

TCM 230K Series

Coriolis Mass Flow Meter and Density Meter for Marine Fuel Consumption Management

- > All in one mass flow and density meter
- > Customized installation length
- > Direct mass flow measurement
- > Real time density measurement for fuel quality control
- > Maintenance free
- > No moving parts
- > Replaces all kind of volume based flow meters
- > Excellent repeatability in order to determine actions for process/engine optimization
- > Recommended 5 year meter recalibration

Accuracy¹⁾:

Basic Accuracy [Mass Flow]:	±0.1 % of flow rate
Mass Flow Repeatability:	±0.05 % of flow rate
Basic Accuracy [Volume Flow]:	±0.15 % of flow rate
Volume Flow Repeatability:	±0.05 % of flow rate
Zero Stability:	±0.01 % of full scale

Density:

Density Range:	up to 2,500 kg/m ³ , 2.5 g/cm ³
Density Accuracy:	Liquids ±1.0 kg/m ³ , ±0.001 g/cm ³
Density Repeatability:	±0.5 kg/m ³ , ±0.0005 g/cm ³

Temperature:

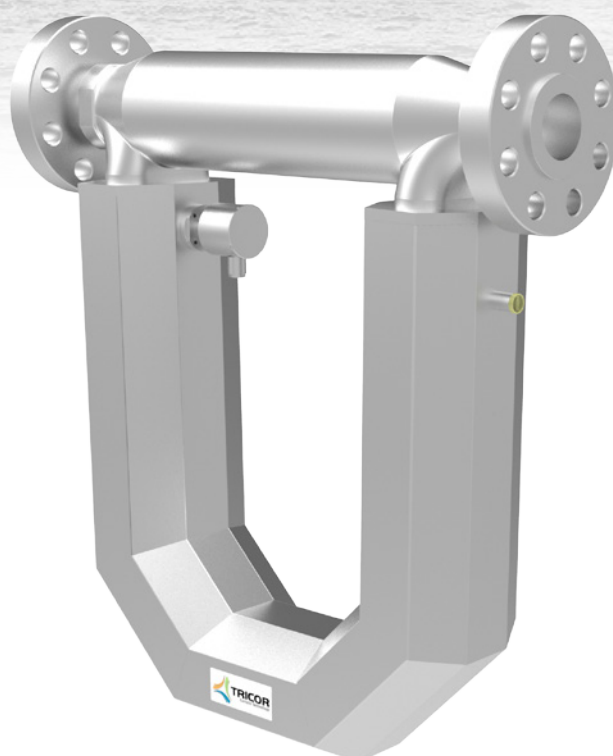
Process Temperature Range:	Standard: -40 °F ... +212 °F (-40 °C ... +100 °C)
	Optional ²⁾ : -76 °F ... +302 °F (-60 °C ... +150 °C)
	-76 °F ... +392 °F (-60 °C ... +200 °C)
Temperature Accuracy:	±1.8 °F ±0.5 % of reading (±1 °C ±0.5 % of reading)
Temperature Repeatability:	±0.36 °F (±0.2 °C)

Materials of Construction [wetted parts]:

Tubes:	1.4404/AISI 316L
Case:	1.4404/AISI 316L

Typical Specification:

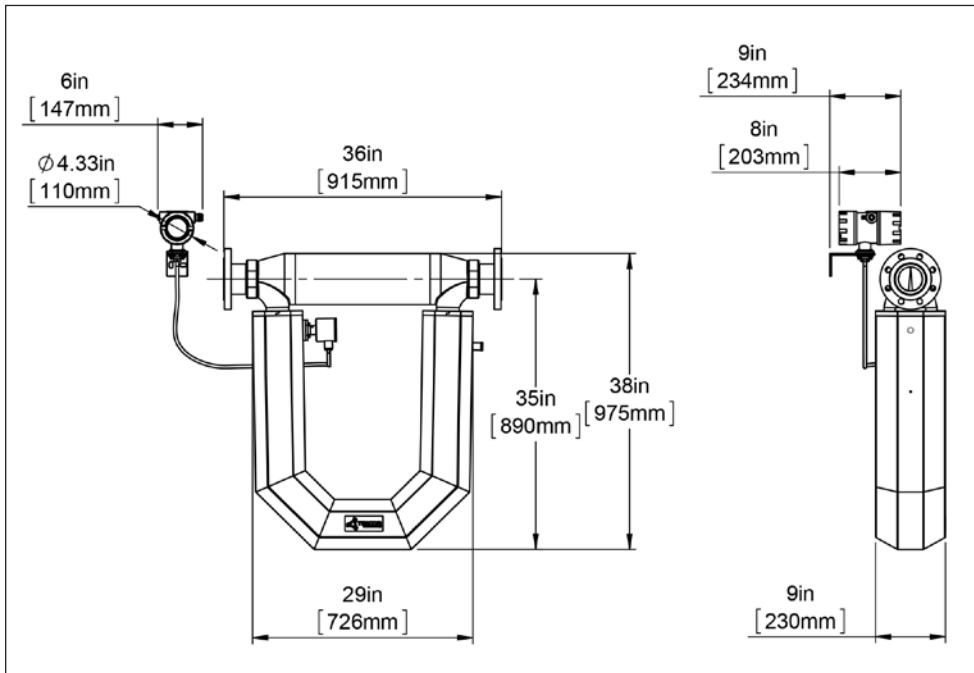
Nominal Meter Size	DN80, 3"
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¹⁾ Stated flow accuracy combines the effects of repeatability, linearity and hysteresis.

²⁾ Ex-Version compact: -40 °C ... +70 °C, -40 °F ... +158 °F.

Meter Dimensions³⁾:



weight: 87 kg/194.4 lb
with junction box & remote field mount
meter connection:
standard meter connection according table

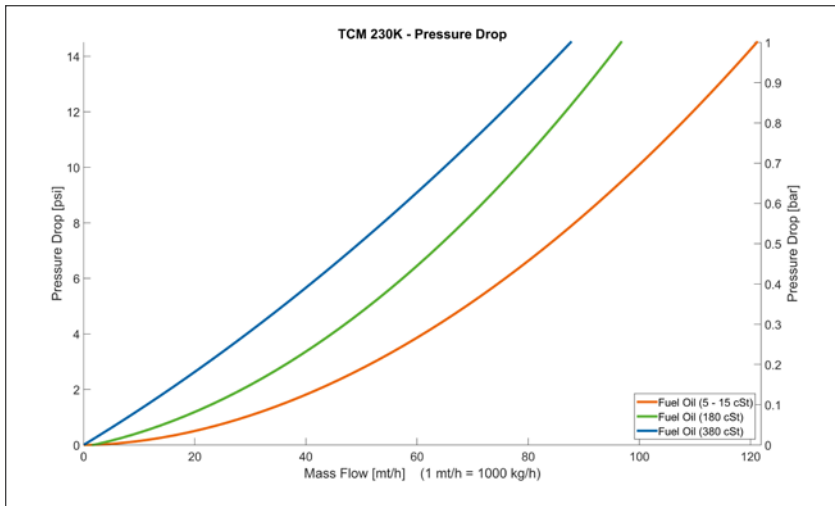
Model Code	ANSI B16.5 or DIN EN 1092-1 Form B	Face-to-Face [mm] ⁴⁾	Flange - \varnothing [mm]	Screws QTY	Hole - \varnothing (for screws) [mm] or screw dim.
AS	3.0" CL 150 ANSI	915	190	4	19
AT	3" CL 300 ANSI	915	210	8	22
AU	3" CL 600 ANSI	915	210	8	22
AW	4" CL 150 ANSI	915	230	8	19
AX	4" CL 300 ANSI	915	255	8	22
DJ	DN80 PN40 EN 1092-1 Form B1	915	200	8	M16
DK	DN80 PN100 EN 1092-1 Form B1	915	230	8	M24
DL	DN100 PN40 EN 1092-1 Form B1	915	235	8	M20

³⁾ Drawing of the Meter Dimensions reflects one standard connection, other connections on request (Installation length can vary depending on selected connection).

⁴⁾ Customized face-to face length available.



Pressure Drop:



Range	Fuel Oil		
Viscosity [cSt]	5-15	180	380
Density [kg/m ³]	900	900	900
Flow Rate [mt/h]	122.0	97.6	88.0
Pressure Drop [bar/psi]	1/14.5		

Electronics:

The TCE 8000 transmitter offered with the TRICOR Coriolis Mass Flow Meter is also available with other mounting options.

Panel Mount



Weight: 0.4 kg/0.88 lb

Remote Field Mount



Weight: 3.8 kg/8.3 lb with 3 m cable

Power Supply: 24 V DC \pm 20 % or 90 ... 264 V AC
 Outputs: Analog, Frequency, Pulse, Status
 Interface: RS485 RTU (Modbus), HART[®]

More options on request

Ex Certifications:

ATEX (Ex)	Zone 1: Group IIC or IIB, T2...T4
ATEX (Exn)	Zone 2: II 3G Ex nA IIC T2...T4 Gc
IECEX (Ex)	Zone 1: Group IIC or IIB, T2...T4
cCSAus (Ex1) ⁵⁾	Class 1, Division 1: Group A, B, C, D or C, D, T2... T4
ATEX + IECEX + cCSAus triple approval (Ex3) ^{5) 6)}	Zone 1: Group IIC or IIB, T2...T4 and Class 1, Division 1: Group A, B, C, D or C, D, T2... T4
EAC (TR-CU) ⁵⁾	Group IIC or IIB, T2 ... T4

Product Type Approval:

American Bureau of Shipping	Certificate Number: 14-HS1223473-PDA-DUP
RMRS	Russian Maritime Register of Shipping

Other Type Approvals in process

⁵⁾ For Ex1, Ex3, EAC (TR-CU) the electronic is only available in aluminum housing.

⁶⁾ Only with remote electronics.



www.tricorflow.com

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