



MT3809G General Purpose  
Housing

# MT3809G Series

## Metal Tube Variable Area Flow Meters for High Pressures and Extreme Temperatures

Brooks® MT3809 all-metal flowmeter has been the "go-to" meter for decades and the choice of Engineering, Procurement and Construction (EPC) companies. Its operation is based on the variable area principle and is ideal for a variety of gas, liquid and steam applications. These meters are indispensable where high pressures or high temperature operating conditions exist.

The primary meter is available in 316/316L stainless steel as well as with an ETFE liner. But a wide range of corrosion resistant materials of construction are available which makes it a perfect fit for metering of aggressive applications.

A broad range of connection sizes and types such as ASME, DIN and JIS flange choices along with several threaded options provide for flexible installations.

The very popular mechanical indicator option does not require power which reduces installation costs and is a cost-effective solution for flow measurement in hazardous areas. Optional accessories available includes transmitter with 4-20 mA analog output with HART® communications or FOUNDATION™ Fieldbus communications with or without configurable alarms and pulse output for totalization. Also available are front adjustable inductive alarms, high temperature or stainless steel indicator housings, valves, flow controllers and certifications.

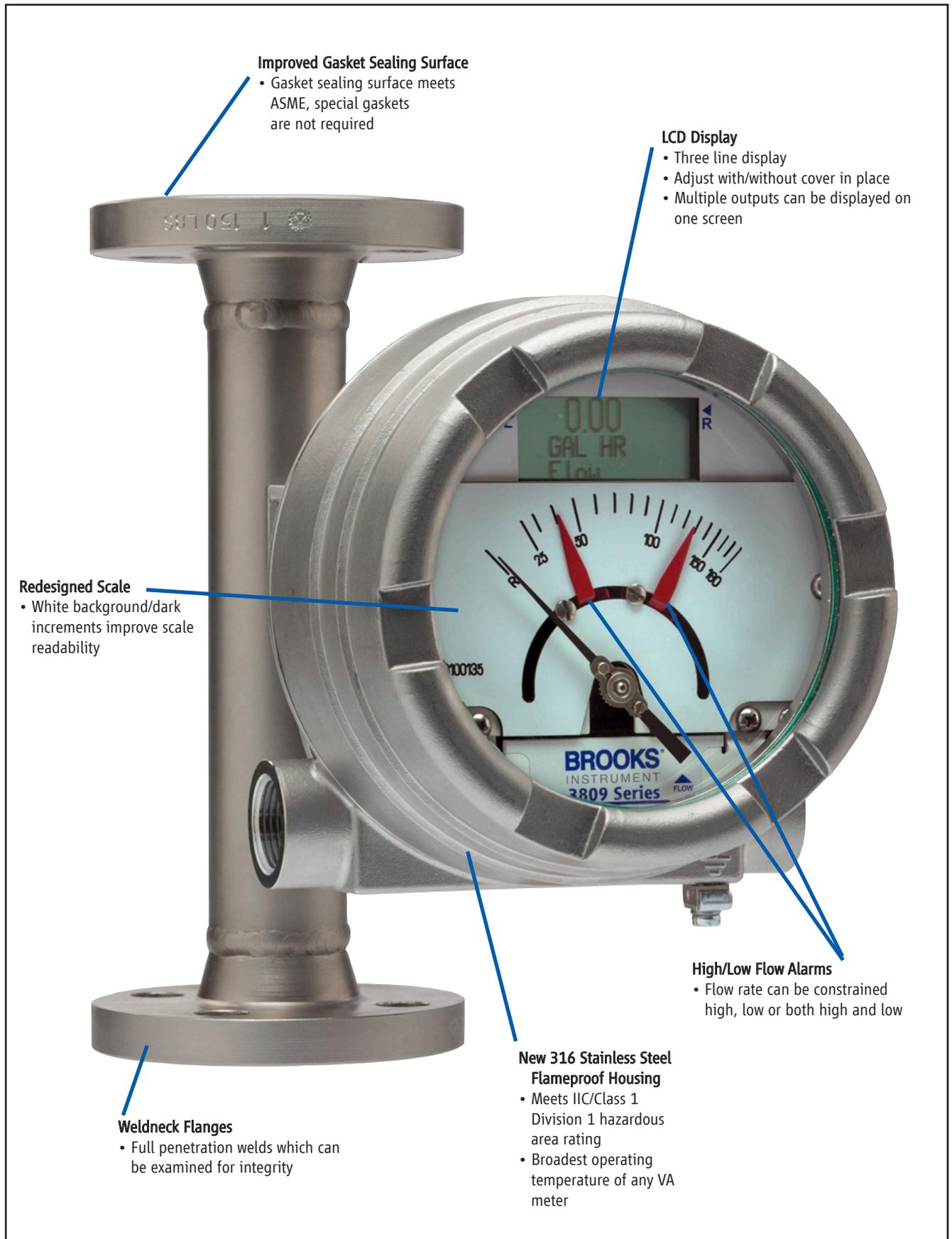
### Features & Benefits

- Transmitter with 4-20mA/HART-7 or FOUNDATION™ Fieldbus Communications
- Local Operator Interface with LCD display is adjustable without removing the cover so changes can be made even in hazardous areas
- 316SS flameproof housing that meets IIC/Class 1 Div 1 to handle the toughest hazardous applications
- The broadest range of operating temperatures in the industry, the perfect meter for difficult applications
- Lower flow rates with the current lay lengths which means one meter style can be used for very low to high flow rates
- Meter is designed to ASME B31.3 and the gasket sealing surface is per ASME, a rugged design that does not require special gaskets at installation
- Weldneck flanges are standard for MT3809 and MT3810 which means full penetration welds that can easily be tested for integrity
- Mechanical and alarm design that meets SIL 2 requirements

View MT3809G Series  
Product Page

**BROOKS**®  
INSTRUMENT

*Beyond Measure*



### 316 SS Flameproof Housing

The 3809 flameproof housing has been redesigned and improved. The option is made of 316 stainless steel. This includes housing, cover, bracket and hardware. The new option now meets ATEX gas group IIC/NA class 1 Division 1. This is the highest gas protection rating available. Now this option can be used in more hazardous area applications. This option also has the broadest operating temperature range of any Variable Area meter. The new 3809 can be used in applications from -198°C to +420°C (-325°F to +788°F).



### LCD Display

The 4-20 mA output transmitter is still available with remote analog output but now a LCD display is a new option. The LCD display supplies additional information locally such as totalization, alarm signals and the ability to make parameter changes. The changes can be made by removing the housing cover which is possible in a non-hazardous area. But in a hazardous area the display can be accessed with the cover in place using a supplied magnet.



### Improved HART Transmitter, FOUNDATION™ Fieldbus and Alarm Option

The transmitter and alarm options can be used in applications from -198°C to +420°C (-325°F to +788°F). Every transmitter has HART Revision 7 capability. The transmitter and alarm options will have worldwide approvals including CSA (North America), ATEX (Europe), KOSHA (Korea), NEPSI (China) and TR CU (Custom Union including Russia). The alarm function has a safety certification of SIL 2. This option can be used in the toughest applications including safety systems.



		MT3809	MT3809 ELF	MT3810	TFE Lined
Measuring Range		See Capacity Tables			
Rangeability		10:1 (most sizes)			
Metering Tube	Standard	316/316L (dual certified stainless steel)			Tefzel® Lined 316/316L (dual certified stainless steel)
	Premium	Alloy 625, Hastelloy® C, Titanium Gr. II	Monel® K-500, Hastelloy C	-	-
Flanges and End Fittings	Standard	316/316L (dual certified stainless steel)			Tefzel Lined 316/316L (dual certified stainless steel)
	Premium	Alloy 625, Hastelloy C, Titanium Gr. II			-
Accuracy		2%, 1%, VDI/VDE class 2.5, 1.6	5%, 3%, VDI/VDE class 4, 2.5	5%, VDI/VDE class 6	2%, VDI/VDE class 2.5
Repeatability		0.25% Full Scale	1% Full Scale	0.25% Full Scale	0.25% Full Scale
Scale type / material		Dark increments with white background / Aluminum			
Installation orientation and location		Vertical (within 5% of true-vertical), bottom inlet, top outlet. Do not locate in proximity of other magnetic interfering components.			
Connections	Flanged:	Weldneck flanges			Slip on flanges
	Equivalent - to ANSI B16.5*	ANSI ½" TO 4" 150# RF; ½" to 2" 900/1500# RF/RTJ; ½" to 2" 2500# RTJ	ANSI ½" TO 4" 150# RF; ½" to 2" 900/1500# RF/RTJ; ½" to 2" 2500# RTJ	ANSI 1/2" to 2" 150# RF to 300# RF	ANSI 1/2" to 2" 150# RF to 300# RF
	- DIN 2527/ EN 1092-1	DIN PN 40			
	- Flange finish	3.2 - 6.3 Ra			
	Threaded female	1/2" to 2" NPT/Rc-Female	1/2" NPT/Rc-Female	1/2" to 2" NPT-Female	-
	Threaded male	1" to 2-1/2" NPT-Male	1" NPT-Male	-	-
O-ring material	Flanged	None	Kalrez® 4079	None	
	Threaded male	None		-	-
	Threaded female std	Viton® or Teflon®		Viton or Teflon	-
	Threaded female high pressure 2500lbs	Viton Shore 90 + Teflon back-up ring or Kalrez 3018 Shore 90 + Teflon back-up ring		-	-
Floats	Standard	316L stainless steel			Hastelloy C-276 (sizes 7,8) PVDF (sizes 10-13)
	Premium	Alloy 625, Hastelloy C, Titanium Gr. II	Monel K-500, Hastelloy C	-	-
Protection Category	Indicator only	IP67 / NEMA 4X			
	Transmitter ALU	IP64			
	Transmitter SS	IP67 / NEMA 4X			
Indicator Housing & Cover material	Indicator only ALU	Die cast Aluminum (Alloy 380), epoxy paint, glass window			
	Transm/Alarm/HiTemp ALU	Die cast Aluminum (Alloy 380), epoxy paint, glass window			
	Indicator only SS	Cast 316 stainless steel, glass window			
	Transm/Alarm/HiTemp SS	Cast 316 stainless steel, 316 stainless steel hardware, glass window			
Pressure/Temperature		See Pressure/Temperature Tables			
Maximum Fluid Temperature		420°C/788°F (Refer to Temperature Tables)		300°C/570°F	150°C/270°F
Meter Dimensions		Refer to Product Dimension Figures			
Needle Control Valves & Flow Controllers		Valves - Sizes 7 - 12 / FCA Sizes 7,8	Valve/FCA Sizes 0-5	Valves - Sizes 7 - 12 / FCA Sizes 7,8	-
Product Approvals		Refer to Product Approvals Pages			
Transmitter	Current loop 4-20mA/HART®	Refer to Transmitter Section for detailed specifications on 4-20mA/HART-7 transmitter, Hi/Lo-alarm and pulse output - <b>Not Available 3810G</b>			
	FOUNDATION™ Fieldbus	Refer to FOUNDATION Fieldbus Section for detailed specifications on FOUNDATION Fieldbus transmitter, Hi/Lo-alarm and pulse output - <b>Not Available 3810G</b>			
Inductive Alarms		Refer to Inductive Alarm Section - <b>Not Available 3810G</b>		Refer to Inductive Alarm Section	
Local Operator Interface (incl. LCD)		Refer to Temperature Tables			

\* The product is designed in accordance with ASME B31.3. The following flange parameters comply with requirements of ASME B16.5

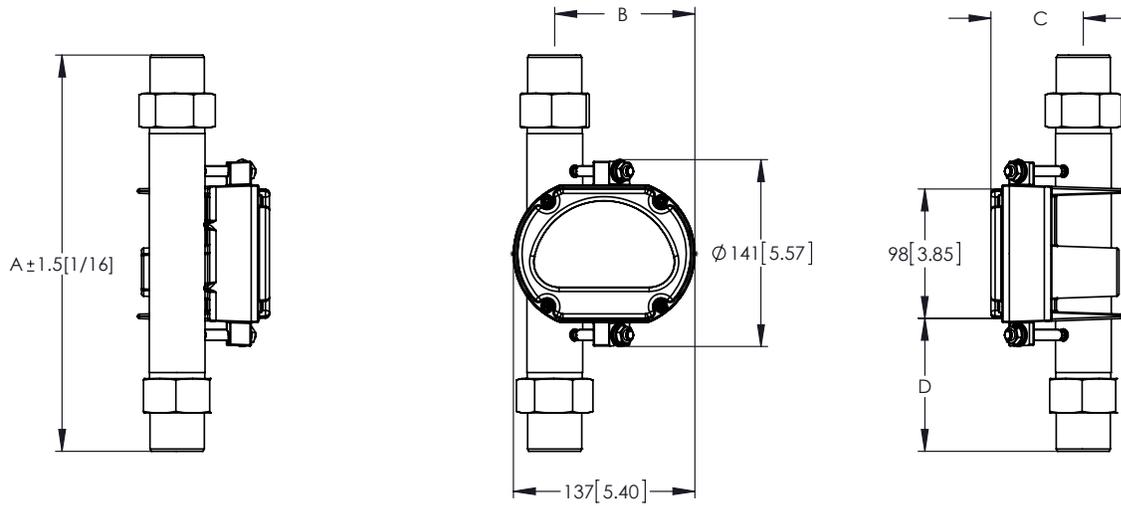
- Pressure Rating
- Nominal Pipe Size NPS
- Diameter of Flange
- No. of Bolts
- Diameter of Bolts
- Diameter of Bolt Holes
- Bolt Circle

### ELF Body/Float Stop/Float/Metering Tube Material Restrictions

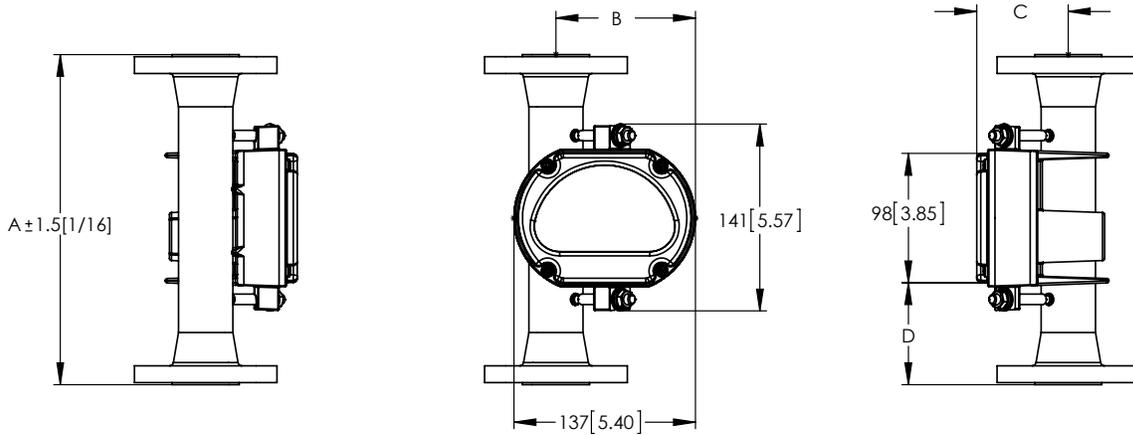
ELF BODY MAT'L (#1)	METERING TUBE MAT'L (#6)	OUTLET FLOAT STOP MAT'L (#13)	FLOAT MAT'L (#14) *	INLET FLOAT STOP MAT'L (#17)
316 LSS	316SS	INCONEL 625	316SS or TITANIUM GR2	316SS
HASTELLOY C-276	HASTELLOY C-276	HASTELLOY C-276	HASTELLOY C-276	HASTELLOY C-276
INCONEL 625	MONEL	INCONEL 625	MONEL	MONEL
TITANIUM GR2	MONEL	INCONEL 626	TITANIUM GR2	MONEL

\*Note: Size 0 float is always TITANIUM GR2 FLOAT

Model 3809 & 3810 General Purpose Indicator Housing with Threaded Female Connections mm [inches]



Model 3809 & 3810 General Purpose Indicator Housing with Flanged Connections mm [inches]



Meter Size	Connection	A	B	C	D	Weight (Approx.)*
0-5	1/2" Threaded Female	225 [8.85]	99 [3.90]	63 [2.56]	61 [2.40]	2.7 kg [6 lbs.]
	1" Threaded Male	200 [7.87]	100 [3.94]	65 [2.56]	48 [1.89]	2.7 kg [6 lbs.]
7 & 8	1/2" Threaded Female	225 [8.85]	99 [3.90]	63 [2.56]	61 [2.40]	2.7 kg [6 lbs.]
	3/4" Threaded Female	225 [8.85]	99 [3.90]	63 [2.56]	61 [2.40]	2.7 kg [6 lbs.]
10	1" Threaded Male	200 [7.87]	100 [3.94]	65 [2.56]	48 [1.89]	2.7 kg [6 lbs.]
	1" Threaded Female	300 [11.81]	107 [4.21]	71 [2.80]	98 [3.86]	4.5 kg [10 lbs.]
12	1-1/2" Threaded Male	250 [9.84]	108 [4.25]	72 [2.83]	73 [2.87]	4.5 kg [10 lbs.]
	1-1/2" Threaded Female	300 [11.81]	116 [4.57]	80 [3.15]	98 [3.86]	6.8 kg [15 lbs.]
13	2-1/2" Threaded Male	250 [9.84]	118 [4.65]	83 [3.27]	73 [2.87]	6.8 kg [15 lbs.]
	2" Threaded Female	300 [11.81]	122 [4.78]	86 [3.39]	98 [3.86]	7.7 kg [17 lbs.]
0-5	Flanged (ANSI, DIN and JIS)	250 [9.84]	99 [3.90]	63 [2.48]	73 [2.87]	4.1 kg [9 lbs.] - 6.5 kg [14 lbs.]
7 & 8		250 [9.84]	99 [3.90]	63 [2.48]	73 [2.87]	4.1 kg [9 lbs.] - 11.9 kg [26 lbs.]
10		250 [9.84]	106 [4.13]	70 [2.76]	73 [2.87]	7.7 kg [17 lbs.] - 14.5 kg [32 lbs.]
12		250 [9.84]	115 [4.53]	79 [3.11]	73 [2.87]	12.2 kg [27 lbs.] - 17.7 kg [39 lbs.]
13		250 [9.84]	122 [4.80]	85 [3.35]	73 [2.87]	14.1 kg [31 lbs.] - 28 kg [62 lbs.]
15		250 [9.84]	139 [5.47]	103 [4.06]	73 [2.87]	20.0 kg [44 lbs.] - 45 kg [99 lbs.]
16		350 [13.78]	154 [6.06]	118 [4.65]	123 [4.84]	37.6 kg [83 lbs.] - 58.6 kg [129 lbs.]

\*Weights shown for aluminum indicator. Add 1.8 [4 lbs.] for steel indicator housing

Note: DIM A is 300mm for the below options:

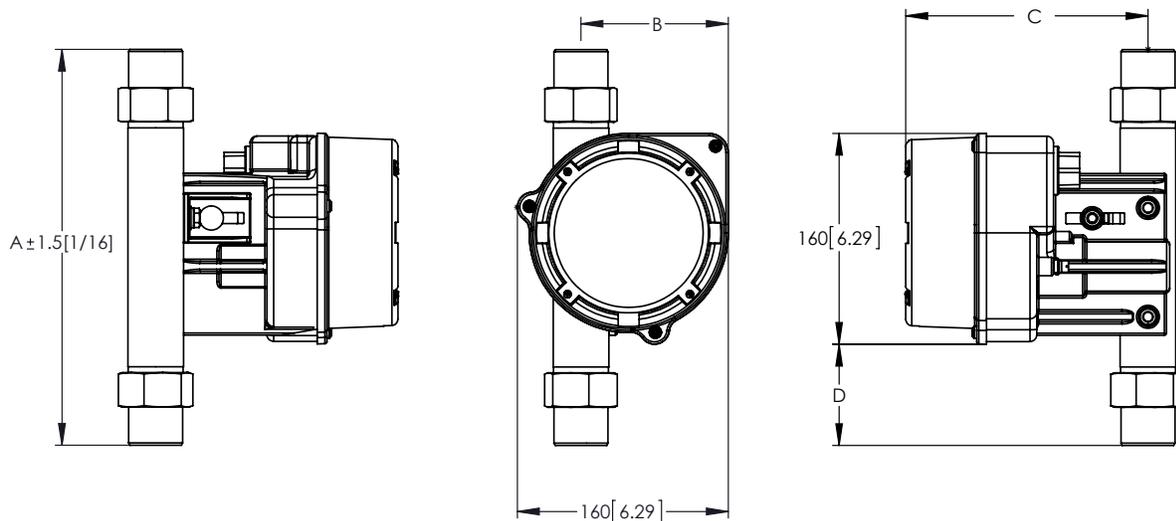
Sizes 7/8 1.5 to 2" 600# RF

ELF 2" 300# RF

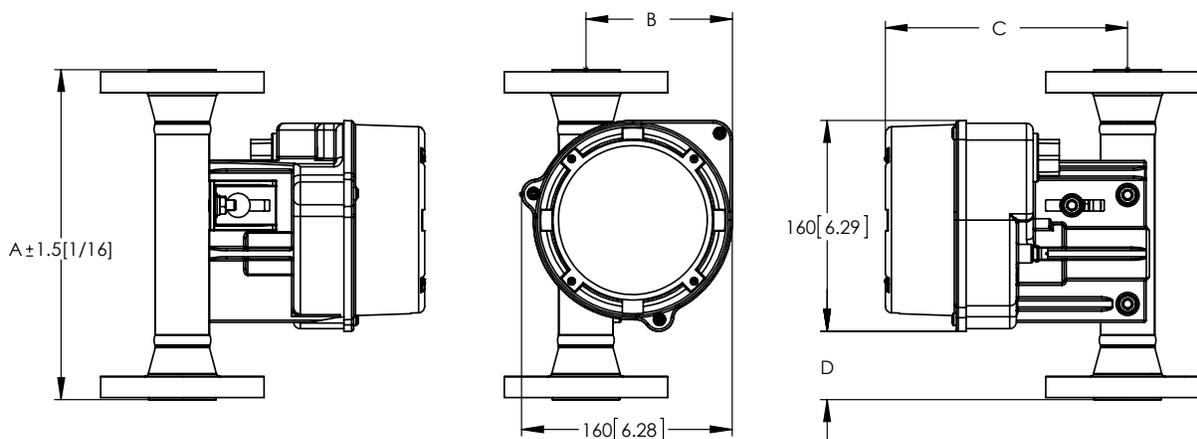
SIZE 10 2" 600# RF

Consult factory for 900/1500# & 2500# Flanged Meter Dimensions

## Model 3809 Intrinsically Safe Indicator Housing with Threaded Female Connections mm [inches]



## Model 3809 Intrinsically Safe Indicator Housing with Flanged Connections mm [inches]



Meter Size	Connection	A	B	C	D	Weight (Approx.)*
0-5	1/2" Threaded Female	225 [8.85]	104 [4.10]	183 [7.20]	40 [1.57]	5.4 kg [12 lbs.]
	1" Threaded Male	200 [7.87]	105 [4.13]	183 [7.20]	27 [1.06]	5.4 kg [12 lbs.]
7 & 8	1/2" Threaded Female	225 [8.85]	104 [4.10]	183 [7.20]	40 [1.57]	5.4 kg [12 lbs.]
	3/4" Threaded Female	225 [8.85]	104 [4.10]	183 [7.20]	40 [1.57]	5.4 kg [12 lbs.]
10	1" Threaded Male	200 [7.87]	105 [4.13]	183 [7.20]	27 [1.06]	5.4 kg [12 lbs.]
	1" Threaded Female	300 [11.81]	121 [4.76]	183 [7.20]	77 [3.03]	7.3 kg [16 lbs.]
12	1-1/2" Threaded Male	250 [9.84]	113 [4.45]	183 [7.20]	52 [2.05]	7.3 kg [16 lbs.]
	1-1/2" Threaded Female	300 [11.81]	121 [4.76]	183 [7.20]	77 [3.03]	9.5 kg [21 lbs.]
13	2-1/2" Threaded Male	250 [9.84]	120 [4.72]	183 [7.20]	52 [2.05]	9.5 kg [21 lbs.]
	2" Threaded Female	300 [11.81]	127 [5.00]	183 [7.20]	77 [3.03]	10.4kg [23 lbs.]
0-5	Flanged (ANSI, DIN and JIS)	250 [9.84]	104 [4.10]	183 [7.20]	52 [2.05]	6.8 kg [15 lbs.] - 9.2 kg [20 lbs.]
		250 [9.84]	104 [4.10]	183 [7.20]	52 [2.05]	6.8 kg [15 lbs.] - 14.6 kg [32 lbs.]
250 [9.84]		111 [4.37]	183 [7.20]	53 [2.05]	10.4 kg [23 lbs.] - 17.2 kg [38 lbs.]	
250 [9.84]		120 [4.72]	183 [7.20]	54 [2.05]	15 kg [33 lbs.] - 20.5 kg [45 lbs.]	
250 [9.84]		126 [4.96]	183 [7.20]	55 [2.05]	16.8 kg [37 lbs.] - 30.7 kg [68 lbs.]	
250 [9.84]		144 [5.67]	183 [7.20]	56 [2.05]	22.7 kg [50 lbs.] - 47.7 kg [105 lbs.]	
350 [13.78]		159 [6.26]	183 [7.20]	57 [2.05]	40.4 kg [89 lbs.] - 61.4 kg [135 lbs.]	

Note: DIM A is 300mm for the below options:

Sizes 7/8 1.5 to 2" 600# RF

ELF 2" 300# RF

SIZE 10 2" 600# RF

Consult factory for 900/1500# & 2500# Flanged Meter Dimensions