

Product Data Sheet

PS-00603, Rev. B

June 2004

Micro Motion® F-Series Mass and Volume Flowmeter

With MVD™ Technology



Micro Motion® F-Series Flowmeters

Micro Motion F-Series meters offer highly accurate flow and density measurement for virtually any process fluid — whether it is clean or not. The same meter can provide direct mass and volume flow for liquids, gases, and slurries without having to be recalibrated. Their immunity to flow profile means that you can install F-Series meters anywhere in your process line without having to worry about expensive straight runs or flow straightening devices. This translates into real savings in installation and engineering costs.

Choose any transmitter

F-Series meters are compatible with the full range of Micro Motion transmitters with MVD Technology. F-Series models smaller than F300 are also compatible with Micro Motion's standard 9-wire transmitters. Choose models that can be installed integrally or remotely, in the control room, or in the same hazardous area as the sensor. F-Series meters are able to communicate using FOUNDATION™ fieldbus, Profibus-PA, Modbus®, or HART® protocols.

Features that meet process needs

The accumulated knowledge of Micro Motion is built into every F-Series meter. F-Series meters include a variety of standard process connections, milliamper and pulse outputs, a standard display, and a built-in totalizer resettable from the display.

Micro Motion F-Series meters are designed to perform in harsh operating environments, and carry hazardous area approvals for the U.S.A., Canada, Europe, Japan, and other areas around the world.

Micro Motion is known worldwide for increasing plant efficiency, production, and profitability. More than 400,000 Micro Motion meters are installed and working in processes just like yours. Contact us and discover why you should use Micro Motion F-Series meters in your process.

Easy to install and use

- No special mounting
- No straight run requirements
- No need for flow conditioning elements
- Nothing to wear out or break down because there are no moving parts
- No need for periodic recalibration
- Non-intrusive
- No regular maintenance requirements



Easy to clean

For use in clean environments, Micro Motion F-Series meters come with a smooth exterior finish that can easily be kept clean. All F-Series meters can be installed to be self-draining.

Direct mass or volume measurement

With direct mass measurement, the Micro Motion F-Series meter is immune to variations in pressure, temperature, or process fluid. The same meter can measure liquids, gases, or slurries.

High precision

Accuracy up to 0.15% on liquids and 0.5% on gases means better product quality and less waste. F-Series meters measure the density of liquids to within 0.002 g/cc.

Secondary containment

Rest easier if process fluid containment is a critical concern. Micro Motion F-Series meters can be purchased with an optional secondary containment rating. This rating is supported by a pneumatic leak test of the sensor enclosure, along with documentation that describes how the safety of the sensor has been verified according to ASME B31.3 standards.

Liquid flow performance

		Mass		Volume ⁽¹⁾	
		lb/min	kg/hr	gal/min	l/hr
Maximum flow rate	F025S, F025P	100	2720	12	2720
	F050S	300	8160	36	8160
	F100S	1200	32,650	144	32,650
	F200S	3200	87,100	384	87,100
	F300S	10,000	272,000	1200	272,000
Accuracy⁽²⁾	Transmitter with MVD Technology	±0.20% of rate ⁽³⁾⁽⁴⁾			
	All other transmitters ⁽⁵⁾	±0.20% of rate ± $\left[\left(\frac{\text{zero stability}}{\text{flow rate}}\right) \times 100\right]$ % of rate			
Repeatability	Transmitter with MVD Technology	±0.10% of rate ⁽³⁾			
	All other transmitters ⁽⁵⁾	±0.10% of rate ± $\left[\frac{1}{2}\left(\frac{\text{zero stability}}{\text{flow rate}}\right) \times 100\right]$ % of rate			
Zero stability		lb/min	kg/hr	gal/min	l/hr
	F025S, F025P	0.0065	0.1765	0.0008	0.1765
	F050S	0.020	0.544	0.002	0.544
	F100S	0.080	2.177	0.010	2.177
	F200S	0.256	6.965	0.031	6.965
	F300S	0.80	21.76	0.096	21.76

(1) Volumetric measurement is based on a process-fluid density of 1 g/cc. For fluids with density other than 1 g/cc, the maximum volume flow rate equals the maximum mass flow rate divided by the fluid's density.

(2) Stated flow accuracy includes the combined effects of repeatability, linearity, and hysteresis.

(3) When flow rate $< \frac{\text{zero stability}}{0.002}$, then accuracy = $\pm\left[\left(\frac{\text{zero stability}}{\text{flow rate}}\right) \times 100\right]$ % of rate and repeatability = $\pm\left[\frac{1}{2}\left(\frac{\text{zero stability}}{\text{flow rate}}\right) \times 100\right]$ % of rate.

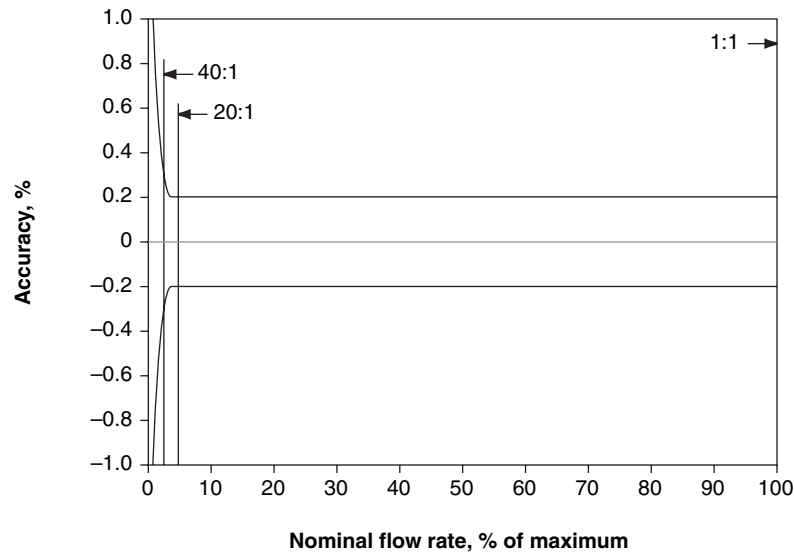
(4) When ordered with the 0.15% calibration factory option, accuracy on liquid = ±0.15% when flow rate $\geq \frac{\text{zero stability}}{0.0015}$. When flow rate $< \frac{\text{zero stability}}{0.0015}$, then accuracy = $\pm\left[\left(\frac{\text{zero stability}}{\text{flow rate}}\right) \times 100\right]$ % of rate.

(5) Model F300S is compatible only with transmitters with MVD Technology.

Liquid flow performance *continued*

Typical accuracy, turndown, and pressure drop with transmitter with MVD Technology

To determine accuracy, turndown, and pressure drop with your process variables, use Micro Motion's product selector, available at www.micromotion.com.



<i>Turndown from maximum</i>	40:1	20:1	2:1
Accuracy (\pm %)	0.26	0.20	0.20
Pressure drop			
<i>psi</i>	0.1	0.3	14.2
<i>bar</i>	0.01	0.02	0.98

Density performance (liquid only)

Accuracy	± 0.002 g/cc	± 2.0 kg/m ³
Repeatability	± 0.001 g/cc	± 1.0 kg/m ³

Gas flow performance

When selecting sensors for gas applications, measurement accuracy is a function of fluid mass flow rate independent of operating temperature, pressure, or composition. However, pressure drop through the sensor is dependent upon operating temperature, pressure, and fluid composition. Therefore, when selecting a sensor for any particular gas application, it is highly recommended that each sensor be sized using Micro Motion's product selector, available at www.micromotion.com.

	Mass		Volume ⁽¹⁾	
	lb/min	kg/hr	SCFM	Nm ³ /hr
Typical flow rates that produce approximately 10 psid (0.68 bar) pressure drop on air at 68 °F (20 °C) and 100 psi (6.8 bar)				
F025S, F025P	4	116	57	90
F050S	13	357	174	276
F100S	50	1366	667	1055
F200S	140	3810	1860	2940
F300S	488	14,865	7270	11,512

Typical flow rates that produce approximately 50 psid (3.4 bar) pressure drop on natural gas (MW 16.675) at 68 °F (20 °C) and 500 psi (34 bar)

F025S, F025P	16	445	378	598
F050S	49	1358	1154	1825
F100S	189	5162	4387	6936
F200S	523	14,490	12,310	19,470
F300S	1856	50,989	43,331	72,247

Accuracy⁽²⁾	Transmitter with MVD Technology	±0.50% of rate ⁽³⁾		
	All other transmitters ⁽⁴⁾	±0.70% of rate ± $\left[\left(\frac{\text{zero stability}}{\text{flow rate}} \right) \times 100 \right]$ % of rate		

Repeatability⁽²⁾	Transmitter with MVD Technology	±0.25% of rate ⁽³⁾		
	All other transmitters ⁽⁴⁾	±0.35% of rate ± $\left[\left(\frac{\text{zero stability}}{\text{flow rate}} \right) \times 100 \right]$ % of rate		

		lb/min	kg/hr
Zero stability	F025S, F025P	0.0065	0.18
	F050S	0.020	0.54
	F100S	0.080	2.18
	F200S	0.256	6.97
	F300S	0.800	21.76

(1) Standard (SCFM) reference conditions are 14.7 psia and 68 °F. Normal (Nm³/hr) reference conditions are 1.013 bar-a and 0 °C.

(2) Stated flow accuracy includes the combined effects of repeatability, linearity, and hysteresis.

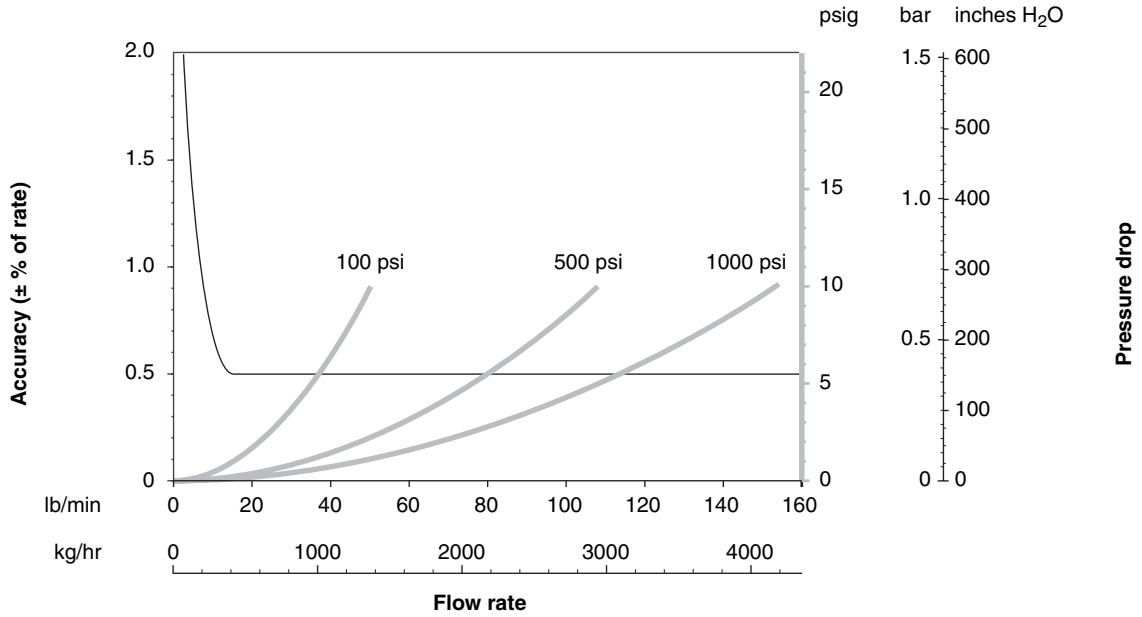
(3) When flow rate < $\frac{\text{zero stability}}{0.005}$, then accuracy = $\pm \left[\left(\frac{\text{zero stability}}{\text{flow rate}} \right) \times 100 \right]$ % of rate and repeatability = $\pm \left[\frac{1}{2} \left(\frac{\text{zero stability}}{\text{flow rate}} \right) \times 100 \right]$ % of rate.

(4) F300 is only compatible with transmitters with MVD Technology.

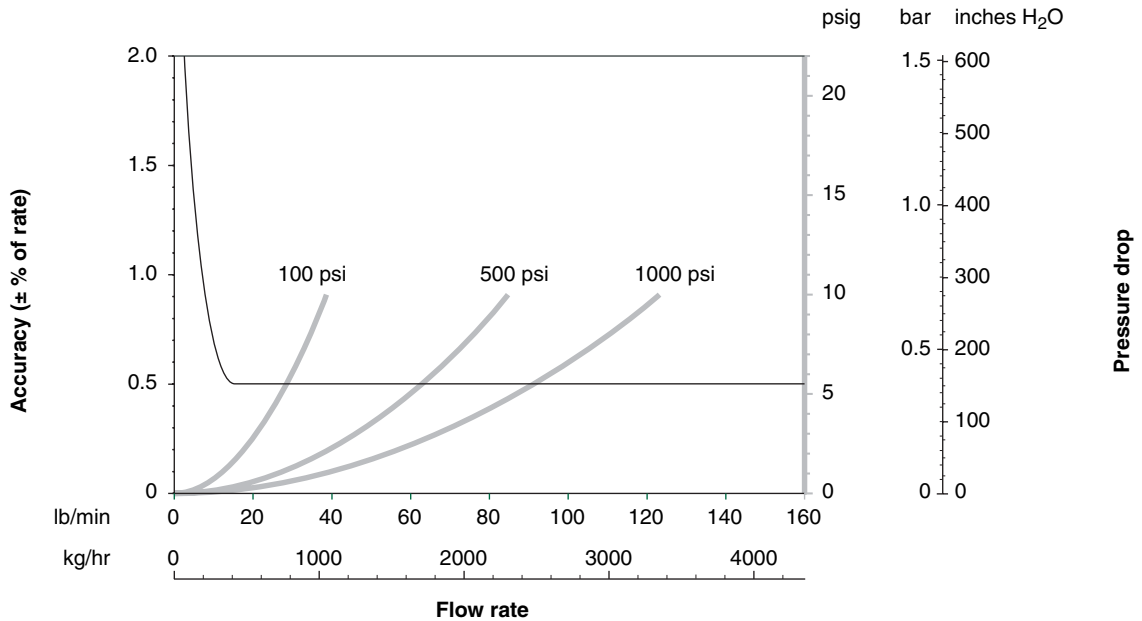
Gas flow performance *continued*

Typical accuracy and pressure drop with F100 with MVD Technology

Air at 68 °F (20 °C), static pressures as indicated on graph



Natural gas (MW 16.675) at 68 °F (20 °C), static pressures as indicated on graph



Standard or Normal Volumetric Capability

Standard and normal volumes are “quasi mass” flow units for any fixed composition fluid. Standard and normal volumes do not vary with operating pressure, temperature, or density. With knowledge of density at standard or normal conditions (available from reference sources), a Micro Motion meter can be configured to output in standard or normal volume units without the need for pressure, temperature, or density compensation. Please reference EXPERT₂[™], available on www.micromotion.com or your local sales representative for more information.

Temperature limits and performance

Process fluid temperature		°F	°C
	Sensor with integral core processor or transmitter	-60 to +356 ⁽¹⁾	-50 to +180 ⁽¹⁾
	Sensor with extended core processor	-60 to +356	-50 to +180
	Sensor with junction box or extended junction box	-150 to +356	-100 to +180
Ambient temperature			
UL	Sensor with junction box or integral IFT9701 transmitter	-4 to +104	-20 to +40
CSA	Sensor with junction box or integral IFT9701 transmitter	140 maximum	60 maximum
	Sensor with core processor	-40 to +140	-40 to +60
	Sensor with integral MVD transmitter	-40 to +140	-40 to +60
ATEX ⁽²⁾		Refer to graphs on pages 12–13	Refer to graphs on pages 12–13
Accuracy	±1 °C ±0.5% of reading in °C		
Repeatability	±0.2 °C		

(1) Process fluid temperature limits with an integral core processor or an integral transmitter when the ambient temperature does not exceed +91 °F (+33 °C) with MVD Technology and +72.5 °F (+22.5 °C) with Model IFT9701. For process fluid temperature limits at higher ambient temperatures, consult the factory.

(2) The ATEX “T” rating and hazardous area classification depend on the maximum process fluid and ambient temperature. See pages 12–13.

Pressure ratings

		psi	bar		
Flow tube rating⁽¹⁾	F025P	2300	158		
	All other models	1450	100		
PED compliance	Sensors comply with council directive 97/23/EC of 29 May 1997 on Pressure Equipment				
		ASME B31.3 secondary containment rating⁽¹⁾		Burst pressure used to determine ASME B31.3 secondary containment rating	
		psi	bar	psi	bar
Housing rating⁽²⁾	F025S, F025P	221	15	1884	130
	F050S	180	12	1530	105
	F100S	145	10	1281	88.3
	F200S	85	5.8	760	52.4
	F300S	256	17.7	2630	180

(1) Pressure rating at 77 °F (25 °C), according to ASME B31.3. For higher operating temperatures, pressure needs to be derated as follows.

	Flow tubes (316L sensors)	Housing (all sensors)
201 to 300 °F (94 to 148 °C)	None	None
301 to 356 °F (149 to 180 °C)	7.2% derating	7.2% derating

(2) Sensor housing is only rated when the secondary containment case option is purchased.

Environmental effects

Process temperature effect

Process temperature effect is defined as:

- For mass flow measurement, the worst-case zero offset due to process fluid temperature change away from the zeroing temperature.
- For density measurement, the maximum measurement offset due to process fluid temperature change away from the density calibration temperature.

Process temperature effect

	% of maximum flow rate per °C	density accuracy per °C g/cc	kg/m ³
F025S, F025P	±0.00175	±0.0001	±0.1
F050S	±0.00175	±0.0001	±0.1
F100S	±0.00175	±0.0001	±0.1
F200S	±0.00175	±0.0001	±0.1
F300S	±0.0040	±0.0001	±0.1

Pressure effect

Pressure effect is defined as the change in sensor flow and density sensitivity due to process pressure change away from the calibration pressure. Pressure effect can be corrected.

Pressure effect on flow accuracy

	% of rate per psi	% of rate per bar
F025S, F025P	-0.001	-0.015
F050S	-0.001	-0.015
F100S	-0.001	-0.015
F200S	-0.001	-0.015
F300S	-0.001	-0.015

Pressure effect on density accuracy

	g/cc per psi	kg/m ³ per bar
F025S, F025P	None	None
F050S	-0.00003	-0.43
F100S	-0.00004	-0.58
F200S	-0.00003	-0.43
F300S	-0.00003	-0.43

Hazardous area classifications

UL is a U.S.A. approvals agency. CSA is a Canadian approvals agency that provides approvals accepted in both the U.S.A. (C-US) and Canada. ATEX is a European directive.

UL

Models F025, F050, F100, and F200	Sensor with integrally mounted IFT9701 transmitter	Class I, Div. 2, Groups A, B, C, and D Class II, Div. 2, Groups F and G
	Sensor with junction box	Class I, Div. 1, Groups C and D Class I, Div. 2, Groups A, B, C, and D Class II, Div. 1, Groups E, F, and G

CSA and C-US

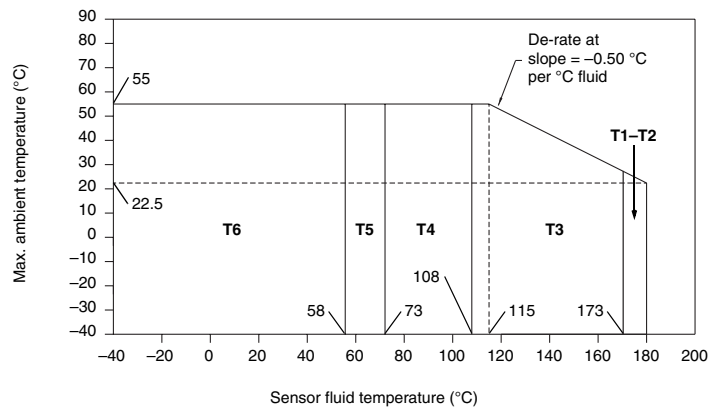
Models F025, F050, F100, and F200	Sensor with integrally mounted IFT9701 transmitter	Class I, Div. 2, Groups A, B, C, and D Class II, Div. 2, Groups F and G
	Sensor with junction box	Class I, Div. 1, Groups C and D Class I, Div. 2, Groups A, B, C, and D Class II, Div. 1, Groups E, F, and G
	Sensor with core processor or integrally mounted Model 1700 or 2700 transmitter	Class I, Div. 1, Groups C and D Class I, Div. 2, Groups A, B, C, and D Class II, Div. 1, Groups E, F, and G
Model F300	Sensor with junction box	Class I, Div. 1, Groups C and D Class I, Div. 2, Groups A, B, C, and D Class II, Div. 1, Groups E, F, and G
	Sensor with core processor or integrally mounted Model 1700 or 2700 transmitter	Class I, Div. 1, Groups C and D Class I, Div. 2, Groups A, B, C, and D Class II, Div. 1, Groups E, F, and G

Hazardous area classifications *continued*

ATEX⁽¹⁾

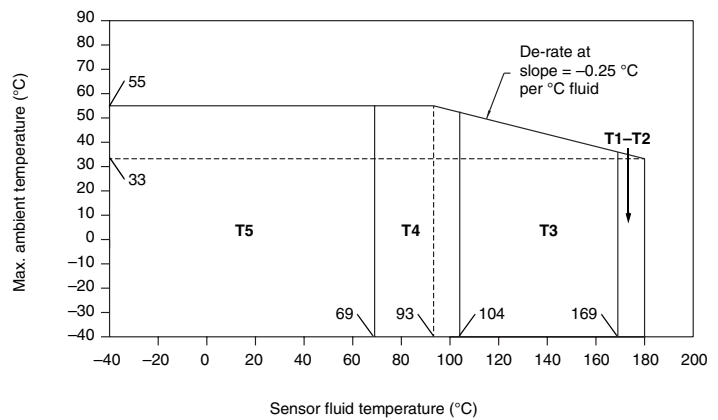
Models F025, F050, F100, and F200 Sensor with integrally mounted IFT9701 transmitter

EEx ib IIC T1–T6



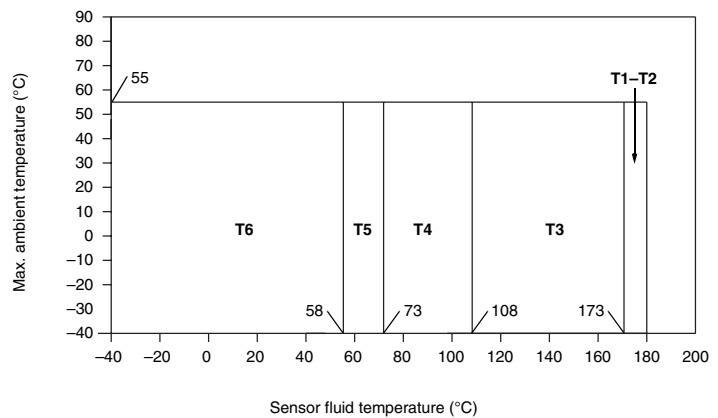
Sensor with integrally mounted core processor or Model 1700/2700 transmitter

EEx ib IIC T1–T5



Sensor with junction box

EEx ib IIC T1–T6

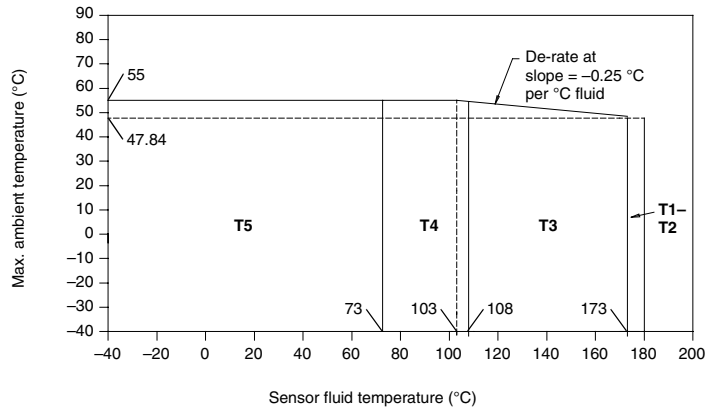


(1) ATEX "T" rating depends on the maximum temperature shown in the graphs above.

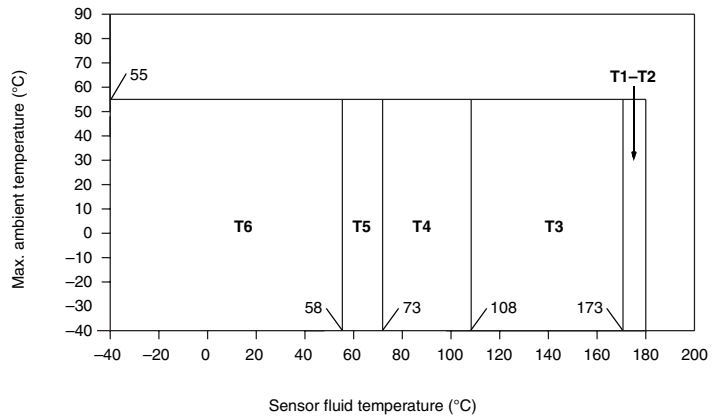
Hazardous area classifications *continued*

ATEX⁽¹⁾

Model F300
 Sensor with integrally
 mounted core processor or
 Model 1700/2700 transmitter
 EEx ib IIB T1–T5



Sensor with junction box
 EEx ib IIB T1–T6



(1) ATEX "T" rating depends on the maximum temperature shown in the graphs above.

Materials of construction

Wetted parts⁽¹⁾		316L stainless steel
Housing	Sensor	304L stainless steel
	Core processor	CF-3M stainless steel or epoxy-painted aluminum; NEMA 4X (IP 65)
	Junction box	Epoxy-painted aluminum; NEMA 4X (IP 65)

(1) General corrosion guidelines do not account for cyclical stress, and therefore should not be relied upon when choosing a wetted material for your Micro Motion flowmeter. Please refer to Micro Motion's corrosion guide for material compatibility information.

Weight

Weights provided are the weight of the flowmeter with ANSI 150 lb weld neck raised face flanges.

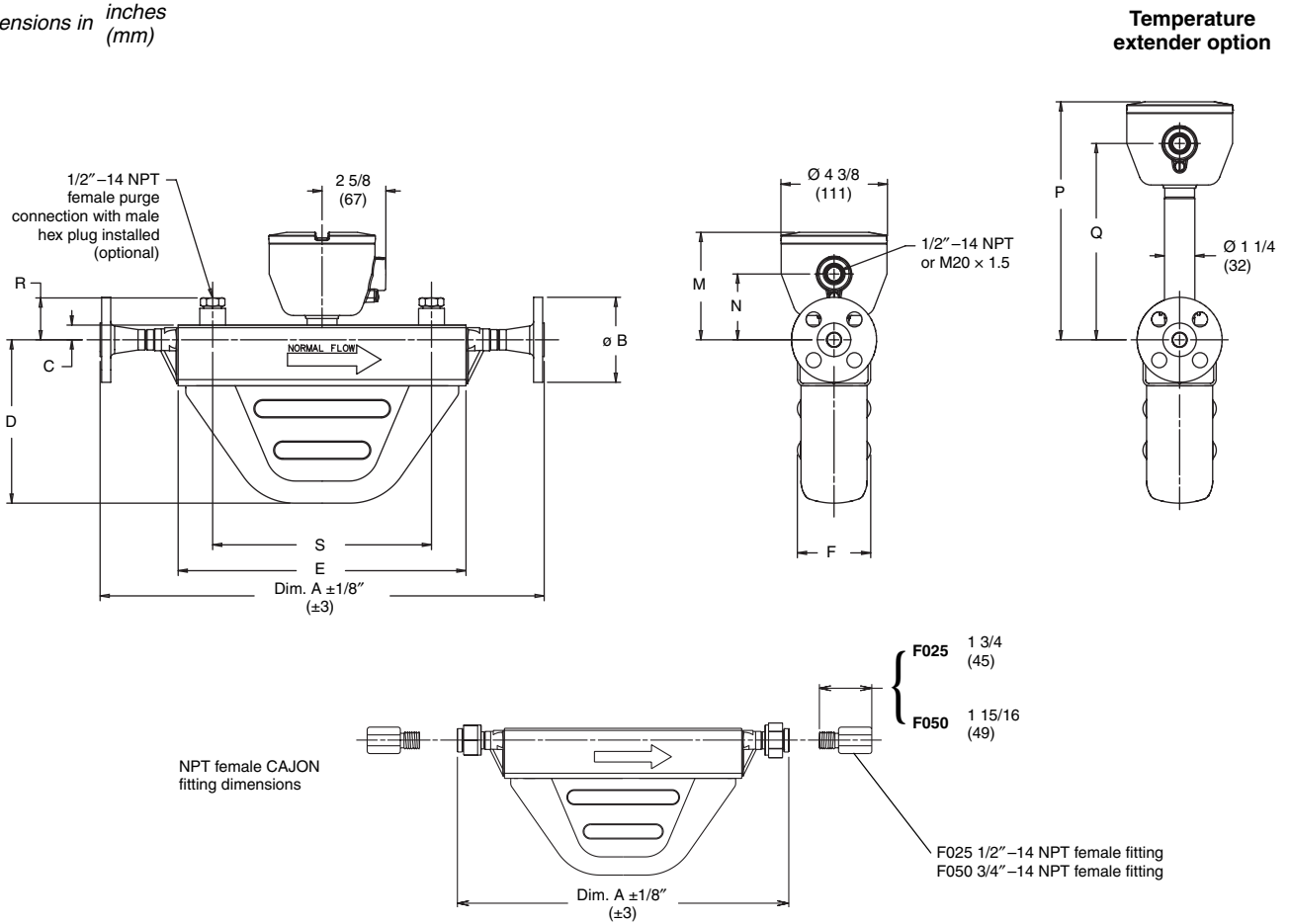
	F025S, F025P		F050S		F100S		F200S		F300S	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Sensor with integrally mounted IFT9701 transmitter	16	8	17	8	27	12	49	22	—	—
Sensor with integrally mounted core processor ⁽¹⁾	11	5	12	6	22	10	43	20	157	71
Sensor with extended core processor ⁽¹⁾	12	6	13	6	23	11	44	20	158	72
Sensor with integrally mounted Model 1700 or 2700 transmitter	17	8	18	9	27	13	49	23	162	74
Sensor with junction box	10	5	11	5	21	10	42	20	156	71
Sensor with extended junction box	11	5	12	6	22	10	43	20	157	71

(1) Add 4 lb (2 kg) for stainless steel core housing option (electronics interface codes A, B, D, and E).

Dimensions

Sensor with core processor

Dimensions in inches
(mm)



Dimensions⁽¹⁾

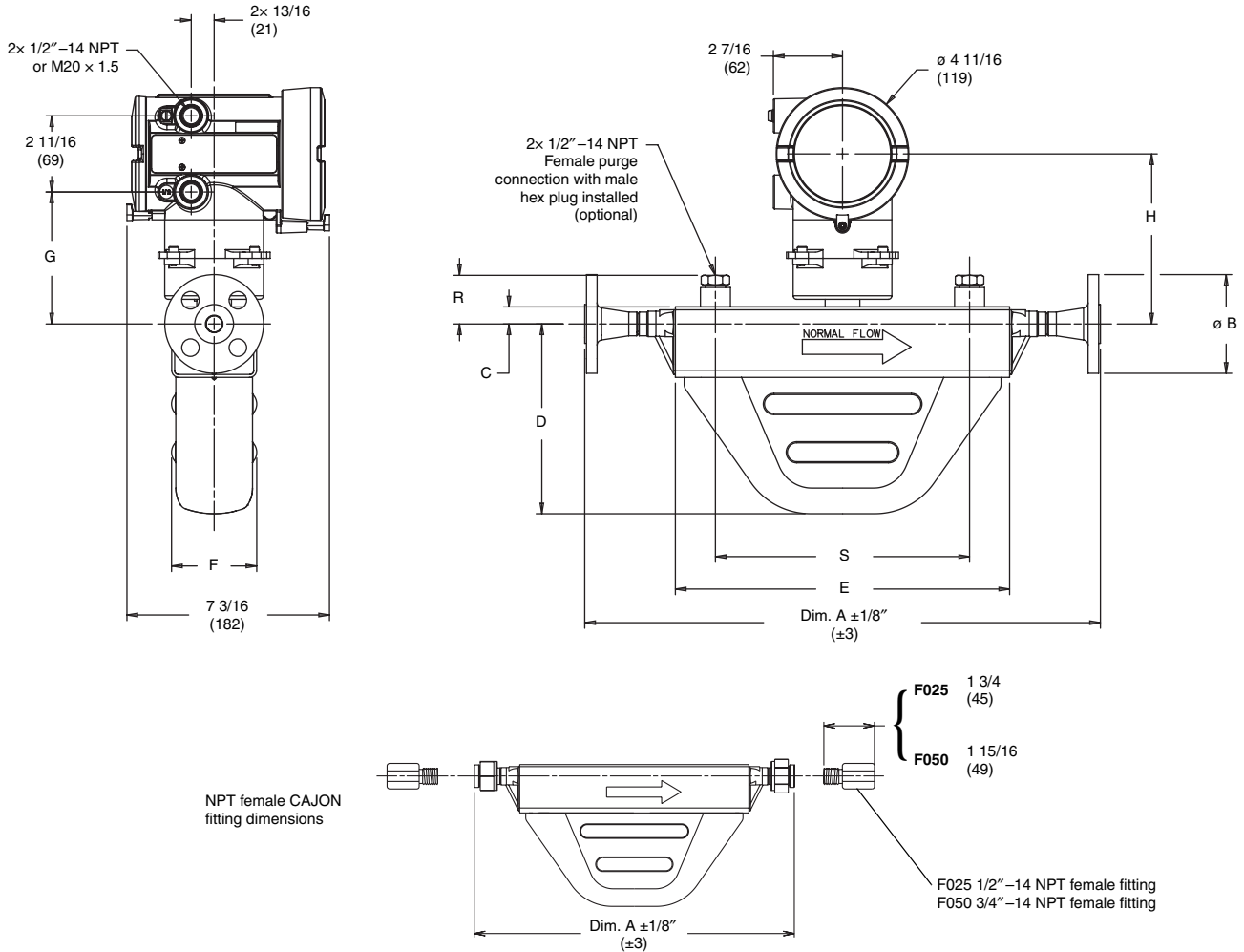
Model		C	D	E	F	M	N	P	Q	R	S
F025	inches (mm)	5/8 (15)	5 1/8 (130)	9 3/4 (247)	2 13/16 (72)	4 7/16 (112)	2 11/16 (69)	9 13/16 (249)	8 1/16 (205)	1 3/4 (44)	7 1/2 (191)
F050	inches (mm)	5/8 (15)	6 3/4 (171)	11 7/8 (301)	2 15/16 (74)	4 7/16 (112)	2 11/16 (69)	9 13/16 (249)	8 1/16 (205)	1 3/4 (44)	9 (229)
F100	inches (mm)	7/8 (22)	9 1/8 (232)	14 7/8 (378)	4 1/8 (104)	4 11/16 (119)	2 15/16 (75)	10 1/16 (255)	8 5/16 (212)	2 (50)	12 (305)
F200	inches (mm)	1 3/4 (44)	12 9/16 (319)	17 7/8 (454)	5 5/8 (144)	5 9/16 (141)	3 7/8 (98)	10 15/16 (278)	9 1/4 (234)	2 7/8 (73)	14 (356)
F300	inches (mm)	3 1/2 (89)	7 1/4 (185)	27 3/4 (704)	5 7/8 (150)	7 1/4 (184)	5 9/16 (141)	12 5/8 (321)	10 15/16 (277)	4 1/2 (114)	21 (533)

(1) For dimensions A and B, see process fitting tables on pages 19 and 20.

Dimensions *continued*

Sensor with integrally mounted Model 1700 or 2700 transmitter

Dimensions in *inches*
(*mm*)



Dimensions⁽¹⁾

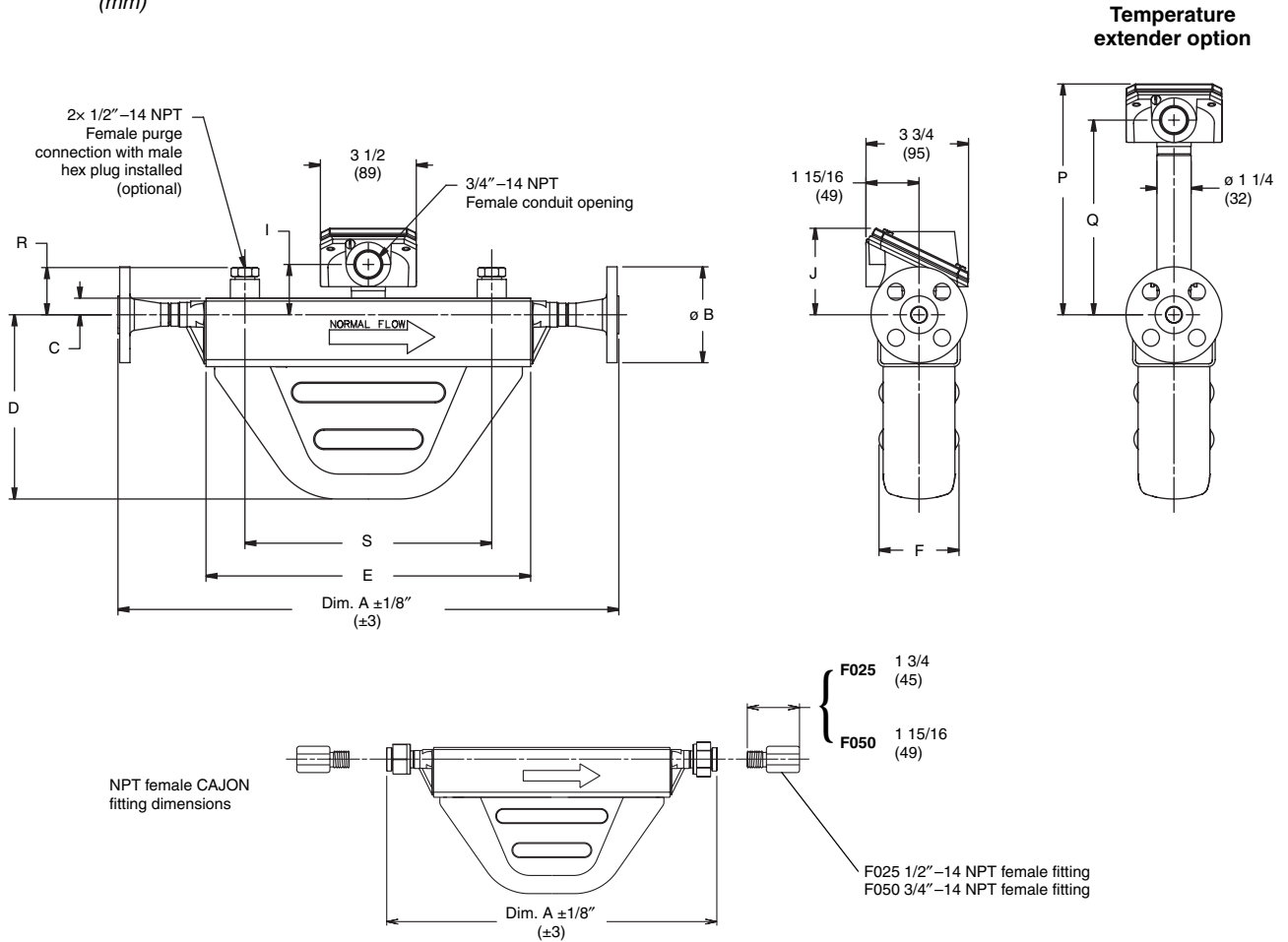
Model		C	D	E	F	G	H	R	S
F025	inches	5/8	5 1/8	9 3/4	2 13/16	4 11/16	6 1/16	1 3/4	7 1/2
	(mm)	(15)	(130)	(247)	(72)	(119)	(154)	(44)	(191)
F050	inches	5/8	6 3/4	11 7/8	2 15/16	4 11/16	6 1/16	1 3/4	9
	(mm)	(15)	(171)	(301)	(74)	(119)	(154)	(44)	(229)
F100	inches	7/8	9 1/8	14 7/8	4 1/8	4 15/16	6 15/16	2	12
	(mm)	(22)	(232)	(378)	(104)	(126)	(160)	(50)	(305)
F200	inches	1 3/4	12 9/16	17 7/8	5 5/8	5 13/16	7 13/16	2 7/8	14
	(mm)	(44)	(319)	(454)	(144)	(148)	(182)	(73)	(356)
F300	inches	3 1/2	7 1/4	27 3/4	5 7/8	7 1/2	8 7/8	4 1/2	21
	(mm)	(89)	(185)	(704)	(150)	(191)	(225)	(114)	(533)

(1) For dimensions A and B, see process fitting tables on pages 19 and 20.

Dimensions *continued*

Sensor with junction box

Dimensions in *inches*
(*mm*)



Dimensions⁽¹⁾

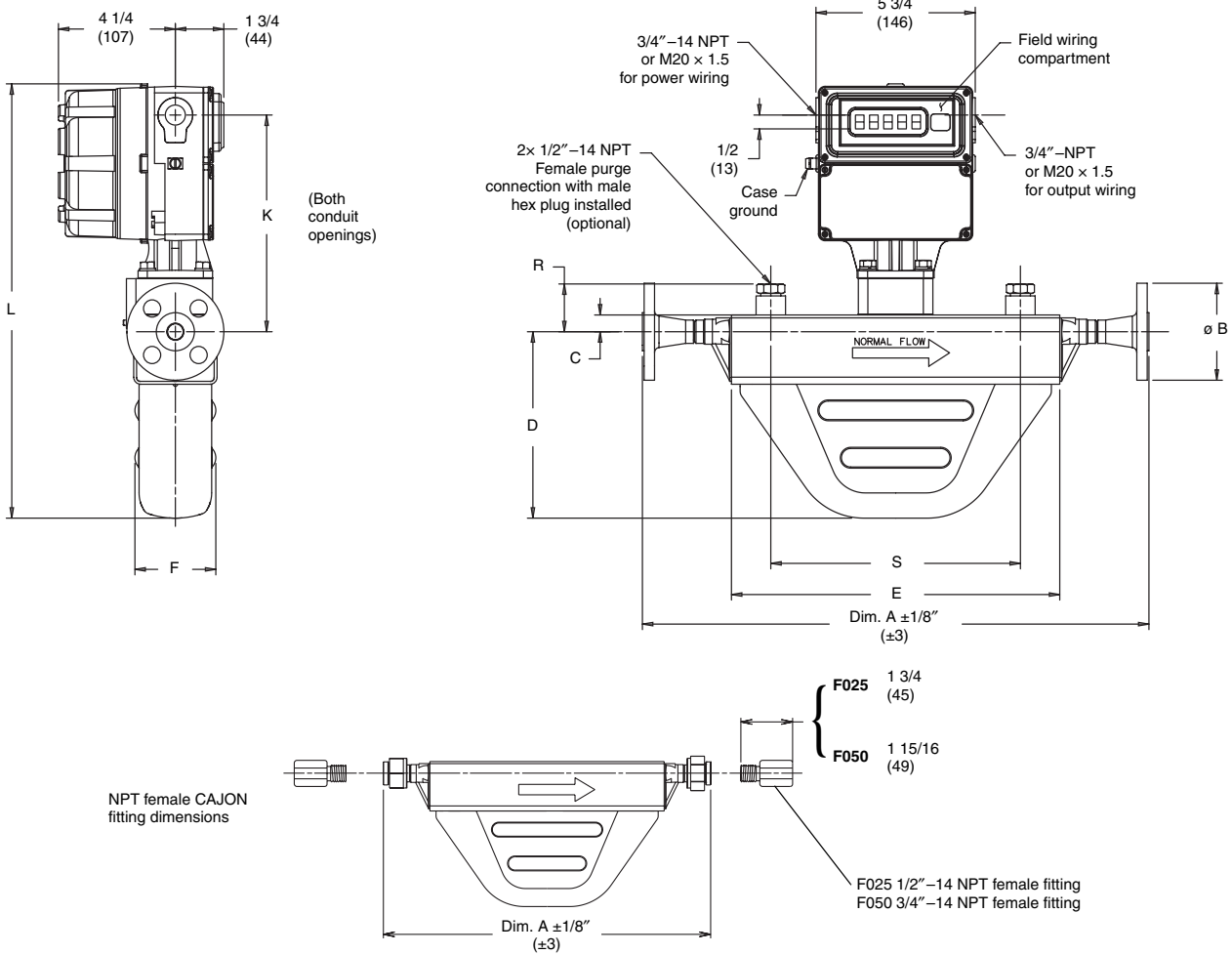
Model		C	D	E	F	I	J	P	Q	R	S
F025	inches	5/8	5 1/8	9 3/4	2 13/16	1 13/16	3 3/16	8 7/16	7 1/8	1 3/4	7 1/2
	(mm)	(15)	(130)	(247)	(72)	(47)	(80)	(214)	(181)	(44)	(191)
F050	inches	5/8	6 3/4	11 7/8	2 15/16	1 13/16	3 3/16	8 7/16	7 1/8	1 3/4	9
	(mm)	(15)	(171)	(301)	(74)	(47)	(80)	(214)	(181)	(44)	(229)
F100	inches	7/8	9 1/8	14 7/8	4 1/8	2 1/16	3 7/16	8 11/16	7 3/8	2	12
	(mm)	(22)	(232)	(378)	(104)	(53)	(87)	(220)	(187)	(50)	(305)
F200	inches	1 3/4	12 9/16	17 7/8	5 5/8	3	4 5/16	9 9/16	8 1/4	2 7/8	14
	(mm)	(44)	(319)	(454)	(144)	(76)	(109)	(243)	(209)	(73)	(356)
F300	inches	3 1/2	7 1/4	27 3/4	5 7/8	4 11/16	6	11 3/8	10 1/16	4 1/2	21
	(mm)	(89)	(185)	(704)	(150)	(119)	(152)	(289)	(255)	(114)	(533)

(1) For dimensions A and B, see process fitting tables on pages 19 and 20.

Dimensions *continued*

Sensor with integrally mounted Model IFT9701 transmitter

Dimensions in *inches*
(mm)



Dimensions⁽¹⁾

Model		C	D	E	F	K	L	R	S
F025	inches (mm)	5/8 (15)	5 1/8 (130)	9 3/4 (247)	2 13/16 (72)	7 13/16 (199)	14 1/16 (358)	1 3/4 (44)	7 1/2 (191)
F050	inches (mm)	5/8 (15)	6 3/4 (171)	11 7/8 (301)	2 15/16 (74)	7 13/16 (199)	15 11/16 (398)	1 3/4 (44)	9 (229)
F100	inches (mm)	7/8 (22)	9 1/8 (232)	14 7/8 (378)	4 1/8 (104)	8 1/16 (205)	18 5/16 (466)	2 (50)	12 (305)
F200	inches (mm)	1 3/4 (44)	12 9/16 (319)	17 7/8 (454)	5 5/8 (144)	8 15/16 (228)	22 5/8 (575)	2 7/8 (73)	14 (356)

(1) For dimensions A and B, see process fitting tables on pages 19 and 20.

Fitting options

	Fitting code	Dim. A face-to-face inches (mm)	Dim B. outside diam. inches (mm)
F025 fitting options⁽¹⁾			
1/2-inch ANSI 150 lb weld neck raised face flange	113	16 (406)	3 1/2 (89)
1/2-inch ANSI 300 lb weld neck raised face flange	114	16 3/8 (416)	3 3/4 (95)
1/2-inch ANSI 600 lb weld neck raised face flange	115	16 7/8 (429)	3 3/4 (95)
1/2-inch NPT female CAJON size 8 VCO fitting	319	14 (356) ⁽²⁾	not applicable
1/2-inch sanitary fitting (Tri-Clamp compatible)	121	14 (356)	1 (25)
DN15 PN40 weld neck; DIN 2635 type C face	116	15 1/4 (387)	3 3/4 (95)
DN15 PN100/160 weld neck flange; DIN 2638 type E face	120	15 13/16 (401)	4 1/8 (105)
15mm DIN 11851 aseptic coupling	222	13 15/16 (353)	Rd 34 × 1/8
JIS 15mm 10K/20K weld neck raised face flange	122	15 7/16 (393)	3 3/4 (95)
JIS 15mm 40K weld neck raised face flange	221	16 1/2 (420)	4 1/2 (115)
F050 fitting options⁽¹⁾			
1/2-inch ANSI 150 lb weld neck raised face flange	113	18 1/8 (460)	3 1/2 (89)
1/2-inch ANSI 300 lb weld neck raised face flange	114	18 1/2 (469)	3 3/4 (95)
1/2-inch ANSI 600 lb weld neck raised face flange	115	19 (482)	3 3/4 (95)
3/4-inch NPT female CAJON size 12 VCO fitting	239	16 3/8 (415) ⁽²⁾	not applicable
3/4-inch sanitary fitting (Tri-Clamp compatible)	322	15 7/8 (403)	1 (25)
DN15 PN40 weld neck flange; DIN 2635 type C face	116	17 3/8 (441)	3 3/4 (95)
DN15 PN100/160 weld neck flange; DIN 2638 type E face	120	17 7/8 (455)	4 1/8 (105)
DN25 PN40 weld neck flange; DIN 2635 type C face	131	17 1/2 (444)	4 1/2 (115)
15mm DIN 11851 aseptic coupling	222	16 (407)	Rd 34 × 1/8
JIS 15 mm 10K/20K weld neck raised face flange	122	17 9/16 (446)	3 3/4 (95)
JIS 15 mm 40K weld neck raised face flange	221	18 5/8 (473)	4 1/2 (115)
F100 fitting options⁽¹⁾			
1-inch ANSI 150 lb weld neck raised face flange	128	22 11/16 (576)	4 1/4 (108)
1-inch ANSI 300 lb weld neck raised face flange	129	23 3/16 (588)	4 7/8 (124)
1-inch ANSI 600 lb weld neck raised face flange	130	23 11/16 (601)	4 7/8 (124)
1-inch sanitary fitting (Tri-Clamp compatible)	138	21 1/4 (540)	2 (50)
2-inch ANSI 150 lb weld neck raised face flange	209	23 1/8 (587)	6 (152)
DN25 PN40 weld neck flange; DIN 2635 type C face	131	21 7/16 (544)	4 1/2 (115)
DN25 PN100/160 weld neck flange; DIN 2638 type E face	137	22 13/16 (580)	5 1/2 (140)
25mm DIN 11851 aseptic coupling	230	20 9/16 (522)	Rd 52 × 1/6
JIS 25mm 10K/20K weld neck raised face flange	139	21 11/16 (550)	4 15/16 (125)
JIS 25mm 40K weld neck raised face flange	229	22 15/16 (582)	5 1/8 (130)

(1) Fittings listed here are standard options. Other types of fittings are available. Contact your local Micro Motion representative.

(2) Dimension specified in table does NOT include fitting length. For installation, modify Dim. A value to include fitting. See pages 15–18.

Fitting options *continued*

	Fitting code	Dim. A face-to-face inches (mm)	Dim B. outside diam. inches (mm)
F200 fitting options⁽¹⁾			
1 1/2-inch ANSI 150 lb weld neck raised face flange	341	24 3/4 (629)	5 (127)
1 1/2-inch ANSI 300 lb weld neck raised face flange	342	25 1/4 (642)	6 1/8 (155)
1 1/2-inch ANSI 600 lb weld neck raised face flange	343	25 3/4 (654)	6 1/8 (155)
2-inch ANSI 150 lb weld neck raised face flange	418	24 7/8 (632)	6 (152)
2-inch ANSI 300 lb weld neck raised face flange	419	25 3/8 (645)	6 1/2 (165)
2-inch ANSI 600 lb weld neck raised face flange	420	26 1/8 (664)	6 1/2 (165)
1 1/2-inch sanitary fitting (Tri-Clamp compatible)	351	23 1/4 (591)	2 (50)
2-inch sanitary fitting (Tri-Clamp compatible)	352	22 7/8 (581)	2 1/2 (64)
DN40 PN40 weld neck flange; DIN 2635 type C face	381	23 9/16 (598)	5 15/16 (150)
DN50 PN40 weld neck flange; DIN 2635 type C face	382	23 5/8 (600)	6 1/2 (165)
DN50 PN100 weld neck flange; DIN 2637 type E face	378	25 1/4 (641)	7 11/16 (195)
DN50 PN160 weld neck flange; DIN 2638 type E face	376	25 13/16 (655)	7 11/16 (195)
40mm DIN 11851 aseptic coupling	353	23 3/16 (589)	Rd 65 × 1/6
50mm DIN 11851 aseptic coupling	354	23 1/4 (591)	Rd 78 × 1/6
JIS 40mm 10K weld neck raised face flange	385	23 7/16 (595)	5 1/2 (140)
JIS 40mm 20K weld neck raised face flange	387	23 7/16 (595)	5 1/2 (140)
JIS 50mm 10K weld neck raised face flange	386	23 7/16 (595)	6 1/8 (155)
JIS 50mm 20K weld neck raised face flange	388	23 5/8 (600)	6 1/8 (155)
JIS 50mm 40K weld neck raised face flange	389	25 7/16 (646)	6 1/2 (165)

(1) Fittings listed here are standard options. Other types of fittings are available. Contact your local Micro Motion representative.

Fittings options *continued*

	Fitting code	Dim. A face-to-face inches (mm)	Dim B. outside diam. inches (mm)
F300 fitting options⁽¹⁾			
3-inch ANSI 150 lb weld neck raised face flange	355	36 13/16 (935)	7 1/2 (191)
3-inch ANSI 300 lb weld neck raised face flange	356	37 9/16 (954)	8 1/4 (210)
3-inch ANSI 600 lb weld neck raised face flange	357	38 5/16 (974)	8 1/4 (210)
4-inch ANSI 150 lb weld neck raised face flange	425	37 3/16 (945)	9 (229)
4-inch ANSI 300 lb weld neck raised face flange	426	38 1/8 (969)	10 (254)
4-inch ANSI 600 lb weld neck raised face flange	427	39 13/16 (1012)	10 3/4 (273)
DN80 PN40 weld neck flange; DIN 2635 type C face	391	36 (915)	7 7/8 (200)
DN100 PN40 weld neck flange; DIN 2635 type C face	392	36 7/16 (926)	9 1/4 (235)
DN80 PN40 weld neck flange; DIN 2635 type N grooved face	393	36 (915)	7 7/8 (200)
DN100 PN40 weld neck flange; DIN 2635 type N grooved face	394	36 7/16 (926)	9 1/4 (235)
DN80 PN100 weld neck flange; DIN 2637 type E face	395	37 11/16 (958)	9 1/16 (230)
DN100 PN100 weld neck flange; DIN 2637 type E face	396	38 11/16 (983)	10 7/16 (265)
DN80 PN100 weld neck flange; DIN 2637 type N grooved face	397	37 11/16 (958)	9 1/16 (230)
DN100 PN100 weld neck flange; DIN 2637 type N grooved face	398	38 11/16 (983)	10 7/16 (265)
JIS 80mm 10K weld neck raised face flange	400	36 1/2 (927)	7 5/16 (186)
JIS 100mm 10K weld neck raised face flange	401	36 11/16 (932)	8 1/4 (210)
JIS 80mm 20K weld neck raised face flange	402	36 1/2 (927)	7 7/8 (200)
JIS 100mm 20K weld neck raised face flange	403	36 11/16 (932)	8 7/8 (225)
3-inch sanitary fitting (Tri-Clamp compatible)	361	35 1/8 (893)	3 9/16 (91)
3-inch Victaulic® compatible fitting	410	36 13/16 (935)	3 1/2 (89)

(1) Fittings listed here are standard options. Other types of fittings are available. Contact your local Micro Motion representative.

Fittings for F-Series Model F025P high-pressure sensor

	Fitting code	Dim. A face-to-face inches (mm)	Dim B. outside diam. inches (mm)
15 mm DIN PN100/160 weld neck, DIN 2638, type E face	120	15 13/16 (401)	4 1/8 (105)
1/2-inch NPT female CAJON size 8 VCO fitting	319	14 (356) ⁽¹⁾	not applicable

(1) Dimension specified in table does NOT include fitting length. For installation, modify Dim. A value to include fitting. See pages 15–18.

Ordering information

Model	Product description
	Standard sensor models
F025S	F-Series sensor; 1/4-inch; 316L stainless steel
F050S	F-Series sensor; 1/2-inch; 316L stainless steel
F100S	F-Series sensor; 1-inch; 316L stainless steel
F200S	F-Series sensor; 2-inch; 316L stainless steel
F300S	F-Series sensor; 3-inch; 316L stainless steel
	High-pressure sensor models
F025P	F-Series sensor; 1/4-inch; 316L stainless steel; 2300 psi tube rating
Code	Process connection
###	See fitting options on pages 19 and 20.
Code	Case options
C	Compact case
S ⁽¹⁾	Standard case
B	Secondary containment with test report
P	Secondary containment with test report and purge fittings (1/2-inch NPT female)
H	Hygienic case
Code	Electronics interface
Q	4-wire epoxy-painted aluminum integral core processor for remotely mounted transmitter with MVD Technology
A	4-wire stainless steel integral core processor for remotely mounted transmitter with MVD Technology
V	4-wire epoxy-painted aluminum integral core processor with extended mount for remotely mounted transmitter with MVD Technology
B	4-wire stainless steel integral core processor with extended mount for remotely mounted transmitter with MVD Technology
C	Integrally mounted Model 1700 or 2700 transmitter
W ⁽²⁾	MVD Solo; epoxy-painted aluminum integral core processor for direct host communication
D ⁽²⁾	MVD Solo; stainless steel integral core processor for direct host communication
Y ⁽²⁾	MVD Solo; epoxy-painted aluminum integral core processor with extended mount for direct host communication
E ⁽²⁾	MVD Solo; stainless steel integral core processor with extended mount for direct host communication
I ⁽²⁾	Integrally mounted IFT9701 transmitter
R	9-wire epoxy-painted aluminum junction box
H	9-wire epoxy-painted aluminum junction box with extended mount
Continued on next page	

(1) Not available with Model F300S.

(2) When electronics interface W, D, Y, or E is ordered with approval codes C, A, or Z, an MVD Direct Connect I.S. barrier is supplied. No barrier is supplied when ordered with approval codes M or N.

Ordering information *continued*

Code	Conduit connections
	Electronics interface codes Q, A, V, B, W, D, Y, and E
B	1/2-inch NPT — no gland
E	M20 — no gland
F	Brass/nickel cable gland (cable diameter 0.335 to 0.394 inches [8.5 to 10 mm])
G	Stainless steel cable gland (cable diameter 0.335 to 0.394 inches [8.5 to 10 mm])
	Electronics interface codes C and I (integral transmitter)
A	No gland
	Electronics interface codes R and H (9-wire junction box)
A	3/4-inch NPT — no gland
H	Brass/nickel cable gland
J	Stainless steel cable gland
Code	Approvals
M ⁽¹⁾	Micro Motion standard (no approval)
N ⁽¹⁾	Micro Motion standard / PED compliant
C ⁽¹⁾	CSA (Canada only)
A ⁽¹⁾	CSA C-US (U.S.A. and Canada)
U ⁽²⁾	UL — available only with electronics interface codes I, R, and H
Z ⁽¹⁾	ATEX — Equipment Category 2 (Zone 1) / PED compliant
Code	Language
A	Danish quick reference guide and English manual
D	Dutch quick reference guide and English manual
E	English quick reference guide and English manual
F	French quick reference guide and French manual
G	German quick reference guide and German manual
H	Finnish quick reference guide and English manual
I	Italian quick reference guide and English manual
J	Japanese quick reference guide and English manual
M	Chinese quick reference guide and English manual
N	Norwegian quick reference guide and English manual
O	Polish quick reference guide and English manual
P	Portuguese quick reference guide and English manual
R	Russian quick reference guide and English manual
S	Spanish quick reference guide and Spanish manual
W	Swedish quick reference guide and English manual
Continued on next page	

(1) When electronics interface W, D, Y, or E is ordered with approval codes C, A, or Z, an MVD Direct Connect I.S. barrier is supplied. No barrier is supplied when ordered with approval codes M or N.

(2) Not available with Model F300S.

Ordering information *continued*

Code Future option 1	
Z	Reserved for future use
Code Future option 2	
Z	Reserved for future use
Code Measurement application software	
Z	No measurement application software
A ⁽¹⁾	Petroleum measurement
Code Factory options	
Z	Standard product
A ⁽²⁾	0.15% base accuracy calibration
X	CEQ product
R	Restocked product (if available)
Typical model number: F050S 113 S Q E Z E Z Z Z Z	

(1) Available with electronics interface codes W, D, Y, and E. For electronics interface codes Q, A, V, B, C, R, and H, select the Petroleum Measurement software option on the Model 2700 transmitter.

(2) Not available with case option S. Only available with MVD Technology.

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Micro Motion Inc. USA

Worldwide Headquarters

7070 Winchester Circle
Boulder, Colorado 80301
T (303) 527-5200
(800) 522-6277
F (303) 530-8459

Micro Motion Europe

Emerson Process Management
Wiltonstraat 30
3905 KW Veenendaal
The Netherlands
T +31 (0) 318 495 670
F +31 (0) 318 495 689

Micro Motion Asia

Emerson Process Management
1 Pandan Crescent
Singapore 128461
Republic of Singapore
T (65) 6777-8211
F (65) 6770-8003

Micro Motion United Kingdom

Emerson Process Management Limited
Horsfield Way
Bredbury Industrial Estate
Stockport SK6 2SU U.K.
T 0800 966 180
F 0800 966 181

Micro Motion Japan

Emerson Process Management
Shinagawa NF Bldg. 5F
1-2-5, Higashi Shinagawa
Shinagawa-ku
Tokyo 140-0002 Japan
T (81) 3 5769-6803
F (81) 3 5769-6843

