

Flow Sensors



THORNTON

Leading Pure Water Analytics

Flow Sensors

Economical Paddlewheel

Hi-Purity PFA Ultrasonic Vortex

Insertion-type Vortex



Convenient, Reliable and Economical
Flow Measurement

METTLER TOLEDO

Paddlewheel Flow Sensors

Reliable and Economical

Inline Paddlewheel flow sensors provide continuous flow measurement at a low cost for a variety of solids-free liquid applications. The open cell rotor is made of PVDF and the shaft and bearing of ceramic material offering superior life and operating performance. The modular quarter-turn electronics assembly makes service and maintenance fast and easy and allows the removal of the electronics without removing the entire sensor body.



Insertion Sensor



SST NPT Thread



PVDF True Union



SST Tri-Clamp

In-Line Paddlewheel Specifications

Mounting Fitting:	Included with sensor, materials as noted
Straight Pipe Requirements:	Pipe diameter: 10 x upstream, 3 x downstream
Wetted Materials:	PVC versions: PVC, PVDF, Ceramic, Viton PVDF versions: PVDF, Ceramic, Viton Tri-Clamp SST versions: SS, PVDF, Ceramic, EPDM NPT Threaded SST version: SS, PVDF, Ceramic
Flow Ranges:	1 - 33 ft/s (0.3 - 10 m/s)
Pressure:	PVC versions: 140 psig at 122°F (10 bar at 50°C), except insertion types: 85 psig at 122°F (6 bar at 50°C) PVDF versions: 140 psig at 212°F (10 bar at 100°C) SST versions: 230 psig at 212°F (16 bar at 100°C)
Accuracy:	± 0.5% of full scale, + 2.5% of reading with standard mean K-factor in reference conditions: water at 20°C (68°F)
Linearity:	≤ ± 0.5% of full scale, at 32.8 fps (10 m/s)
Repeatability:	0.4% of reading
Ambient/Storage:	PVC and PVDF version: 32°F to 140°F (0°C to 60°C)
Temperature:	SST versions: 14°F to 176°F (-10°C to 80°C)
Enclosure Rating:	NEMA 4X and IP65
Electronics Enclosure Material:	Polycarbonate
Wiring:	Smart version uses standard 770MAX patch cables. Cable not provided for Pulse version. Use 3-conductor, 20 gauge shielded cable such as Belden 9364, or equivalent. Maximum recommended cable length is 160 ft (50 m)

Pipe Size of Included Fitting	International Part No.		US & Canada Part No.	
	Pulsed	Smart	Pulsed	Smart
In-Line Paddlewheel Flow Sensors				
PVC, True Union Body Style - See Tables A and B				
½"	58 034 601	58 034 151	33901	339-001
¾"	58 034 602	58 034 152	33902	339-002
1"	58 034 603	58 034 153	33903	339-003
1¼"	58 034 604	58 034 154	33904	339-004
1½"	58 034 605	58 034 155	33905	339-005
2"	58 034 606	58 034 156	33906	339-006
3" Insertion type w/saddle	58 034 607	58 034 157	33907	339-007
4" Insertion type w/saddle	58 034 608	58 034 158	33908	339-008
6" Insertion type w/saddle	58 034 609	58 034 159	33909	339-009
PVDF, True Union Fusion Spigot Body Style - See Table				
20mm (DN 15)	58 034 611	58 034 161	33911	339-011
25mm (DN 20)	58 034 612	58 034 162	33912	339-012
32mm (DN 25)	58 034 613	58 034 163	33913	339-113
40mm (DN 32)	58 034 614	58 034 164	33914	339-114
50mm (DN 40)	58 034 615	58 034 165	33915	339-015
63mm (DN 50)	58 034 616	58 034 166	33916	339-016
SST Stainless Steel Body with NPT Threaded Connections - See Table C				
½"	58 034 621	58 034 171	33921	339-121
¾"	58 034 622	58 034 172	33922	339-122
1"	58 034 623	58 034 173	33923	339-123
1¼"	58 034 624	58 034 174	33924	339-124
1½"	58 034 625	58 034 175	33925	339-125
2"	58 034 626	58 034 176	33926	339-126
SST, ASME - BPE Tri-Clamp Body Style - See Table D				
¾"	58 034 631	58 034 181	33931	339-131
1"	58 034 632	58 034 182	33932	339-132
1½"	58 034 633	58 034 183	33933	339-133
2"	58 034 634	58 034 184	33934	339-134
2½"	58 034 635	58 034 185	33935	339-135

Table A – 8030 style Sensors True Union Nut with Solvent Ends (PVC) or Fusion Spigot Ends (PVDF)

Orifice DN Inches (mm)	→ D	→ D1	A2	A1	A	H
0.59 (15)	0.79 (20)	1.69 (43)	3.55 (90)	3.78 (96)	5.04 (128)	3.62 (92)
0.79 (20)	0.99 (25)	2.09 (53)	3.94 (100)	4.18 (106)	5.67 (144)	3.51 (89)
0.99 (25)	1.26 (32)	2.36 (60)	4.33 (110)	4.57 (116)	6.30 (160)	3.52 (89.5)
1.26 (32)	1.57 (40)	2.91 (74)	4.33 (110)	4.57 (116)	6.62 (168)	3.66 (93)
1.57 (40)	1.97 (50)	3.27 (83)	4.73 (120)	5.00 (127)	7.41 (188)	3.82 (97)
1.97 (50)	2.48 (63)	4.06 (103)	5.12 (130)	5.36 (136)	8.35 (212)	4.10 (104)

Table B – Saddle for 8020 Style Insertion Sensors

Orifice DN Inches (mm)	→ D	A	B
3.00 (76)	3.54 (90)	5.66 (144)	4.48 (114)
4.00 (101)	4.33 (110)	6.53 (166)	4.67 (119)
6.00 (152)	6.29 (160)	8.50 (216)	5.17 (131)

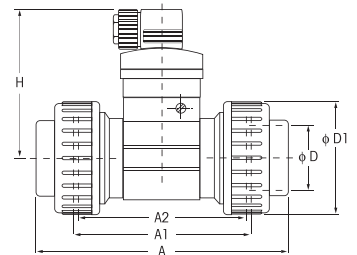
Body Material: PP/PVC
Seal Material: EPDM

Table D – 8030 Style Tri-Clamp Stainless Steel (316L) Sensors

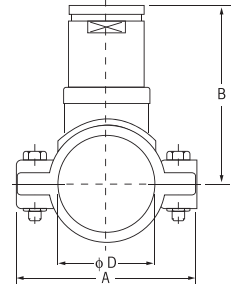
Body Size	Orifice DN Inches (mm)	→ D2	→ D1	→ D	A	H
¾"	0.79 (20)	0.62 (16)	0.79 (20)	0.99 (25)	4.69 (119)	3.51 (89)
1"	0.99 (25)	0.87 (22)	1.71 (44)	1.98 (51)	5.08 (129)	3.52 (90)
1 1/2"	1.57 (40)	1.37 (35)	1.71 (44)	1.98 (51)	6.34 (161)	3.82 (97)
2"	1.97 (50)	1.87 (48)	2.22 (57)	2.52 (64)	7.56 (192)	4.10 (104)
2 1/2"	2.56 (65)	2.37 (60)	2.78 (71)	3.05 (78)	8.50 (216)	4.41 (112)

NOTE: Installation fittings conform to BS 4825 / ASME BPE Standard

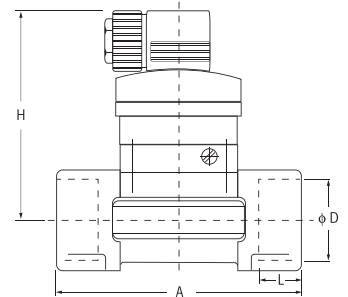
True Union Body Style



Insertion Saddle



NPT Threaded Body Style



Tri-Clamp Body Style

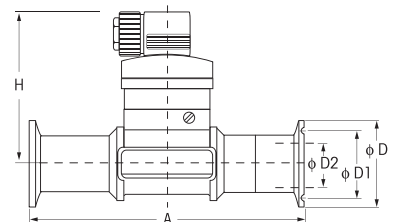


Table C – 8030 Style Female NPT Thread Stainless Steel (316L) Sensors

Orifice DN Inches (mm)	→ D (NPT)	A	L	H
0.59 (15)	1/2"	3.35 (85)	0.67 (17)	3.62 (92)
0.79 (20)	3/4"	3.74 (95)	0.72 (18)	3.51 (89)
0.99 (25)	1"	4.13 (105)	0.72 (18)	3.52 (90)
1.26 (32)	1 1/4"	4.72 (120)	0.83 (21)	3.66 (93)
1.57 (40)	1 1/2"	5.12 (130)	0.79 (20)	3.82 (97)
1.97 (50)	2"	5.91 (150)	0.94 (24)	4.10 (104)

Vortex Flow Meters

Maintenance Free, All-Plastic Construction

The ultimate solution for measuring the flow rates of ultrapure water and chemicals, our range of Vortex Flow sensors consist of a molded unibody, available in PVC or PVDF. These sensors have no moving parts, and potential for fluid contamination is eliminated by the corrosive-resistant all-plastic construction.

PVC and PVDF Version

Straight Pipe Requirements: 10 x diameter upstream and 5 x diameter downstream

Pressure: PVC: 150 psi at 70°F (10 bar at 21°C)
93 psi at 100°F (6.5 bar at 38°C)
PVDF: 150 psi at 70°F (10 bar at 21°C)
130 psi at 150°F (9 bar at 65°C)

Temperature: Max 203°F (95°C)

Viscosity: For liquids more viscous than water, consult THORNTON.

Accuracy: ±1% of full scale

Enclosure: NEMA 4X

Electrical Connections: ½" NPTF port with screw terminal wiring. Wiring may be run up to 1000ft (305m) with 3-conductor, 20 gauge, shielded cable, such as Belden 9364.

Power Supply: For use with the 770MAX, one external 12V DC isolated power supply 58 079 000 (US & Canada 1000-65) is required for one or two pulse input sensors. One kit 58 079 001 (US & Canada 1000-67) is required for each pulse input sensor.

Certificates: CSA and CE, Certificate of calibration included



Ordering Information Flow Vortex

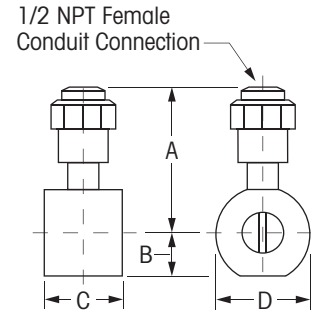
PVC and PVDF Versions			International		US & Canada	
Size	Flow Rate g/m (l/m)	Length Inches (mm)	Pulsed	Smart	Pulsed	Smart
PVC - NPTM Threaded Connection						
¼"	0.6-5 (2.3-19)	5.25 (133)	58 034 242	58 034 042	33308	336-101
½"	1.3-15 (5-57)	7.13 (181)	58 034 243	58 034 043	33309	336-102
¾"	2.1-25 (8-95)	7.63 (194)	58 034 244	58 034 044	33310	336-103
1"	4.2-50 (16-189)	8.03 (204)	58 034 245	58 034 045	33311	336-104
1½"	8.3-100 (31-378)	8.37 (213)	58 034 246	58 034 046	33312	336-105
2"	16.7-200 (63-757)	8.37 (213)	58 034 247	58 034 047	33313	336-106
PVDF - Bead & Crevice Free Butt End Connection						
½"	1.3-15 (5-57)	4.87 (124)	58 034 249	58 034 049	33315	336-108
¾"	2.1-25 (8-95)	4.87 (124)	58 034 250	58 034 050	33316	336-109
1"	4.2-50 (16-189)	5.09 (129)	58 034 251	58 034 051	33317	336-110
1½"	8.3-100 (31-378)	6.24 (158)	58 034 252	58 034 052	33318	336-111
2"	16.7-200 (63-757)	6.77 (172)	58 034 253	58 034 053	33319	336-112
PVC - Wafer Type (Connects between 150X Flanges)						
½"	1.3-15 (5-57)	2.03 (52)	58 034 254	58 034 054	33320	336-113
¾"	2.1-25 (8-95)	2.03 (52)	58 034 255	58 034 055	33321	336-114
1"	4.2-50 (16-189)	2.25 (57)	58 034 256	58 034 056	33322	336-115
1½"	8.3-100 (31-378)	2.63 (67)	58 034 257	58 034 057	33323	336-116
2"	16.7-200 (63-757)	3.22 (82)	58 034 258	58 034 058	33324	336-117
3"	25-300 (95-1135)	4.25 (108)	58 034 259	58 034 059	33325	336-118
PVDF - Wafer Type						
½"	1.3-15 (5-57)	2.03 (52)	58 034 260	58 034 060	33326	336-119
¾"	2.1-25 (8-95)	2.03 (52)	58 034 261	58 034 061	33327	336-120
1"	4.2-50 (16-189)	2.25 (57)	58 034 262	58 034 062	33328	336-121
1½"	8.3-100 (31-378)	2.63 (67)	58 034 263	58 034 063	33329	336-122
2"	16.7-200 (63-757)	3.22 (82)	58 034 264	58 034 064	33330	336-123
3"	25-300 (95-1135)	4.25 (108)	58 034 265	58 034 065	33331	336-124

PVDF and PVC Wafer Type Dimensions - Refer to Figure A

Body Size inches(mm)	A	B	C	D
1/2"	5.85 (149)	0.78 (20)	2.03 (52)	1.75 (44)
3/4"	5.90 (150)	0.94 (24)	2.03 (52)	2.13 (54)
1"	5.69 (145)	1.19 (30)	2.25 (57)	2.47 (63)
1 1/2"	6.00 (152)	1.50 (38)	2.63 (67)	3.25 (83)
2"	6.37 (162)	1.88 (48)	3.22 (82)	4.00 (102)
3"	6.88 (175)	2.50 (64)	4.25 (108)	5.24 (133)

PVDF Wafer Type Flow Rates

Body Size	Minimum Flow g/m (1/m)	Maximum Flow g/m (1/m)
1/2"	1.3 (4.7)	15 (56.8)
3/4"	2.1 (7.9)	25 (94.6)
1"	4.2 (15.8)	50 (189.3)
1 1/2"	8.3 (31.5)	100 (378.5)
2"	16.7 (63.1)	200 (757.1)
3"	25.0 (94.6)	300 (1135.5)



NPTM Threaded and Bead & Crevice Type Pressure-Temperature Rating

Maximum Fluid Temperature °F (°C)	Maximum Operating Pressure psig (bar)	
	PVC	PVDF
203 (95)	NR	40 (2.7)
150 (66)	NR	130 (8.9)
100 (38)	130 (8.9)	150 (10.3)
70 (21)	150 (10.3)	150 (10.3)

NR= Not Recommended

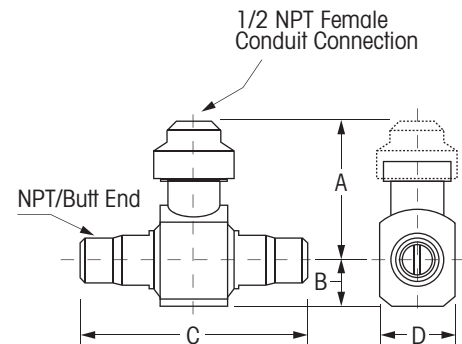
NPTM Threaded and Bead & Crevice Type Pressure-Temperature Rating

Maximum Fluid Temperature °F (°C)	Maximum Operating Pressure psig (bar)	
	PVC	PVDF
203 (95)	NR	40 (2.7)
150 (66)	NR	130 (8.9)
100 (38)	93 (6.4)	150 (10.3)
70 (21)	150 (10.3)	150 (10.3)

NR= Not Recommended

NPTM Threaded and Bead & Crevice Type Flow Rates

Body Size	Minimum Flow g/m (l/m)	Maximum Flow g/m (l/m)
1/4"	0.6 (2.3)	5 (18.9)
1/2"	1.3 (4.7)	15 (56.8)
3/4"	2.1 (7.9)	25 (94.6)
1"	4.2 (15.8)	50 (189.3)
1 1/2"	8.3 (31.5)	100 (378.5)
2"	16.7 (63.1)	200 (757.1)



NPTM Threaded and Bead & Crevice Type Dimensions - Refer to Figure B

Body Size	PVC inches (mm)				PVDF inches (mm)			
	A	B	C	D	A	B	C	D
1/2"	3.81 (97)	1.75 (45)	5.25 (133)	2.50 (64)	5.90 (150)	0.63 (16)	4.87 (124)	1.31 (33)
3/4"	3.81 (97)	1.75 (45)	7.13 (181)	2.50 (64)	5.75 (146)	0.78 (20)	4.87 (124)	1.31 (33)
1"	3.81 (97)	1.75 (45)	7.63 (194)	2.50 (64)	5.75 (146)	0.94 (24)	4.87 (124)	1.44 (37)
1 1/2"	3.92 (100)	1.75 (45)	8.03 (204)	2.50 (64)	5.88 (149)	1.19 (30)	5.09 (129)	2.00 (51)
2"	3.90 (99)	2.00 (51)	8.37 (213)	2.50 (64)	6.21 (158)	1.50 (38)	6.24 (158)	2.50 (64)
3"	4.31 (109)	2.00 (51)	8.37 (213)	2.50 (64)	6.60 (168)	1.88 (48)	6.77 (172)	3.00 (76)

Insertion Vortex Flow Sensors

Direct retrofit into Signet fittings

- Mounting fitting:** Signet, must be obtained separately
- Wetted materials:** PVDF, Viton; for PVC or PVDF pipe systems
- Straight pipe requirements:** 10 x diameter upstream and 5 x diameter downstream
- Pressure / Temperature:** PVDF: 200 psig (13.8 bar) at 73 °F (23 °C); 25 psig (1.7 bar) at 212 °F (100 °C).
PVC: 180 psig (12.4 bar) at 73 °F (23 °C); 40 psig (2.7 bar) at 140 °F (60 °C).
- Viscosity:** For liquids more viscous than water, consult Thornton.
- Electrical connections:** Smart models have 1.5 ft (0.5 m) cable and smart connector and use patch cords up to 300 ft (91 m). Pulse models have screw terminals and are wired with 2-conductor, 22 gauge, shielded cable up to 1,000 ft (305 m).
- Enclosure:** NEMA 6
- Power supply:** One external 12 VDC isolated power supply 1000-65 is required for one or two pulse input sensors. One kit 1000-67 is required for each pulse input sensor.
- Accuracy:** 1% of full scale
- Certification:** CE rated, certificate of accuracy included

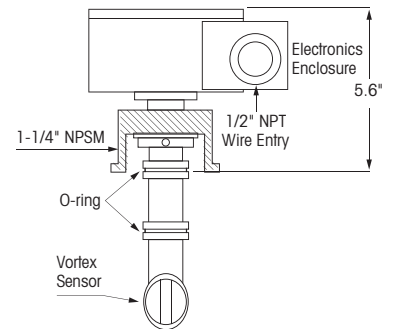
Specify pipe material, schedule or exact inside diameter, and existing Signet fitting when ordering.

Table 2

Line Size	Flow Range		US & Canada	US & Canada	International	International
	GPM	LPM	Pulse Input Part No.	Smart Input Part No.	Pulse Input Part No.	Smart Input Part No.
For PVDF Signet Fitting (not included)						
1-1/4	1.2-81	4.6-307	33358	338-104	58 034 285	58 034 085
1-1/2	2-138	8-522	33359	338-105	58 034 286	58 034 086
2	3.4-224	13-848	33360	338-106	58 034 287	58 034 087
2-1/2	4.6-305	17-1,154	33361	338-107	58 034 288	58 034 088
3	7-465	26-1,760	33362	338-108	58 034 289	58 034 089
4	11-744	64-4,319	33363	338-109	58 034 290	58 034 090
5	17-1,141	65-4,320	33364	338-110	58 034 291	58 034 091
6	25-1,635	93-4,640	33365	338-111	58 034 292	58 034 092
8	44-2,940	166-11,125	33366	338-112	58 034 293	58 034 093
For PVC Signet Fitting (not included)						
1-1/4	1.2-81	4.6-307	33367	338-204	58 034 294	58 034 094
1-1/2	2-138	8-522	33368	338-205	58 034 295	58 034 095
2	3.4-224	13-848	33369	338-206	58 034 296	58 034 096
2-1/2	4.6-305	17-1,154	33370	338-207	58 034 297	58 034 097
3	7-465	26-1,760	33371	338-208	58 034 298	58 034 098
4	11-744	64-4,319	33372	338-209	58 034 299	58 034 099
5	17-1,141	65-4,320	33373	338-210	58 034 300	58 034 100
6	25-1,635	93-4,640	33374	338-211	58 034 301	58 034 101
8	44-2,940	166-11,125	33375	338-212	58 034 302	58 034 102



Installation Drawing



PFA Vortex Flowmeters

Superior low flow rate performance

Display: 4-digit LED plus high & low alarm indicators

Straight tube requirements: 10 x diameter upstream and 2 x diameter downstream.

Wetted materials: PFA Perfluoroalkoxy

Temperature: 32-212 °F (0-100 °C)

Viscosity: For liquids more viscous than water, consult Thornton.

Electrical connections: 6.5 ft (2 m) cable may be extended with 22 gauge 6-conductor shielded cable up to 325 ft. (100 m) for 770MAX pulse input only.

Enclosure: NEMA 4X, IP65

Power supply: One external 12 VDC isolated power supply (P/N 58 079 000, or 1000-65 for US and Canada) is required for one or two pulse input sensors.

Certification: CE rated, certificate of accuracy included



Size	Flow rate GPM (L/min.)	Maximum Pressure psig (bar)		US & Canada Part No.	International Part No.
		At 68°F (20°C)	At 212°F (100°C)		
Straight tube end - connections					
3/8 in.	0.1-1 (0.4-3.5)	100 (7)	58 (4)	317-100	58 034 400
1/2 in.	0.5-5 (2-20)	145 (10)	100 (7)	317-101	58 034 401
3/4 in.	2.7-19 (10-70)	100 (7)	58 (4)	317-102	58 034 402
1 in.	4-40 (15-150)	70 (5)	43 (3)	317-103	58 034 403
Male Flaretek end - connections					
3/8 in.	0.1-1 (0.4-3.5)	100 (7)	58 (7)	317-200	58 034 410
1/2 in.	0.5-5 (2-20)	145 (10)	100 (7)	317-211	58 034 411
3/4 in.	2.7-19 (10-70)	100 (76)	58 (4)	317-222	58 034 412
Female Flaretek end - connections					
3/8 in.	0.1-1 (0.4-3.5)	100 (7)	58 (7)	317-300	58 034 420
1/2 in.	0.5-5 (2-20)	145 (10)	100 (7)	317-311	58 034 421
3/4 in.	2.7-19 (10-70)	100 (7)	58 (4)	317-322	58 034 422

Straight Tube-End

Size	Dimensions (mm)		
	D + 0.30 - 0.10	d + 0.30 - 0.10	t ± 0.15
3/8 in.	φ 9.52	φ 6.35	1.59
1/2 in.	φ 12.7	φ 9.52	1.59
3/4 in.	φ 19.05	φ 15.88	1.59
1 in.	φ 25.4	φ 22.22	1.59

Flaretek-End

Size	Dimensions (mm)	
	L (male-ends)	L (female-ends)
3/8 in.	259	190
1/2 in.	267	190
3/4 in.	277	190

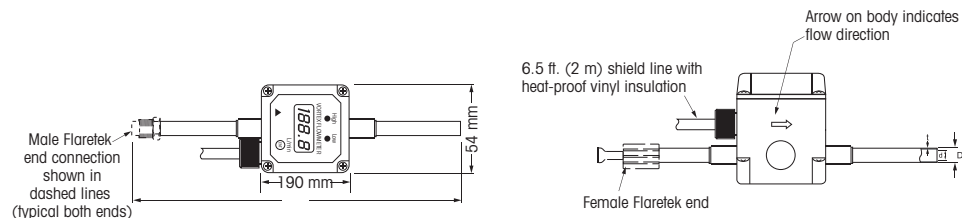
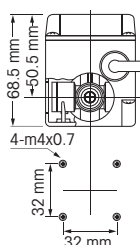
Flowrate Range for PFA Vortex Flowmeters

Size	Minimum Flowrate (L/min)							Max Flowrate (L/min)			
	0.3	0.5	0.7	1*	2	3	4	5	7		
cp**											
3/8	0.2	0.2	0.3	0.4	0.8	1.2	1.6	2.0	2.8	3.5	
1/2 in.	0.6	1	1.4	2	4	6	8	10	14	20	
3/4 in.	3	5	8	10	20	30	40	50	70	70	
1 in.	4.5	7.5	10.5	15	30	45	60	75	105	150	

* Viscosity of water at 20 °C ** cp = Viscosity of measurement fluid (in centipoise)

Mounting Dimensions

(for all models)



Forward-Swept Impeller Sensors with Fittings

Economical non-magnetic measurement

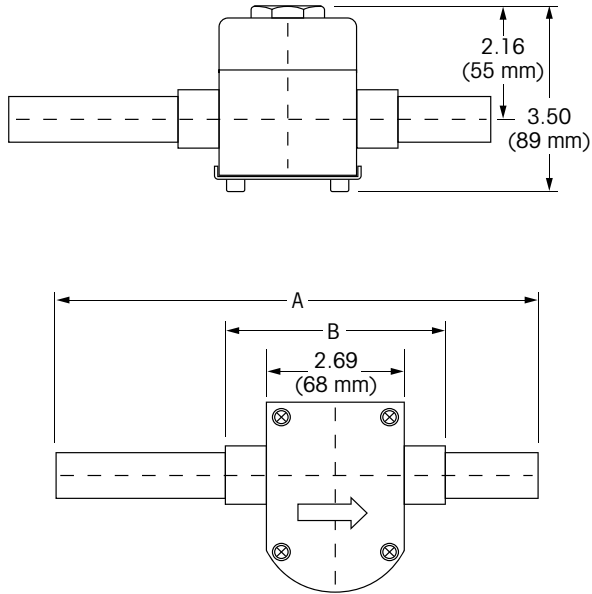
- Mounting fitting:** Included with insertion sensor (flow-thru and socket union type sensors do not require fitting), wetted parts as noted.
- Straight pipe requirements:** 10 x diameter upstream and 5 x diameter downstream.
- Electrical connections:** Smart models have 1.5 ft (0.5 m) cable and smart connector and use patch cords up to 300 ft (91 m). Pulse input models have 20 ft (6.1 m) cables and may be extended up to 2,000 ft (610 m) using 20 gauge, shielded cable: 2-conductors for socket tee models, 3-conductors for other models.
- Power supply:** One external 12 VDC isolated power supply 1000-65 is required for one or two pulse input sensors. One kit 1000-67 is required for each 1-1/2" and larger pulse input sensor.
- Accuracy:** ± 1% of full scale over operating range
- Repeatability:** ± 0.5% of full scale over operating range



Pipe Size of Included Fitting	Wetted Materials	Flow Range	Pressure at Temperature		Ref. No	US & Canada	US & Canada	International	International
			PSIG (bar)	°F (°C)		Pulse Input Part No.	Smart Input Part No.	Pulse Input Part No.	Smart Input Part No.
1/2" flow-thru/pipe	PVC, Viton, ceramic, Tefzel	0.2-5.8 GPM			410200-0022	33349	335-531	58 034 283	58 034 083
3/4" flow-thru/pipe	PVC, Viton, ceramic, Tefzel	0.4-13 GPM			411200-0022	33350	335-731	58 034 284	58 034 084
1/2" flow-thru/pipe	PVC, Viton, ceramic, Tefzel	0.7-15 GPM	350 (24)	78 (23) &	400200-0022	33176	335-511	58 034 209	58 034 010
3/4" flow-thru/pipe	PVC, Viton, ceramic, Tefzel	1.7-33 GPM	75 (5.2)	140 (60)	401200-0022	33177	335-711	58 034 210	58 034 011
1" flow-thru/pipe	PVC, Viton, ceramic, Tefzel	2.2-45 GPM			402200-0022	33175	335-111	58 034 211	58 034 009
1-1/2" Socket tee	PVC tee, PPS, Nylon, tungsten carbide, EPDM	1-30 ft/s			228PV1505-1211	33142	335-911	58 034 201	58 034 001
2" Socket tee	PVC tee, PPS, Nylon, tungsten carbide, EPDM	1-30 ft/s			228PV2005-1211	33143	335-211	58 034 202	58 034 002
3" Socket tee	PVC tee, PPS, Nylon, tungsten carbide, EPDM	1-30 ft/s	100 (7)	68 (20) &	228PV3005-1211	33144	335-311	58 034 203	58 034 003
4" Socket tee	PVC tee, PPS, Nylon, tungsten carbide, EPDM	1-30 ft/s	40 (2.8)	140 (60)	228PV4005-1211	33145	335-411	58 034 204	58 034 004
1/2" Socket union	PVDF, Viton, ceramic, Tefzel	1-20 GPM			400500-0022	33172	335-521	58 034 207	58 034 007
3/4" Socket union	PVDF, Viton, ceramic, Tefzel	1.74-34 GPM	275 (19)	65 (18) &	401500-0022	33174	335-721	58 034 208	58 034 008
1" Socket union	PVDF, Viton, ceramic, Tefzel	2.8-56 GPM	140 (10)	220 (104)	402500-0022	33171	335-121	58 034 226	58 034 006
1-1/2" to 6" Repl. Sensor for PVC Pipe, fitting not included*		1-30 ft/s	NA	NA	813107-1211	33191	335-041	58 034 217	58 034 017
1-1/2" to 6" Repl. Sensor for PVDF Pipe, fitting not included*		1-30 ft/s	NA	NA	813003-0022	33192	335-051	58 034 216	58 034 017
4" Insert Sensor for SS pipe		0.5-30 ft/s	400 (28)	100 (38) &	220SS0000-1211	33418	335-461	58 084 005	58 034 106
6" Insert Sensor for SS pipe		0.5-30 ft/s	325 (22)	300 (149)	220SS0000-1211	33418	335-661	58 084 006	58 034 107

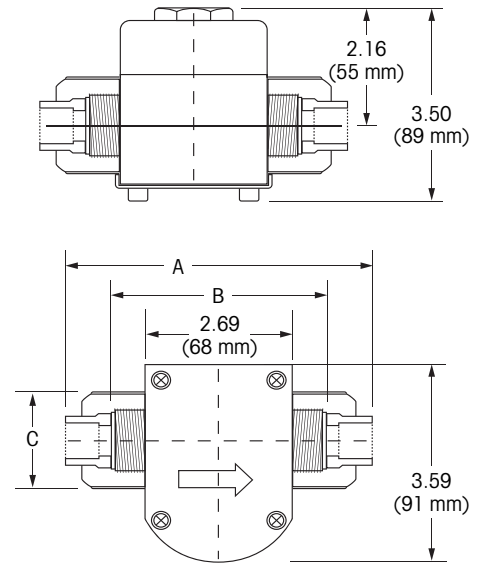
*Requires field configuration for pipe size.

PVC Flow-thru/Pipe



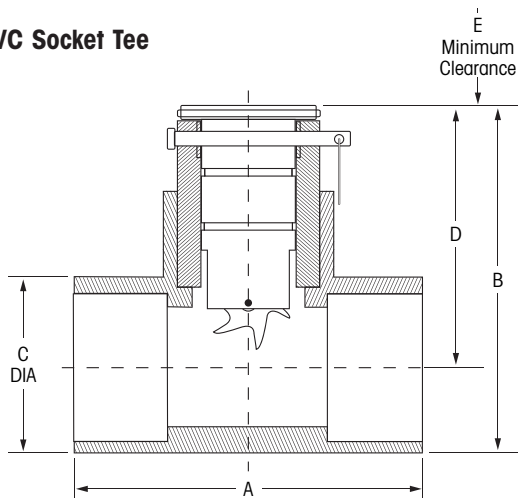
PVC Size Inches(mm)	1/2"	3/4"	1"
A	8.83 (224)	10.69 (272)	13.15 (334)
B	4.08 (104)	4.69 (119)	5.40 (137)

PVDF Socket Union



PVC Size Inches(mm)	1/2"	3/4"	1"
A	5.58 (142)	6.12 (155)	1.85 (47)
B	3.54 (90)	3.92 (100)	2.24 (57)
C	1.85 (47)	4.32 (110)	2.52 (64)

PVC Socket Tee



Inches(mm)	1.5"	2"	3"	4"
A	5.00 (127)	0.63 (143)	6.50 (165)	7.38 (187)
B	5.16 (131)	5.64 (143)	6.83 (173)	7.83 (199)
C	2.38 (60)	2.88 (73)	4.23 (107)	5.38 (137)
D	3.97 (101)	4.20 (107)	4.68 (119)	5.10 (130)
E	5.00 (127)	5.00 (127)	5.00 (127)	5.00 (127)

Flat Paddlewheel Flow Sensors

Low cost measurement

Mounting fitting:	Must be obtained separately except for 1/4" NPT models.
Straight pipe requirements:	10-50 x diameter upstream and 5 x diameter downstream.
Electrical connections:	Smart models have 1.5 ft (0.5 m) cable and smart connector and use patch cords up to 300 ft (91 m). Pulse input models have 25 ft (7.6 m) cables and may be extended up to 200 ft (61 m) for magnetic type and 1,000 ft (305 m) for Hall effect type, using 2-conductor, 22 gauge, shielded cable.
Linearity:	1% FS
Repeatability:	± 0.5% of full scale, except ± 0.25% of full scale for 1/4" NPT models
Certification:	CE rated, certificate of accuracy included where indicated.

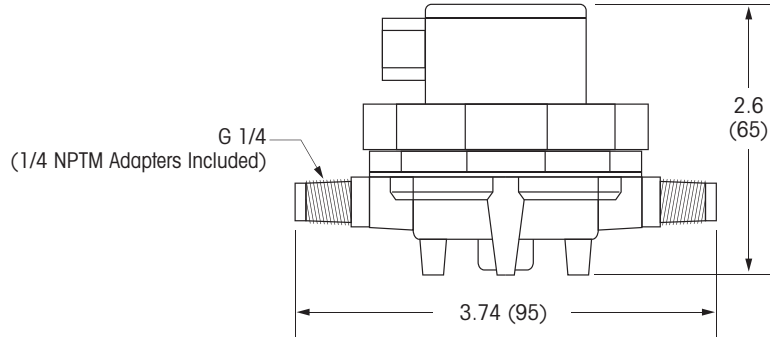


Pipe Size	Wetted Materials	Cert. Incl.	Flow Ranges	Pressure at Temperature		Ref No.	US & Canada	US & Canada	International	International	
				PSIG (bar)	°F (°C)		Pulse Input Part No.	Smart Input Part No.	Pulse Input Part No.	Smart Input Part No.	
Hall Effect											
0.5 - 4"	Polypropylene, titanium, PVDF	Y	0.3-20 ft/s (0.1-6 m/s)	180 (12.4)	68 (20) & 194 (90)	3-2536-P0	33298	334-210*	58 034 233	58 034 033	
5 - 8"	Polypropylene, titanium, PVDF	N				3-2536-P1	33299	334-211*	58 034 234	58 034 034	
10" & Up	Polypropylene, titanium, PVDF	N		3-2536-P2	33300	334-212*	58 034 235	58 034 035			
0.5 - 4"	PVDF, Hastelloy C	Y		200 (13.8)	68 (20) & 212 (100)	3-2536-V0	33301	334-213*	58 034 236	58 034 036	
5 - 8"	PVDF, Hastelloy C	N				3-2536-V1	33302	334-214*	58 034 237	58 034 037	
1.5 - 36"	316SS, PEEK, CD4MCu, 1.5" NPT Hot Tap	N		250 (17.2)	180 (82)	3-2540-3	33304	334-216*	58 034 239	58 034 039	
1.5 - 24"	316SS, PEEK, CD4MCu, 1.5" NPT	N				3-2540-1	33305	334-217*	58 034 240	58 034 040	
Magnetic											
1/4" NPTM	PVDF, Viton, Teflon	N		0.13-0.74 GPM 0.5-2.8 LPM			3-2507.100-2V	33282	334-405	58 034 227	58 034 027
1/4" NPTM	PVDF, Viton, Teflon	N		0.3-1.6 GPM 1.3-6 LPM	80 (5.5) 45 (3.1)	-20 (-30) & 248 (120)	3-2507.100-4V	33285	334-406	58 034 230	58 034 030
1/4" NPTM	PVDF, Viton, Teflon	N	0.8-3.2 GPM 3.0-12 LPM			3-2507.100-6V	33287	334-407	58 034 232	58 034 032	
0.5 - 4"	Polypropylene, titanium, PVDF	Y	1-20 ft/s (0.3-6 m/s)	180 (12.4)	68 (20) & 194 (90)	P51530-P0	NA**	334-203*	NA**	58 034 021	
5 - 8"	Polypropylene, titanium, PVDF	N				P51530-P1	NA**	334-204*	NA**	58 034 022	
0.5 - 4"	PVDF, Hastelloy C	Y		P51530-V0	NA**	334-205*	NA**	58 034 024			
0.5 - 4"	PVDF	Y		P51530-T0	NA**	334-201*	NA**	58 034 015			
5 - 8"	PVDF	N		P51530-T1	NA**	334-202*	NA**	58 034 019			
0.5 - 1"	316SS, CD4Mcu, Fluoroloy B	N	1-20 ft/s			P525-1	NA	334-303*	NA	58 034 109	
1.25 - 12"	316SS, CD4Mcu, Fluoroloy B	N	(0.3-6 m/s)	1500 (103)	300 (149)	P525-2	NA	334-302*	NA	58 034 108	

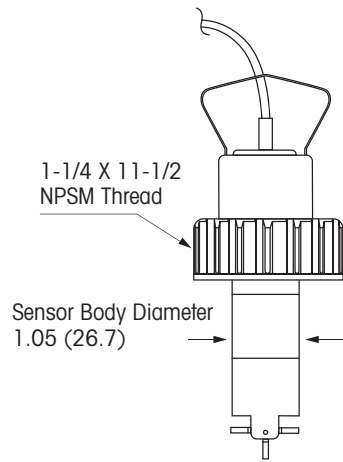
* Specify pipe material, size, and schedule or inside diameter to enable Smart calibration.

** Not for use with 770MAX Smart or Pulsed input. For M300 and 200Flow only.

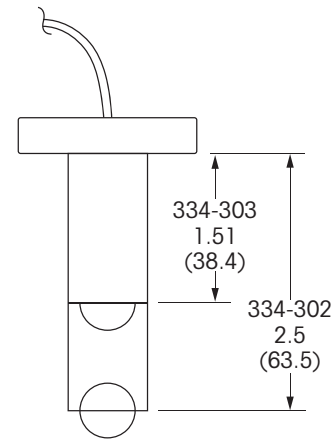
1/4" NPTM Flow-thru



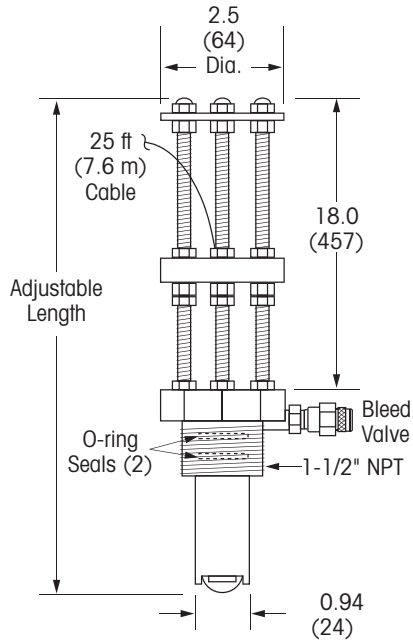
0.5 - 8" Plastic



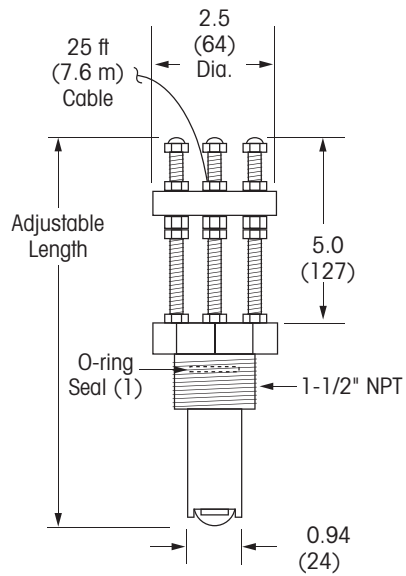
Metal



Hot Tap & Large Pipe



33304 & 334-216



33305 & 334-217

Dimensions: inches (mm)

www.mt.com/thornton

Visit for more information

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