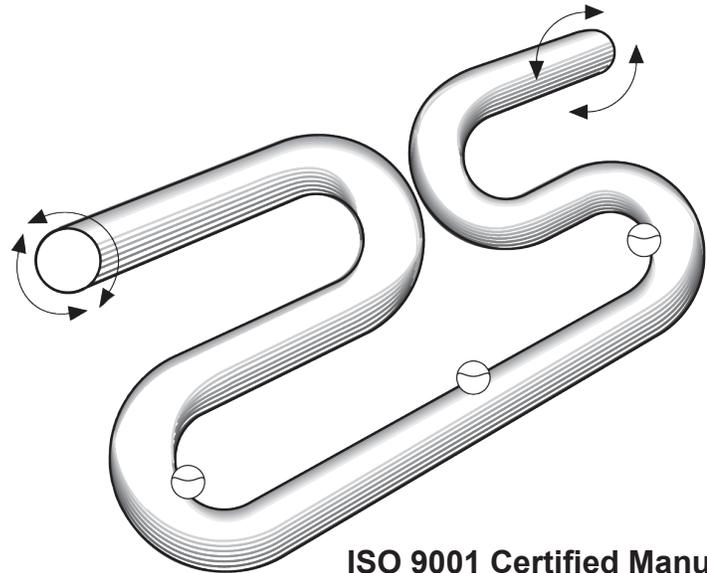




# Coriolis Mass Flowmeters

Flow rate 0.36 to 36.0 kg/min  
(0.8 to 80 lb/min)



ISO 9001 Certified Manufacturing  
Facility

## DESCRIPTION

The **m**<sup>®</sup> m025 provides accurate, continuous, direct measurement of mass, density, temperature and percent solids over the flow range 0.36 to 36.0 kg/min (0.8 to 80 lb/min).

## DESIGN FEATURES

### ACCURACY

Patented dual omega-shaped tubes provide outstanding sensitivity to Coriolis forces. **m**<sup>®</sup> mass flow accuracy is  $\pm 0.10\%$  and the mass flow rate repeatability is  $\pm 0.10\%$ . Its density accuracy is  $\pm 0.002$  g/cc over its operating range.

### LOW PRESSURE DROP AND 100:1 TURN-DOWN

The **m**<sup>®</sup> transducer is more sensitive to Coriolis forces than conventional mass flowmeters, providing a greater mechanical gain. Fluid velocity requirements are much lower to produce a given signal. This results in a lower pressure drop and unequaled 100:1 turn-down. Therefore, accuracy never has to be compromised to obtain an acceptable pressure drop.

### RELIABILITY

The smooth-bore, non-obtrusive flow path is free from moving parts, seals and bellows. The omega shapes produce torsional loading instead of bending loading for improved reliability.



- Direct mass, density and temperature measurement
- Weights & Measures approved for custody transfer applications
- Patented omega-shaped flowtubes provide unequaled sensitivity to Coriolis force
- Wide 100:1 turndown
- Lowest pressure drop
- Smooth-bore, non-obtrusive flow path free from moving parts
- 316L stainless steel
- 3A-Authorized version available

## MATERIALS OF CONSTRUCTION

Wetted parts: 316L stainless steel  
 Sensor housing: 304L stainless steel

3A-Authorized version: Connection facing and flowtube surface finish is equivalent to 150 grit (Ra 32 or 0.80 μm) or better

## ELECTRONICS

### DATAMATE 2200™ Mass Flow Computer:

(Complete information is available in Technical Specification No. TS-612)

### NexGen® SFT100 Mass Flow Transmitter:

(Complete information is available in Technical Specification No. TS-620)

### NexGen® SFT200 Mass Flow Transmitter:

(Complete information is available in Technical specification No. TS-621)

## HAZARDOUS AREA CLASSIFICATION

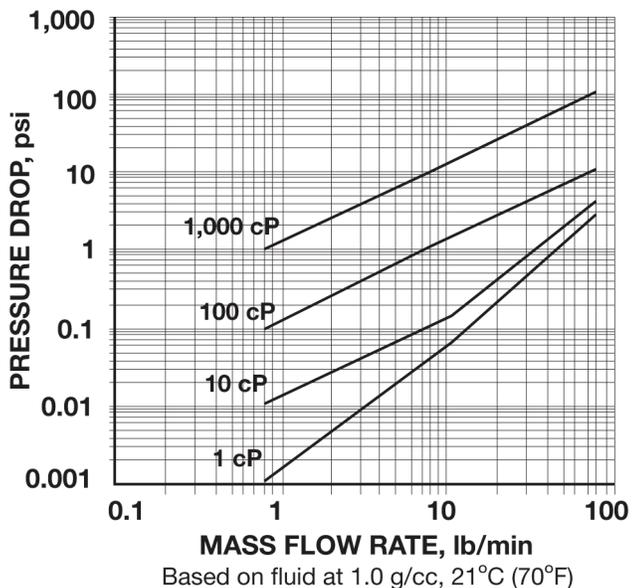
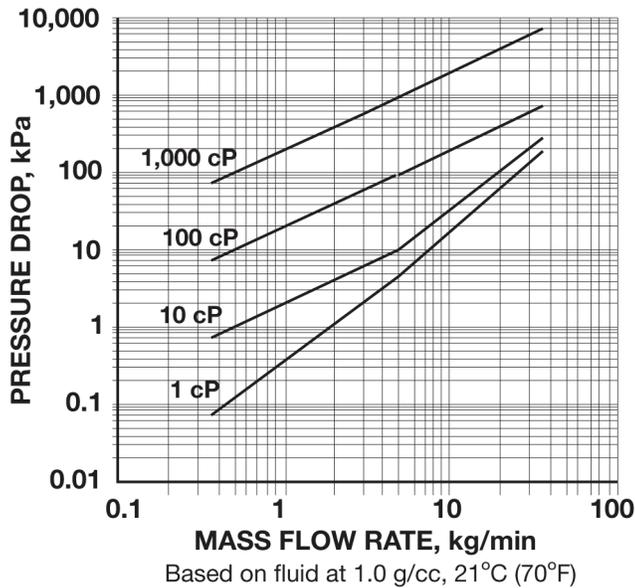
Agency	Components	Method	Class	Div/zone	Group	Temp. Class	Ambient Temp.
CSA	Transducer	Intrinsic Safety	I, II, III	1, 2	C, D, E, F, G	T5	Note 1
	Datamate 2200	Non-incendive	I	2	A, B, C, D	T3C	Note 5
	NexGen	Explosion Proof	I, II, III	1	C, D, E, F, G	T6	Note 2
Non-incendive		I	2	A, B, C, D	T4	Note 2	
LCIE	Transducer	EX ia		0, 1, 2	IIB	T5, T4, T2	Note 3
	Nexgen	EX id		1, 2	IIB	T6	Note 4

Note 1: -20°C to 40°C (-4°F to 104°F)  
 Note 2: -20°C to 65°C (-4°F to 149°F)  
 Note 3: T5 where ambient temperature is: -20°C to 40°C (-4°F to 104°F)  
 T4 where ambient temperature is: +40°C to +60°C (104°F to 140°F)  
 T2 where ambient temperature is: +60°C to +200°C (140°F to 392°F)  
 Note 4: -20°C to 65°C (-4°F to 149°F)  
 Note 5: +65°C ambient

## m025 OPERATING SPECIFICATIONS

METERING ELEMENT	
<b>Connections:</b> Connection type	VCO: 1/2" female <sup>2</sup> ANSI: 1/2"; 150#, 300#, Raised Face DIN: PN40, DN15 3A-Authorized: 1-1/2" Tri-Clamp® Industrial Tri-Clamp® : 1-1/2"
<b>Meter:</b> Tube material  Tube shape Nominal tube bore Housing Hazardous area classification  Mass accuracy <sup>1</sup> Mass Repeatability Mass zero stability Turndown ratio Density range Density accuracy Density repeatability Temperature measurement Temperature accuracy Signal output	316L SST  Omega 6.4 mm (1/4") 304L SST Transducer is intrinsically safe when connected to an approved mass flow computer (See table above for approval rating) ±0.10% of rate ± zero stability ±0.10% of rate ±0.0039 kg/min (0.0087 lb/min) 100:1 0.4 to 3.0 g/cc ±0.002 g/cc ±0.0005 g/cc 100 ohm platinum resistance sensor 0.56°C (±1°F) 8-core shielded twisted pair
<b>Fluid:</b> Flow rate Max. temperature Min. temperature Max. operating pressure	0.36 to 36.0 kg/min (8 to 80 lb/min) 204°C (400°F) -45°C (-50°F) 250 bar (3600 psi); limited by flange/connection rating
ASSOCIATED INSTRUMENT	
Max. Length of signal cable Electrical connections Manufacturer Meter model number Instrument model number	300m (1000ft.) 8 core Belden 89892 shielded twisted pair Screw terminal RSM, Inc. m025-XXXX0 Refer to electronics Technical Specification Form Datamate 2200: TS-612 NexGen SFT100: TS-620 NexGen SFT200: TS-621
<sup>1</sup> All calibration equipment traceable to N.I.S.T. <sup>2</sup> Only available as 1/2" female CAJON VCO by SWAGELOCK®.	

## PRESSURE DROP VERSUS FLOW RATE



## CALCULATING ACTUAL ACCURACY

Use the following formula to calculate accuracy for your selected flow rate:

$$\% \text{ accuracy, } \pm_{\text{actual}} = \{[(0.0010 \text{ m}) + S_0]/\text{m}\} \times 100\%$$

where:

m = mass flow rate, kg/min or lb/min

S<sub>0</sub> = mass zero stability, kg/min or

lb/min for the m025 flowmeter

## DETERMINING PRESSURE DROP

- Flow rate vs. pressure drop varies with viscosity. To approximate m025 pressure drop for fluids with viscosity approximating that of water, locate the point on the 1 -cP curve corresponding with your desired flow rate.
- From that point, locate the nearest horizontal line and follow it to the vertical scale on the left, which indicates pressure drop for the flow rate you selected.
- Divide the pressure drop indicated on the graph by the specific gravity (S) of the process fluid:

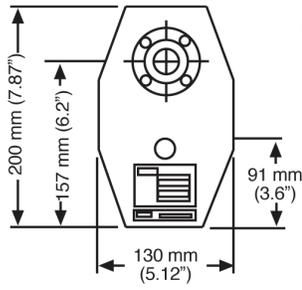
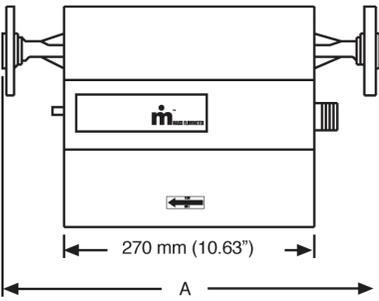
$$\Delta P_{\text{actual}} = \Delta P_{\text{plotted}} / \text{Sp. gr.}$$

## m025 MASS FLOWMETER ORDERING INFORMATION

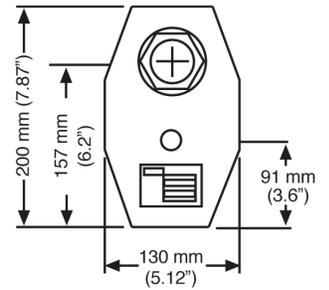
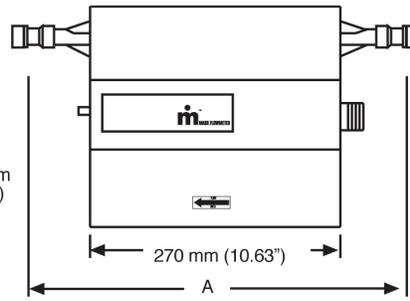
MODEL NUMBER		DESCRIPTION
m025	X X X X X	
	8	<b>Type</b> Transducer 1/4" SST <sup>1</sup>
	S	Transducer 1/4" Sanitary Tri Clamp <sup>1</sup>
	000	<b>Flange</b> 1-1/12" 3A SST Sanitary Tri Clamp <sup>4</sup>
	801	3/8" Cajon VCO <sup>2</sup>
	812	1/2" 150lb. ANSI RF SST
	813	1/2" 300lb. ANSI RF SST
	814	1/2" 600lb. ANSI RF SST
	846	3" SST Industrial TRI Clamp <sup>4</sup>
	8BE	DN15 PN40 SST
	XXX	SPECIAL - Contact Factory
	0	<b>Approvals</b> General Purpose
	2	CSA
	0	<b>W &amp; M</b> None
	W	Custody Transfer (Weights & Measures)
	000	<b>Cable</b> No Cable
	101	ASM CBL KIT 10ft. <sup>3</sup>
	102	ASM CBL KIT 20ft. <sup>3</sup>
	103	ASM CBL KIT 30ft. <sup>3</sup>
	105	ASM CBL KIT 50ft. <sup>3</sup>
	110	ASM CBL KIT 100ft <sup>3</sup>
	0	<b>Electronics</b> No Electronics
	02	For Use With Nexgen
	03	For Use With Datamate 2200
<sup>1</sup> Note:		Wetted materials and connection materials must be the same.
<sup>2</sup> Note:		Only available as 3/8" female CAJON VCO connections Requires Male CAJON VCO-8-VCO by SWAGELOCK®.
<sup>3</sup> Note:		For a complete list of available cables, contact factory.
<sup>4</sup> Note:		The 1-1/2" industrial and 2" 3A sanitary tri-clamp connections are available in 316L SS wetted materials only

# DIMENSIONAL DATA, mm (in.)

## m025 Transducer



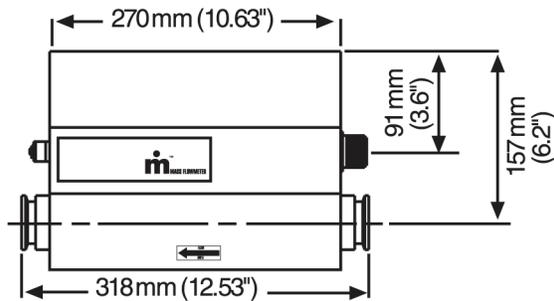
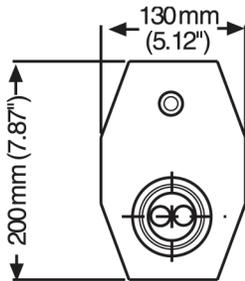
## m025 VCO Transducer



**NOTE: 3.6" diameter is to center of circle**

	DIMENSIONS
CONNECTION	A 316L SS Wetted Parts
3/8" VCO	422 (16.6)
1/2" 150# ANSI RF	389 (15.3)
1/2" 300# ANSI RF	401 (15.8)
DN15 PN 40	377 (14.85)

## m025 3A - Authorized Transducer



## WEIGHTS OF COMPONENTS

Transducer:	approx. 6.8 kg (15 lbs)
Datamate 2200:	approx. 5.2 kg (11.5 lbs)
NexGen SFT100:	
Blind	approx. 6.4 kg (14.1 lbs)
w/Display/keypad	approx. 7.1 kg (15.6 lbs)
NexGen SFT200:	approx. 1.8 kg (4 lbs)

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