

Fox 10A

Model 10A Thermal Gas Mass Flowmeter

- X Directly measures mass gas flow in scfm or nm³/h. Available in other engineering units
- X Insertion and in-line models
- X In-line model has built-in flow conditioners
- X Advanced Power Pro™ Sensor
- X All welded sensor construction
- X Wide turn down—100 to 1
- X Microprocessor based, field rangeable
- X On board display and configuration panel
- X FM and CSA approved
- X CE approved
- X NIST traceable calibration
- X Low-end sensitivity – leak detection
- X Negligible pressure drop
- X No moving parts



PRODUCT DESCRIPTION

The Fox Model 10A Thermal Mass Flowmeter is the instrument of choice for reliable and accurate gas mass flow measurement. The instrument measures gas in standard units without the need for temperature and pressure compensation. It provides a 4-20 mA output proportional to mass flow rate in your choice of engineering units (scfm, sfp, nm³/h, etc.). The optional on-board display/configuration panel provides a bright LED read-out of flow rate and total. Wetted parts are 316 stainless steel standard; Hastelloy C276 optional.

All Fox Model 10A Flowmeters are equipped with the revolutionary Power Pro™ thermal mass flow sensor. The Power Pro sensor was designed to operate at a higher power level than previous models. The elevated power level significantly increases its sensitivity to flow. This results in improved accuracy, repeatability and response time.

The Model 10A is available in insertion and in-line configurations. The insertion meter has a rugged 1/2-inch probe in lengths up to 36-inches (91.4 cm). The in-line model is available in 1/4-inch to 6-inches and delivered with built-in flow conditioners that eliminate the need for long, straight pipe runs. The meter can be ordered with flanged, NPT, or weld-prep end connections. The Model 10A is FM and CSA approved for hazardous area locations. The very reliable, very accurate Fox Model 10A Thermal Mass Flowmeter is the right choice for your gas flow applications.

Common Gases: Air, ammonia, biogas, butane, chlorine, compressed air, carbon monoxide, carbon dioxide, digester gas, ethane, ethylene, helium, hydrogen, methane, natural gas, nitrogen, oxygen, propane, and many more.

SPECIFICATIONS

Performance Specs

Accuracy:

± 1.0% of reading + 0.2% of full scale*

* Point velocity for insertion flowmeters. Fox recommends a minimum of 15 diameters of straight pipe upstream of the flowmeter and 10 diameters downstream for insertion flowmeters. Fox recommends a minimum of 8 diameters of straight pipe upstream of the flowmeter and 4 diameters downstream for inline flowmeters.

Calibration:

NIST traceable

Repeatability:

± 0.2% of full scale

Response Time:

0.9 seconds (One time constant)

Operating Specs

Units of Measurement:

SCFM, SCFH, NM3H, NLPM, KG/HR, LBS/M, SFPM, SFPS, NMPS

Flow Rates:

Insertion Flowmeters

0 to 32,000 sfpm (0-163 nmps). To determine if an Insertion Flowmeter will operate properly, divide the maximum flow rate by the pipe area. Here are flow rates for common pipe sizes:

Pipe Size scfm	nm ³ /hr	
1-1/2" (40mm)	0-450	0-760
2" (50mm)	0-750	0-1280
3" (80mm)	0-1600	0-2720
4" (100mm)	0-2880	0-4893
6" (150mm)	0-6400	0-10870
8" (200mm)	0-11100	0-18860
10" (250mm)	0-18200	0-30920
12" (300mm)	0-24900	0-42300

Use the equation above for larger pipe sizes.

In-Line Flowmeter Flowrates

Size	scfm	nm ³ /hr
0.25-inch	0-16	0-27
0.5-inch	0-48	0-82
0.75-inch	0-120	0-204
1-inch	0-192	0-326
1.5-inch	0-450	0-760
2-inch	0-750	0-1280
2.5-inch	0-1090	0-1855
3-inch	0-1600	0-2720
4-inch	0-2880	0-4893
6-inch	0-6400	0-10870

Note: Standard conditions for air at 70°F and one atmosphere. Consult factory for other gases and for flow ranges above and below those listed above.

Gas Pressure (maximum):

Insertion Flowmeter:

300 psig (21 barg) standard; higher pressure ratings on some models.

1/4 through 6-inch In-Line Flowmeters:

NPT 300 psig (21 barg)

150# flange 230 psig (16 barg)

Note: Pressure ratings stated for temperature of 100°F (38°C).

Temperature:

Sensor -40 to 250°F (-40 to 121°C)

HS Sensor 32 to 400°F (0 to 204°C)

Enclosure -40 to 131°F (-40 to 55°C)

Input Power:

Explosion proof enclosure

24 VDC, ± 10%, 0.75 amp max

Remote NEMA 4X enclosure

85-250 VAC, 50/60 Hz, 25 watts max

Output:

4-20 mA, isolated

Alarm relay; dry contact;

50 VAC, 30 VDC, 3 amp

Physical Specs

Sensor Wetted Materials:

316 stainless steel standard, Hastelloy

C276 optional

Remote cabling:

2 conductor, 18 AWG, 500 ft. max

Enclosures

Explosion Proof Enclosure:

Cast aluminum; FM and CSA approved for Class I, Division 1, Groups B, C, & D Temperature: T3C (160°C).

FM approved Dust Ignition Proof for Class II/III, Division 1, Groups E, F & G; indoor/outdoor NEMA Type 4.

CE Approved

Remote NEMA 4X Enclosure:

Fiberglass; Non-explosion proof

Not FM or CSA approved

Dimensional

Insertion Flowmeters:

Probe diameter 1/2-inch Installation

Coupling 3/4-inch NPT

Equation for selecting Insertion Flowmeter probe length:

Probe length = 1/2 pipe ID (in inches) + 2" + thickness of insulation (if any) + dimension of retractor (if supplied). Round up to the next probe length available.

Assuming there is no insulation or retractor, Fox recommends the following probe lengths:

Pipe Size	Probe Length
1-1/2" (40mm) to 2" (50mm)	4-inch
3" (75mm) to 6" (150mm)	6-inch
8" (200mm) to 14" (350mm)	9-inch
16" (400mm) to 20" (500mm)	12-inch

Use the equation above for larger pipe sizes.

Insertion Flowmeter Probe Lengths (LL) =

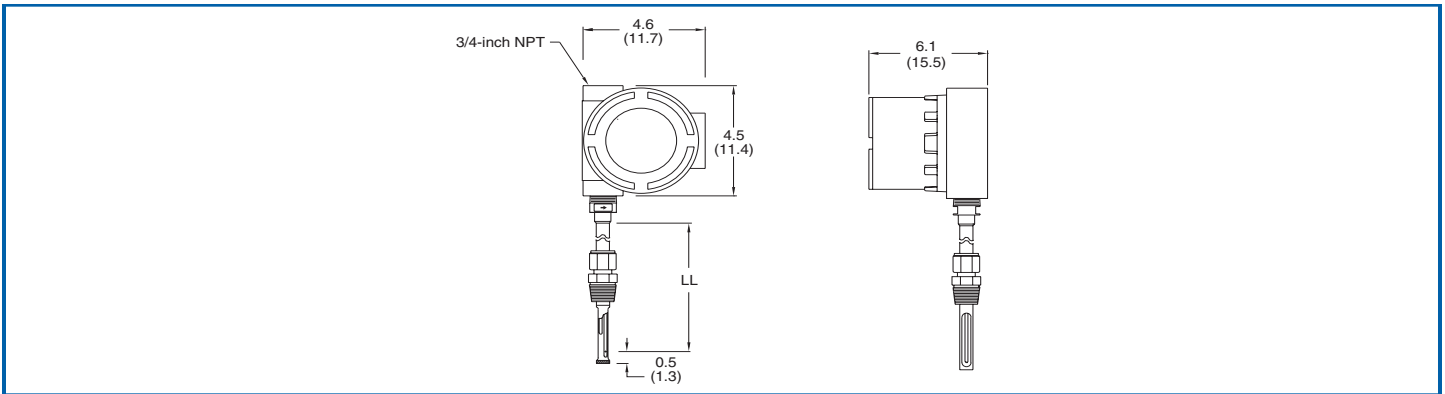
4.0(10.2), 6.0(15.2), 9.0(22.9),
12.0(30.5), 15.0(38.1), 18.0(45.7),
24.0(61.0), 30.0(76.2), 36.0(91.4)

In-Line Flowmeters:

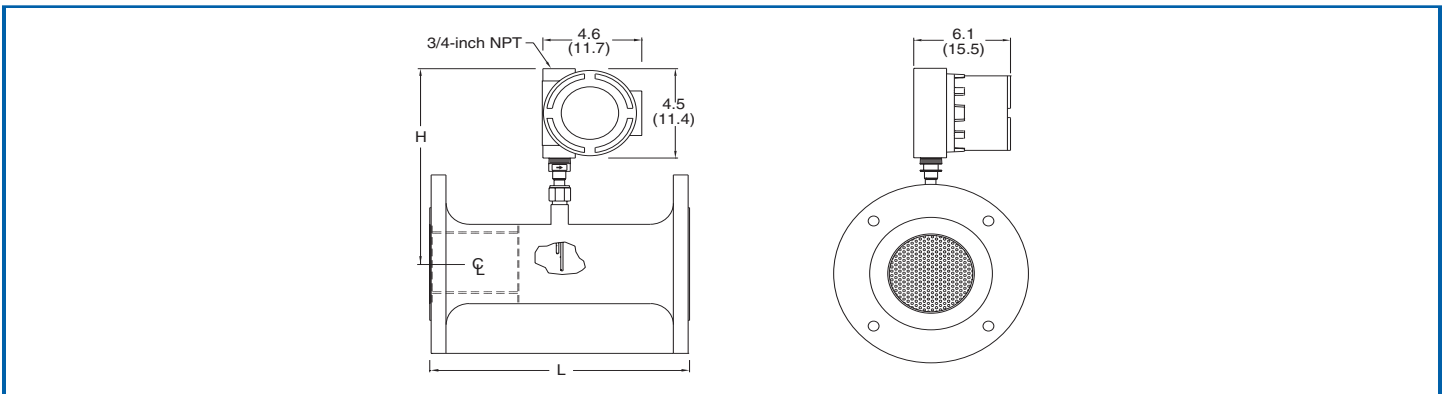
	L	H
0.25-inch	5.6 (14.2)	10.0 (25.4)
0.5-inch	12.0 (30.5)	10.0 (25.4)
0.75-inch	12.0 (30.5)	10.0 (25.4)
1-inch	15.0 (38.1)	10.0 (25.4)
1.5-inch	12.0 (30.5)	10.0 (25.4)
2-inch	12.0 (30.5)	10.0 (25.4)
2.5-inch	18.0 (45.7)	12.5 (31.8)
3-inch	18.0 (45.7)	11.8 (30.0)
4-inch	18.0 (45.7)	11.5 (29.2)
6-inch	24.0 (61.0)	11.5 (29.2)

Note: Dimensions in inches. Dimensions in parenthesis are centimeters. For certified drawings consult factory.

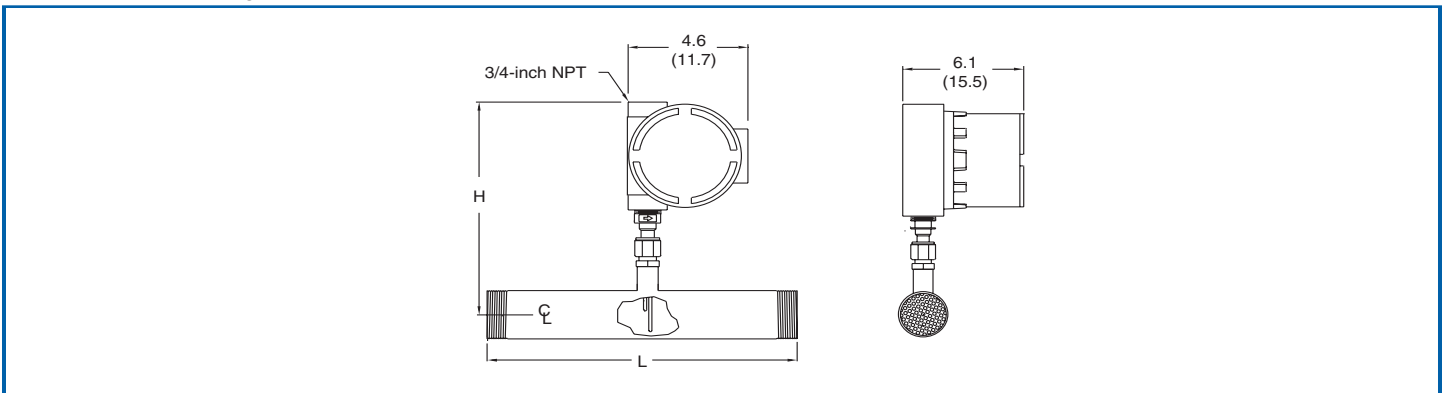
Insertion 4" to 36" (10.2 to 91 cm)



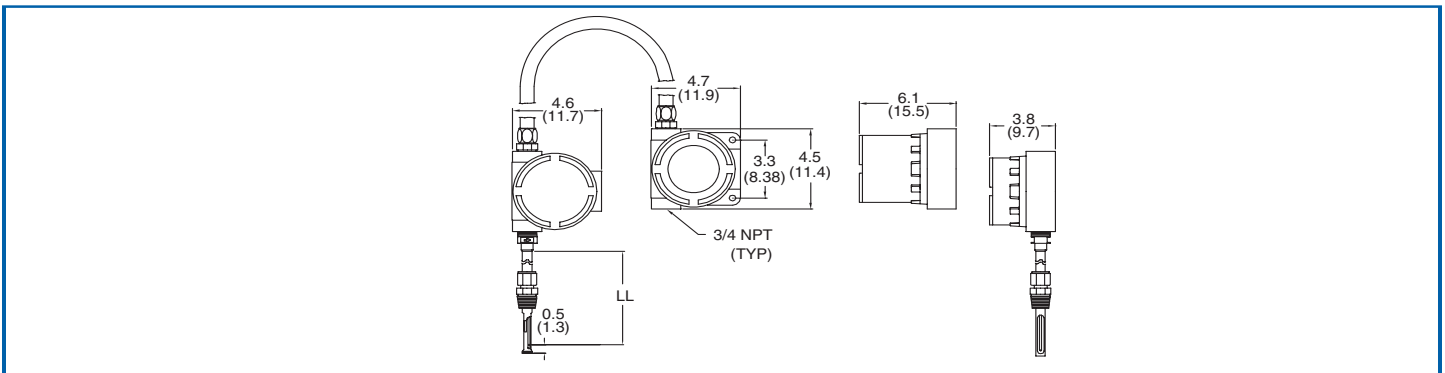
In-Line with 150# Flanges – sizes 0.5" to 6"



In-Line with NPT Fittings – sizes 0.25" to 6"

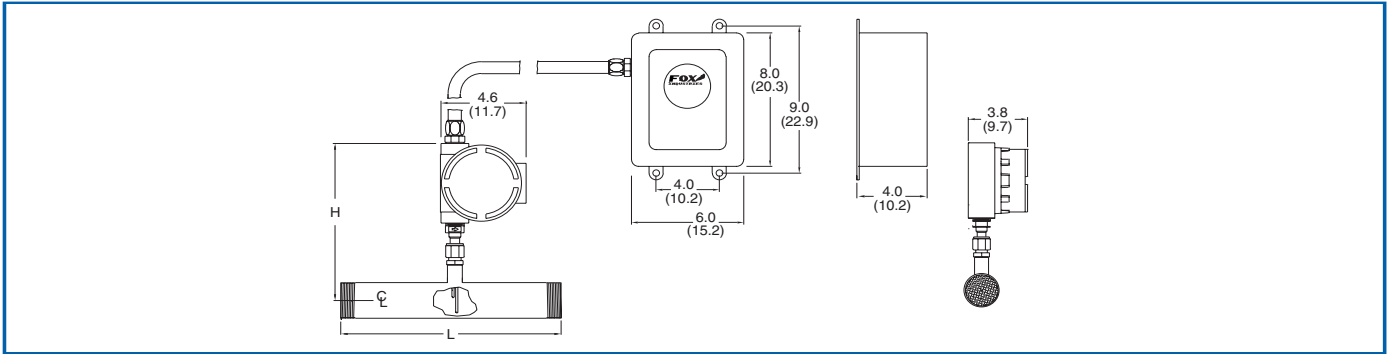


Insertion with remote explosion-proof enclosure

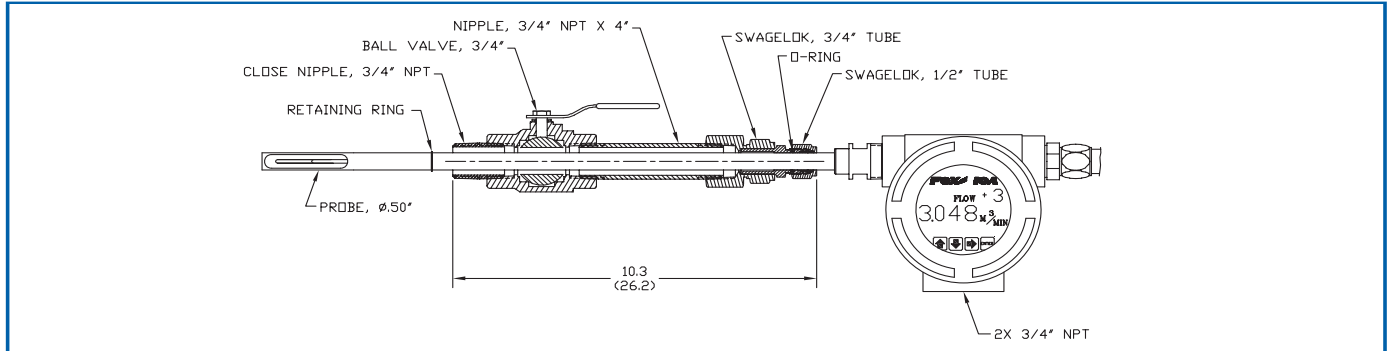


DIAGRAMS

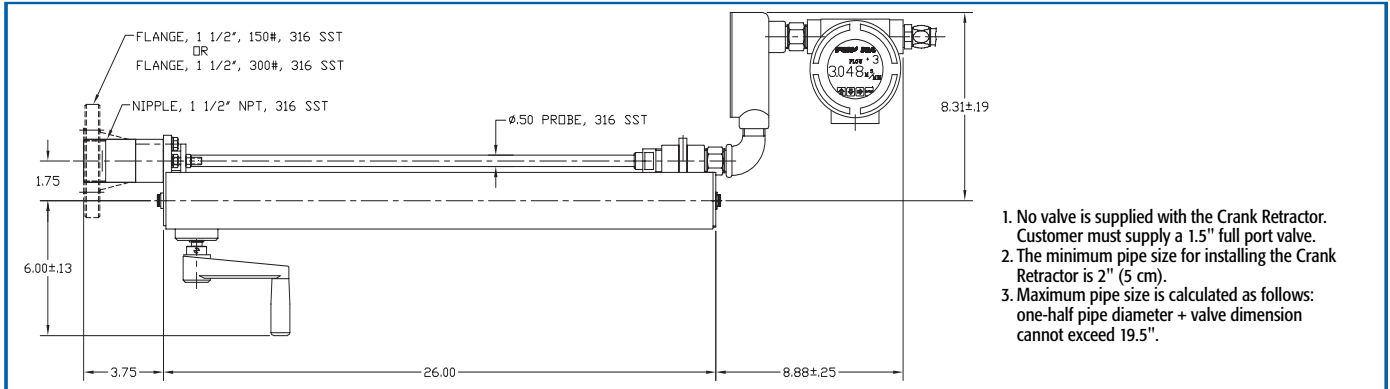
In-Line with NPT Fittings and remote NEMA 4X Enclosure – sizes 0.25" to 6"



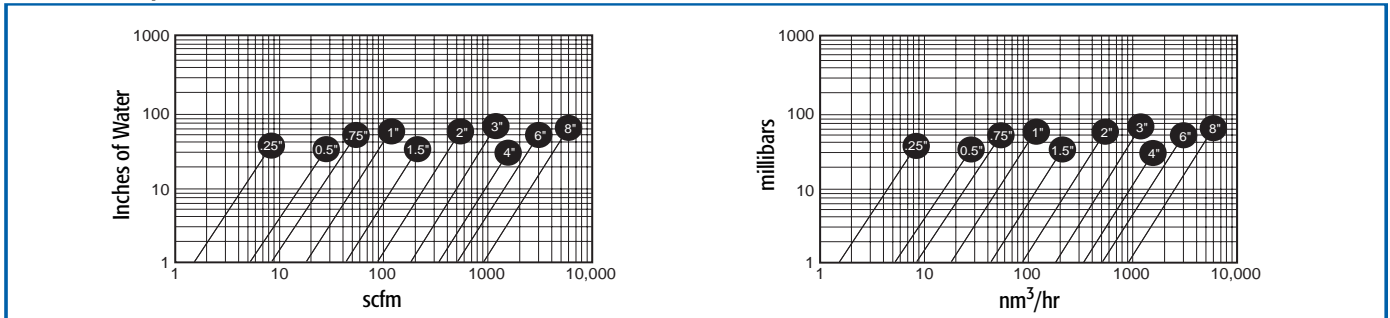
Packing Gland assembly - 100 psig (6.9 barg) maximum



Crank Retractor - NPT 600 psig (41.4 barg); ANSI 150 & ANSI 300



Pressure Drop Charts for Inline Flowmeters



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