

CORIOLIS MASS FLOW METER



Best price and performance for a compact Coriolis flow meter. Enhanced sensitivity improves signal to noise ratio for increased flow ranges and improved accuracy at lower flow rates.

EXCELLENT ACCURACY

± 0.10% accuracy of reading and large turndowns (plus zero stability).

SIMPLE MAINTENANCE

No moving parts and smooth flow tubes of 316L stainless steel result in a design that is easy to clean and maintain.

VARIETY

7 different sizes available with a variety of connection options.

VERSATILITY

Flow monitors available include wall-mount, panel-mount and meter-mount.

SAFETY

ATEX, IEC, CSA, UL explosion-proof rating available. (Pending)

EASY SETUP

Fully programable through display. Setup takes less than 10 minutes.

FEATURES:

- Accuracy of ± 0.10% of reading ± zero stability
- 316L stainless steel flow tubes
- Maximum temperature 400° F, 204° C
- Excellent purging & sterilization
- Self draining
- Pressure rating up to 2900 PSI, 100 bar
- Analog, frequency and RS-485 signal outputs
- HART® available
- Conforms to 3A Sanitary Standards
- DIN, ANSI and Tri-Clamp flanges available



LIQUID PERFORMANCE:

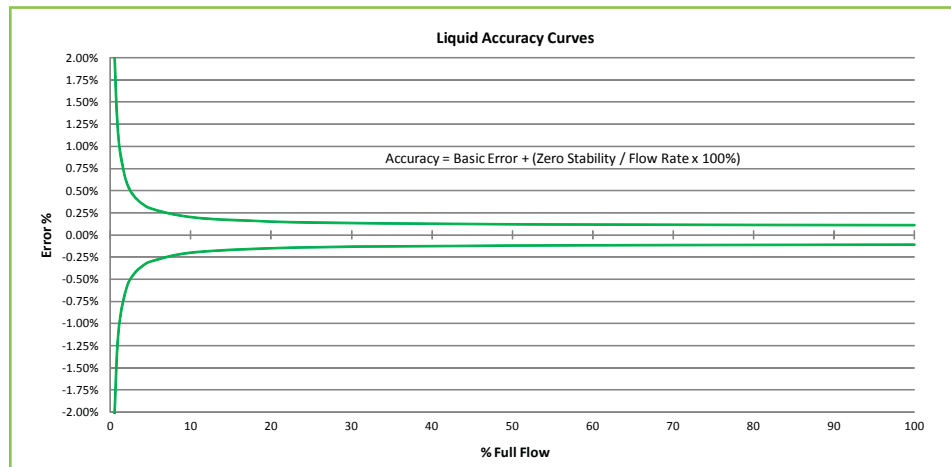
Flow Rate:

| Model Number | Max. Flow Rate (Kg/Hr) | Max. Flow Rate (Lbs/Min) | Tube Dia (Internal) | Pressure Rating (psig) |
|--------------|------------------------|--------------------------|---------------------|------------------------|
| TCM 300 | 300 | 11 | 4 mm (serial) | 2900 |
| TCM 600 | 600 | 22 | 4 mm | 2900 |
| TCM 1500 | 1500 | 55 | 8 mm (serial) | 2900 |
| TCM 3000 | 3000 | 110 | 8 mm | 2900 |
| TCM 28K | 28.8K | 1056 | 16 mm | 1450 |
| TCM 65K | 65K | 2400 | 28 mm | 1450 |
| TCM 260K | 260K | 9500 | xx | 1450 |

65K & 260K meters will be available summer/fall 2010

Mass Flow Accuracy:

Stated accuracy combines the effects of repeatability, linearity, and hysteresis.
Accuracy $\leq \pm 0.10\%$ = rate \pm (zero stability/flow rate)*100% of flow rate.



Mass Flow Repeatability:

Repeatability = $\pm 1/2$ (zero stability/flow rate)*100% of rate

Zero Stability:

| Model Number | (kg/hr) |
|--------------|---------|
| TCM 300 | 0.06 |
| TCM 600 | 0.12 |
| TCM 1500 | 0.15 |
| TCM 3000 | 0.30 |
| TCM 28K | 2.80 |
| TCM 65K | 7.00 |
| TCM 260K | 21.00 |

DENSITY:

Density Accuracy:

Liquids: $\pm 1.0 \text{ kg/m}^3$, $\pm 0.001 \text{ g/cm}^3$

Density Repeatability:

$\pm 0.5 \text{ kg/m}^3$, $\pm 0.0005 \text{ g/cm}^3$

Density Range:

Up to 5000 kg/m^3 (5 g/cm^3 , 5.0 S.G)

FEATURES:

- High accuracy
- No moving parts
- Ability to measure flow, density and temperature
- 316L stainless steel flow tubes allow measurement of a wide range of materials

TEMPERATURE:

Media Temperature Range:

-150 to 400° F (-100 to 204° C)

Temperature Accuracy:

$\pm 1.0^\circ \text{ C}$, $\pm 0.5\%$ of reading

Repeatability $\pm 0.1\%$

May require a special platinum RTD for cold temps (-40 deg and below).

Ambient Temperature Limits:

-40° to 140° F

Process Temperature Effect:

$\pm 0.00175\%$ of maximum flow rate per °C

PRESSURE:

Max Pressure:

1450 psi, 100bar

Process Pressure Effect:

Mass Flow Accuracy:

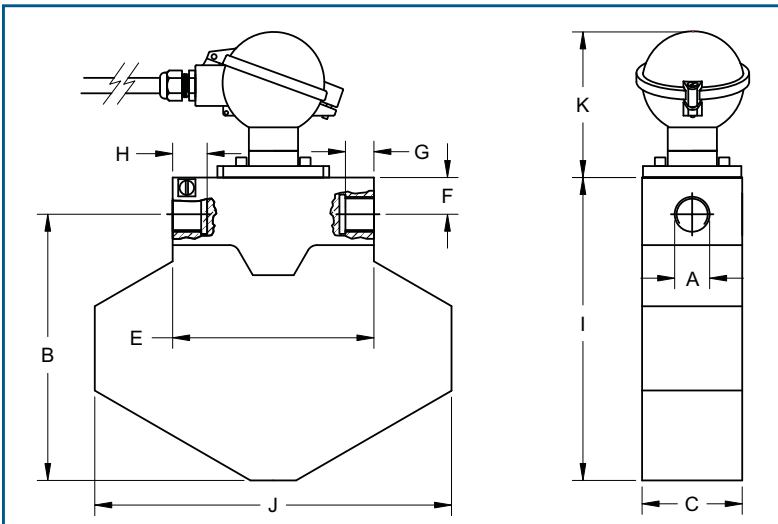
$\pm 0.001\%$ of rate per PSI

Density Accuracy:

$\pm 0.00003 \text{ g/cm}^3$ per PSI



METER DIMENSIONS:



| Dimension | ACM 300 & 600 | ACM 1500 & 3000 |
|-----------|------------------|-------------------|
| A | 1/2" BSPP | 1/2" BSPP |
| B | 158 mm (6-1/4") | 259 mm (10-3/16") |
| C | 60 mm (2-3/8") | 59 mm (2-5/16") |
| E | 109 mm (4-5/16") | 140 mm (5-1/2") |
| F | 22 mm (7/8") | 22 mm (7/8") |
| G | 14 mm (9/16") | 17 mm (11/16") |
| H | 19 mm (3/4") | 22 mm (7/8") |
| I | 182 mm (7-3/16") | 281 mm (11-1/16") |
| J | 214 mm (8-7/16") | 349 mm (13-3/4") |
| K | 87 mm (3-7/16") | 87 mm (3-7/16") |

MATERIALS OF CONSTRUCTION:

Wetted Parts:
316L SS
Seamless tubing

Case:
304 SS

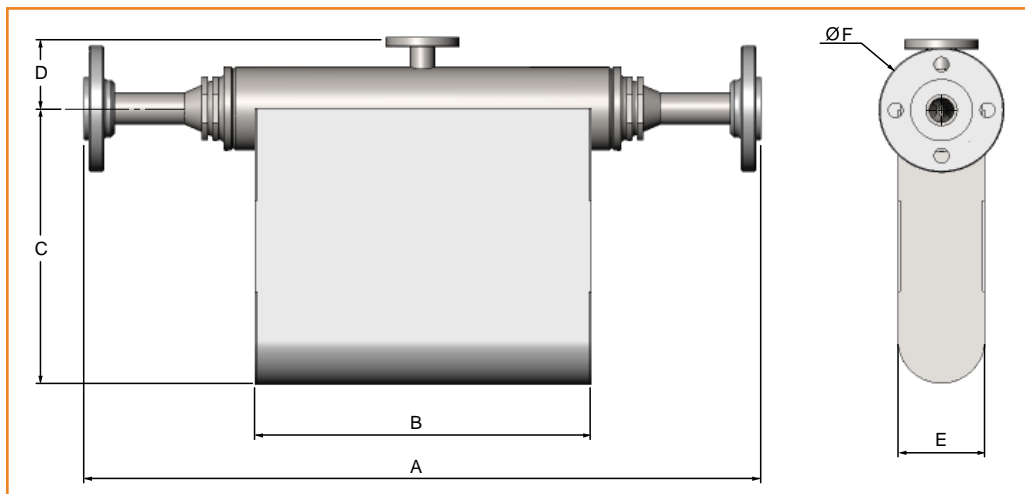
Casting:
CF3M (316 SS)
Brazing Alloy

HAZARDOUS AREA CLASSIFICATIONS:

Designed to meet ratings and/or certifications specified.

UL / CSA Hazardous area Classifications, Class 1 Div 1, Groups C & D

ATEX Ex ib IIC T1-T6



SANITARY CLASSIFICATIONS:

3A Rating available with tri-clamp flanges. (Pending)

32 surface finish or better.

| Dimension | 28K | 65K | 260K |
|-----------|-------------------|--------------------|----------|
| A | see note | 832 mm (32-3/4") | |
| B | 311 mm (12-1/4") | 550 mm (21-11/16") | |
| C | 254 mm (10") | 415 mm (16-3/8") | |
| D | 63.5 mm (2-1/2") | 99 mm (3-15/16") | |
| E | 80.1 mm (3-3/16") | 133 mm (5-1/4") | |
| F | see note | see note | see note |

Note: All ANSI, DN and Tri-Clamp flange sizes available. Consult factory for flange dimensions A & F.

ELECTRONICS:

| General: | |
|------------------------|---|
| Display | Graphic, 132 x 32 dot |
| Supply voltage | 24 VDC, ±20% |
| Programming | via front keyboard |
| Interface | RS 485, option HART® |
| Power consumption | max. 4 W |
| Housing: | |
| Dimensions | see drawing |
| Connections | internal clamp terminals 1/2" female NPT cable gland |
| Protection class | IP 68 |
| Weight | approx 2 kg |
| Temperature | operating: 20 up to 50°C storage & transport: -20 up to 70°C |
| Panel-mounted Housing: | |
| Dimensions | 96 x 96 x 83mm (h x w x d) |
| Connections | rear screw type terminals |
| Material | Noryl |
| Protection class | front: IP 40, rear: IP 30 |
| Weight | approx 500g |
| Temperature | operating: 0 to 50°C storage & transport: -20 up to 70°C |
| Analog Outputs: | |
| Two current outputs | 4-20 mA passive, two-wire insulated |
| Resolution | 14 bit |
| Linearity | +0.05% of full scale |
| Temperature drift | 0.05% per 10K |
| Load | < 800 Ohm |
| Output value | programmable: flow, total, density, temperature |
| Pulse Output: | |
| Frequency range | 0.5 - 10,000 Hz |
| Output signal | Active push-pull output of flow rate or cycle output |
| Status In- and Output: | |
| Status output | fault out info (push-pull) |
| Control input | programmable |

ORDERING INFORMATION:

TCM Series Part Numbering

TCM **028k** - [] - [] - [] - []

Max. flow
in kg/h

| code | Process Connections (2 digits) |
|------|--------------------------------|
| Ax | ANSI flange |
| Dx | DIN flange |
| Fx | Female thread |
| Jx | JIS Japanese flange |
| Mx | Male thread |
| Rx | Hygenic flange DIN11851 |
| Tx | Tri-clamp flange |

x=size of flange / thread, see
separate list.

| code | Mechanical Options (4 digits) |
|------|--|
| X000 | Temperature range: S = -20 to 100°C L = -100* to 100°C H = -20* to 200°C |
| 0X00 | Pressure range: A = 6 bar without rupture disc (option) E = 40 bar with rupture disc (option) G = 100 bar with rupture disc |
| 00X0 | Accuracy: S = standard |
| 000X | Length: S = standard M = maximum |

| code | Electronics / Terminal (4 digits) |
|------|--|
| X000 | Electronics: X = no electronics (replacement only) A = junction box C = on site electronics |
| CX00 | Interface: A = HART B = FF C = both D = RS-485 |
| C0X0 | Supply voltage: D = 24 VDC (standard) M = mains (90 - 264 VAC, upon request) |
| C00X | X (reserved for future options) |

| code | Ex Protection |
|-------|------------------|
| Ex | Ex-protection |
| empty | no Ex-protection |



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