

RHM 20 - Coriolis Mass Flowmeter for medium flow rates

The RHM 20 can measure flow rates up to 300 kg/min (660 lb/min) with temperatures in excess of 350°C and pressures up to 340 bar. This model is medium sized with true reliability for a versatile solution manufactured by Rheonik, the mass flowmeter experts.



GENERAL

Owing to its typical flow range (up to 300 kg/min) and wide number of variants, the RHM 20 is suitable for many applications.

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 swinger design 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 350 bar
- Nominal measuring ranges from 3 kg/min to 300 kg/min
- Minimal flows as low as 1.5 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 20

Max Flow 300 kg/min (660 lb /min)

1) Standard Models

Rates / turndown ratio	in kg/min	in lb/min	error in % of reading
nominal rate Q _{nom} :	300	660	0.20
0.2 *Q _{nom} (5:1)	60	132	0.20
0.1 *Q _{nom} (10:1)	30	66	0.20
0.05 *Q _{nom} (20:1)	15	33	0.20
0.02 *Q _{nom} (50:1)	6	13	0.50

Typical ΔP in bar (psi)		
1 cP	100 cP	1000 cP
0.7 (10.3)	1.3 (18.2)	10.5 (149.8)
~0.1 (0.5)	0.2 (3.1)	2.0 (29.5)
~0 (0.2)	0.1 (1.5)	1.0 (14.6)
~0 (0)	~0 (0.8)	0.5 (7.5)
~0 (0)	~0 (0.3)	0.2 (2.9)

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

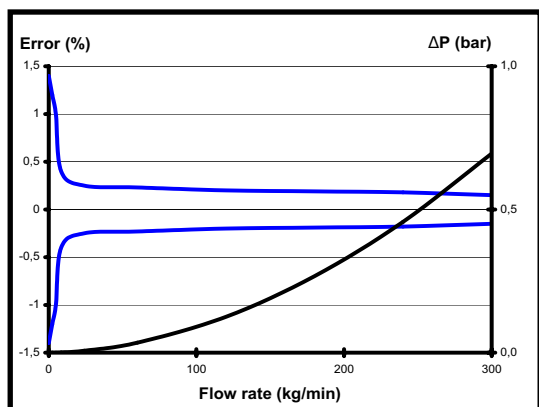
0.4 *Q _{max} (1:1)	120	265	0.20
0.02 *Q _{max} (20:1)	6	13	0.20

0.1 (1.8)	0.5 (6.5)	4.0 (59.1)
~0 (0)	~0 (0.3)	0.2 (2.9)

(*) serial/single path version offers the same accuracy at half the flow - 0.2% @ 3 kg/min

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

Standard Models

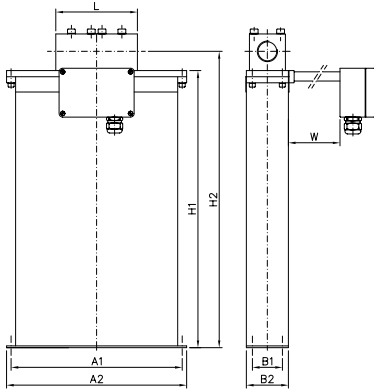


For serial (single pipe/path) sanitary design Q_{max} is 150 kg/min (50%)
 Error of reading (including zero drift) indications refer to reference conditions H₂O, 18-24°C (66-76°F), 1-3 bar (15-45 psi)
 Pressure drop refers to Newton liquids, with parallel measuring loops and block/manifold connection (low ΔP version)
 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 20

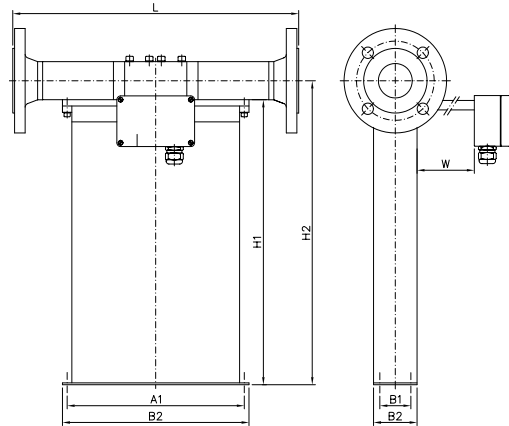
Type I (w/ removable manifold block - serial/parallel / PTFE seals)

thread type:



Weight approx. 17,5kg (8 lb)

flange type:



Weight approx. 25kg (11.5 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=485 mm (19.09")

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 1"	136 mm (5.35")
	NPT 1" female	136 mm (5.35")

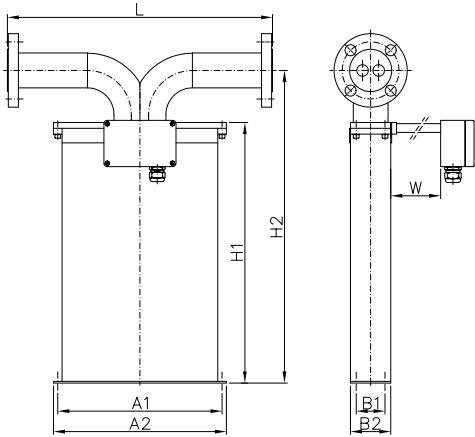
Process Connection for flange type		Face to face length (L)
Standard	2" / CL 150 acc. ANSI B16.5	460 mm (18.11")
	2" / CL 300 acc. ANSI B16.5	460 mm (18.11")
	2" / CL 600 acc. ANSI B16.5	500 mm (19.68")
	DN50 / PN40 acc. DIN 2635 - C	460 mm (18.11")
	DN50 / PN100 acc. DIN 2637 - E	500 mm (19.68")
Optional	2" / CL 1500 acc. ANSI B16.5	500 mm (19.68")
	2" / CL 2500 acc. ANSI B16.5	500 mm (19.68")
	DN25 / PN160 acc. DIN 2638 - E	500 mm (19.68")
Specials	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 20

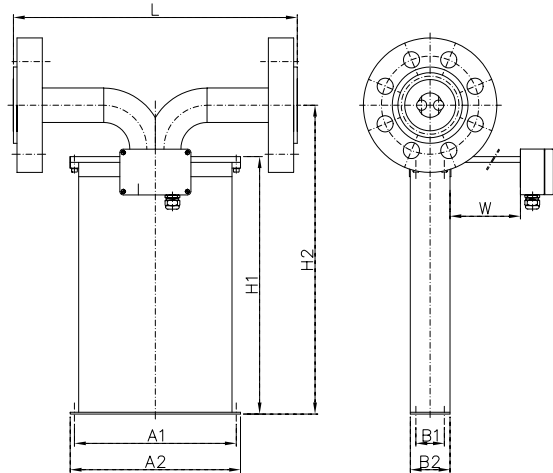
Type II (sealless welded, parallel measuring loops w/o seals)

flange type:



Weight approx. 25kg (11.5 lb)

special fittings:



Weight approx. 25kg (11.5 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

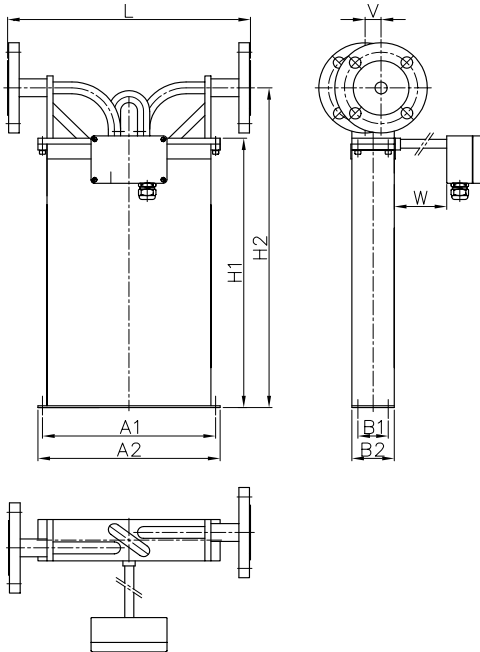
	Process Connection	Face to face length (L)
Standard	2" / CL 150 acc. ANSI B16.5	460 mm (18.11")
	2" / CL 300 acc. ANSI B16.5	460 mm (18.11")
	2" / CL 600 acc. ANSI B16.5	500 mm (19.68")
	DN50 / PN40 acc. DIN 2527 - C	460 mm (18.11")
	DN50 / PN100 acc. DIN 2527 - E	500 mm (19.68")
Optional	2" / CL 900 acc. ANSI B16.5	500 mm (19.68")
	2" / CL 1500 acc. ANSI B16.5	500 mm (19.68")
	2" / CL 2500 acc. ANSI B16.5	500 mm (19.68")
	DN50 / PN160 acc. DIN 2527 - E	500 mm (19.68")
	DN50 / PN250 acc. DIN 2527 - E	500 mm (19.68")
Specials	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 OUTLINE DIMENSIONS RHM 20

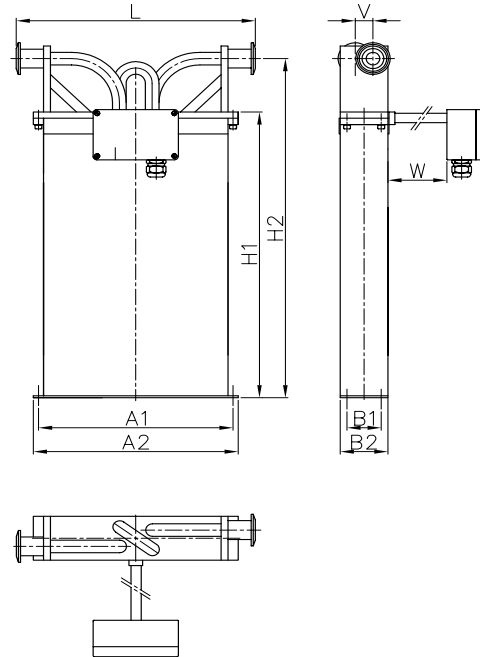
Type III (sealless welded, serial measuring loops - single path w/o seals)

flange type:



Weight approx. 25kg (11.5 lb)

special/sanitary fittings:



Weight approx. 25kg (11.5 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 20

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 material on request

Pressure rating

- 110 bar @ 120°C (1595 psi @ 248°F)
Optional high pressure version
- 225 bar @ 120°C (3260 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