

RHM 30

Medium Sized Coriolis Mass Flowmeter

The RHM 30 can measure flow rates up to 750 kg/min (1653 lb/min) with temperatures in excess of 350°C and pressures up to 490 bar. This model is medium sized with true reliability for a versatile solution, manufactured by GE's Rheonik mass flowmeter experts.



Applications

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

Features

- Suitable for pressure up to 490 bar
- Flow uncertainty down to 0.15%
- Density uncertainty down to 0.5%
- Repeatability better than 0.05%
- Unique torsion oscillator
- Typical measuring ranges from 7.5 to 750 kg/min
- Minimal flows as low as 5 kg/min
- Optimized solutions for batching operation

- Customization possible
- Hazardous Area Approvals (ATEX, CSA, ...)

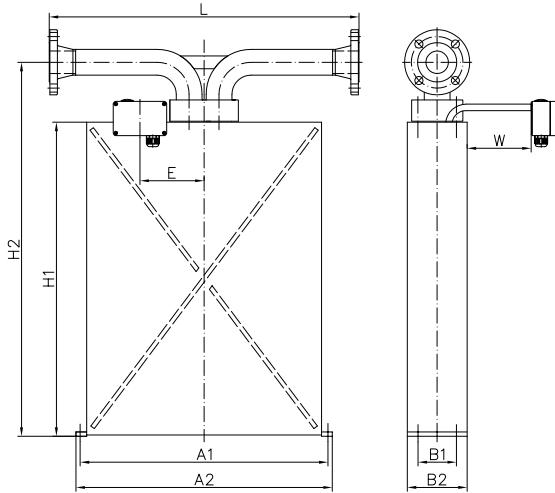
Advantages

- 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 30

PM0 (parallel manifold construction)



Type removable manifold with PTFE seals and flange connection

	Process Connection	Face to face length (L)		Order Code
		mm	in	
Standard	Flange DIN DN50/PN40	725	28.54	D1
	Flange DIN DN50/PN100	725	28.54	D2
	Flange ANSI 2" 150# RF/SF	725	28.54	A1
	Flange ANSI 2" 300# RF/SF	725	28.54	A2
	Flange ANSI 2" 600# RF/SF	725	28.54	A3
Optional	Flange ANSI 2" 600# RTJ	725	28.54	R5
	JIS B 2220 RF 10k 50A (2")	725	28.54	J1
	JIS B 2220 RF 20k 50A (2")	725	28.54	J2

A1 = 580 mm (22.83 in)
 A2 = 600 mm (23.62 in)
 H1 = 735 mm (28.94 in)
 H2 = 875 mm (34.45 in)

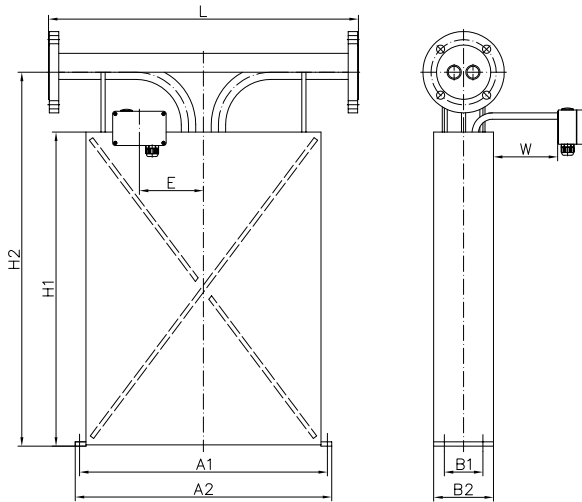
B1 = 90 mm (3.54 in)
 B2 = 140 mm (5.51 in)
 E = 150 mm (5.91 in)

Terminal box (without cable gland) 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in)
 W = 150 mm (5.91 in)

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

General Dimensions RHM 30

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 DN80/PN40	725	28.54	C1
	Flange DIN DN80/PN100	725	28.54	C2
	Flange DIN DN80/PN320	725	28.54	C4
	Flange ANSI 3" 150# RF/SF	725	28.54	F1
	Flange ANSI 3" 300# RF/SF	725	28.54	F2
	Flange ANSI 3" 600# RF/SF	725	28.54	F3
	Flange ANSI 3" 900# RF/SF	725	28.54	A4
	Flange ANSI 3" 900# RTJ	725	28.54	R2
	Flange ANSI 3" 1500# RF/SF	725	28.54	AA
	Flange ANSI 3" 1500# RTJ	725	28.54	R6
	Flange ANSI 3" 2500# RTJ	900	35.43	R3
Optional	Flange DIN DN80/PN160	725	28.54	C5
	Flange ANSI 2" 1500# RTJ	725	28.54	R4
	Flange ANSI 3" 300# RTJ	725	28.54	R0
	Flange ANSI 3" 600# RTJ	725	28.54	R1
	Flange ANSI 3" 2500# RF/SF	900	35.43	A8
	Flange ANSI 4" 150# RF/SF	725	28.54	L1
	Flange ANSI 4" 900# RF/SF	725	28.54	J3
	Grayloc Hub 4" GR23	725	28.54	H1

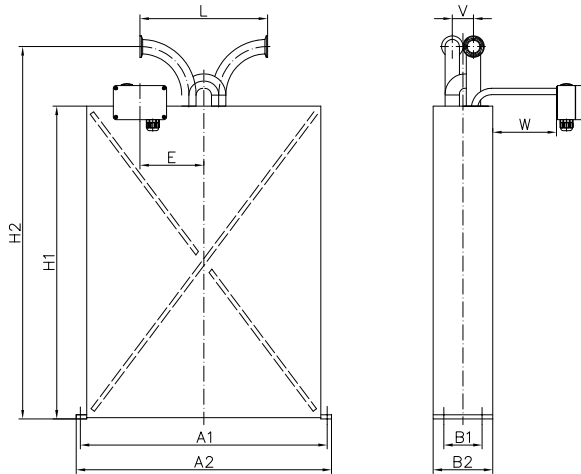
A1 = 580 mm (22.83 in)
 A2 = 600 mm (23.62 in)
 H1 = 735 mm (28.94 in)
 H2 = 875 mm (34.45 in)

B1 = 90 mm (3.54 in)
 B2 = 140 mm (5.51 in)
 E = 150 mm (5.91 in)

Terminal box (without cable gland) 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in)
 W = 150 mm (5.91 in)

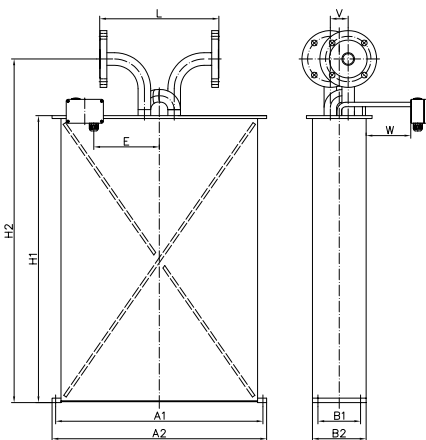
General Dimensions RHM 30

SFO (serial, sealless construction without dead spaces)



Type single path, welded measuring loops without seals and sanitary connection

	Process Connection	Face to face length (L)		Order Code
		mm	in	
Standard	Sanitary 1 1/2" Triclamp, DIN 32676	300	11.81	S1
	Sanitary NW32, DIN 11851	300	11.81	S2



Type single path, welded measuring loops without seals and flange connection

	Process Connection	Face to face length (L) (*)		Order Code
		mm	in	
Standard	Flange DIN DN80/PN40	300	11.81	C1
	Flange DIN DN80/PN100	300	11.81	C2
	Flange ANSI 3" 150# RF/SF	300	11.81	F1
	Flange ANSI 3" 300# RF/SF	300	11.81	F2
	Flange ANSI 3" 600# RF/SF	300	11.81	F3
	Flange ANSI 3" 900# RF/SF	725	28.54	A4
	Flange ANSI 3" 900# RTJ	725	28.54	R2
	Flange ANSI 3" 1500# RF/SF	725	28.54	AA
	Flange ANSI 3" 1500# RTJ	725	28.54	R6
Optional	Flange DIN DN80/PN160	300	11.81	C5
	Flange ANSI 4" 150# RF/SF	300	11.81	L1
	Flange ANSI 4" 900# RTJ	725	28.54	J3
	Flange ANSI 2" 1500# RTJ	725	28.54	R4
	Flange ANSI 3" 300# RTJ	725	28.54	R0
	Flange ANSI 3" 600# RTJ	725	28.54	R1

A1 = 580 mm (22.83 in)
 A2 = 600 mm (23.62 in)
 H1 = 735 mm (28.94 in)
 H2 = 875 mm (34.45 in)

B1 = 90 mm (3.54 in)
 B2 = 140 mm (5.51 in)
 E = 150 mm (5.91 in)
 V = 50 mm (1.97 in)

Terminal box (without cable gland) 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in)
 W = 150 mm (5.91 in)

Weight in standard parallel construction with 150# flanges: approx. 58 kg (128 lb)

Weight in standard serial construction with 150# flanges: approx. 53 kg (117 lb)

Shipping in wooden crate as per ISPM 15, approx. 125 x 85 x 60 cm (49 x 34 x 24 in), gross weight with standard parallel construction, 150# flanges and RHE 08 transmitter approx. 115 kg (254 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 30

The maximum pressure (pmax) of a 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, standard M1 standard material - 1.4571 (316Ti) OD x WT 33.7 x 2 mm (1.33 x 0.08 in)

bar	°C	psi	°F
137	50	1987	122
123	120	1784	248
106	210	1537	410
89	350	1291	662

pmax of P1 measuring loops M3 optional material - 2.4602 (Alloy C22) OD x WT 33.4 x 2.8 mm (1.32 x 0.11 in)

bar	°C	psi	°F
271	50	3931	122
239	120	3466	248
204	210	2959	410
170	350	2466	662

pmax of P2 measuring loops M1 standard material - 1.4571 (316Ti) OD x WT 33.7 x 4.55 mm (1.33 x 0.18 in)

bar	°C	psi	°F
334	50	4844	122
299	120	4337	248
258	210	3742	410
217	350	3147	662

pmax of P3 measuring loops M1 standard material - 1.4571 (316Ti) OD x WT 33.7 x 6.35 mm (1.33 x 0.25 in)

bar	°C	psi	°F
490	50	7107	122
438	120	6353	248
378	210	5482	410
319	350	4627	662

Performance RHM 30

Max Flow Rate Q_{max} = 750 kg/min (1653 lb/min) and Q_{nom} (*) = 600 kg/min (1323 lb/min)

Standard Models		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
750	1653	0.20
500	1102	0.20
100	220	0.20
35	77.2	0.20
15	33.1	0.50

Goldline Models (**)- selected sensors		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
600	1323	0.15
300	661	0.15
150	331	0.15
100	220	0.15
60	132	0.15

Low Flow Models (**)- selected sensors		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
750	1653	0.20
500	1102	0.20
35.0	77.2	0.20
15.0	33.1	0.50
10.0	22.0	0.60

Repeatability

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

Density

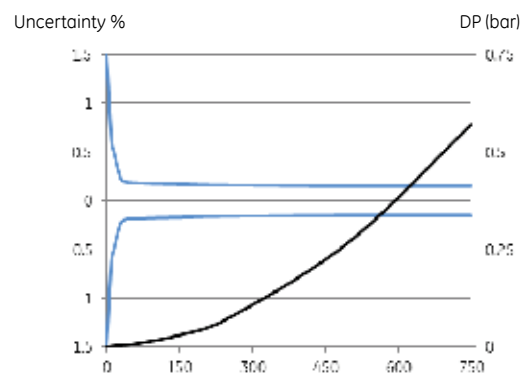
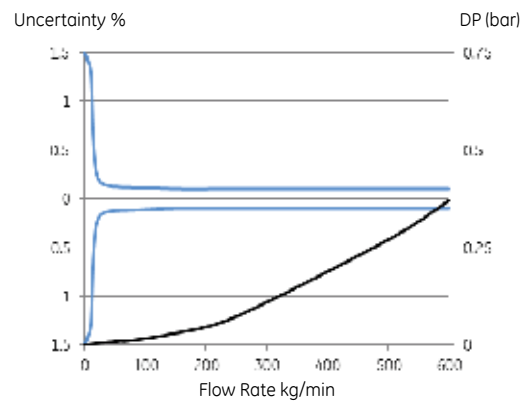
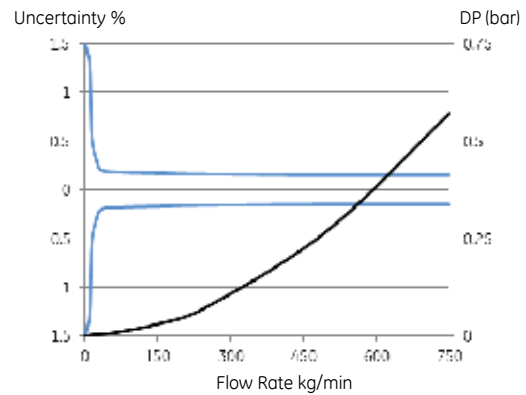
Down to 0.5% uncertainty

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 options T1, TA, standard material and pressure range.



- Serial/single path versions offer the same accuracy at half the flow (Q_{max} serial version = 375 kg/min).
- Uncertainty of reading (incl. zero drift) indications refer to reference conditions H₂O, 18-24°C (66 - 76°F), 1 - 3 bar (15 - 45 psi) and installation according to field manual.
- Pressure drop indications refer to H₂O, with parallel measuring loops type P1 and standard manifold construction type.
- For calibration to customer range and / or with improved uncertainty, please consult your local agent..

General Specifications RHM 30

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)
 - ET1 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, 1/2" NPT or 3/4" NPT
- Max cable length between RHM and RHE is 30 m (98 ft.)
Optional 100m (328 ft) with special cable

Material of Wetted Parts

- .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 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: Module A1 or Module B
+ C1 – depending on measured fluid
- Others on request

Basic Order Code RHM 30

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 and M1 material

P1	pmax = 123 bar (standard)
P2	pmax = 299 bar
P3	pmax = 438 bar

Construction Type (pmax indications @ 120°C)

PM0	Parallel Measuring Loops with removable Manifold and PTFE Seals, pmax = 130 bar
PF0	Parallel Measuring Loops Seal Less Version
SF0	Serial Measuring Loops Seal Less Version Sanitary, pmax = 262 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 only
M4	Measuring Loops and Connection Part Tantalum, PF0 Construction Type only

Process Connection

D1	Flange DIN DN50/PN40 Form C (EN 1092-1 Form B1)
D2	Flange DIN DN50/PN100 Form E (EN 1092-1 Form B2)
C1	Flange DIN DN80/PN40 Form C (EN 1092-1 Form B1)
C2	Flange DIN DN80/PN100 Form E (EN 1092-1 Form B2)
C4	Flange DIN DN80/PN320 with gaskets according DIN 2696, P3 pressure range only
A1	Flange ANSI 2" 150# RF/SF
A2	Flange ANSI 2" 300# RF/SF
A3	Flange ANSI 2" 600# RF/SF
F1	Flange ANSI 3" 150# RF/SF
F2	Flange ANSI 3" 300# RF/SF
F3	Flange ANSI 3" 600# RF/SF
A4	Flange ANSI 3" 900# RF/SF
R2	Flange ANSI 3" 900# RTJ
AA	Flange ANSI 3" 1500# RF/SF
R6	Flange ANSI 3" 1500# RTJ
R3	Flange ANSI 3" 2500# RTJ
S1	Sanitary 1 1/2" Triclamp, DIN 32676, pmax = 17.2 bar @ 120°C
S2	Sanitary NW32, DIN 11851, pmax = 40 bar @ 120°C
	Others on request

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