

RHM 30 - Coriolis Mass Flowmeter for medium flow applications at high pressure

The RHM 30 can measure flow rates up to 36 t/hr with pressures up to 400 bar. This model is medium sized with true reliability for a versatile solution, [manufactured by Rheonik](#), the mass flowmeter experts.



GENERAL

The RHM 30 has been designed for medium flow rates and tough application conditions.

Due to the optional heavy duty measuring pipes (up to 400 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 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) - Operating pressure up to 400 bar
- Patented torsion swinger
- Customer adaptations possible for application optimized solutions
- Typical measuring ranges from 8 to 600 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 30

Max Flow 600 kg/min (1320 lb/min)

1) Standard Models

Rates / turndown ratio	in kg/min	in lb/min	error in % of reading
nominal rate Q _{nom} :	500	1102	0.20
0.2 *Q _{nom} (5:1)	100	220	0.20
0.1 *Q _{nom} (10:1)	50	110	0.20
0.05 *Q _{nom} (20:1)	25	55	0.20
0.02 *Q _{nom} (50:1)	10	22	0.50

Typical ΔP in bar (psi)		
1 cP	100 cP	1000 cP
0.5 (7.1)	0.8 (11.9)	6.8 (98.7)
~0 (0.3)	0.2 (2.1)	1.3 (19.2)
~0 (0.1)	~0.1 (1.1)	0.7 (9.8)
~0 (0)	~0 (0.4)	0.3 (4.9)
~0 (0)	~0 (0.3)	~0.1 (1.8)

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)	240	529	0.20
0.02 *Q _{max} (20:1)	12	26	0.20

~0.1 (1.8)	0.4 (5.1)	3.2 (46.5)
~0 (0)	~0 (0.3)	~0.2 (2.3)

(*) serial/single path version offers the same accuracy at half the flow - 0.2% @ 6 kg/min

3) Gold Line Models / application fine tuned meters

1 *Q _{nom} (1:1)	500	1102	0.10
0.2 *Q _{nom} (5:1)	100	220	0.12
0.1 *Q _{nom} (10:1)	50	110	0.15

0.5 (7.1)	0.8 (11.9)	6.8 (98.7)
~0 (0.3)	0.2 (2.1)	1.3 (19.2)
~0 (0.1)	~0.1 (1.1)	0.7 (9.8)

Repeatability

better ± 0.05 % of rate

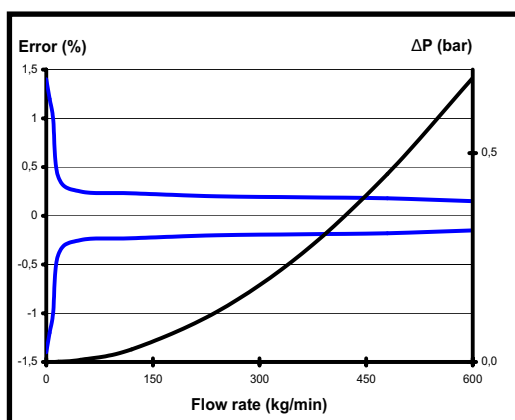
Density

better than ± 0.0025 g/cc - Gold Line: field adjustable to better ± 0.001 g/cc

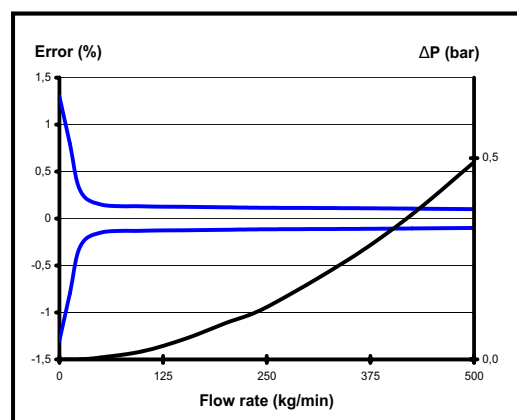
Temperature

better ± 1°C

Standard Models



Gold Line Models



For serial (single pipe/path) sanitary design Q_{max} is 300 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)

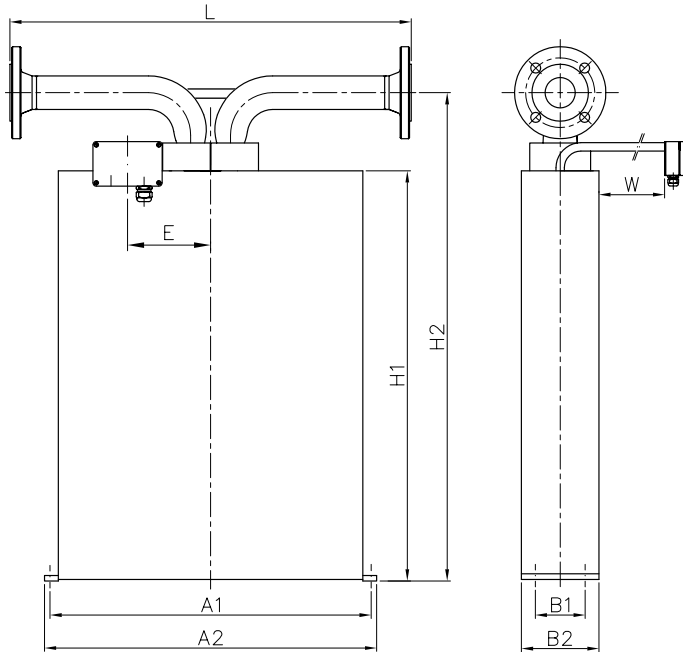
Pressure drop refers to Newton liquids, with parallel measuring loops and sealless construction

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 30

Type I (w/ removable manifold block - parallel / PTFE sealings)



A1 = 580 mm (22.84")
 A2 = 600 mm (23.62")
 B1 = 90 mm (3.54")
 B2 = 140 mm (5.51")
 H1 = 735 mm (28.94")
 H2 = 875 mm (34.45")
 E = 150 mm (5.91")
 W = 150 mm (5.91")

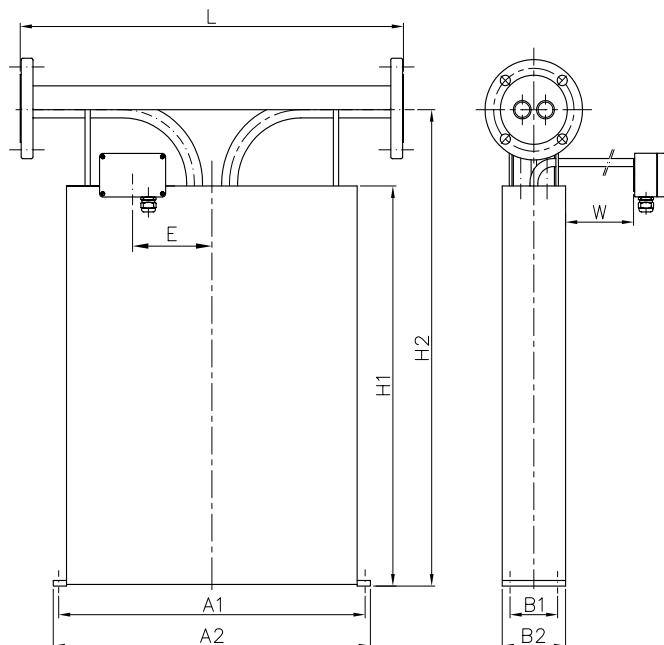
- Weight:
approx. 58 kg (128 lb)
- Shipping box:
approx. 120 x 80 x 110 mm
(4.7 x 3.2 x 4.3 inch)

	Process Connection	Face to face length (L)
Standard	2" / CL 150 acc. Ansi B16.5	725 mm (28.54")
	2" / CL 300 acc. Ansi B16.5	725 mm (28.54")
	2" / CL 600 acc. Ansi B16.5	725 mm (28.54")
	DN50 / PN40 acc. DIN 2527 - C	725 mm (28.54")
	DN50 / PN100 acc. DIN 2527 - E	725 mm (28.54")
Optional	2" / CL 900 acc. Ansi B16.5	725 mm (28.54")
	DN50 / PN160 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 30

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



A1 = 580 mm (22.84")
 A2 = 600 mm (23.62")
 B1 = 90 mm (3.54")
 B2 = 140 mm (5.51")
 H1 = 735 mm (28.94")
 H2 = 875 mm (34.45")
 E = 150 mm (5.91")
 W = 150 mm (5.91")

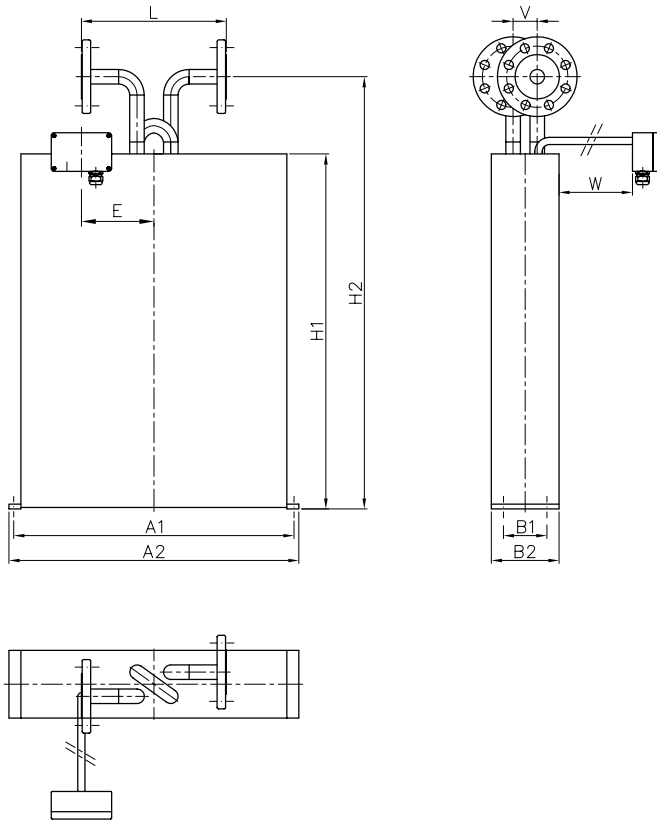
- Weight:
approx. 58 kg (128 lb)
- Shipping box:
approx. 120 x 80 x 110 mm
(4.7 x 3.2 x 4.3 inch)

	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")
	3" / CL 2500 acc. Ansi B16.5	725 mm (28.54")
	DN 80 / PN 160 acc. DIN 2527 - E	725 mm (28.54")
	DN 80 / PN 250 acc. DIN 2527 - E	725 mm (28.54")
	DN 80 / PN 320 acc. DIN 2527 - E	725 mm (28.54")

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GENERAL DIMENSIONS RHM 30

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



A1	= 580 mm (22.84")
A2	= 600 mm (23.62")
B1	= 90 mm (3.54")
B2	= 140 mm (5.51")
H1	= 735 mm (28.94")
H2	= 875 mm (34.45")
E	= 150 mm (5.91")
W	= 150 mm (5.91")
V	= 50 mm (1.97")

- Weight:
approx. 58 kg (128 lb)
- Shipping box:
approx. 120 x 80 x 110 mm
(4.7 x 3.2 x 4.3 inch)

	Process Connection	Face to face length (L)
Sanitary fittings	1 1/2" / Sanitary Tri Clamp acc. DIN 32676	300 mm (11.82")
	DN32 / Sanitary acc. to DIN 11851	300 mm (11.82")
Flange	2" / CL 150 acc. Ansi B16.5	300 mm (11.82")
	2" / CL 300 acc. Ansi B16.5	300 mm (11.82")
	DN50 / PN40 acc. DIN 2527 - C	300 mm (11.82")

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GENERAL SPECIFICATIONS RHM 30

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)
- VHT Models 0 to 400°C (+32 to +752°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

- 140 bar @ 120°C (2030 psi @ 248°F)
Optional high pressure version
- 200 bar @ 120°C (2900 psi @ 248°F)
- higher pressure on request -

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