
140°F (60°C)	331°F (166°C)	171°F (77°C)	84°F (29°C)	46°F (8°C)
131°F (55°C)	343°F (173°C)	183°F (84°C)	97°F (36°C)	59°F (15°C)
122°F (50°C)	351°F (177°C)	196°F (91°C)	109°F (43°C)	72°F (22°C)
113°F (45°C)	351°F (177°C)	207°F (97°C)	122°F (50°C)	84°F (29°C)
104°F (40°C)	351°F (177°C)	219°F (104°C)	135°F (57°C)	97°F (36°C)
95°F (35°C)	351°F (177°C)	232°F (111°C)	145°F (63°C)	109°F (43°C)
86°F (30°C)	351°F (177°C)	244°F (118°C)	158°F (70°C)	122°F (50°C)
77°F (25°C)	351°F (177°C)	257°F (125°C)	171°F (77°C)	135°F (57°C)
68°F (20°C)	351°F (177°C)	270°F (132°C)	183°F (84°C)	145°F (63°C)
1.5 in. sensor size				
149°F (65°C)	297°F (147°C)	160°F (71°C)	88°F (31°C)	55°F (13°C)
140°F (60°C)	307°F (153°C)	171°F (77°C)	97°F (36°C)	66°F (19°C)
131°F (55°C)	318°F (159°C)	181°F (83°C)	108°F (42°C)	77°F (25°C)
122°F (50°C)	329°F (165°C)	192°F (89°C)	118°F (48°C)	88°F (31°C)
113°F (45°C)	340°F (171°C)	203°F (95°C)	129°F (54°C)	97°F (36°C)
104°F (40°C)	351°F (177°C)	214°F (101°C)	140°F (60°C)	108°F (42°C)
95°F (35°C)	351°F (177°C)	223°F (106°C)	151°F (66°C)	118°F (48°C)
86°F (30°C)	351°F (177°C)	234°F (112°C)	160°F (71°C)	129°F (54°C)
77°F (25°C)	351°F (177°C)	244°F (118°C)	171°F (77°C)	140°F (60°C)
68°F (20°C)	351°F (177°C)	255°F (124°C)	181°F (83°C)	151°F (66°C)

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

Rosemount 8700 Series

Table 32. 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
2.0 in. sensor size				
149°F (65°C)	289°F (143°C)	163°F (73°C)	95°F (35°C)	66°F (19°C)
140°F (60°C)	300°F (149°C)	172°F 78(°C)	104°F (40°C)	75°F (24°C)
131°F (55°C)	309°F (154°C)	183°F (84°C)	115°F (46°C)	84°F (29°C)
122°F (50°C)	318°F (159°C)	192°F (89°C)	124°F (51°C)	95°F (35°C)
113°F (45°C)	329°F (165°C)	201°F (94°C)	135°F (57°C)	104°F (40°C)
104°F (40°C)	338°F (170°C)	212°F (100°C)	144°F (62°C)	115°F (46°C)
95°F (35°C)	349°F (176°C)	221°F (105°C)	153°F (67°C)	124°F (51°C)
86°F (30°C)	351°F (177°C)	232°F (111°C)	163°F (73°C)	135°F (57°C)
77°F (25°C)	351°F (177°C)	241°F (116°C)	172°F (78°C)	144°F (62°C)
68°F (20°C)	351°F (177°C)	252°F (122°C)	183°F (84°C)	153°F (67°C)
3 to 60 in. sensor size				
149°F (65°C)	351°F (177°C)	210°F (99°C)	117°F (47°C)	75°F (24°C)
140°F (60°C)	351°F (177°C)	223°F (106°C)	129°F (54°C)	90°F (32°C)
131°F (55°C)	351°F (177°C)	237°F (114°C)	144°F (62°C)	102°F (39°C)
122°F (50°C)	351°F (177°C)	250°F (121°C)	156°F (69°C)	117°F (47°C)
113°F (45°C)	351°F (177°C)	264°F (129°C)	171°F (77°C)	129°F (54°C)
104°F (40°C)	351°F (177°C)	266°F (130°C)	183°F (84°C)	144°F (62°C)
95°F (35°C)	351°F (177°C)	266°F (130°C)	198°F (92°C)	156°F (69°C)
86°F (30°C)	351°F (177°C)	266°F (130°C)	203°F (95°C)	171°F (77°C)
77°F (25°C)	351°F (177°C)	266°F (130°C)	203°F (95°C)	176°F (80°C)
68°F (20°C)	351°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.

Dimensional Drawings

Figure 8. Rosemount 8732E Transmitter

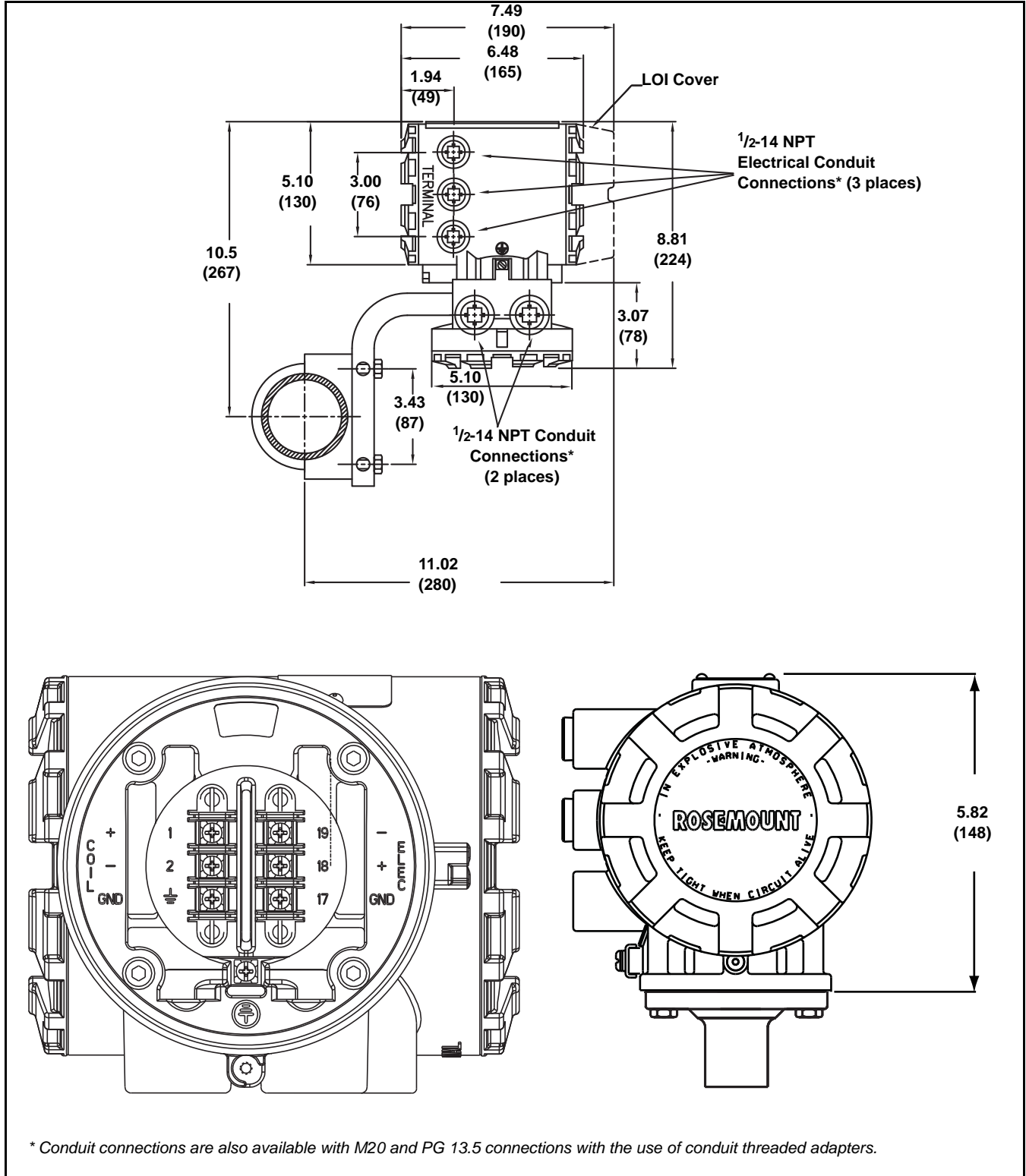
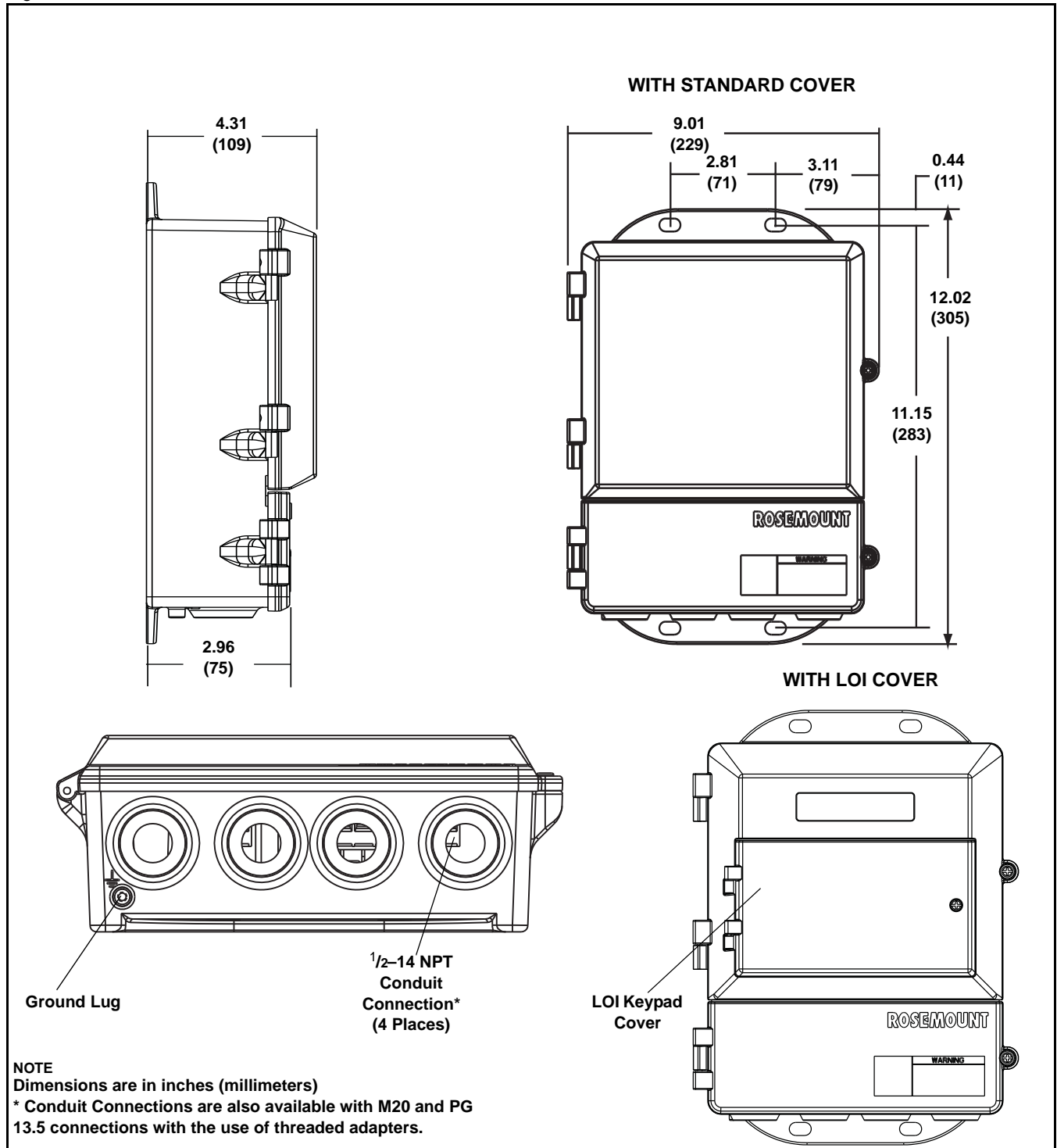


Figure 9. Rosemount 8712D/E/H Transmitter



Rosemount 8700 Series

Figure 10. 0.5-in. through 2-in. Slip-on Flanges - Low pressure ($P \leq \text{ANSI } 300\#$)

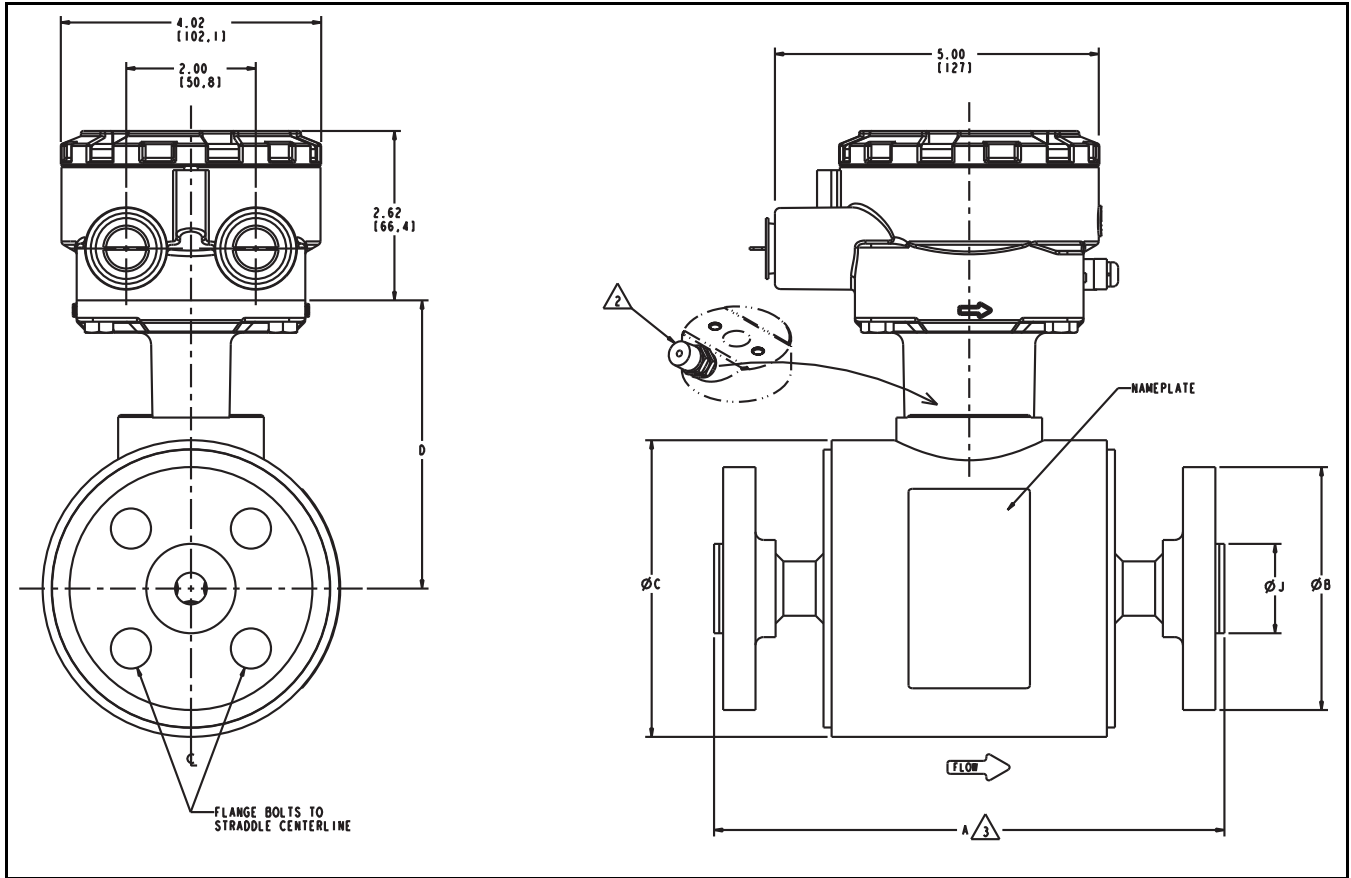


Table 33. 0.5-in. through 2-in. Slip-on Flanges (mm)

Size, Description	Overall Length		Body Dia. DIM "C"	CL to UMB DIM "D"	Liner Dia. on Face DIM "J"	Sensor Weight lbs. (kg)
	Dim "A"	Dim "A" Poly				
"0.5 (15) ANSI - 150#, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	1.38 (35)	15 (6.8)
"0.5 (15) ANSI - 300#, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	1.38 (35)	22 (10.0)
"0.5 (15) DIN - PN40, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	1.77 (45)	20 (9.1)
"0.5 (15) AUST. TABLE ""D"", SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	1.38 (35)	15 (6.8)
"0.5 (15) AUST. TABLE ""E"", SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	1.38 (35)	22 (10.0)
"0.5 (15) JIS - 10K, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	2.01 (51)	10 (4.5)
"0.5 (15) JIS - 20K, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	2.01 (51)	11 (4.7)
"1 (25) ANSI - 150#, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	2.00 (51)	18 (8.2)
"1 (25) ANSI - 300#, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	2.00 (51)	22 (10.0)
"1 (25) DIN - PN40, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	2.88 (73)	20 (9.1)
"1 (25) AUST. TABLE ""D"", SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	2.00 (51)	18 (8.2)
"1 (25) AUST. TABLE ""E"", SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	2.00 (51)	22 (10.0)
"1 (25) JIS - 10K, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	2.64 (67)	13 (5.9)
"1 (25) JIS - 20K, SO / RF	7.88 (200)	7.88 (200)	4.50 (114)	4.41 (112)	2.64 (67)	14 (6.4)
"1.5 (40) ANSI - 150#, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	2.88 (73)	22 (10.0)
"1.5 (40) ANSI - 300#, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	2.88 (73)	24 (10.9)
"1.5 (40) DIN - PN40, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	3.46 (88)	22 (10.0)
"1.5 (40) AUST. TABLE ""D"", SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	2.88 (73)	22 (10.0)
"1.5 (40) AUST. TABLE ""E"", SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	2.88 (73)	24 (10.9)
"1.5 (40) JIS - 10K, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	3.19 (81)	17 (7.5)
"1.5 (40) JIS - 20K, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	3.19 (81)	18 (8.2)
"2 (50) ANSI - 150#, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	3.62 (92)	26 (11.8)
"2 (50) ANSI - 300#, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	3.62 (92)	28 (12.7)
"2 (50) DIN - PN40, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	4.02 (102)	26 (11.8)
"2 (50) AUST. TABLE ""D"", SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	3.62 (92)	26 (11.8)
"2 (50) AUST. TABLE ""E"", SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	3.62 (92)	28 (12.7)
"2 (50) JIS - 10K, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	3.78 (96)	19 (8.7)
"2 (50) JIS - 20K, SO / RF	7.87 (200)	7.88 (200)	5.21 (132)	4.82 (122)	3.78 (96)	19 (8.7)

Rosemount 8700 Series

Figure 11. 3-in. through 36-in. Slip-on Flanges - Low pressure ($P \leq \text{ANSI 300\#}$)

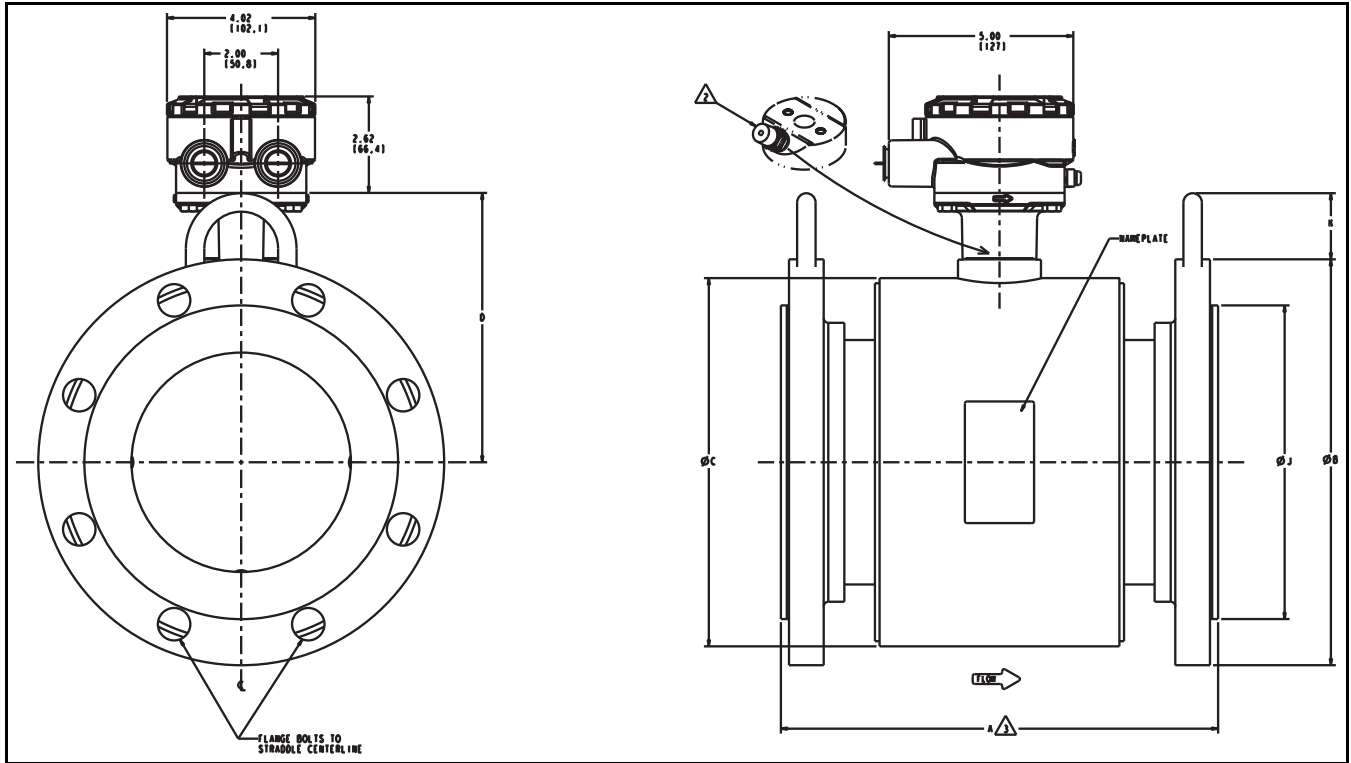


Table 34. 3-in. through 36-in. Slip-on Flanges (mm)

Size, Description	Overall Length	Dim "A" Poly	Body Dia. DIM "C"	CL to UMB DIM "D"	Liner Dia. on Face DIM "J"	Lift Ring Height DIM "K"	Sensor Weight lbs. (kg)
	Dim "A" PTFE						
"3 (80) ANSI - 150# SO / RF"	7.87 (200)	7.87 (200)	7.21 (183)	5.82 (148)	5.00 (127)	1.70 (43)	42 (19.1)
"3 (80) ANSI - 300# SO / RF"	8.63 (219)	8.63 (219)	7.21 (183)	5.82 (148)	5.00 (127)	1.70 (43)	47 (21.3)
"3 (80) DIN - PN40 SO / RF"	7.87 (200)	7.87 (200)	7.21 (183)	5.82 (148)	5.43 (138)	1.70 (43)	26 (11.8)
"3 (80) AUST. TABLE "D" SO / RF"	7.87 (200)	7.87 (200)	7.21 (183)	5.82 (148)	5.00 (127)	1.70 (43)	42 (19.1)
"3 (80) AUST. TABLE "E" SO / RF"	7.87 (200)	7.87 (200)	7.21 (183)	5.82 (148)	5.00 (127)	1.70 (43)	47 (21.3)
"3 (80) JIS - 10K SO / RF"	7.87 (200)	7.87 (200)	7.21 (183)	5.82 (148)	4.96 (126)	1.70 (43)	29 (13.2)
"3 (80) JIS - 20K SO / RF"	7.87 (200)	7.87 (200)	7.21 (183)	5.82 (148)	5.20 (132)	1.70 (43)	35 (16.0)
"4 (100) ANSI - 150# SO / RF"	9.84 (250)	9.84 (250)	7.91 (201)	6.17 (157)	6.19 (157)	1.70 (43)	57 (25.9)
"4 (100) ANSI - 300# SO / RF"	10.88 (276)	10.87 (276)	7.91 (201)	6.17 (157)	6.19 (157)	1.70 (43)	65 (29.5)
"4 (100) DIN - PN16 SO / RF"	9.84 (250)	9.84 (250)	7.91 (201)	6.17 (157)	6.22 (158)	1.70 (43)	48 (21.8)
"4 (100) DIN - PN40 SO / RF"	9.84 (250)	9.84 (250)	7.91 (201)	6.17 (157)	6.38 (162)	1.70 (43)	65 (29.5)
"4 (100) AUST. TABLE "D" SO / RF"	9.84 (250)	9.84 (250)	7.91 (201)	6.17 (157)	6.19 (157)	1.70 (43)	57 (25.9)
"4 (100) AUST. TABLE "E" SO / RF"	9.84 (250)	9.84 (250)	7.91 (201)	6.17 (157)	6.19 (157)	1.70 (43)	65 (29.5)
"4 (100) JIS - 10K SO / RF"	9.84 (250)	9.84 (250)	7.91 (201)	6.17 (157)	5.95 (151)	1.70 (43)	36 (16.4)
"4 (100) JIS - 20K SO / RF"	9.84 (250)	9.84 (250)	7.91 (201)	6.17 (157)	6.30 (160)	1.70 (43)	45 (20.6)
"6 (150) ANSI - 150# SO / RF"	11.81 (300)	11.81 (300)	9.98 (253)	7.30 (185)	8.50 (216)	1.70 (43)	71 (32.2)
"6 (150) ANSI - 300# SO / RF"	13.06 (332)	13.06 (332)	9.98 (253)	7.30 (185)	8.50 (216)	1.70 (43)	93 (42.2)
"6 (150) DIN - PN16 SO / RF"	11.81 (300)	11.81 (300)	9.98 (253)	7.30 (185)	8.35 (212)	1.70 (43)	81 (36.7)
"6 (150) DIN - PN25 SO / RF"	11.81 (300)	11.81 (300)	9.98 (253)	7.30 (185)	8.58 (218)	1.70 (43)	87 (39.6)
"6 (150) DIN - PN40 SO / RF"	13.06 (332)	13.06 (332)	9.98 (253)	7.30 (185)	8.58 (218)	1.70 (43)	93 (42.2)
"6 (150) AUST. TABLE "D" SO / RF"	11.81 (300)	11.81 (300)	9.98 (253)	7.30 (185)	8.50 (216)	1.70 (43)	71 (32.2)
"6 (150) AUST. TABLE "E" SO / RF"	11.81 (300)	11.81 (300)	9.98 (253)	7.30 (185)	8.50 (216)	1.70 (43)	93 (42.2)
"6 (150) JIS - 10K SO / RF"	11.81 (300)	11.81 (300)	9.98 (253)	7.30 (185)	8.35 (212)	1.70 (43)	66 (30.0)
"6 (150) JIS - 20K SO / RF"	11.81 (300)	11.81 (300)	9.98 (253)	7.30 (185)	9.06 (230)	1.70 (43)	85 (38.7)
"8 (200) ANSI - 150# SO / RF"	13.78 (350)	13.78 (350)	11.92 (303)	8.27 (210)	10.62 (270)	1.70 (43)	145 (65.8)
"8 (200) ANSI - 300# SO / RF"	15.60 (396)	15.60 (396)	11.92 (303)	8.27 (210)	10.62 (270)	1.70 (43)	162 (73.5)
"8 (200) DIN - PN10 SO / RF"	13.78 (350)	13.78 (350)	11.92 (303)	8.27 (210)	10.55 (268)	1.70 (43)	110 (49.9)
"8 (200) DIN - PN16 SO / RF"	13.78 (350)	13.78 (350)	11.92 (303)	8.27 (210)	10.55 (268)	1.70 (43)	110 (49.9)
"8 (200) DIN - PN25 SO / RF"	13.78 (350)	13.78 (350)	11.92 (303)	8.27 (210)	10.94 (278)	1.70 (43)	162 (73.5)
"8 (200) DIN - PN40 SO / RF"	15.60 (396)	15.60 (396)	11.92 (303)	8.27 (210)	11.22 (285)	1.70 (43)	162 (73.5)
"8 (200) AUST. TABLE "D" SO / RF"	13.78 (350)	13.78 (350)	11.92 (303)	8.27 (210)	10.62 (270)	1.70 (43)	145 (65.8)
"8 (200) AUST. TABLE "E" SO / RF"	13.78 (350)	13.78 (350)	11.92 (303)	8.27 (210)	10.62 (270)	1.70 (43)	162 (73.5)
"8 (200) JIS - 10K SO / RF"	13.78 (350)	13.78 (350)	11.92 (303)	8.27 (210)	10.32 (262)	1.70 (43)	82 (37.3)
"8 (200) JIS - 20K SO / RF"	15.60 (396)	15.60 (396)	11.92 (303)	8.27 (210)	10.83 (275)	1.70 (43)	137 (62.3)
"10 (250) ANSI - 150# SO / RF"	15.00 (381)	14.76 (376)	14.64 (372)	9.69 (246)	12.75 (324)	2.00 (51)	195 (88.5)
"10 (250) ANSI - 300# SO / RF"	17.13 (435)	16.89 (430)	14.64 (372)	9.69 (246)	12.75 (324)	2.00 (51)	300 (99.8)
"10 (250) DIN - PN10 SO / RF"	15.00 (381)	14.76 (376)	14.64 (372)	9.69 (246)	12.60 (320)	2.00 (51)	220 (99.8)
"10 (250) DIN - PN16 SO / RF"	15.00 (381)	14.76 (376)	14.64 (372)	9.69 (246)	12.60 (320)	2.00 (51)	220 (99.8)
"10 (250) DIN - PN25 SO / RF"	15.00 (381)	14.76 (376)	14.64 (372)	9.69 (246)	13.19 (335)	2.00 (51)	220 (99.8)
"10 (250) DIN - PN40 SO / RF"	17.13 (435)	16.89 (430)	14.64 (372)	9.69 (246)	13.58 (345)	2.00 (51)	300 (99.8)
"10 (250) AUST. TABLE "D" SO / RF"	15.00 (381)	14.76 (376)	14.64 (372)	9.69 (246)	12.75 (324)	2.00 (51)	195 (88.5)
"10 (250) AUST. TABLE "E" SO / RF"	15.00 (381)	14.76 (376)	14.64 (372)	9.69 (246)	12.75 (324)	2.00 (51)	300 (99.8)
"12 (300) ANSI - 150# SO / RF"	18.00 (457)	17.76 (452)	16.80 (427)	10.77 (274)	15.00 (381)	2.00 (51)	330 (149.7)
"12 (300) ANSI - 300# SO / RF"	20.14 (512)	19.89 (506)	16.80 (427)	10.77 (274)	15.00 (381)	2.00 (51)	435 (197.3)
"12 (300) DIN - PN10 SO / RF"	18.00 (457)	17.76 (452)	16.80 (427)	10.77 (274)	14.57 (370)	2.00 (51)	330 (149.7)
"12 (300) DIN - PN16 SO / RF"	18.00 (457)	17.76 (452)	16.80 (427)	10.77 (274)	14.88 (378)	2.00 (51)	330 (149.7)
"12 (300) DIN - PN25 SO / RF"	18.00 (457)	17.76 (452)	16.80 (427)	10.77 (274)	15.55 (395)	2.00 (51)	330 (149.7)
"12 (300) DIN - PN40 SO / RF"	20.14 (512)	19.89 (506)	16.80 (427)	10.77 (274)	16.14 (410)	2.00 (51)	435 (197.3)
"12 (300) AUST. TABLE "D" SO / RF"	18.00 (457)	17.76 (452)	16.80 (427)	10.77 (274)	15.00 (381)	2.00 (51)	330 (149.7)
"12 (300) AUST. TABLE "E" SO / RF"	18.00 (457)	17.76 (452)	16.80 (427)	10.77 (274)	15.00 (381)	2.00 (51)	435 (197.3)

Rosemount 8700 Series

Table 35. 14-in. through 36-in. with Slip-On Flanges (mm)

Size, Description	Overall Length	Dim. "A" Poly	Body Dim. "C"	CL to UMB Dim. "D"	Liner on Face Dim. "J"	Lift Ring Height Dim. "K"	Sensor Weight (lbs.)
	Dim. "A" PTFE						
"14 (350) ANSI - 150# SO / RF"	20.91 (531)	20.83 (529)	18.92 (481)	11.83 (300)	16.25 (413)	2.00 (51)	380 (172.4)
"14 (350) ANSI - 300# SO / RF"	23.16 (588)	23.08 (586)	18.92 (481)	11.83 (300)	16.25 (413)	2.00 (51)	573 (259.9)
"14 (350) DIN - PN10 SO / RF"	20.91 (531)	20.83 (529)	18.92 (481)	11.83 (300)	16.93 (430)	2.00 (51)	370 (167.8)
"14 (350) DIN - PN16 SO / RF"	20.91 (531)	20.83 (529)	18.92 (481)	11.83 (300)	17.24 (438)	2.00 (51)	370 (167.8)
"14 (350) DIN - PN25 SO / RF"	23.16 (588)	23.08 (586)	18.92 (481)	11.83 (300)	17.72 (450)	2.00 (51)	370 (167.8)
"14 (350) DIN - PN40 SO / RF"	23.16 (588)	23.08 (586)	18.92 (481)	11.83 (300)	18.31 (465)	2.00 (51)	573 (259.9)
"14 (350) AUST. TABLE "D" SO / RF"	20.91 (531)	20.83 (529)	18.92 (481)	11.83 (300)	16.25 (413)	2.00 (51)	380 (172.4)
"14 (350) AUST. TABLE "E" SO / RF"	20.91 (531)	20.83 (529)	18.92 (481)	11.83 (300)	16.25 (413)	2.00 (51)	573 (259.9)
"16 (400) ANSI - 150# SO / RF"	23.88 (607)	23.80 (607)	20.94 (532)	12.84 (326)	18.50 (470)	3.13 (80)	470 (213.2)
"16 (400) ANSI - 300# SO / RF"	26.13 (664)	26.05 (664)	20.94 (532)	12.84 (326)	18.50 (470)	3.13 (80)	755 (213.2)
"16 (400) DIN - PN10 SO / RF"	23.88 (607)	23.80 (607)	20.94 (532)	12.84 (326)	18.98 (482)	3.13 (80)	500 (213.2)
"16 (400) DIN - PN16 SO / RF"	23.88 (607)	23.80 (607)	20.94 (532)	12.84 (326)	19.29 (490)	3.13 (80)	500 (213.2)
"16 (400) DIN - PN25 SO / RF"	26.13 (664)	26.05 (664)	20.94 (532)	12.84 (326)	19.88 (505)	3.13 (80)	500 (213.2)
"16 (400) DIN - PN40 SO / RF"	26.13 (664)	26.05 (664)	20.94 (532)	12.84 (326)	21.06 (535)	3.13 (80)	755 (213.2)
"16 (400) AUST. TABLE "D" SO / RF"	23.88 (607)	23.80 (607)	20.94 (532)	12.84 (326)	18.50 (470)	3.13 (80)	470 (213.2)
"16 (400) AUST. TABLE "E" SO / RF"	23.88 (607)	23.80 (607)	20.94 (532)	12.84 (326)	18.50 (470)	3.13 (80)	755 (213.2)
"18 (450) ANSI - 150# SO / RF"	26.85 (682)	26.77 (680)	23.46 (596)	14.10 (358)	21.00 (533)	3.13 (80)	592 (268.5)
"18 (450) ANSI - 300# SO / RF"	29.97 (761)	29.89 (759)	23.46 (596)	14.10 (358)	21.00 (533)	3.13 (80)	1010 (458.1)
"18 (450) DIN - PN10 SO / RF"	26.85 (682)	26.72 (679)	23.46 (596)	14.10 (358)	20.94 (532)	3.13 (80)	522 (236.8)
"18 (450) DIN - PN16 SO / RF"	26.85 (682)	26.72 (679)	23.46 (596)	14.10 (358)	21.65 (550)	3.13 (80)	595 (269.9)
"18 (450) DIN - PN25 SO / RF"	29.97 (761)	29.89 (759)	23.46 (596)	14.10 (358)	21.85 (555)	3.13 (80)	693 (314.3)
"18 (450) DIN - PN40 SO / RF"	29.97 (761)	29.89 (759)	23.46 (596)	14.10 (358)	22.05 (560)	3.13 (80)	915 (415.0)
"18 (450) AUST. TABLE "D" SO / RF"	26.85 (682)	26.77 (680)	23.46 (596)	14.10 (358)	21.00 (533)	3.13 (80)	592 (268.5)
"18 (450) AUST. TABLE "E" SO / RF"	26.85 (682)	26.77 (680)	23.46 (596)	14.10 (358)	21.00 (533)	3.13 (80)	1010 (458.1)
"20 (500) ANSI - 150# SO / RF"	29.78 (756)	29.70 (754)	25.48 (647)	15.11 (384)	23.00 (584)	3.13 (80)	680 (308.4)
"20 (500) ANSI - 300# SO / RF"	33.04 (839)	32.96 (837)	25.48 (647)	15.11 (384)	23.00 (584)	3.13 (80)	1180 (535.2)
"20 (500) DIN - PN10 SO / RF"	29.78 (756)	29.70 (754)	25.48 (647)	15.11 (384)	23.03 (585)	3.13 (80)	680 (535.2)
"20 (500) DIN - PN16 SO / RF"	29.78 (756)	29.70 (754)	25.48 (647)	15.11 (384)	24.02 (610)	3.13 (80)	680 (535.2)
"20 (500) DIN - PN25 SO / RF"	33.04 (839)	32.96 (837)	25.48 (647)	15.11 (384)	24.21 (615)	3.13 (80)	680 (535.2)
"20 (500) DIN - PN40 SO / RF"	33.04 (839)	32.96 (837)	25.48 (647)	15.11 (384)	24.21 (615)	3.13 (80)	1180 (535.2)
"20 (500) AUST. TABLE "D" SO / RF"	29.78 (756)	29.70 (754)	25.48 (647)	15.11 (384)	23.00 (584)	3.13 (80)	680 (535.2)
"20 (500) AUST. TABLE "E" SO / RF"	29.78 (756)	29.70 (754)	25.48 (647)	15.11 (384)	23.00 (584)	3.13 (80)	1180 (535.2)
"24 (600) ANSI - 150# SO / RF"	35.75 (908)	35.67 (906)	30.03 (763)	17.39 (442)	27.25 (692)	3.13 (80)	1020 (462.7)
"24 (600) ANSI - 300# SO / RF"	39.38 (1000)	39.30 (998)	30.03 (763)	17.39 (442)	27.25 (692)	3.13 (80)	1865 (845.9)
"24 (600) DIN - PN10 SO / RF"	35.75 (908)	35.67 (906)	30.03 (763)	17.39 (442)	26.97 (685)	3.13 (80)	1000 (453.6)
"24 (600) DIN - PN16 SO / RF"	35.75 (908)	35.67 (906)	30.03 (763)	17.39 (442)	28.54 (725)	3.13 (80)	1000 (453.6)
"24 (600) DIN - PN25 SO / RF"	39.38 (1000)	39.30 (998)	30.03 (763)	17.39 (442)	28.35 (720)	3.13 (80)	1000 (453.6)
"24 (600) DIN - PN40 SO / RF"	39.38 (1000)	39.30 (998)	30.03 (763)	17.39 (442)	28.94 (735)	3.13 (80)	1615 (734.2)
"24 (600) AUST. TABLE "D" SO / RF"	35.75 (908)	35.67 (906)	30.03 (763)	17.39 (442)	27.25 (692)	3.13 (80)	1020 (462.7)
"24 (600) AUST. TABLE "E" SO / RF"	35.75 (908)	35.67 (906)	30.03 (763)	17.39 (442)	27.25 (692)	3.13 (80)	1865 (845.9)
"30 (750) AWWA CLASS D SO / RF"	37.00 (940)	36.93 (938)	35.50 (902)	20.13 (511)	33.75 (857)	3.13 (80)	1400 (635.0)
"30 (750) MSS SP44 - 150# SO / RF"	41.56 (1056)	41.48 (1054)	35.50 (902)	20.13 (511)	33.75 (857)	3.13 (80)	1782 (808.3)
"30 (750) MSS SP44 - 300# SO / RF"	47.25 (1200)	47.17 (1198)	35.50 (902)	20.13 (511)	33.75 (857)	3.13 (80)	2610 (1183.9)
"30 (750) AUST. TABLE "D" SO / RF"	37.00 (940)	36.93 (938)	35.50 (902)	20.13 (511)	34.96 (888)	3.13 (80)	1530 (694.0)
"30 (750) AUST. TABLE "E" SO / RF"	41.56 (1056)	41.48 (1054)	35.50 (902)	20.13 (511)	34.84 (885)	3.13 (80)	1663 (754.3)

Table 35. 14-in. through 36-in. with Slip-On Flanges (mm)

"36 (900) AWWA CLASS D SO / RF"	40.63 (1032)	40.55 (1030)	43.37 (1102)	24.00 (1022)	40.25 (1022)	3.13 (80)	1975 (895.8)
"36 (900) MSS SP44 - 150# SO / RF"	47.25 (1200)	47.17 (1198)	43.37 (1102)	24.00 (1022)	40.25 (1022)	3.13 (80)	2777 (1259.6)
"36 (900) AUST. TABLE "D" SO / RF"	40.63 (1032)	40.55 (1030)	43.37 (1102)	24.00 (1022)	41.34 (1050)	3.13 (80)	2213 (1003.8)
"36 (900) AUST. TABLE "E" SO / RF"	47.25 (1200)	47.17 (1198)	43.37 (1102)	24.00 (1022)	41.34 (1050)	3.13 (80)	2437 (1105.4)

Figure 12. 0.5-in. through 36-in. with W3 Option

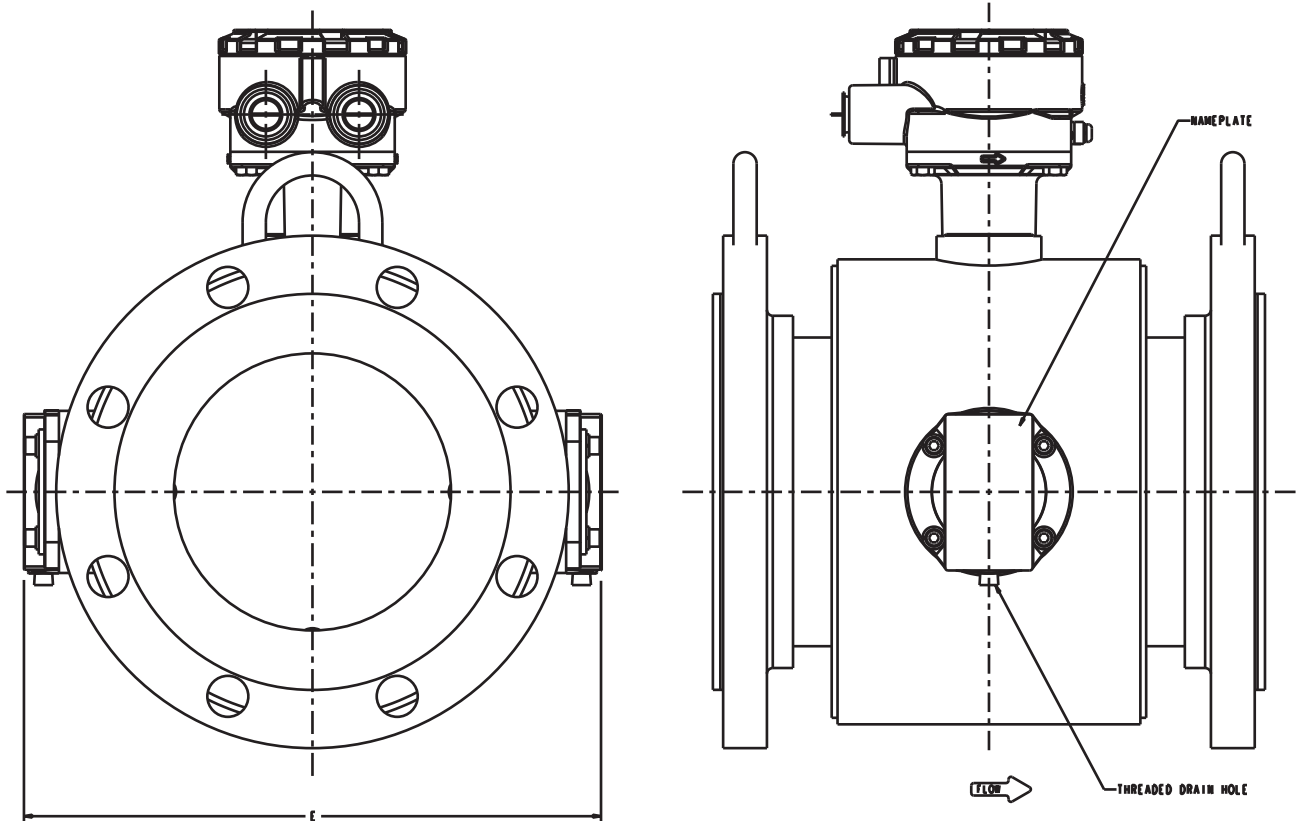


Table 36. Body Width with Electrode Access (W3)

Size -- in (mm) All Flanges	Body Width with W3 DIM "E" (in.)	Body Width with W3 DIM "E" (mm)
0.5 (15)	6.22	158
1 (25)	6.68	170
1.5 (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

Rosemount 8700 Series

Table 36. 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)
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

Figure 13. Lining Protector / Grounding Ring Assembly

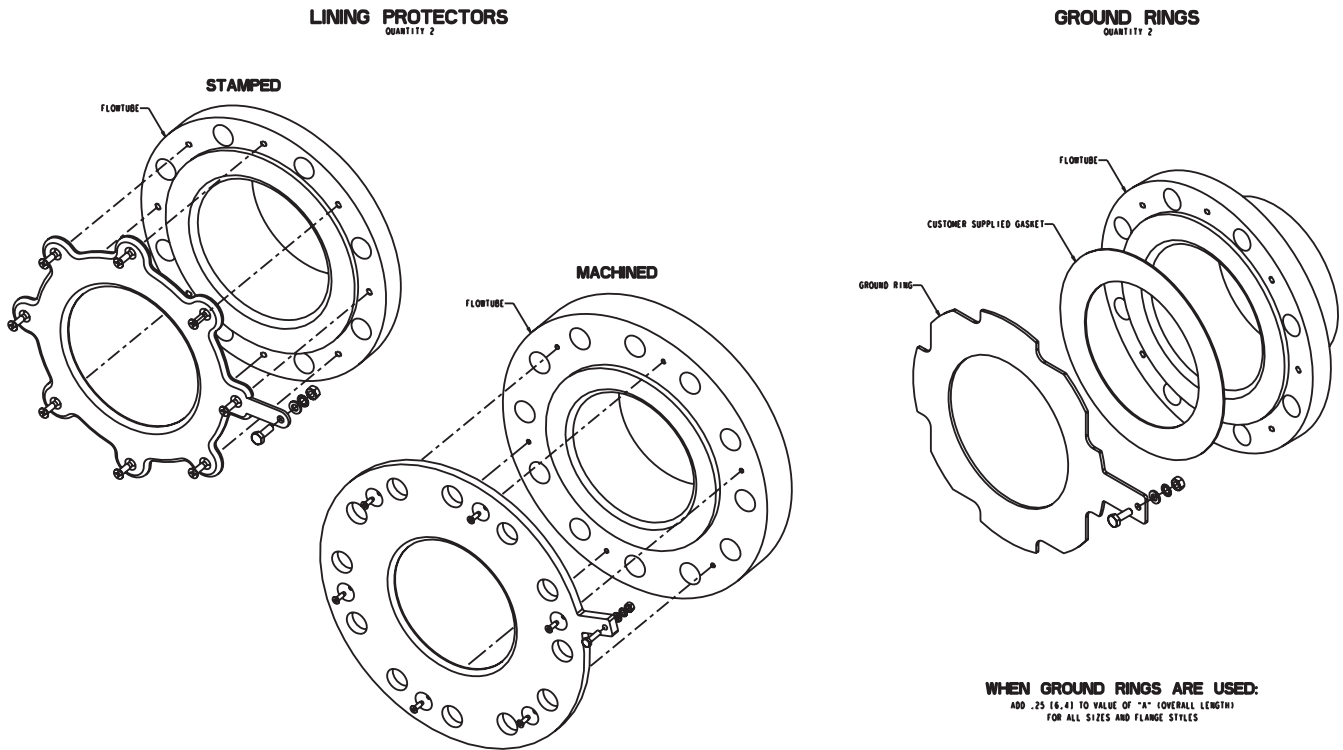
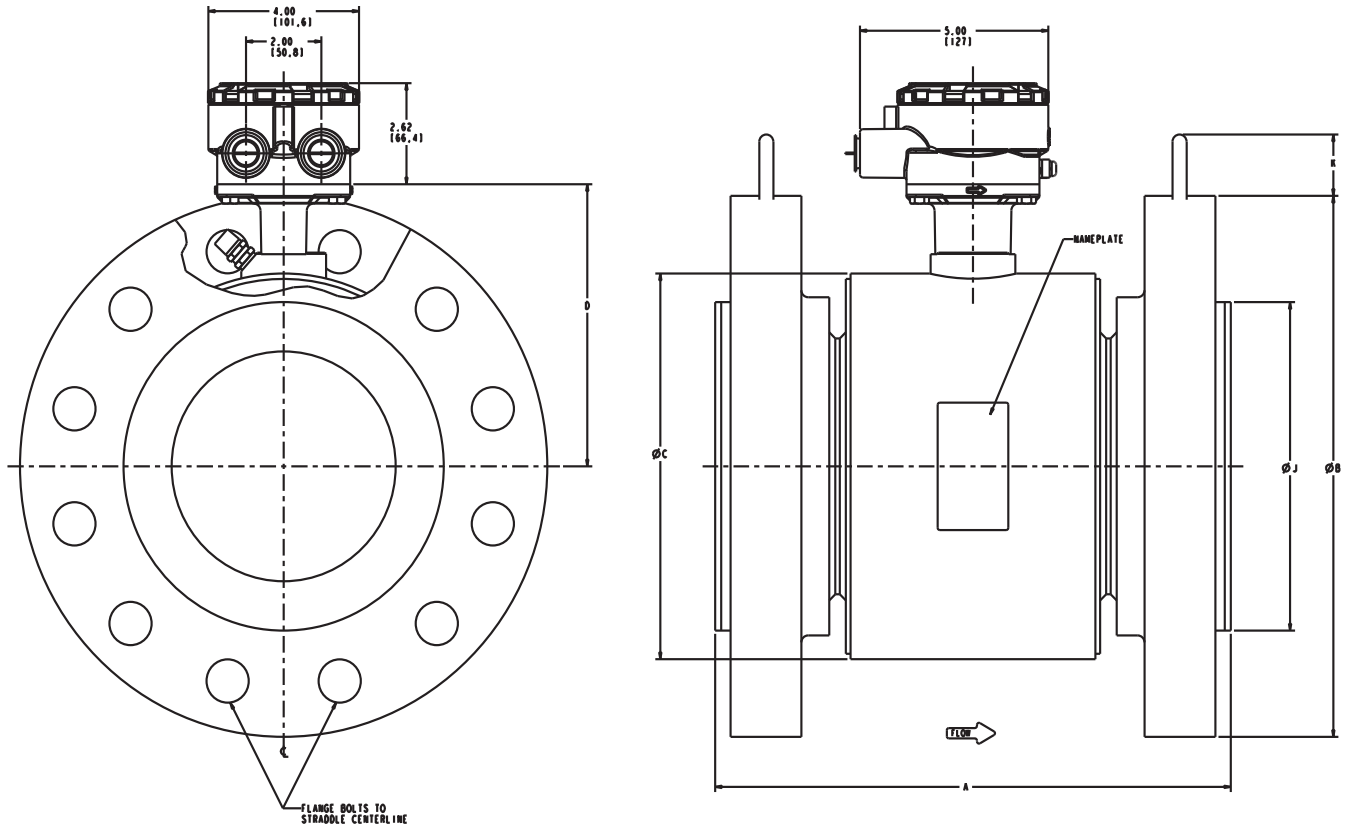


Table 37. When Liner Protectors Are Used

Flange Style	Sensor Size	Add This Value to "A" (Overall Length)
ANSI	0.5-in. through 10-in.	.25 (6,4)
	12-in. through 24-in.	.60 (15,2)
	30-in.	.75 (19)
	36-in.	1.0 (25,4)
DIN	0.5-in. through 8-in.	.25 (6,4)
	10-in.	.75 (19)
	12-in.	1.0 (25,4)
	14-in. through 24-in.	.60 (15,2)
	30-in.	.75 (19)
	36-in.	1.0 (25,4)

Figure 14. 0.5-in. to 24-in. with slip-on flanges - High Pressure Meters (ANSI 600# - ANSI 900#)



Rosemount 8700 Series

Table 38. 0.5-in. through 24-in. with Slip-on Flanges (mm) High pressure (P_≥600#)

Size, Description	Overall Length	DIM "A" Poly	Body DIM "C"	CL to UMB DIM "D"	Liner on Face DIM "J"	Lift Ring Height DIM "K"	Sensor Weight lbs. (kg)
	DIM "A" PTFE						
"0.5 (15) ANSI - 600# DERAT. SO / RF"	8.38 (213)	8.38 (213)	4.50 (114)	4.41 (112)	1.38 (35)		15 (6.8)
"1 (25) ANSI - 600# DERAT. SO / RF"	8.67 (220)	8.67 (220)	4.50 (114)	4.41 (112)	2.00 (51)		24 (10.9)
"1 (25) ANSI - 600# FULL SO / RF"		8.56 (217)	4.50 (114)	4.41 (112)	2.00 (51)		24 (10.9)
"1 (25) ANSI - 900# SO / RF"		9.68 (246)	4.50 (114)	4.41 (112)	2.00 (51)	1.70 (43)	30 (13.6)
"1.5 (40) ANSI - 600# DERAT. SO / RF"	8.63 (219)	8.63 (219)	5.21 (132)	4.82 (122)	2.88 (73)		22 (10.0)
"1.5 (40) ANSI - 600# FULL SO / RF"		8.54 (217)	5.21 (132)	4.82 (122)	2.88 (73)		22 (10.0)
"1.5 (40) ANSI - 900# SO / RF"		9.52 (242)	5.21 (132)	4.82 (122)	2.88 (73)	1.70 (43)	42 (19.1)
"2 (50) ANSI - 600# DERAT. SO / RF"	8.78 (223)	8.78 (223)	5.21 (132)	4.82 (122)	3.62 (92)		30 (13.6)
"2 (50) ANSI - 600# FULL SO / RF"		8.66 (220)	5.21 (132)	4.82 (122)	3.62 (92)		30 (13.6)
"2 (50) ANSI - 900# SO / RF"		10.28 (261)	5.21 (132)	4.82 (122)	3.62 (92)	1.70 (43)	63 (28.6)
"3 (80) ANSI - 600# DERAT. SO / RF"	12.40 (315)	12.40 (315)	7.21 (183)	5.82 (148)	5.00 (127)	1.70 (43)	52 (23.6)
"3 (80) ANSI - 600# FULL SO / RF"		12.22 (310)	7.21 (183)	5.82 (148)	5.00 (127)	1.70 (43)	52 (23.6)
"3 (80) ANSI - 900# SO / RF"		12.82 (326)	7.21 (183)	5.82 (148)	5.00 (127)	1.70 (43)	89 (40.4)
"4 (100) ANSI - 600# DERAT. SO / RF"	12.83 (326)	12.83 (326)	7.91 (201)	6.17 (157)	6.19 (157)	1.70 (43)	75 (34.0)
"4 (100) ANSI - 600# FULL SO / RF"		12.65 (321)	7.91 (201)	6.17 (157)	6.19 (157)	1.70 (43)	75 (34.0)
"4 (100) ANSI - 900# SO / RF"		13.89 (353)	7.91 (201)	6.17 (157)	6.19 (157)	2.00 (51)	138 (62.6)
"6 (150) ANSI - 600# DERAT. SO / RF"	14.23 (361)	14.21 (361)	9.98 (253)	7.30 (185)	8.50 (216)	1.70 (43)	120 (54.4)
"6 (150) ANSI - 600# FULL SO / RF"		14.01 (356)	9.98 (253)	7.30 (185)	8.50 (216)	1.70 (43)	120 (54.4)
"6 (150) ANSI - 900# SO / RF"		17.58 (447)	9.98 (253)	7.30 (185)	8.50 (216)	2.00 (51)	274 (124.3)
"8 (200) ANSI - 600# DERAT. SO / RF"	16.72 (425)	16.69 (424)	11.92 (303)	8.27 (210)	10.62 (270)	1.70 (43)	200 (90.7)
"8 (200) ANSI - 600# FULL SO / RF"		16.49 (419)	11.92 (303)	8.27 (210)	10.62 (270)	1.70 (43)	200 (90.7)
"8 (200) ANSI - 900# SO / RF"		20.61 (523)	11.92 (303)	8.27 (210)	10.62 (270)	3.13 (80)	499 (226.3)
"10 (250) ANSI - 600# DERAT. SO / RF"	19.54 (496)	19.30 (490)	14.64 (372)	9.69 (246)	12.75 (324)	2.00 (51)	455 (206.4)
"10 (250) ANSI - 600# FULL SO / RF"		18.75 (476)	14.64 (372)	9.69 (246)	12.75 (324)	2.00 (51)	455 (206.4)
"10 (250) ANSI - 900# SO / RF"		21.57 (548)	14.64 (372)	9.69 (246)	12.75 (324)	3.13 (80)	707 (320.7)
"12 (300) ANSI - 600# FULL SO / RF"		21.80 (554)	16.80 (427)	10.77 (274)	15.00 (381)	2.00 (51)	570 (258.5)
"12 (300) ANSI - 900# SO / RF"		23.49 (597)	16.80 (427)	10.77 (274)	15.00 (381)	3.13 (80)	1008 (457.2)
"14 (350) ANSI - 600# FULL SO / RF"		25.44 (646)	18.92 (481)	11.83 (300)	16.25 (413)	2.00 (51)	775 (352.3)
"16 (400) ANSI - 600# FULL SO / RF"		28.94 (735)	20.94 (532)	12.84 (326)	18.50 (470)	3.13 (80)	1104 (501.8)
"18 (450) ANSI - 600# FULL SO / RF"		32.42 (823)	23.46 (596)	14.10 (358)	21.00 (533)	3.13 (80)	1410 (641.0)
"20 (500) ANSI - 600# FULL SO / RF"		36.55 (928)	25.48 (647)	15.11 (384)	23.00 (584)	3.13 (80)	1827 (830.5)
"24 (600) ANSI - 600# FULL SO / RF"		41.05 (1043)	30.03 (763)	17.39 (442)	27.25 (692)	3.13 (80)	2700 (1227)

Figure 15. 1-in. through 24-in. Weld Neck Flanges - High Pressure Meters (ANSI 600# - ANSI 2500#)

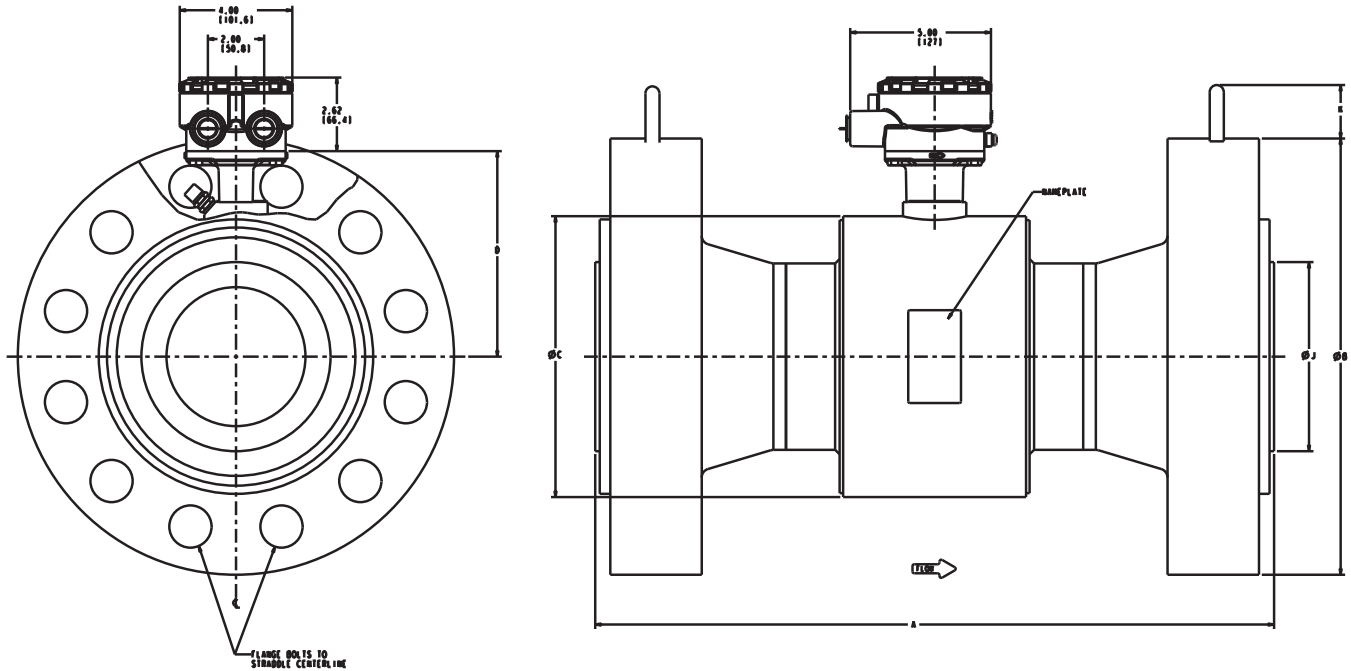


Table 39. 1-in. through 24-in. Weld Neck Flanges (mm)

Size, Description	DIM "A" Neoprene	DIM "A" Linatex	DIM "A" Poly	Body DIM "C"	CL to UMB DIM "D"	Liner on Face DIM "J"	Lift Ring Height DIM "K"	Sensor Weight lbs. (kg)
1.5 (40) ANSI - 1500# WN / RTJ	13.12 (333)	13.12 (333)	13.12 (333)	5.21 (132)	4.82 (122)	3.62 (92)	1.70 (43)	43.8 (19.9)
2 (50) ANSI - 1500# WN / RTJ	14.92 (379)	14.92 (379)	14.92 (379)	5.21 (132)	4.82 (122)	4.88 (124)	1.70 (43)	85.9 (39.1)
2 (50) ANSI - 2500# WN / RTJ	17.01 (432)	17.01 (432)	17.01 (432)	5.21 (132)	4.82 (122)	5.25 (133)	1.70 (43)	116 (52.7)
3 (80) ANSI - 1500# WN / RTJ	16.42 (417)	16.42 (417)	16.42 (417)	7.21 (183)	5.82 (148)	6.62 (168)	1.70 (43)	153 (69.6)
3 (80) ANSI - 2500# WN / RTJ	20.70 (526)	20.70 (526)	20.70 (526)	7.21 (183)	5.82 (148)	6.62 (168)	1.70 (43)	257 (116.6)
4 (100) ANSI - 1500# WN / RTJ	18.33 (466)	18.33 (466)	18.33 (466)	7.91 (201)	6.17 (157)	7.62 (194)	2.00 (51)	226 (102.7)
4 (100) ANSI - 2500# WN / RTJ	24.12 (613)	24.12 (613)	24.12 (613)	7.91 (201)	6.17 (157)	8.00 (203)	2.00 (51)	407 (185)
6 (150) ANSI - 1500# WN / RTJ	24.12 (613)	24.12 (613)	24.12 (613)	9.98 (253)	7.30 (185)	9.75 (248)	2.00 (51)	521 (236.9)
6 (150) ANSI - 2500# WN / RTJ	32.32 (821)	32.32 (821)	32.32 (821)	9.98 (253)	7.30 (185)	11.00 (279)	2.00 (51)	1048 (476.4)
8 (200) ANSI - 1500# WN / RTJ	29.11 (739)	29.11 (739)	29.11 (739)	11.92 (303)	8.27 (210)	12.50 (318)	3.13 (80)	937 (425.9)
8 (200) ANSI - 2500# WN / RTJ	37.53 (953)	37.53 (953)	37.53 (953)	11.92 (303)	8.27 (210)	13.38 (340)	3.13 (80)	1722 (782.7)
10 (250) ANSI - 1500# WN / RTJ	32.44 (824)	32.44 (824)	32.44 (824)	14.64 (372)	9.69 (246)	14.62 (371)	3.13 (80)	1643 (746.8)
10 (250) ANSI - 2500# WN / RTJ	45.86 (1165)	45.86 (1165)	45.86 (1165)	14.64 (372)	9.69 (246)	16.75 (425)	3.13 (80)	3280 (1491)
12 (300) ANSI - 1500# WN / RTJ	37.76 (959)	37.76 (959)	37.76 (959)	16.50 (419)	10.77 (274)	17.25 (438)	3.13 (80)	2597 (1181)
12 (300) ANSI - 2500# WN / RTJ	52.41 (1331)	52.41 (1331)	52.41 (1331)	16.50 (419)	10.77 (274)	19.50 (495)	3.13 (80)	4961 (2255)

Rosemount 8700 Series

Figure 16. Standard Wafer Magmeters

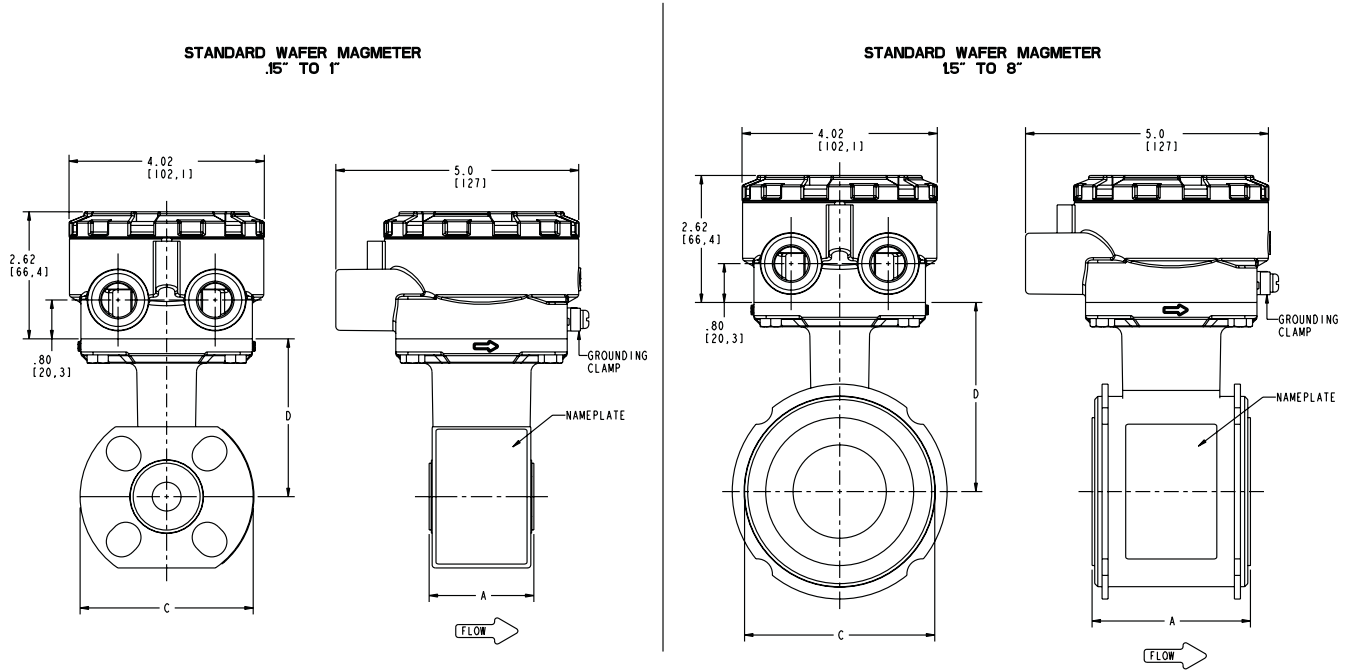


Table 40. 0.15-in. through 8-in. Wafer (mm)

Size, Description	Overall Length			Body DIM "C"	CL to UMB DIM "D"	Liner on Face DIM "J"	Sensor Weight lbs. (kg)
	DIM "A" PTFE	DIM "A" ETFE	DIM "A" PFA				
0.15 (4) WAFER UP TO ANSI - 150# / DIN PN16			2.17 (55)	3.56 (90)	3.25 (83)	1.37 (35)	4 (1.8)
0.3 (8) WAFER UP TO ANSI - 150# / DIN PN16			2.17 (55)	3.56 (90)	3.25 (83)	1.37 (35)	4 (1.8)
0.5 (15) WAFER UP TO ANSI - 300# / DIN PN40	2.21 (56)	2.16 (55)		3.56 (90)	3.25 (83)	1.38 (35)	4 (1.8)
1 (25) WAFER UP TO ANSI - 300# / DIN PN40	2.26 (57)	2.13 (54)		4.50 (114)	3.56 (90)	1.94 (49)	5 (2.3)
1.5 (40) WAFER UP TO ANSI - 300# / DIN PN40	2.88 (73)	2.73 (69)		3.29 (84)	3.67 (93)	2.42 (61)	5 (2.3)
2 (20) WAFER UP TO ANSI - 300# / DIN PN40	3.32 (84)	3.26 (83)		3.92 (99)	3.89 (99)	3.05 (77)	7 (3.2)
3 (80) WAFER UP TO ANSI - 300# / DIN PN40	4.71 (120)	4.62 (117)		5.17 (131)	4.51 (115)	4.41 (112)	13 (5.9)
4 (100) WAFER UP TO ANSI - 300# / DIN PN40	5.87 (149)	5.83 (148)		6.39 (162)	5.12 (130)	5.80 (147)	22 (10.0)
6 (150) WAFER UP TO ANSI - 300# / DIN PN40	7.08 (180)	6.87 (174)		8.57 (218)	6.22 (158)	7.86 (200)	35 (15.9)
8 (200) WAFER UP TO ANSI - 300# / DIN PN40	9.06 (230)	8.86 (225)		10.63 (270)	7.25 (184)	9.86 (250)	60 (27.2)

Figure 17. Dimensional Drawings of Rosemount 8721 Sensors Typical of 1 through 4inch (25 through 100mm) line sizes.

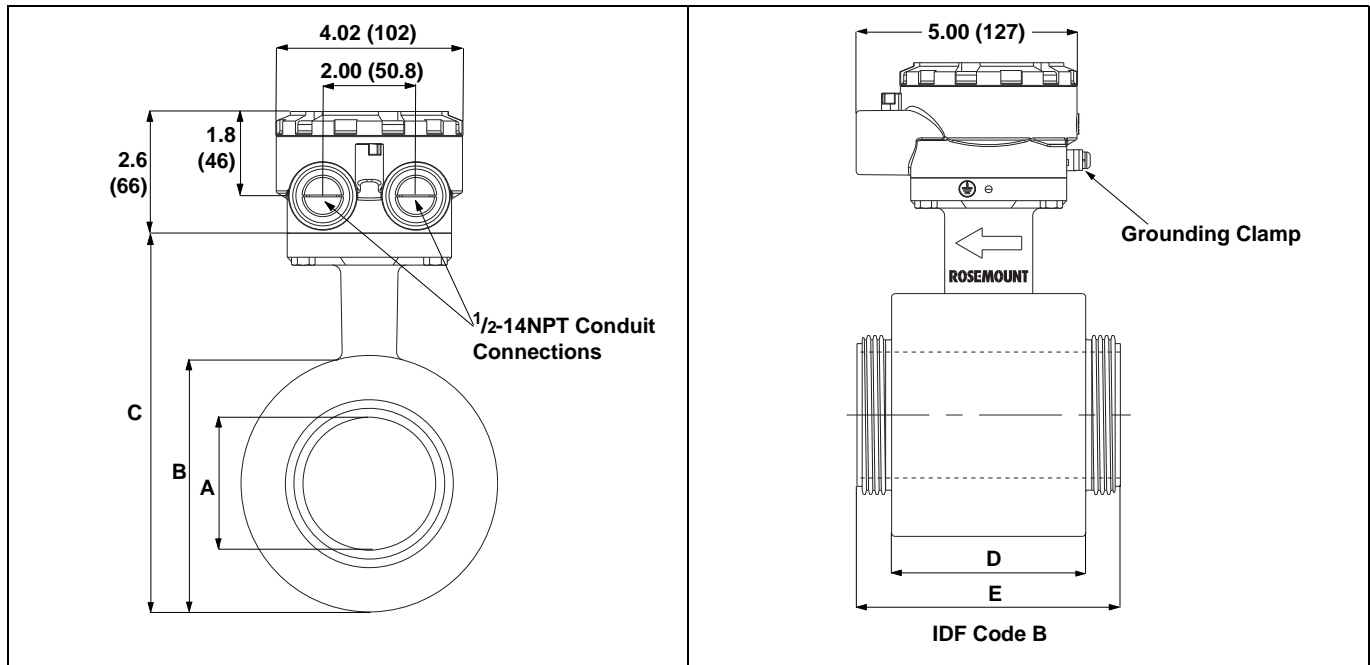


Table 41. Rosemount 8721 Dimensions in Inches (Millimeters). Refer to Dimensional Drawing Figure 17.

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)

Rosemount 8700 Series

Figure 18. Dimensional Drawings of Rosemount 8721 Sensors Typical of 1 through 4inch (25 through 100mm) line sizes

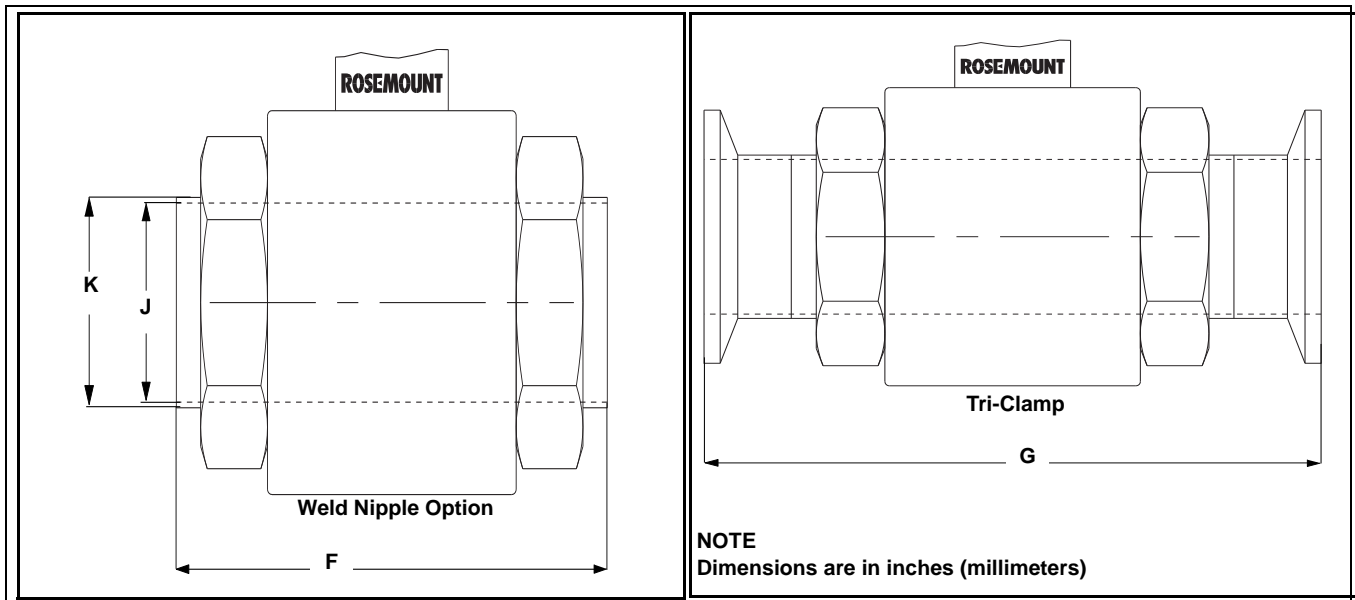


Table 42. Rosemount 8721 Process Connection Lay Length in Inches (Millimeters). Refer to Figure 18.

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 (Met and Imp) Length G	DIN 11851 (Met and 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)	1.68 (42.7)	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)

Figure 19.

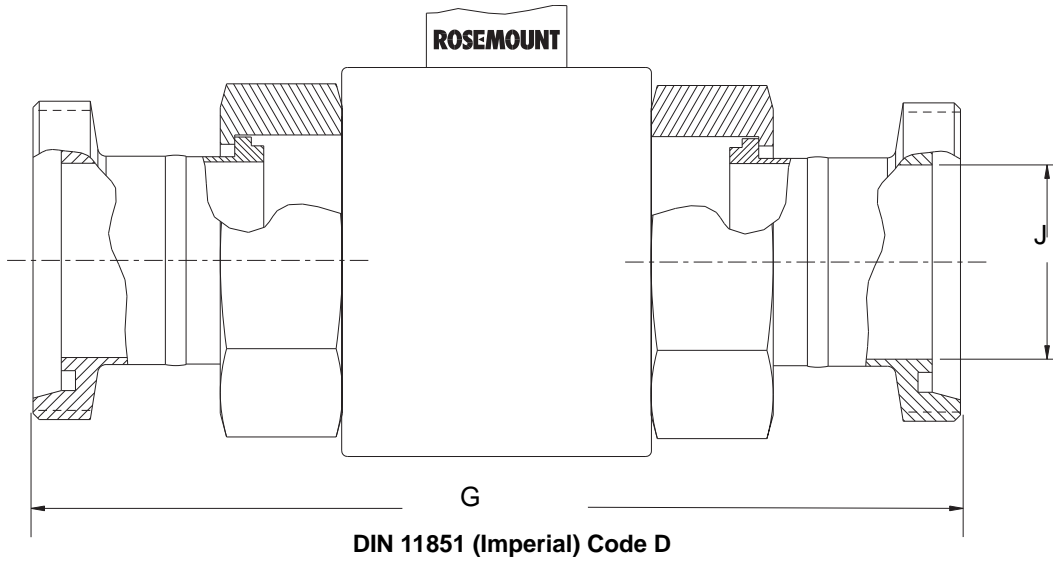
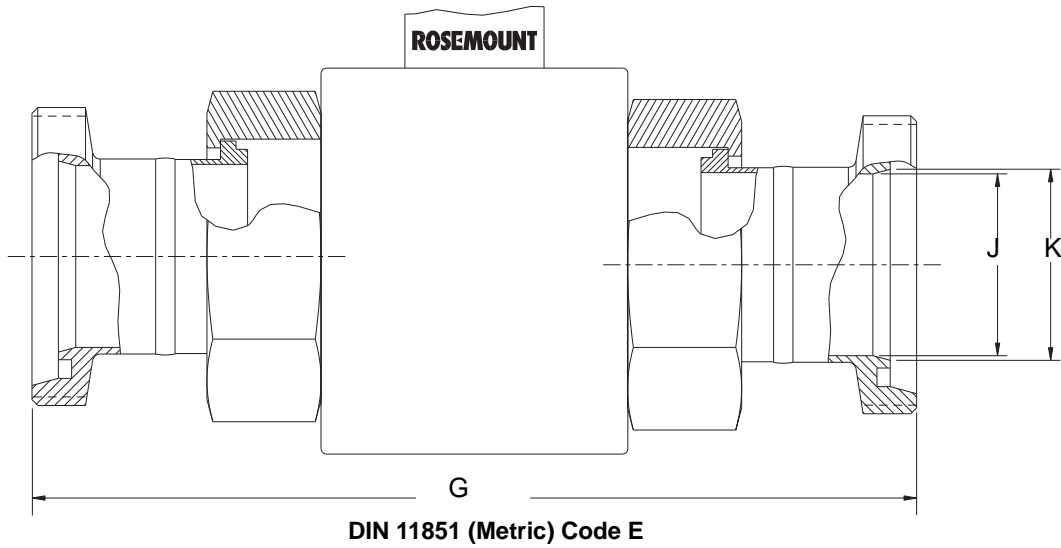


Figure 20.



Rosemount 8700 Series

Figure 21.

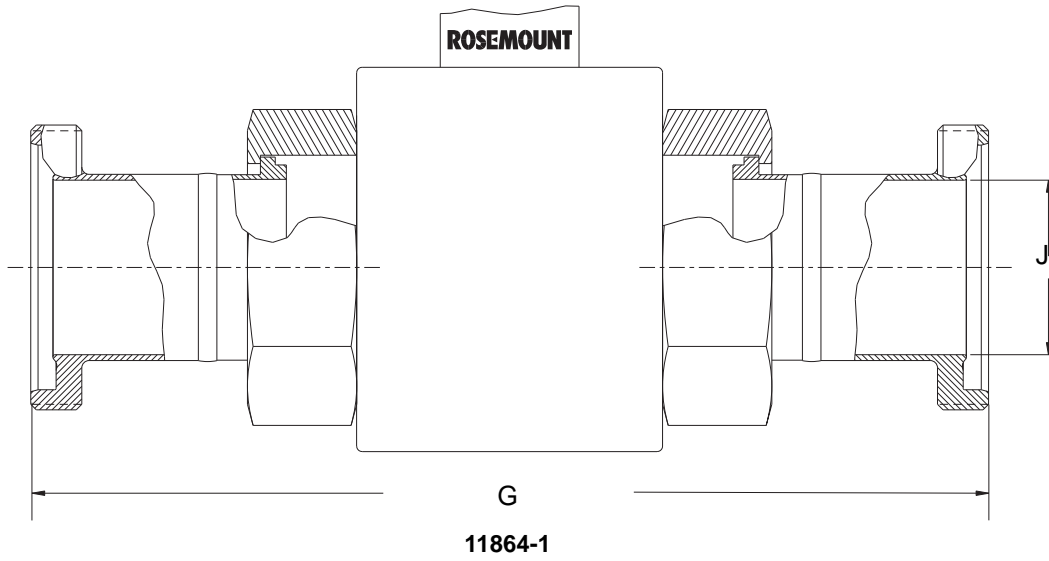


Figure 22.

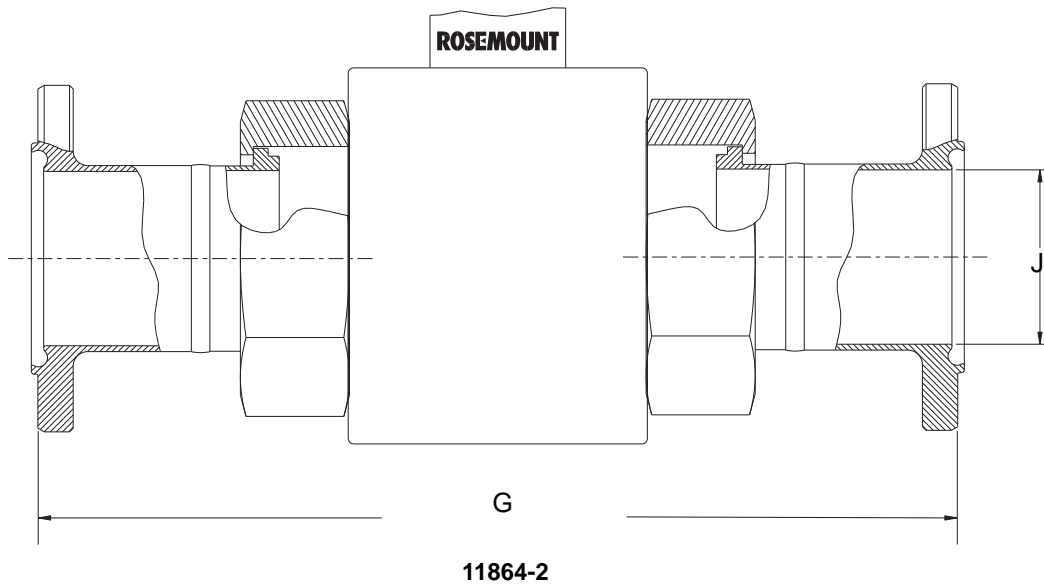


Figure 23.

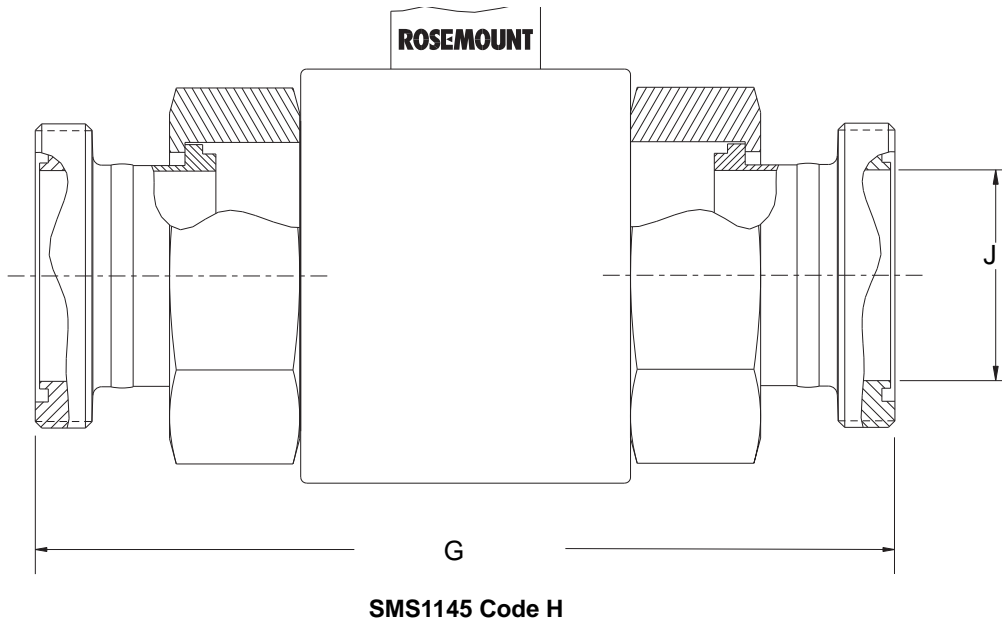
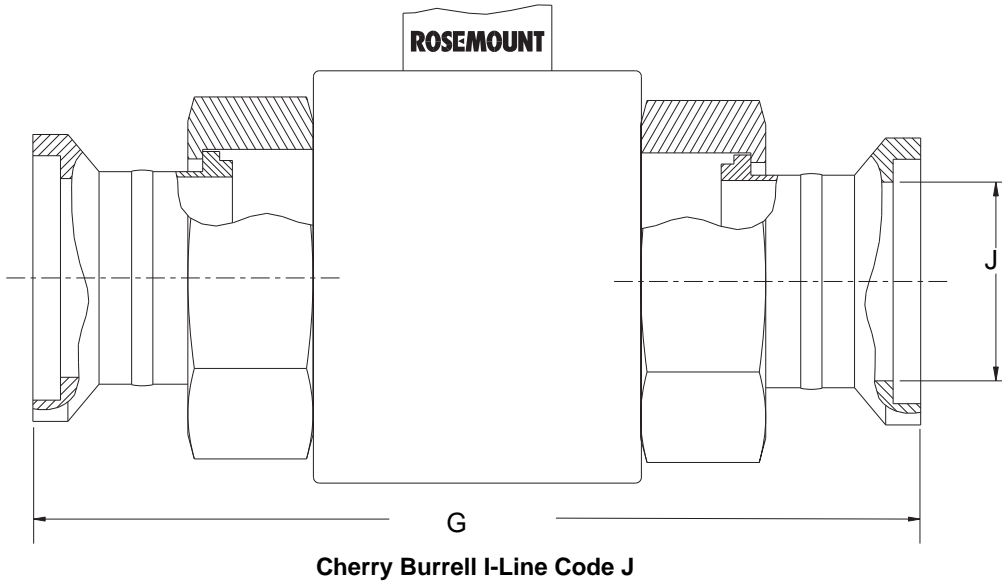
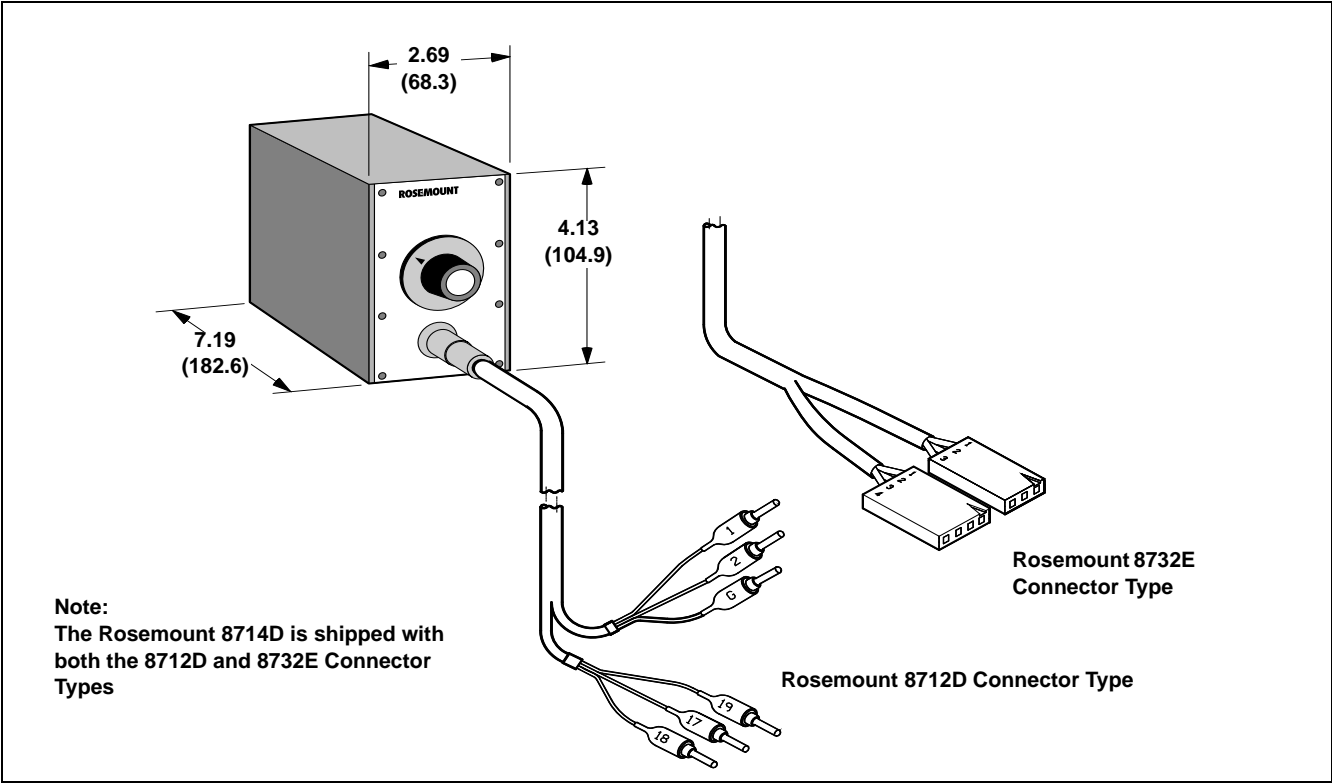


Figure 24.



Rosemount 8700 Series

Figure 25. Rosemount 8714D Calibration Standard



Rosemount 8700 Series

Product Data Sheet

00813-0100-4727, Rev UC

June 2010

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Emerson Process Management

Rosemount Inc.

8200 Market Boulevard
Chanhassen, MN 55317 USA
T (U.S.) 1-800-999-9307
T (International) (952) 906-8888
F (952) 949-7001

www.rosemount.com

Emerson Process Management Flow

Neonstraat 1
6718 WX Ede
The Netherlands
T +31 (0)318 495555
F +31(0) 318 495556

Emerson FZE

P.O. Box 17033
Jebel Ali Free Zone
Dubai UAE
Tel +971 4 811 8100
Fax +971 4 886 5465

Emerson Process Management

Singapore Pte Ltd.
1 Pandan Crescent
Singapore 128461
Tel (65) 777-8211
Fax (65) 777-0947
Enquiries@AP.EmersonProcess.com