

RHM 60 - Coriolis Mass Flowmeter for medium flow applications at high pressure

The RHM 60 can measure flow rates up to 180 t/hr with the patented Omega shape meter technology, manufactured by Rheonik, the mass flowmeter experts.



GENERAL

The RHM 60 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 becomes the first choice in many applications which have medium flow rates with high operating pressure.

This unique design, which offers excellent performance and reliability, has created the most satisfied customers worldwide. 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)
- Patented torsion swinger
- Customer adaptations possible for application optimized solutions
- Typical measuring ranges from 30 to 3000 kg/min
- PTB/NMI custody transfer approved
- EEx Approvals ATEX/CENELEC and CSA

ADVANTAGES

- Accuracy better than 0.2% accuracy
- Repeatability better than 0.05%
- Medium High 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 60

Max Flow 3000 kg/min (6610 lb/min)

1) Standard Models

Rates / turndown ratio	in kg/min	in lb/min	error in % of reading
nominal rate Q _{nom} :	2500	5512	0.20
0.2 *Q _{max} (5:1)	600	1320	0.20
0.1 *Q _{max} (10:1)	300	661	0.20
0.05 *Q _{max} (20:1)	150	330	0.20
0.02 *Q _{max} (50:1)	60	132	0.50

Typical ΔP in bar (psi)		
1 cP	100 cP	1000 cP
0.6 (8.3)	1.2 (18.3)	3.9 (56.5)
~0 (0.6)	0.1 (1.4)	0.9 (12.9)
~0 (0.1)	~0.1 (0.7)	0.5 (6.5)
~0 (0)	~0 (0.3)	0.2 (3.2)
~0 (0)	~0 (0.1)	~0.1 (1.3)

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

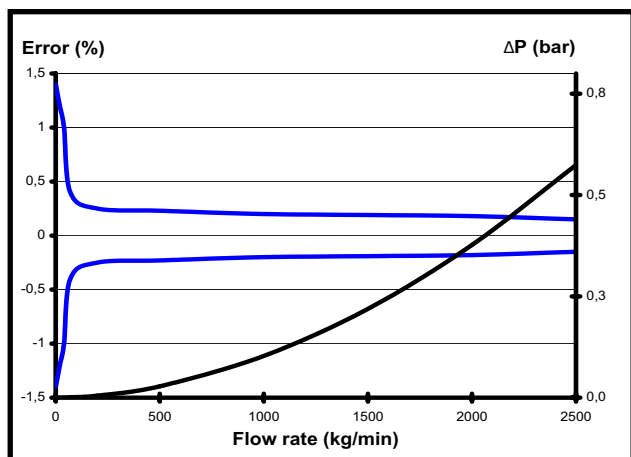
0.4 *Q _{max} (1:1)	1200	2646	0.20
0.02 *Q _{max} (20:1)	60	132	0.25

0.2 (2.1)	0.3 (4.9)	1.8 (26.2)
~0 (0)	~0 (0.1)	~0.1 (1.3)

(*) serial/single path version offers the same accuracy at half the flow - 0.25% @ 30 kg/min

Repeatability better ± 0.05 % of rate
Density better than ± 0.0025 g/cc
Temperature better ± 1°C

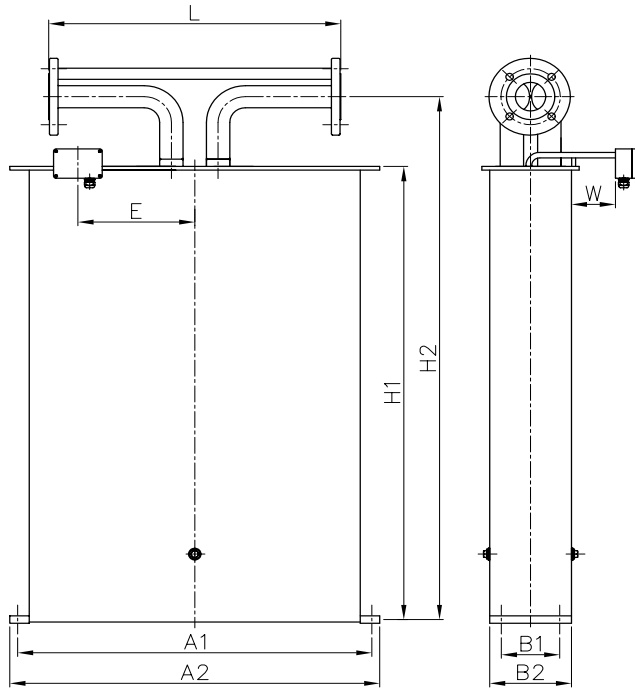
Standard Models



For serial (single pipe/path) sanitary design Q_{max} is 1500 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 60

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



A1 = 910 mm (35.83")
 A2 = 950 mm (37.40")
 B1 = 150 mm (5.91")
 B2 = 230 mm (9.06")
 H1 = 1250 mm (49.21")
 H2 = 1440 mm (56.69")
 E = 300 mm (11.81")
 W = 150 mm (5.91")

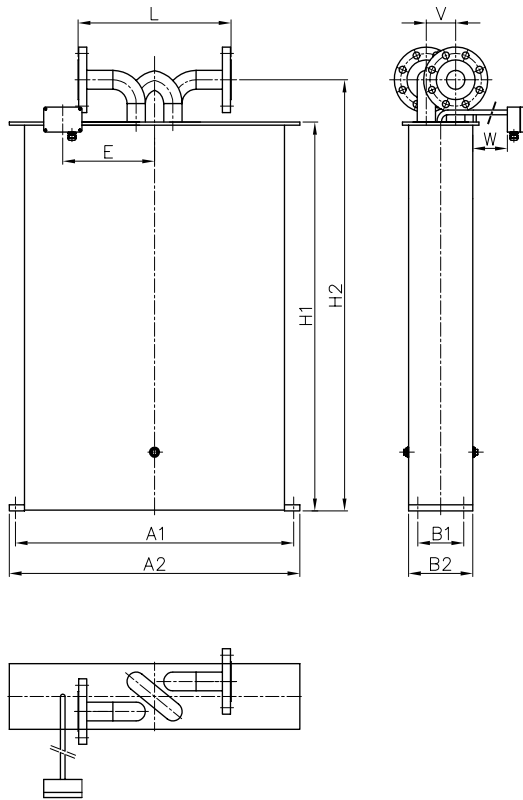
- Weight:
approx. 235 kg (518 lb)
- Shipping box:
approx. 217 x 117 x 90 mm
(8.5 x 4.6 x 3.5 inch)

	Process Connection	Face to face length (L)
Standard	4" / CL 150 acc. ANSI B16.5	725 mm (28.54")
	4" / CL 300 acc. ANSI B16.5	725 mm (28.54")
	4" / CL 600 acc. ANSI B16.5	725 mm (28.54")
	DN100 / PN40 acc. DIN 2527 - C	725 mm (28.54")
	DN100 / PN100 acc. DIN 2527 - E	725 mm (28.54")
Optional	4" / CL 900 acc. ANSI B16.5	900 mm (35.43")
	4" / CL 1500 acc. ANSI B16.5	900 mm (35.43")
	DN 100 / PN 160 acc. DIN 2527 - E	900 mm (35.43")
	DN 100 / PN 250 acc. DIN 2527 - E	900 mm (35.43")

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

GENERAL DIMENSIONS RHM 60

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



A1	= 910 mm (35.83")
A2	= 950 mm (37.40")
B1	= 150 mm (5.91")
B2	= 230 mm (9.06")
H1	= 1250 mm (49.21")
H2	= 1385 mm (54.53")
E	= 300 mm (11.81")
W	= 150 mm (5.91")
V	= 96 mm (3.78")

- Weight:
approx. 235 kg (518 lb)
- Shipping box:
approx. 217 x 117 x 90 mm
(8.5 x 4.6 x 3.5 inch)

	Process Connection	Face to face length (L)
Sanitary fittings	2" / Sanitary Tri Clamp acc. DIN 32676	500 mm (19.68")
	DN50 / Sanitary acc. DIN 11851	500 mm (19.68")
Flange	3" / CL 150 acc. ANSI B16.5	500 mm (19.68")
	3" / CL 300 acc. ANSI B16.5	500 mm (19.68")
	DN80 / PN40 acc. DIN 2527 - C	500 mm (19.68")

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GENERAL SPECIFICATIONS RHM 60

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
- Other materials optional as a special design

Pressure rating

- 100 bar @ 120°C (1450 psi @ 248°F)
- Optional high pressure version
200 bar @ 120°C (2900 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