RHM 40 – Coriolis Mass Flowmeter for medium flow rates

The RHM 40 can measure flow rates up to 90 t/hr with the patented Omega shape meter technology manufactured by Rheonik, the mass flowmeter experts.

GENERAL

The RHM 40 has been designed for medium flow rates and tough application conditions. Due to the optional heavy duty measuring pipes (up to 250 bar), this meter is suitable for a wide range of flow rates operating at higher pressure.
This unique design, which offers excellent performance and reliability, has created the most satisfied customers worlwide. Unlike other mass flowmeter manufacturers, Rheonik uses a patented torsion rod swinger with the Omega shape and support bars which results in high accuracy measurement, which is independent of pressure, even at very low flow velocities. The meter also has extremely good repeatability and high stability for critical applications.

APPLICATIONS

- Loading of boats, vessels, rail tank wagons
- High temperatures and other challenging applications
- Highly viscous media (low pressure drop and excellent performance at low flow conditions)

FEATURES

- As heavy duty version available (increased wall thickness of measuring pipes for additional safety - 250 bar)
- Patented torsion swinger
- Customer adaptations possible for application optimized solutions
- Typical measuring ranges from 15 to 1500 kg/min
- PTB/NMI custody transfer approved
- EEx Approvals ATEX/CENELEC and CSA

ADVANTAGES

- Accuracy better than 0.2%
- Repeatability better than 0.05%
- Medium flow rates in combination with high operating pressure
- Patented torsion swinger design assures most stable and drift free measurement
- Increased signal to noise ratio by torsion swinger
- Longest life time and increased safety (low stress in welds and increased wall thickness against abrasion)
- No moving parts, practically no maintenance

PERFORMANCE RHM 40

Max Flow 1500 kg/min (3300 lb/min)

1) Standard Models

Rates / turndown ratio	in kg/min	in lb/min	error in % of reading	Typical ΔP in bar (psi)		
				1 cP	100 cP	1000 cP
nominal rate Qnom:	1250	2756	0.20	0.9 (13.5)	2.2 (31.5)	8.4 (121.5)
0.2 *Qmax (5:1)	300	661	0.20	~0.1 (1.0)	0.2 (3.0)	2.0 (28.4)
0.1 *Qmax (10:1)	150	330	0.20	~0 (0.3)	~0.1 (1.5)	1.0 (14.3)
0.05 *Qmax (20:1)	75	165	0.20	~0 (0.1)	~0.1 (0.7)	0.5 (7.1)
0.02 *Qmax (50:1)	30	66	0.50	~0 (0)	~0 (0.3)	0.2 (2.8)

2) Optimized Low Flow Models (*) / optimized to be operated between 0.02 x Q_{max} and 0.4 x Q_{max}

0.4 *Qmax (1:1)	600	1323	0.20	0.2 (3.4)	0.5 (6.5)	3.9 (57.4)
0.02 *Qmax (20:1)	30	66	0.20	~0 (0)	~0 (0.3)	0.2 (2.8)

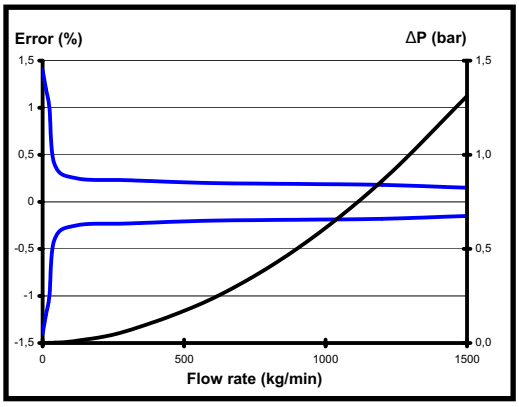
(*) serial/single path version offers the same accuracy at half the flow - 0.2% @ 15 kg/min

3) Gold Line Models / application fine tuned meters

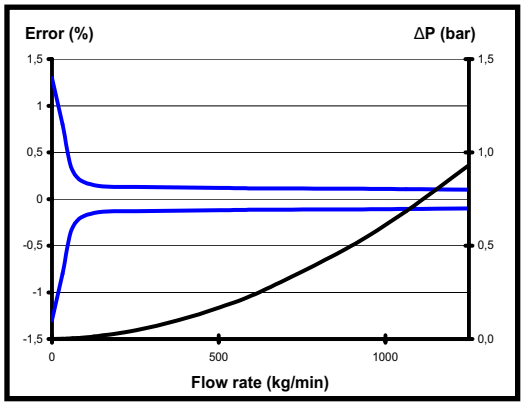
1 *Qnom (1:1)	1250	2756	0.10	0.9 (13.5)	2.2 (31.5)	8.4 (121.5)
0.2 *Qnom (5:1)	250	551	0.12	~0 (0.7)	0.2 (2.5)	1.7 (23.7)
0.1 *Qnom (10:1)	125	275	0.15	~0 (0.2)	~0.1 (1.2)	0.8 (11.8)

Repeatability better ± 0.05 % of rate
Density better than ± 0.0025 g/cc - Gold Line field adjustable to better ± 0.001 g/cc
Temperature better ± 1°C

Standard Models



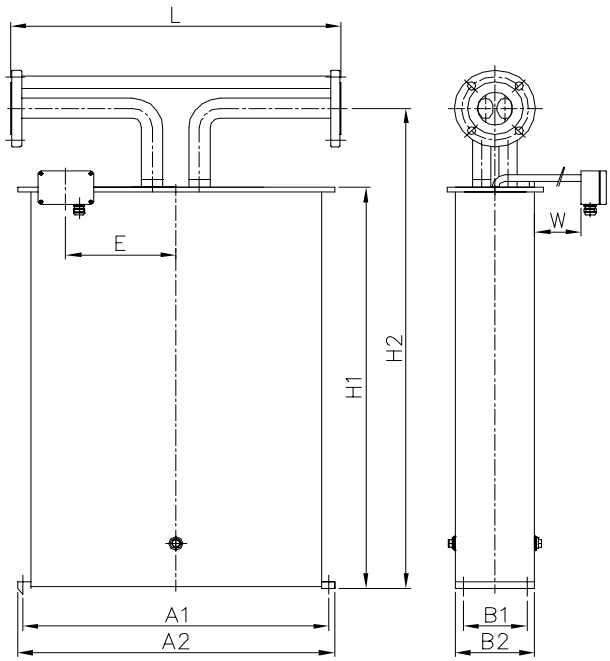
Gold Line Models



For serial (single pipe/path) sanitary design Qmax is 750 kg/min (50%)
Error of reading (including zero drift) indications refer to reference conditions H₂O, 18-24°C (66-76°F), 1-3 bar (15-45 psi)
Pressure drop refers to Newton liquids, with parallel measuring loops and sealless construction
Nominal flow refers to approx. 10 m/s (33 ft/sec) velocity in measuring loops for best performance
Calibration to customer range possible

GENERAL DIMENSIONS RHM 40

Type II (sealless welded parallel measuring loops w/o seallings)



A1 = 690 mm (27.16")
A2 = 720 mm (28.34")
B1 = 143 mm (5.63")
B2 = 180 mm (7.08")
H1 = 963 mm (37.91")
H2 = 1153 mm (45.39")
E = 250 mm (9.84")
W = 150 mm (5.91")

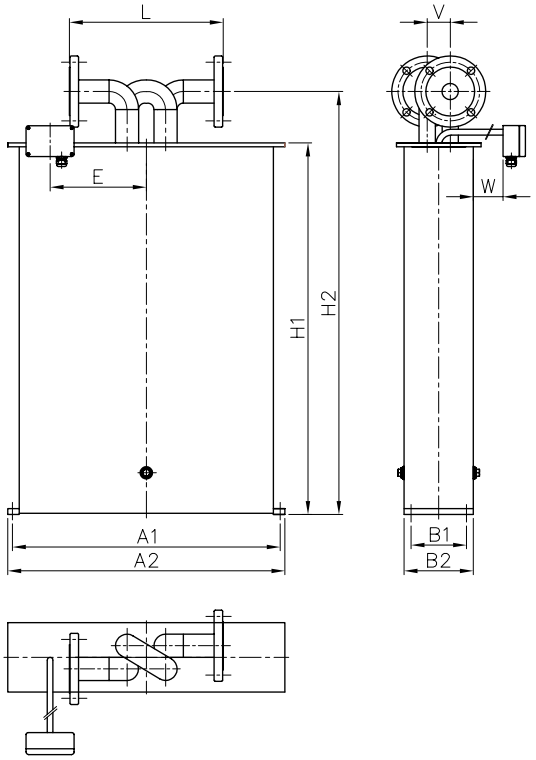
- Weight:
  approx. 140 kg (309 lb)
- Shipping box:
  approx. 160 x 120 x 65 mm
  (6.3 x 4.7 x 2.5 inch)

Process Connection		Face to face length (L)
Standard	3" / CL 150 acc. ANSI B16.5	725 mm (28.54")
	3" / CL 300 acc. ANSI B16.5	725 mm (28.54")
	3" / CL 600 acc. ANSI B16.5	725 mm (28.54")
	DN80 / PN40 acc. DIN 2527 - C	725 mm (28.54")
	DN80 / PN100 acc. DIN 2527 - E	725 mm (28.54")
Optional	3" / CL 900 acc. ANSI B16.5	725 mm (28.54")
	3" / CL 1500 acc. ANSI B16.5	725 mm (28.54")
	DN80 / PN160 acc. DIN 2527 - E	725 mm (28.54")
	DN80 / PN250 acc. DIN 2527 - E	725 mm (28.54")

Only our standard process connections are listed. Please contact your local representative for specials.

GENERAL DIMENSIONS RHM 40

Type III (sealless welded serial measuring loops w/o seallings)



A1 = 690 mm (27.16")
A2 = 720 mm (28.34")
B1 = 145 mm (5.70")
B2 = 180 mm (7.08")
H1 = 965 mm (37.98")
H2 = 1098 mm (43.22")
E = 300 mm (11.81")
W = 150 mm (5.91")
V = 60 mm (2.36")

- Weight:
  approx. 140 kg (309 lb)
- Shipping box:
  approx. 160 x 120 x 65 mm
  (6.3 x 4.7 x 2.5 inch)

Process Connection		Face to face length (L)
Sanitary fittings	2" / Sanitary Tri Clamp acc. DIN 32676	400 mm (15.74")
	DN50 / Sanitary acc. DIN 11851	400 mm (15.74")
Flange	2" / CL 150 acc. ANSI B16.5	400 mm (15.74")
	2" / CL 300 acc. ANSI B16.5	400 mm (15.74")
	DN50 / PN40 acc. DIN 2527 - C	400 mm (15.74")

Only our standard process connections are listed. Please contact your local representative for specials.

GENERAL SPECIFICATIONS RHM 40

Temperature rating

- NT Models -20 to +120°C (-4 to +248°F)
- ET1 Models -200 to +50°C (-328 to +122°F)
- ET2 Models -45 to +210°C (-49 to +410°F)
- HT Models 0 to +350°C (+32 to +662°F)

Electrical connection

- Junction box / aluminium coated (standard)
  IP 65 (Nema 4X)
- Junction box in SS on request
  IP 65
- Cable entry M25 x 1.5
  (½" and ¾" NPT optional)
- Max cable length between RHM and RHE:
  100 m (330 ft)
  200 m (660 ft) only with factory approval

Housing

- Stainless Steel standard 1.4301 / SS 304
- Protection class: IP 65 (Nema 4X)
  - higher on request -

Material of wetted parts

- 1.4571 / SS 316Ti (standard)
- 1.4539 / SS 904L on request
- Hastelloy C22 on request
- Tantalum on request
- Other materials on request

Pressure rating

- 120 bar @ 120°C (1740 psi @ 248°F)
- Optional high pressure version
  250 bar @ 120°C (3625 psi @ 248°F)

Approvals

- ATEX (CESI 02 ATEX 053 X):
  Ex II 1 G, EEx ia IIC T6-T1
- CSA (220705)
  Class I, Div 1 and 2,
  Groups A, B, C and D;Type 3
- Custody Transfer Approvals
  (PTB 1.32-97027224 and NMI TC 3382)
- PED according to directive 97/23/EC
  available

For further information
please contact your
local representative