

RHM 06

One of the most popular Rheonik Mass Flowmeters

The RHM 06 can measure flow rates up to 20 kg/min (44 lb/min) with temperatures in excess of 350°C and pressures up to 510 bar, manufactured by GE's Rheonik mass flowmeter experts.



Applications

- General control
- Dosing
- Mixing
- Batching
- Injections
- Filling

Features

- Suitable for pressure up to 510 bar
- Flow uncertainty down to 0.10%
- Repeatability better than 0.05%
- Unique torsion oscillator
- Typical measuring ranges from 0.25 to 20 kg/min
- Minimal flows as low as 0.15 kg/min
- Optimized solutions for batching operation
- Extra compact design with minimal space requirement
- Hazardous Area Approvals (ATEX, CSA, ...)
- Customization possible

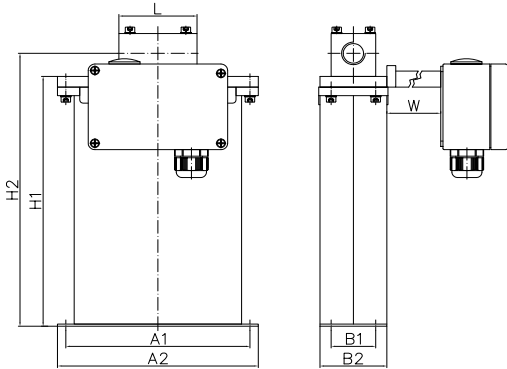
Advantages

- Torsion oscillator design assures most stable and basically drift free measurement and increased signal to noise ratio
- Not sensitive to changes in pressure
- Longest life time and increased safety (low stress in welds and increased wall thickness against abrasion)
- No moving parts, practically no maintenance
- Removable connection manifold available



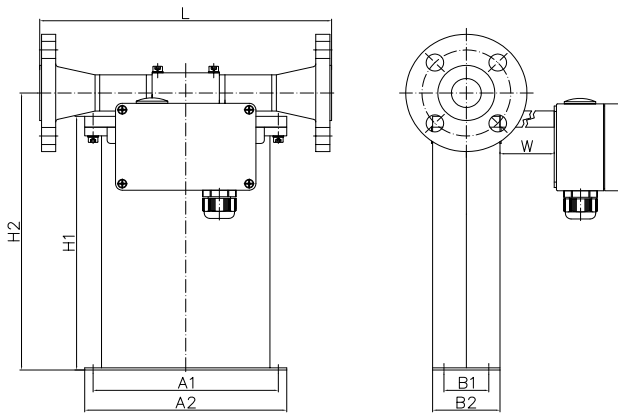
General Dimensions RHM 06

PM0/SM0 (parallel/serial, manifold construction)



Type removable manifold with PTFE seals and thread connection

	Process Connection	Face to face length (L)		Order Code
		mm	in	
Standard	Female Thread G ½"	70	2.76	G1
	Female Thread ½" NPT	70	2.76	N1



Type removable manifold with PTFE seals and flange connection

	Process Connection	Face to face length (L)		Order Code
		mm	in	
Standard	Flange DIN DN25/PN40	260	10.24	D1
	Flange DIN DN25/PN100	300	11.81	D2
	Flange ANSI 1" 150# RF/SF	260	10.24	A1
	Flange ANSI 1" 300# RF/SF	260	10.24	A2
	Flange ANSI 1" 600# RF/SF	300	11.81	A3
	Flange ANSI 1" 1500# RF/SF	350	13.78	A6
	Flange ANSI 1" 1500# RTJ	350	13.78	R1
Optional	Flange DIN DN25/PN16	260	10.24	D0
	Flange DIN DN25/PN160	300	11.81	D3
	Flange JIS RF 10k 25A (1")	260	10.24	J1
	Flange JIS RF 20k 25A (1")	260	10.24	J2

A1 = 165 mm (6.50 in)
 A2 = 180 mm (7.09 in)
 H1 = 234 mm (9.21 in)
 H2 = 255 mm (10.04 in)

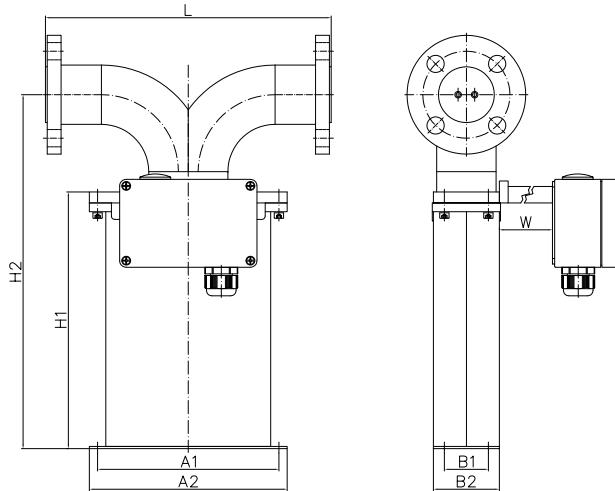
B1 = 40 mm (1.57 in)
 B2 = 60 mm (2.36 in)

Terminal box (without cable gland) 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in)
 W = 0 mm for Temperature Range T1 and TA
 W = 150 mm (5.91 in) for Temperature Range T2

For weights and packaging dimensions please see last page of this section.

General Dimensions RHM 06

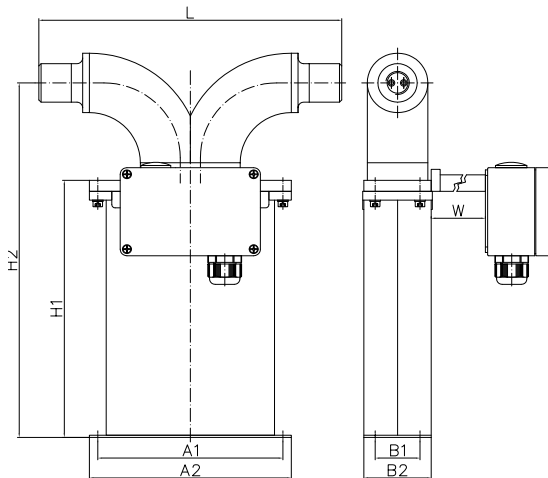
PFO (parallel, sealless construction with flange connection)



Type parallel, welded measuring loops without seals and flange connection

	Process Connection	Face to face length (L)		Order Code
		mm	in	
Standard	Flange DIN DN25/PN40	260	10.24	D1
	Flange DIN DN25/PN100	300	11.81	D2
	Flange ANSI 1" 150# RF/SF	260	10.24	A1
	Flange ANSI 1" 300# RF/SF	260	10.24	A2
	Flange ANSI 1" 600# RF/SF	300	11.81	A3
	Flange ANSI 1" 1500# RF/SF	300	11.81	A6
	Flange ANSI 1" 1500# RTJ	300	11.81	R1
	Flange ANSI 1" 2500# RF/SF	300	11.81	A8
	Flange ANSI 1" 2500# RTJ	300	11.81	R2
Optional	Flange DIN DN25/PN16	260	10.24	D0
	Flange DIN DN25/PN160	300	11.81	D3
	Grayloc Hub 1 GR 5 (1")	300	11.81	H1
	Flange JIS RF 10k 25A (1")	260	10.24	J1
	Flange JIS RF 20k 25A (1")	260	10.24	J2

PFT (parallel, sealless construction with thread connection)



Type parallel, welded measuring loops without seals and thread connection

	Process Connection	Face to face length (L)		Order Code
		mm	in	
Standard	Female Thread G ½"	270	10.63	G1
	Female Thread ½" NPT	270	10.63	N1
	Swagelok ½" Tube inlet (SS-810-1-12W)	360	14.17	W1

A1 = 165 mm (6.50 in)
 A2 = 180 mm (7.09 in)
 H1 = 234 mm (9.21 in)
 H2 = 322 mm (12.68 in)

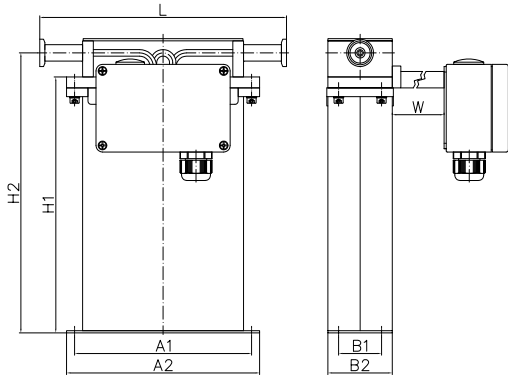
B1 = 40 mm (1.57 in)
 B2 = 60 mm (2.36 in)

Terminal box (without cable gland) 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in)
 W = 0 mm for Temperature Range T1 and TA
 W = 150 mm (5.91 in) for Temperature Range T2, T3 and T4

For weights and packaging dimensions please see last page of this section.

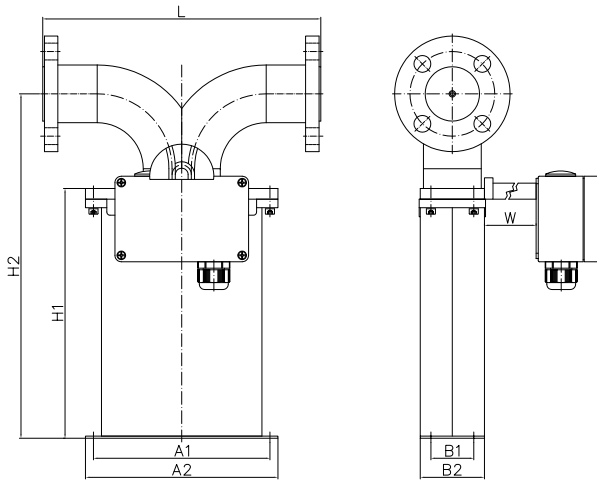
General Dimensions RHM 06

SFO (serial, sealless construction without dead spaces) (*)



Type single path, welded measuring loops without seals and sanitary connection
H2 = 255 mm (10.04 in)

	Process Connection	Face to face length (L)		Order Code
		mm	in	
Standard	Sanitary ½" Triclamp, DIN 32676	230	9.06	S1
Optional	Sanitary NW10, DIN 11851	230	9.06	S2



Type single path, welded measuring loops without seals and flange connection
H2 = 322 mm (12.68 in)

	Process Connection	Face to face length (L)		Order Code
		mm	in	
Standard	Flange DIN DN25/PN40	260	10.24	D1
	Flange ANSI 1" 150# RF/SF	260	10.24	A1
	Flange ANSI 1" 300# RF/SF	260	10.24	A2
Optional	Flange DIN DN25/PN16	260	10.24	D0

A1 = 165 mm (6.50 in)
A2 = 180 mm (7.09 in)
H1 = 234 mm (9.21 in)

B1 = 40 mm (1.57 in)
B2 = 60 mm (2.36 in)

Terminal box (without cable gland) 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in)
W = 0 mm for Temperature Range T1 and TA
W = 150 mm (5.91 in) for Temperature Range T2, T3 and T4

(*) SFO construction contains brazed joints (brazing material B-Ni82CrSiBFe-970/1000) which are not as corrosion resistant as the piping material 1.4571 (316Ti).

Weight in standard manifold construction with female threads: approx. 5 kg (11 lb)

Weight in standard sealless construction and 150# flanges: approx. 8 kg (18 lb)

Shipping in carton box approx. 50 x 50 x 50 cm (19.7 x 19.7 x 19.7 in), gross weight with sealless construction, 150# standard flanges and RHE 08 transmitter approx. 15 kg (33 lb)

Finish type of our ANSI flanges corresponds to SF (AARH 125 up to 250 µm, Ra 3.2 up to 6.3 µm)
For customization with regard to face to face length and special fittings, please consult your local agent

Please note that larger diameter process connections are always possible

Pressure Rating RHM 06

The maximum pressure (pmax) of a flow sensor is determined by its weakest part. The weakest part can be the measuring loops (pmax indicated below) or the construction type (pmax indicated in the Basic Order Code section, last page) or the selected flanges/fittings (for pmax please see respective standard).

pmax of P1 measuring loops, low DP version M1 standard material - 1.4571 (316Ti) OD x WT 6 x 0.5 mm (0.236 x 0.020 in)

bar	°C	psi	°F
202	50	2930	122
181	120	2625	248
156	210	2263	410
131	350	1900	662

pmax of P2 measuring loops M3 optional material - 2.4602 (Alloy C22) OD x WT 6 x 1 mm (0.236 x 0.039 in)

bar	°C	psi	°F
590	50	8557	122
524	120	7600	248
414	210	6005	410
358	350	5192	662

pmax of P2 measuring loops, standard M1 standard material - 1.4571 (316Ti) OD x WT 6 x 1 mm (0.236 x 0.039 in)

bar	°C	psi	°F
437	50	6338	122
380	120	5511	248
300	210	4351	410
260	350	3771	662

Performance RHM 06

Max Flow Rate Q_{max} and Q_{nom} (*) = 20 kg/min (44 lb/min)

Standard Models		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
20	44	0.20
10	22	0.20
5.0	11	0.20
1.0	2.2	0.20
0.5	1.1	0.50

Goldline Models (**) - selected sensors		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
20	44	0.10
10	22	0.10
5.0	11	0.10
2.0	4.4	0.10
1.0	2.2	0.12

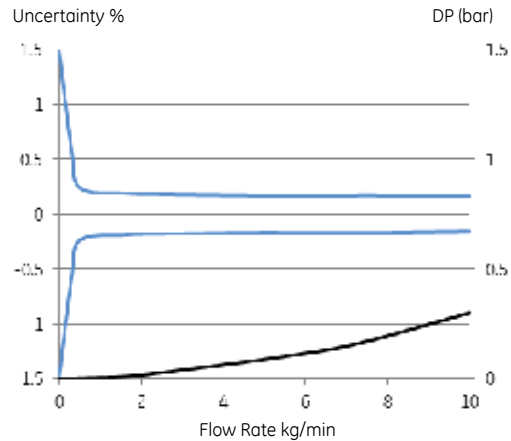
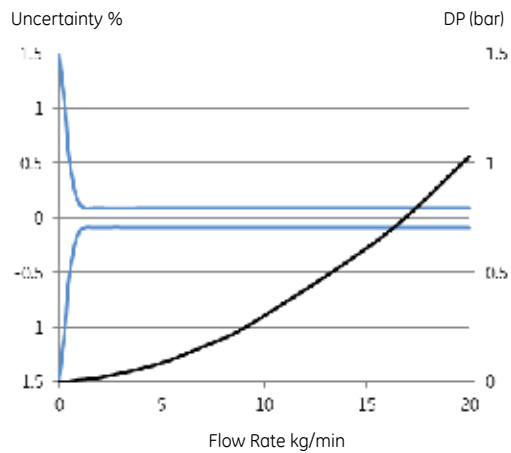
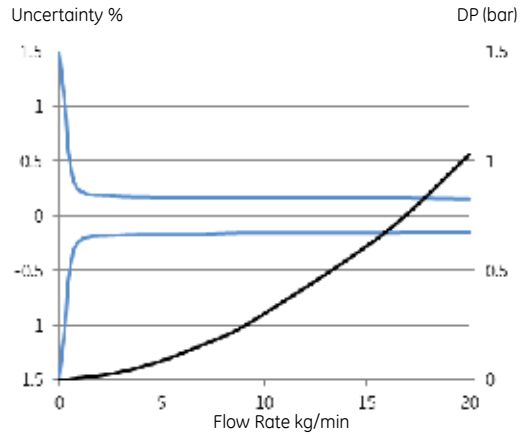
Low Flow Models (**) - selected sensors		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
10	22	0.20
5.0	11	0.20
2.0	4.4	0.20
0.5	1.1	0.20
0.3	0.7	0.60

Repeatability

Better $\pm 0.1\%$ of rate,
Goldline 0.05%

Temperature

Better $\pm 1^\circ\text{C}$



(*) Nominal flow Q_{nom} refers to roughly 8 - 10 m/s (26 - 33 ft/s) velocity in measuring loops for best performance.

(**) Selected sensors are only available in combination with temperature ranges T1, TA, standard material and pressure range.

- Serial/single path versions offer the same accuracy at half the flow (Q_{max} serial version = 10 kg/min).
- No relevant pressure effect due to torsional oscillation, semi-circle (non-deforming) measurement section.

- Uncertainty of reading (incl. zero drift) indications refer to reference conditions H_2O , 18-24°C (66 - 76°F), 1 - 3 bar (15 - 45 psi) and installation according to field manual.
- Pressure drop indications refer to H_2O , with parallel measuring loops type P1 and standard manifold block connections.
- For calibration to customer range and / or with improved uncertainty, please consult factory.

General Specifications RHM 06

Temperature Range

- NT Models from -20 to +120°C (-4 to +248°F)
 - ET Models from -45 to +120°C (-49 to +248°F)
 - ET2 Models from -45 to +210°C (-49 to +410°F)
 - T1 Models from -196 to +50°C (-320 to +122°F)
 - HT Models from 0 to 350°C (+32 to +662°F)
- (Heating for housing optional, please consult your local agent)

Electrical Connection

- Junction box Aluminium coated (standard). Junction box in SS 316Ti optional
- Cable entry M25 x 1.5. Optional cable entries M20 x 1.5, ½ NPT or ¾ NPT
- Max cable length between RHM and RHE is 100m (330 ft). 200m (660 ft) only with factory approval

Material of Wetted Parts

- 1.4571 / SS 316 Ti / UNS S31635 (standard)
- 2.4602 / Alloy C22 / UNS N06022
- Tantalum
- Others on request

Sensor Enclosure/Housing

- Stainless Steel 1.4301 / SS 304, optional in 1.4571 / SS 316Ti. Others on request
- Protection Class IP 65. Optional IP 66 / NEMA 4x

Approvals

- ATEX (CESI 02 ATEX 053 X) Ex II 1 G, EEx ia IIC T6-T1
- CSA USA-Canada, Class I, Div. 1, Groups A, B, C, D
- PED according to directive 97/23/EC Art.3 (3) Sound Engineering Practice (SEP)
- Others on request

Basic Order Code RHM 06

Sensor Size

Temperature Range

- T1 NT from -20°C to +120°C (standard)
- TA ET from -45°C to +120°C
- T2 ET2 Extended Temperature Range from -45°C to +210°C
- T3 ET1 Extended Temperature Range from -196°C to +50°C
- T4 HT High Temperature Range from 0°C to +350°C

Pressure Range of Measuring Loops @ 120°C

- P1 pmax = 181 bar, M1 Material – low DP version
- P2 pmax = 380 bar, M1 Material, max. CL 2500 (standard)

Construction Type (pmax Indications @ 120°C)

- PM0 Parallel Measuring Loops with removable Manifold and PTFE Seals, pmax = 380 bar with thread connection, 214 bar with flange connection
- SM0 Serial Measuring Loops with removable Manifold and PTFE Seals pmax = 380 bar with thread connection, 214 bar with flange connection
- PF0 Parallel Measuring Loops Seal Less Version
- SF0 Serial Measuring Loops Seal Less Version, pmax = 42.9 bar
- PFT Parallel Measuring Loops Seal Less Version for Thread Connection, pmax = 510 bar

Material of Wetted Parts

- M1 Measuring Loops and Manifold/Connection 1.4571 (316Ti) (standard)
- M3 Measuring Loops and Connection Part 2.4602 (Alloy C22), Seal Less Construction Types only
- M4 Measuring Loops and Connection Part Tantalum, PF0 Construction Type only

Process Connection

- D1 Flange DIN DN25/PN40 Form C
- D2 Flange DIN DN25/PN100 Form E
- A1 Flange ANSI 1" 150# RF/SF
- A2 Flange ANSI 1" 300# RF/SF
- A3 Flange ANSI 1" 600# RF/SF
- A6 Flange ANSI 1" 1500# RF/SF
- R1 Flange ANSI 1" 1500# RTJ
- A8 Flange ANSI 1" 2500# RF/SF
- R2 Flange ANSI 1" 2500# RTJ
- G1 Female Thread G ½"
- N1 Female Thread ½" NPT
- W1 Swagelok ½" Tube Inlet (SS-810-1-12W) – valid for SS only
- S1 Sanitary ½" Triclam, DIN 32676, pmax = 40 bar @ 120°C Others on request

RHM 06 - - - -



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