

RHM 12 - Standard 1 inch Coriolis Mass Flowmeter

The RHM 12 can measure flow rates up to 100 kg/min with temperatures in excess of 400°C and pressures to 290 bar. This model is truly versatile solution, [manufactured by Rheonik](#), the mass flowmeter experts.



GENERAL

Owing to its typical flow range (up to 100 kg/min) and wide number of variants, the RHM 12 is suitable for many applications.

This is particularly true for batching/filling applications where this meter will satisfy your requirements.

As with all other Rheonik meters, this model is based on the patented Omega tube design with increased signal to noise ratio.

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 has also extremely good repeatability and high stability for critical applications.

APPLICATIONS

Suitable for virtually any mass flow application such as:

- Batching
- Dosing
- General flow control
- Injections
- Filling

FEATURES

The outstanding features include:

- Suitable for pressure up to 290 bar
- Nominal measuring ranges from 1 kg/min to 100 kg/min
- Accuracy better than 0.1%
- Repeatability better than 0.05%
- Optimised solutions for your batching operation
- Extra compact design with minimal space requirement

ADVANTAGES

- No pressure effect – no deterioration of accuracy due to pressure changes by the patented Omega Shape
- Patented torsion swinger design assures longest life time and increased safety (low stress in welds and increased wall thickness against abrasion)
- No moving parts – practically no maintenance
- Removable connection block
- EEx Approvals

PERFORMANCE RHM 12

Max Flow 100 kg/min (220 lb/min)

1) Standard Models

Rates / turndown ratio	in kg/min	in lb/min	error in % of reading
nominal rate Q _{nom} :	75.00	165	0.20
0.2 *Q _{nom} (5:1)	15.00	33	0.20
0.1 *Q _{nom} (10:1)	7.50	17	0.20
0.05 *Q _{nom} (20:1)	3.75	8	0.20
0.02 *Q _{nom} (50:1)	1.50	3	0.50

Typical ΔP in bar (psi)		
1 cP	100 cP	1000 cP
0.7 (10.8)	2.7 (38.1)	24.8 (360)
~0 (0.6)	0.5 (7.3)	4.9 (71.7)
~0 (0.2)	0.3 (3.6)	2.5 (35.8)
~0 (0)	0.1 (1.8)	1.3 (17.9)
~0 (0)	~0 (0.7)	0.5 (7.1)

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)	40.00	88	0.20
0.02 *Q _{max} (20:1)	2.00	4	0.20

0.2 (3.5)	1.4 (19.8)	13.3 (19.8)
~0 (0)	~0.0 (0.9)	0.7 (9.6)

(*) serial/single path version offers the same accuracy at half the flow - 0.2% @ 1 kg/min

3) Gold Line Models / application fine tuned meters

1 *Q _{nom} (1:1)	75.00	165	0.10
0.2 *Q _{nom} (5:1)	15.00	33	0.12
0.1 *Q _{nom} (10:1)	7.50	16	0.15

0.7 (10.8)	2.7 (38.1)	24.8 (360)
~0 (0.6)	0.5 (7.3)	4.9 (71.7)
~0 (0.2)	0.3 (3.6)	2.5 (35.8)

Repeatability

better ± 0.05 % of rate

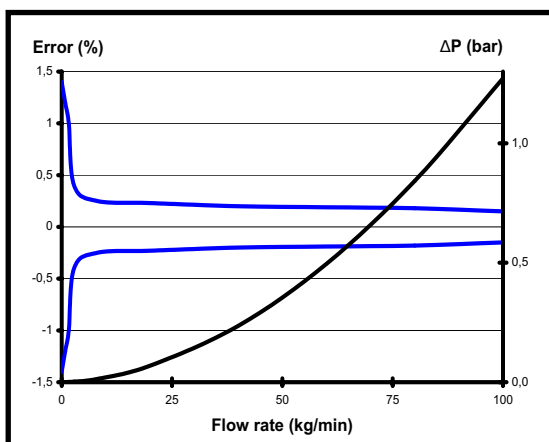
Density

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

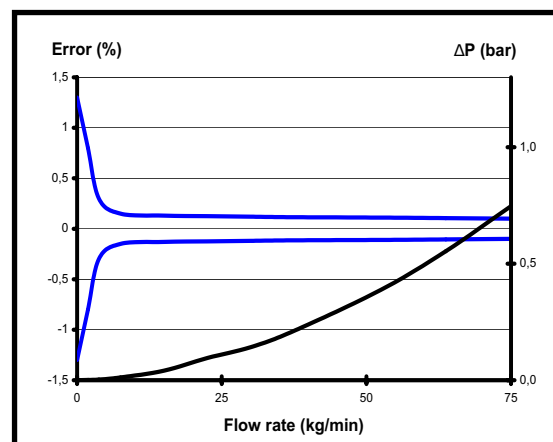
Temperature

better ± 1°C

Standard Models



Gold Line Models



For serial (single pipe/path) sanitary design Q_{max} is 50 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 block/manifold connection

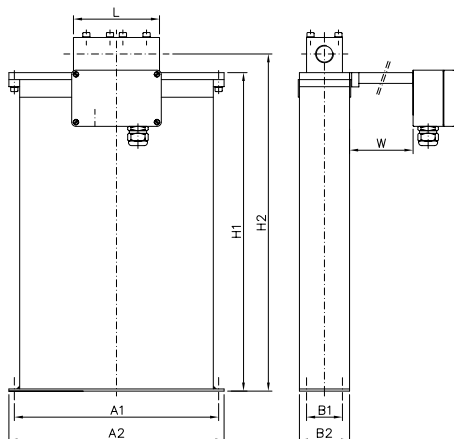
Nominal flow refers to approx. 10 m/s (33 ft/sec) velocity in measuring loops for best performance

Calibration to customer range possible

GENERAL OUTLINE DIMENSIONS RHM 12

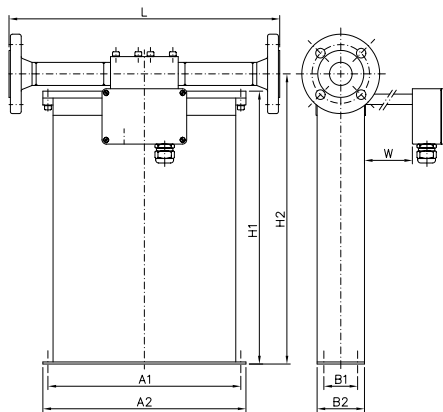
Type I (w/ removable manifold block - serial/parallel / PTFE seals)

thread type:



Weight approx. 15kg (33 lb)

flange type:



Weight approx. 18kg (40 lb)

A1=285 mm (11.22")
A2=300 mm (11.81")

B1=50 mm (1.97")
B2=70 mm (2.76")

H1=454 mm (17.87")
H2=480 mm (18.90")

W= 0 mm for standard temperature models -20 to + 120°C (-4 to + 248°F)
= 150 mm (5.90") for extended and high temperature models

Process Connection for thread type		Face to face length (L)
Standard	G ¾"	120 mm (4.73")
	NPT ¾" female	120 mm (4.73")

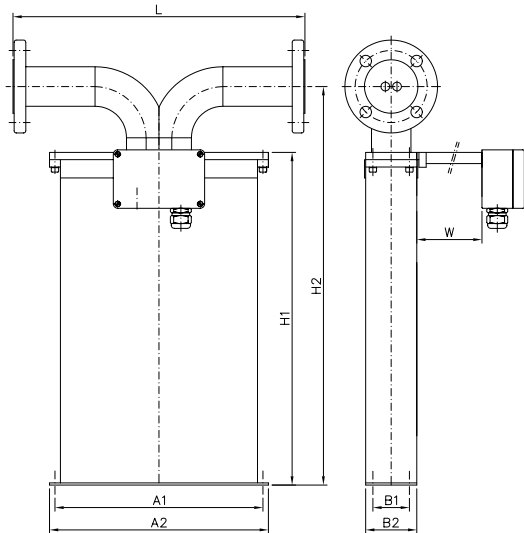
Process Connection for flange type		Face to face length (L)
Standard	1" / CL 150 acc. ANSI B16.5	400 mm (15.75")
	1" / CL 300 acc. ANSI B16.5	400 mm (15.75")
	1" / CL 600 acc. ANSI B16.5	400 mm (15.75")
	DN25 / PN40 acc. DIN 2635 - C	400 mm (15.75")
	DN25 / PN100 acc. DIN 2637 - E	400 mm (15.75")
Optional	1" / CL 900 acc. ANSI B16.5	450 mm (17.72")
	1" / CL 1500 acc. ANSI B16.5	450 mm (17.72")
	DN25 / PN160 acc. DIN 2638 - E	400 mm (15.75")
	Different sized flanges	please consult factory

Our standard seals are PTFE - Manifold block on request available without seals but with brazed connection
Above table only shows our general process fittings
For further customization with regard to special fittings and face to face length please contact your local agent

GENERAL OUTLINE DIMENSIONS RHM 12

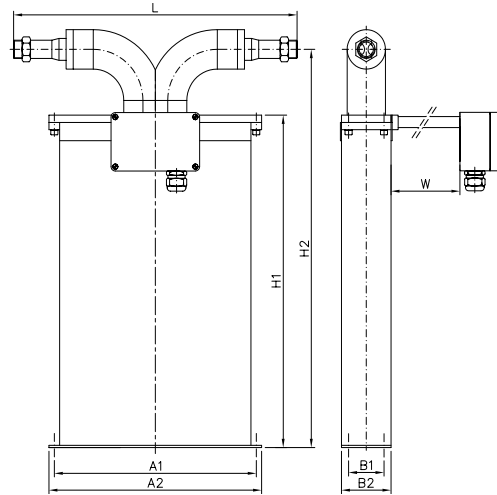
Type II (sealless welded, parallel measuring loops w/o seals)

flange type:



Weight approx. 18kg (40 lb)

special fittings:



Weight approx. 18kg (40 lb)

A1=285 mm (11.22")
A2=300 mm (11.81")

B1=50 mm (1.97")
B2=70 mm (2.76")

H1=454 mm (17.87")
H2=540 mm (21.25")

W= 0 mm for standard temperature models -20 to + 120°C (-4 to + 248°F)
= 150 mm (5.90") for extended and high temperature models

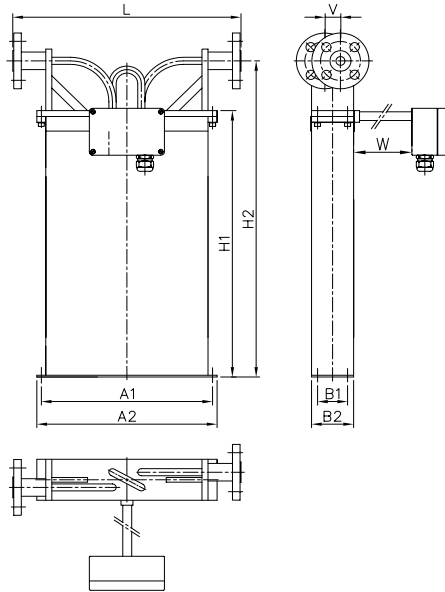
	Process Connection	Face to face length (L)
Standard	1" / CL 150 acc. ANSI B16.5	400 mm (15.75")
	1" / CL 300 acc. ANSI B16.5	400 mm (15.75")
	1" / CL 600 acc. ANSI B16.5	400 mm (15.75")
	DN25 / PN40 acc. DIN 2527 - C	400 mm (15.75")
	DN25 / PN100 acc. DIN 2527 - E	400 mm (15.75")
Optional	1" / CL 900 acc. ANSI B16.5	400 mm (15.75")
	1" / CL 1500 acc. ANSI B16.5	400 mm (15.75")
	1" / CL 2500 acc. ANSI B16.5	450 mm (17.72")
	DN25 / PN160 acc. DIN 2527 - E	400 mm (15.75")
	Different sized flanges	please consult factory
Specials	DN25 / PN250 acc. DIN 2527 - E	400 mm (15.75")
	1" Graylock or equivalent hubbs	please consult factory
	Swagelok	400 mm (15.75")

Above table only shows our general process fittings
For further customization with regard to special fittings and face to face length please contact your local agent

GENERAL OUTLINE DIMENSIONS RHM 12

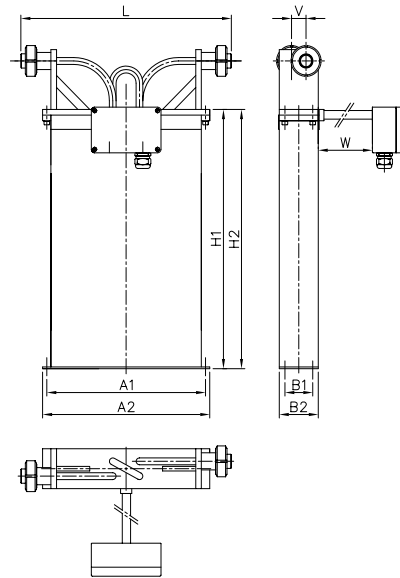
Type III (sealless welded, serial measuring loops - single path w/o seals)

flange type:



Weight approx. 18kg (40 lb)

special/sanitary fittings:



Weight approx. 18kg (40 lb)

A1=285 mm (11.22")
A2=300 mm (11.81")

B1=50 mm (1.97")
B2=70 mm (2.76")

H1=454 mm (17.87")
H2=540 mm (21.25")

V=26 mm (1.02")

W= 0 mm for standard temperature models -20 to + 120°C (-4 to + 248°F)
= 150 mm (5.90") for extended temperature models

	Process Connection	Face to face length (L)
Sanitary fittings	1" / Sanitary Tri Clamp acc. DIN 32676	350 mm (13.78")
	DN20 / Sanitary acc. DIN 11851	350 mm (13.78")
Flange	1" / CL 150 acc. ANSI B16.5	400 mm (15.75")
	1" / CL 300 acc. ANSI B16.5	400 mm (15.75")
	DN25 / PN40 acc. DIN 2527 - C	400 mm (15.75")
Optional	Different sized flanges	please consult factory

Above table only shows our general process fittings
For further customization with regard to special fittings and face to face length please contact your local agent

GENERAL SPECIFICATIONS RHM 12

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

- 190 bar @ 120°C (2755 psi @ 248°F)
- Optional high pressure version
290 bar @ 120°C (4205 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