

TCMH 0450 Coriolis Mass Flow Meter

for high pressure gas applications

Specification Sensor (* reference gases):

Nom. Flow Rates:

*@ 20°C air, pressure drop 10 bar: 394 kg/h @ 1050 bar, 14.5 lb/min @ 15,200 psi
 362 kg/h @ 690 bar, 13.3 lb/min @ 10,000 psi
 316 kg/h @ 414 bar, 11.6 lb/min @ 6,000 psi

*@ 20°C H₂, pressure drop 50 bar: 254 kg/h @ 1050 bar, 9.30 lb/min @ 15,200 psi
 240 kg/h @ 875 bar, 8.80 lb/min @ 12,690 psi
 222 kg/h @ 690 bar, 8.15 lb/min @ 10,000 psi
 184 kg/h @ 414 bar, 6.75 lb/min @ 6,000 psi

Pressure Drop (max.): see curves
 Connection: 3/8" Autoclave (MP), other connections available

Pressure Rating:
 TCMH 0450-HC-SPPS (or -SPMS)¹⁾ 1050 bar, 15,200 psi
 TCMH 0450-HC-SRPS (or -SRMS)¹⁾ 690 bar, 10,000 psi
 TCMH 0450-HC-SSPS (or -SSMS)¹⁾ 414 bar, 6,000 psi

Accuracy:

Flow: ±1 % of reading
 Mass Repeatability: ±0.5 % of reading
 Zero Stability: 0.45 kg/h, 0.0165 lb/min
 Temperature: ±1.8 °F ±0.5 % of reading
 (±1 °C ±0.5 % of reading)

Operating Conditions - Process²⁾:

Medium Temperature: -40 °F ... +212 °F (-40 °C ... +100 °C)
 Fluid: Gas
 Pressure Effect on Sensitivity: 0.0002 %/bar, 0.000014 %/psi

Operation Conditions - Environment:

Ambient Temperature: -40 °F ... +158 °F (-40 °C ... +70 °C)
 Relative Humidity: max. 95 %

Material of Construction:

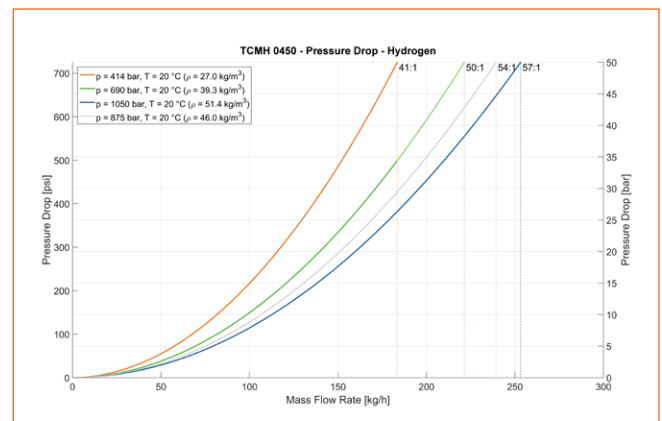
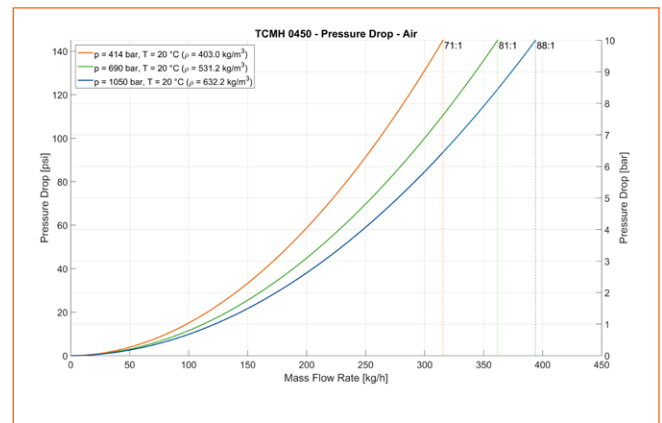
Tubes: 1.4404/AISI 316L¹⁾ or Sandvik Alloy HP160¹⁾
 Manifold: 1.4435/AISI 316L
 Housing: 1.4404/AISI 316L

Burst Protection:

Rupture Disc: G1/2"

Cabling:

Signal Cable Connection: Push-Pull connector
 For triple Ex approval (Ex3)³⁾



¹⁾ P respectively 1.4404/AISI 316L = NACE compliant, M respectively HP160 = not NACE compliant.
²⁾ Customer specific pressure compensation curves on request.
³⁾ With connector M23 (TCE) and with connector Lemo (TCM), x m cable length (TCC-06-xx).

Specification Electronics:

Power Supply: 24 V DC \pm 20 % or 90 ... 264 V AC
Housing: aluminum diecast (1.4404/AISI 316L)
Display: LCD Display

Output signals:

Analog : 2 x 4 ... 20 mA passive two-wire, galvanically free
Accuracy \pm 0.05 % of f.s.
Temperature drift 0.05 % per 10 K
Load <620 Ω (with 24 V supply)
Output value programmable
Frequency/Pulse: 5 - 10,000 Hz / Active Push-Pull for flowrate
Status: Push-Pull programmable

Input signals:

Control Input: 0/24 V DC
Analog (optional): 4 ... 20 mA active for passive 2-wire-pressure sensor
Supply >20 V (sensor current 20 mA)
Interface: RS485 RTU (Modbus), optional HART®

Ingress Protection:

IP65 (NEMA 4)
IP66 (NEMA 4X) optional

Dimensions:

Meter Dimensions: see drawing
Meter Weight: 7.5 kg/16.5 lb
Electronics Dimensions: see drawing
Electronics Weight
with aluminum diecast housing: 3.8 kg/8.3 lb
with 1.4404/AISI 316L housing: 6.15 kg/13.56 lb

Remote Field Mount



Ex-Certifications:

ATEX (Ex)	Zone 1: Group IIC, T2...T4
ATEX (Exn)	Zone 2: II 3G Ex nA IIC T2...T4 Gc
IECEX (Ex)	Zone 1: Gruppe IIC, T2...T4
cCSAus (Ex1) ⁴⁾	Class 1, Division 1: Group A, B, C, D, T2...T4
ATEX + IECEX + cCSAus triple approval (Ex3) ⁴⁾	Zone 1: Group IIC, T2...T4 and Class 1, Division 1: Group A, B, C, D, T2...T4

⁴⁾ For cCSAus the electronic is only available in aluminum housing.



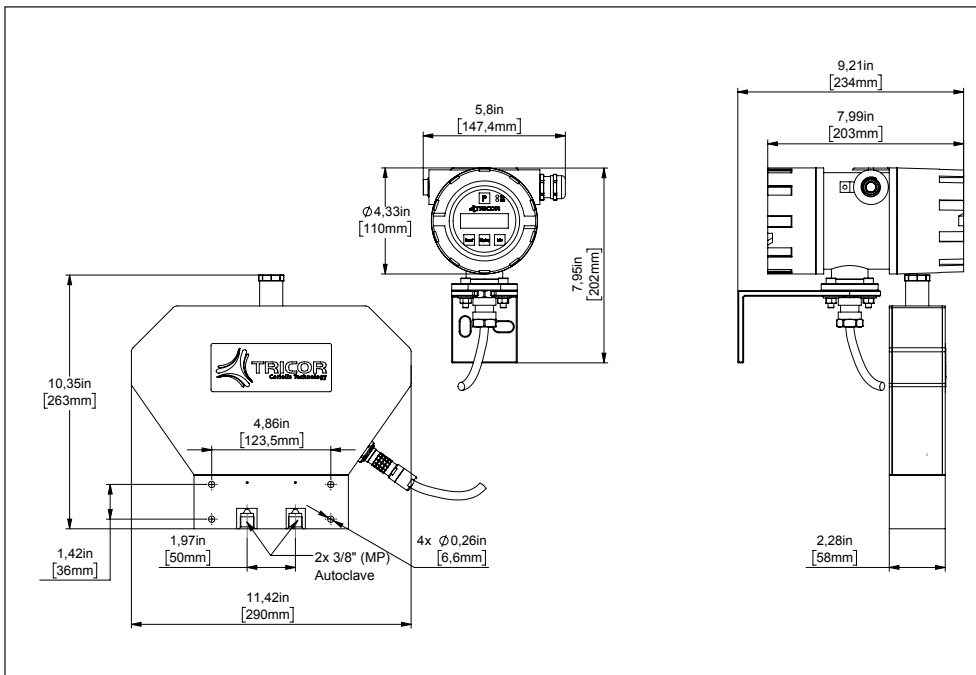
Users of explosion proof instruments should first refer to "Installation Manual for Hazardous Areas"!



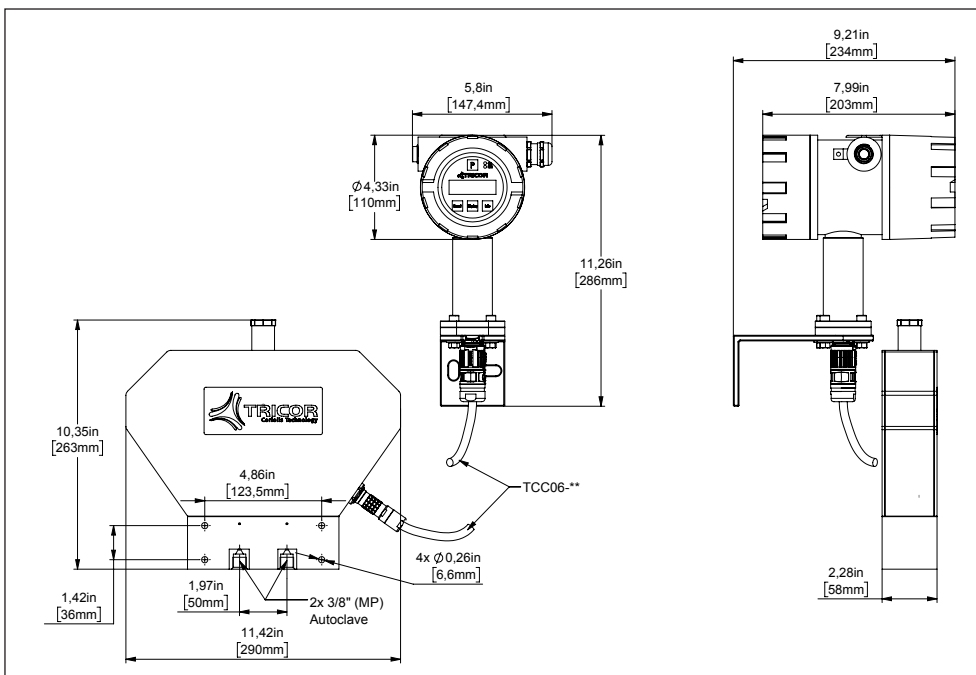
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Meter Dimensions:



Ex/Ex1



Ex3