GE
Measurement & Control

RHM 40

Medium Sized Coriolis Mass Flowmeter

The RHM 40 can measure flow rates up to 90 t/h (3307 lb/min) with temperatures in excess of 350°C and pressures up to 257 bar. This model is medium sized and also appropriate for tough application conditions, manufactured by GE's Rheonik mass flowmeter experts..

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

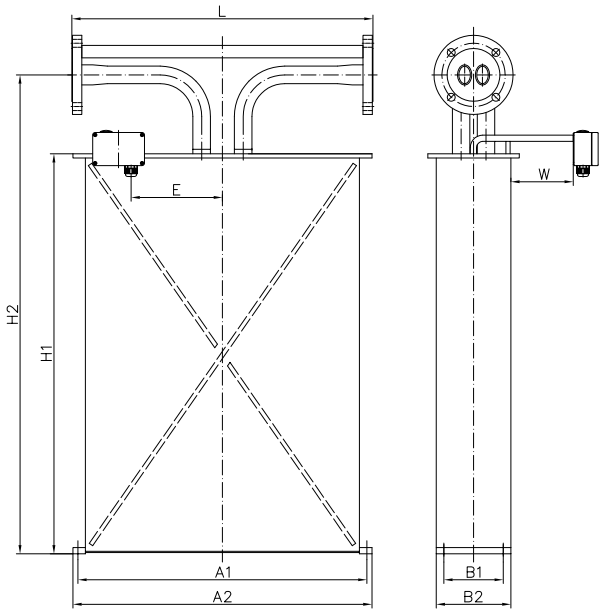
- Suitable for pressure up to 257 bar
- Flow uncertainty down to 0.15%
- Density uncertainty down to 0.5%
- Repeatability better than 0.05%
- Unique torsion oscillator
- Typical measuring ranges from 15 to 1500 kg/min
- Minimal flows as low as 13 kg/min
- Customization possible
- Hazardous Area Approvals (ATEX, CSA, ...)

Advantages

- Medium flow rates in combination with high operating pressure
- 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

General Dimensions RHM 40

PF0 (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	D1
	Flange DIN DN80/PN100	725	28.54	D2
	Flange ANSI 3" 150# RF/SF	725	28.54	A1
	Flange ANSI 3" 300# RF/SF	725	28.54	A2
	Flange ANSI 3" 600# RF/SF	725	28.54	A3
	Flange ANSI 3" 900# RTJ	725	28.54	A6
Optional	Flange DIN DN80/PN16	725	28.54	D3
	Flange DIN DN100/PN160	725	28.54	D6
	Flange DIN DN100/PN320	725	28.54	D9
	Flange ANSI 3" 1500# RTJ	725	28.54	A5
	Flange ANSI 3" 2500# RTJ	725	28.54	R3
	Flange ANSI 4" 150# RF/SF	725	28.54	A8
	Flange ANSI 4" 900# RTJ	725	28.54	R4
	Flange ANSI 4" 1500# RTJ	725	28.54	R5
	Flange JIS RF 10k 80A (3")	725	28.54	J1
	Flange JIS RF 20k 80A (3")	725	28.54	J2
	Grayloc Hub 4 GR 34 (4")	725	28.54	H4

A1 = 696 mm (27.40 in)
A2 = 720 mm (28.35 in)
H1 = 963 mm (37.91 in)
H2 = 1153 mm (45.39 in)

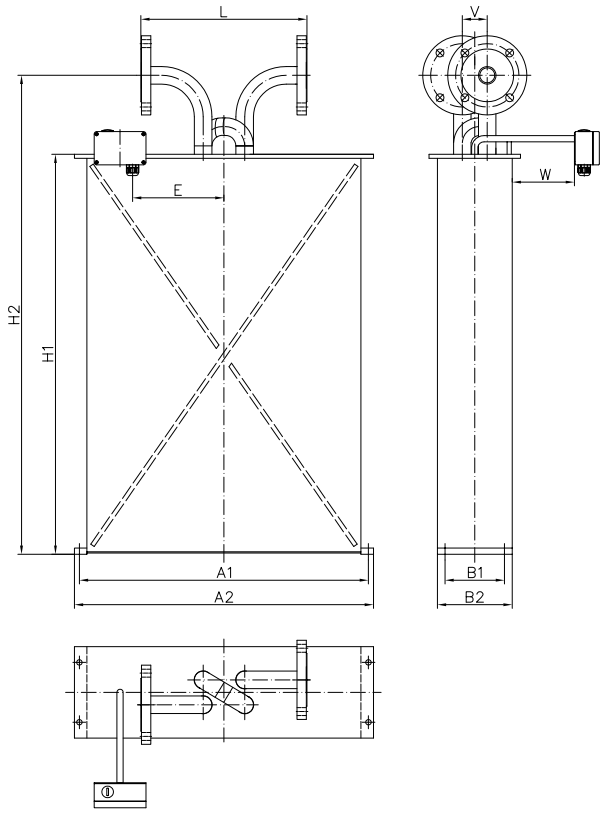
B1 = 143 mm (5.63 in)
B2 = 180 mm (7.09 in)

Terminal box (without cable gland) 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in)
E = 250 mm (9.84 in)
W = 150 mm (5.91 in)

For weights and packaging dimensions please see next page.

General Dimensions RHM 40

SF0 (serial, sealless construction without dead spaces)



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

Process Connection		Face to face length (L) (*)		Order Code
		mm	in	
Standard	Flange DIN DN80/PN40	400	15.75	D1
	Flange DIN DN80/PN100	400	15.75	D2
	Flange ANSI 3" 150# RF/SF	400	15.75	A1
	Flange ANSI 3" 300# RF/SF	400	15.75	A2
	Sanitary 2" Triclamp, DIN 32676	400	15.75	S1
	Sanitary NW50, DIN 11851	400	15.75	S2
Optional	Flange DIN DN50/PN40	400	15.75	D7
	Flange DIN DN80/PN16	400	15.75	D3
	Flange DIN DN80/PN160	400	15.75	D4
	Flange ANSI 2" 150# RF/SF	400	15.75	A7
	Flange ANSI 2" 300# RF/SF	400	15.75	A9
	Flange JIS RF 10k 80A (3")	400	15.75	J1
	Flange JIS RF 20k 80A (3")	400	15.75	J2

A1 = 696 mm (27.40 in)
A2 = 720 mm (28.35 in)
H1 = 963 mm (37.91 in)
H2 = 1153 mm (45.39 in)

B1 = 143 mm (5.63 in)
B2 = 180 mm (7.09 in)
V = 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)
E = 250 mm (9.84 in)
W = 150 mm (5.91 in)

Weight with 150# flanges: approx. 140 kg (309 lb)

Shipping in wooden crate as per ISPM 15, approx. 145 x 95 x 70 cm (57 x 37 x 28 in), gross weight with 150# flanges and RHE 08 transmitter approx. 180 kg (397 lb)

Finish type of our ANSI flanges corresponds to SF (AARH 125 up to 250 µin, 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

Pressure Rating RHM 40

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 42.4 x 3.2 mm (1.67 x 0.126 in)

bar	°C	psi	°F
164	50	2379	122
147	120	2132	248
127	210	1842	410
107	350	1552	662

pmax of P2 measuring loops
M1 standard material - 1.4571 (316Ti)
OD x WT 42.4 x 4.85 mm (1.67 x 0.191 in)

bar	°C	psi	°F
257	50	3727	122
230	120	3336	248
199	210	2886	410
167	350	2422	662

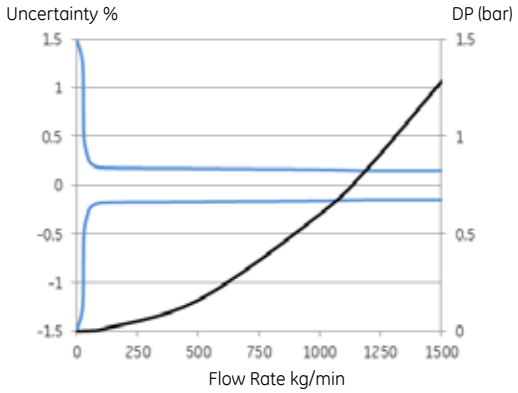
pmax of P1 measuring loops
M3 optional material - 2.4602 (Alloy C22)
OD x WT 42.4 x 3.6 mm (1.67 x 0.142 in)

bar	°C	psi	°F
253	50	3669	122
224	120	3249	248
191	210	2770	410
159	350	2306	662

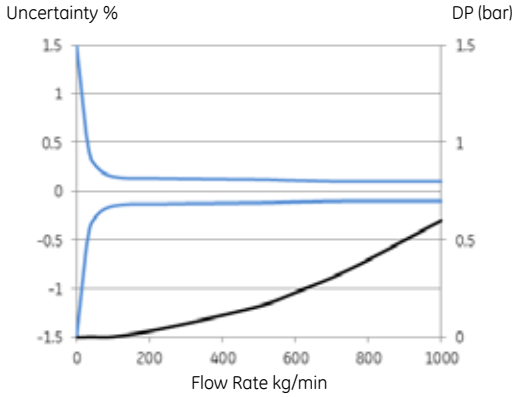
Performance RHM 40

Max Flow Rate Qmax = 1500 kg/min (3307 lb/min) and Qnom (*) = 1250 kg/min (2756 lb/min)

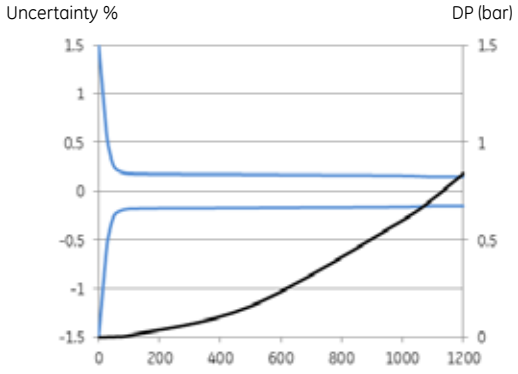
Standard Models		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
1500	3307	0.20
1200	2646	0.20
600	1323	0.20
60	132	0.20
30	66	0.50



Goldline Models (**) - selected sensors		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
1000	2205	0.15
600	1323	0.15
400	882	0.15
200	441	0.15
100	220	0.15



Low Flow Models (**) - selected sensors		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
1200	2646	0.20
600	1323	0.20
60	132	0.20
30	66	0.50
25	55	0.60



Repeatability

Better ± 0.1% of rate,
Goldline 0.05%

Density

Down to 0.5% uncertainty

Temperature

Better ± 1°C

(*) Nominal flow Qnom 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 (Qmax serial version = 750 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 H_2O, with parallel measuring loops type P1.
- For calibration to customer range and / or with improved uncertainty, please consult your local agent.

General Specifications RHM 40

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 aluminum 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 100 m (328 ft), with special cable

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 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

Order Code RHM 40

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 = 147 bar (standard)
P2	pmax = 230 bar

Construction Type (pmax indications @ 120°C)

PF0	Parallel Measuring Loops Seal Less Version
SF0	Serial Measuring Loops Seal Less Version, pmax = 149 bar

Material of Wetted Parts

M1	Measuring Loops and Connection Part 1.4571 (316Ti) (standard)
M3	Measuring Loops and Connection Part 2.4602 (Alloy C22)
M4	Measuring Loops and Connection Part Tantalum, PF0 Construction Type only

Process Connection

D1	Flange DIN DN80/PN40 Form C (EN 1092-1 Form B1)
D2	Flange DIN DN80/PN100 Form E (EN 1092-1 Form B2)
A1	Flange ANSI 3” 150# RF/SF
A2	Flange ANSI 3” 300# RF/SF
A3	Flange ANSI 3” 600# RF/SF
A6	Flange ANSI 3” 900# RTJ
S1	Sanitary 2” Triclamp, DIN 32676, pmax = 17.2 bar @ 120°C
S2	Sanitary NW50, DIN 11851, pmax = 25 bar @ 120°C
	Others on request

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