



## RHM06

Coriolis Mass Flow Meter for Low Flow Measurement in General Process Applications

### Features

- Standard pressure ratings up to 1043 bar (15127 psi)
- Temperature ratings from -196 to 350°C (-320 to 662°F)
- Mass flow uncertainty down to 0.10%
- Repeatability better than 0.05%
- Typical measuring ranges between 0.25 and 20 kg/min
- Accurately measure low flow rates down to 150 g/min
- Unique robust torsion driven oscillation system
- Process connection customization available
- Compact design with minimal footprint
- Approved for use in hazardous areas
- Stainless steel case
- Removable connection manifold version available for easy and efficient maintenance
- Remote and compact transmitter versions available

### Applications

Typical applications include:

- General Flow Control
- Additive Dosing
- Mixing and Batching
- Chemical Injection
- Package and Container Filling

### Benefits

- Torsion oscillator design assures a stable and drift free measurement with excellent signal to noise ratios
- Resilient to external noise and vibration
- Insensitive to pipe pressure changes
- Robust tube wall thickness provides increased operational safety in abrasive applications
- Long sensor life guaranteed due to low mechanical stresses in the meter mechanism
- No moving parts, no maintenance
- No moving parts to wear or fail

## RHM06 General Specifications

<b>Nominal Max Flow Range:</b>	Parallel/dual path measurement tube versions: 20 kg/min (44.1 lb/min) Serial/single path measurement tube versions: 10 kg/min (22.0 lb/min)
<b>Temperature Range:</b>	5 temperature range options cover temperatures from -196°C to 350°C (-320°F to 662°F)
<b>Pressure Ratings:</b>	Dependent upon material
<b>Electrical Connection:</b>	Cable entry M25 x 1.5 (standard) M20 x 1.5, ½" NPT, ¾" NPT (optional) Max cable length to remote RHE transmitter 100m (330 ft)
<b>Sensor Housing Materials:</b>	1.4301 / 304 stainless steel (standard), 1.4571 / 316Ti (optional) Epoxy coated aluminium electrical box (standard), 1.4571 / 316Ti stainless steel (optional)
<b>Enclosure Type:</b>	Protection class IP 65. IP 66 / NEMA 4X (optional)
<b>Material of Wetted Parts:</b>	Sensors are available in a variety of standard and custom materials to suit a wide range of pressure ratings and chemical compatibility requirements. See the pressure ratings listing in this document for further details
<b>Finishes:</b>	ANSI flange finish: AARH 125 to 250 µin, Ra 3.2 to 6.3 µm
<b>Certifications and Approvals:</b>	ATEX approval Zone 0: Ex II 1 G Ex ia IIC T1-T6 Ga ATEX rating Zone 2: Ex II 3 G Ex nA IIC T1-T6 Gc CSA USA-Canada, Class I, Div. 1, Groups A, B, C, D PED according to 97/23/EC Art.3 (3) Sound Engineering Practice (SEP)
<b>Documentation:</b>	All sensors are supplied with a traceable calibration certificate. Optional documentation items available: - Traceable material certificates - Certificates of origin and conformity - Welding - NACE - Quality - Production and manufacturing procedures Other documentation to client requirements available
<b>Proof Testing:</b>	Hydrotest, dye penetrant, x-ray, PMI
<b>Options:</b>	Enclosure heating matrix for high temperature applications

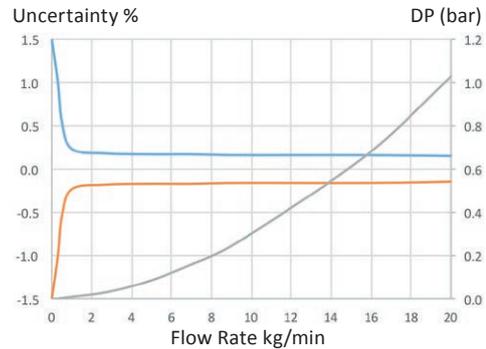
## Transmitter Range



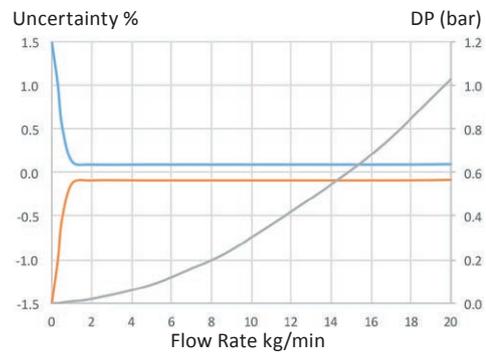
Any Rheonik Mass Flow Transmitter model can be combined with an RHM06 sensor to provide an overall mass flow measurement system to suit any requirement. Rheonik Coriolis transmitters are available in versions specifically designed for process, industrial and OEM applications. Together they offer a tremendous range of options for system designers and end users alike.

## RHM06 Measurement Performance

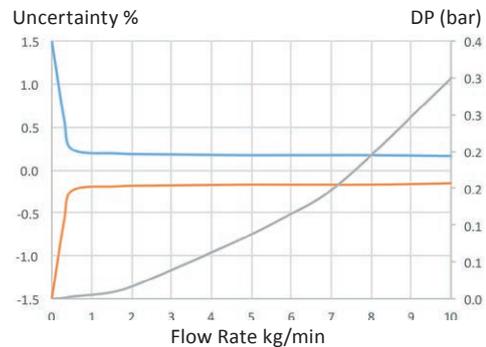
Standard Calibration		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
20.0	44.1	0.20
10.0	22.0	0.20
5.0	11.0	0.20
1.0	2.2	0.20
0.5	1.1	0.50



Goldline Calibration*		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
20.0	44.1	0.10
10.0	22.0	0.10
5.0	11.0	0.10
1.0	2.2	0.10
0.5	1.1	0.12



Low Flow Calibration*		
Flow Rate		Uncertainty
kg/min	lb/min	in % of reading
10.0	22.0	0.20
5.0	11.0	0.20
2.0	4.4	0.20
0.5	1.1	0.20
0.3	0.7	0.60



\*Goldline and Low Flow Calibration is not available with all configurations of the RHM06. Please check with factory.

Mass Flow Calibration Options	
A	50:1 Standard Calibration – 0.5% Uncertainty between 20 and 0.5 kg/min
B	20:1 Standard Calibration – 0.2% Uncertainty between 20 and 1 kg/min
C	1:20 Calibration – 0.2% Uncertainty between 0.5 and 10 kg/min
G	20:1 Goldline Calibration – 0.12% Uncertainty between 20 and 1 kg/min
P	10:1 Goldline Calibration – 0.10% Uncertainty between 20 and 2 kg/min
1	Low Flow Calibration – 0.2% Uncertainty between 0.5 and 10 kg/min, 0.6% between 0.3 and 0.5 kg/min

**Flow Measurement Repeatability**    **Temperature**  
 Standard ± 0.1% of rate                      Better than ± 1°C  
 Goldline ± 0.05% of rate

- Uncertainty of reading (incl. zero drift) stated at reference condition of: H<sub>2</sub>O, 18-24°C (66-76°F), 1-3 bar (15-45 psi) when installed according to field manual
- Pressure drop indications are based upon H<sub>2</sub>O flowing in a meter with P1 pressure rating and PM0 (parallel measuring tubes with manifold block) construction
- Serial path versions offer the same accuracy performance at half the flow (Nominal max. flow range of serial versions = 10 kg/min). Pressure drop will be greater
- For customized calibration range and/or uncertainty levels, please consult factory

## RHM06 Pressure Ratings

The maximum pressure ( $P_{max}$ ) of a sensor is determined by its lowest rated part. The lowest rated part can be either the measuring tube ( $P_{max}$  indicated below), the construction type ( $P_{max}$  indicated in the Part Number Code section, last page) or the process connection (for  $P_{max}$  see published standards or manufacturer information).

## RHM06 Measurement Tube Pressure Ratings

Pressure Code	Material Code	Material	$P_{max}$				
			bar	psi		°C	°F
P1 (Low pressure drop)	M1 (std.)	1.4571 (316Ti) UNS S31635	202	2930	@	50	122
			181	2625	@	120	248
			156	2263	@	210	410
			131	1900	@	350	662
P1 (Low pressure drop)	M3***	2.4602 (Alloy C22) UNS N06022	279	4046	@	50	122
			246	3567	@	120	248
			210	3045	@	210	410
			175	2538	@	350	662
P2 (std.)	M1 (std.)	1.4571 (316Ti) UNS S31635	437	6338	@	50	122
			380	5511	@	120	248
			300	4351	@	210	410
			260	3771	@	350	662
P2	M3***	2.4602 (Alloy C22) UNS N06022	590	8557	@	50	122
			524	7600	@	120	248
			414	6005	@	210	410
			358	5192	@	350	662
P2	M4*	Tantalum UNS R05200	225	3263	@	50	122
			173	2509	@	120	248
			140	2030	@	210	410
P2	10**	1.4410 (Super Duplex) UNS S32750	1043	15127	@	50	122
			915	13271	@	120	248
			827	11995	@	210	410
P2	62**	1.4462 (Duplex) UNS S31803	833	12082	@	50	122
			730	10588	@	120	248
			639	9268	@	210	410

\*Only with T1, TA, T2 temperature range (note max. operating temp. is 150°C) and PF0 construction type (max. ANSI 600/PN100).

\*\*Only with T1, TA, T2 temperature range (note min. temp. is -40°C) and PF0 construction type.

\*\*\* Only with seal-less construction types.

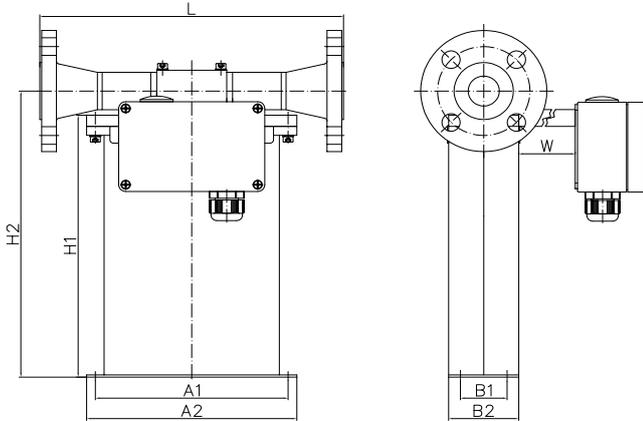
## Other Materials

Additional/custom wetted materials (Inconel, Monel, 304 stainless steel, others) may be possible for chemical compatibility, lower pressure drop, abrasion allowance, other application specific requirements.

Contact factory with specification for assessment and availability.

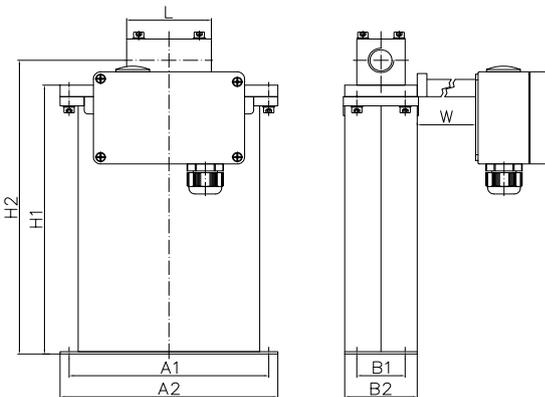
## RHM06 Mechanical Construction

**PM0/SM0:** Serial or parallel measuring tubes with flange connection and removable manifold with PTFE seals



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

**PM0/SM0:** Serial or parallel measuring tubes with female thread connection and removable manifold with PTFE seals



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

The sensor is manufactured with two internal measurement tubes arranged side by side. In parallel or dual path sensors, these tubes are connected in parallel and the flowing fluid is split equally between them. In serial or single path sensors, the tubes are connected end to end creating a single path through which all fluid flows. For customization of face to face length and/or special fittings other than the ones listed on this page, please consult factory. *Note that larger diameter flange process connections are always possible.*

### Common Dimensions

A1 = 165 mm (6.50 in)    A2 = 180 mm (7.09 in)    B1 = 40 mm (1.57 in)    B2 = 60 mm (2.36 in)    H1 = 234 mm (9.21 in)    H2 = 255 mm (10.04 in)

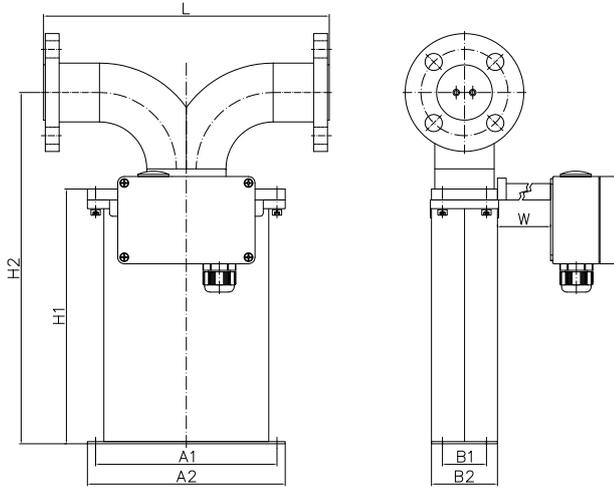
W: temp. range T1, TA = 0 mm (0 in), temp. range T2 = 150 mm (5.91 in)

Electrical box: std. = 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in), RHE16 compact = 120 x 120 x 80 mm (4.72 x 4.72 x 3.15 in)

For weights and packaging dimensions please see last page of the Mechanical Construction section.

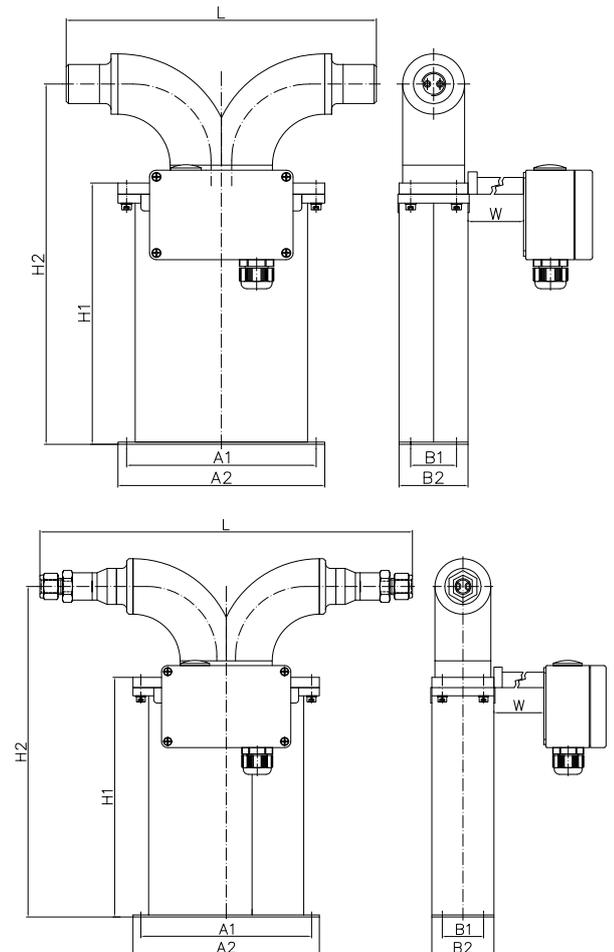
## RHM06 Mechanical Construction

**PFO:** Seal-less parallel measuring tube construction with flange connections



Process Connection	Face to face length (L)		Order Code
	mm	in	
ANSI 1" 150# RF	260	10.24	A1
ANSI 1" 300# RF	260	10.24	A2
ANSI 1" 600# RF	300	11.81	A3
ANSI 1" 1500# RF	300	11.81	A6
ANSI 1" 2500# RF	300	11.81	A8
ANSI 1" 1500# RTJ	300	11.81	R1
ANSI 1" 2500# RTJ	300	11.81	R2
DIN DN25/PN16	260	10.24	D0
DIN DN25/PN40	260	10.24	D1
DIN DN25/PN100	300	11.81	D2
DIN DN25/PN160	300	11.81	D3
JIS RF 10k 25A (1")	260	10.24	J1
JIS RF 20k 25A (1")	260	10.24	J2
Grayloc 1" GR5 Hub	300	11.81	H1

**PFT:** Seal-less parallel measuring tube construction with thread and compression fitting connections



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

The sensor is manufactured with two internal measurement tubes arranged side by side. In parallel or dual path sensors, these tubes are connected in parallel and the flowing fluid is split equally between them. For customization of face to face length and/or special fittings other than the ones listed on this page, please consult factory. *Note that larger diameter flange process connections are always possible.*

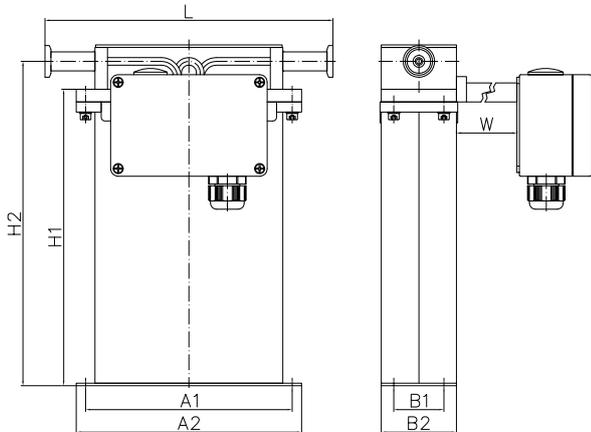
### Common Dimensions

A1 = 165 mm (6.50 in)    A2 = 180 mm (7.09 in)    B1 = 40 mm (1.57 in)    B2 = 60 mm (2.36 in)    H1 = 234 mm (9.21 in)    H2 = 322 mm (12.86 in)  
 W: temp. range T1, TA = 0 mm (0 in), temp. range T2, T3, T4 = 150 mm (5.91 in)  
 Electrical box: std. = 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in), RHE16 compact = 120 x 120 x 80 mm (4.72 x 4.72 x 3.15 in)

For weights and packaging dimensions please see last page of the Mechanical Construction section.

## RHM06 Mechanical Construction

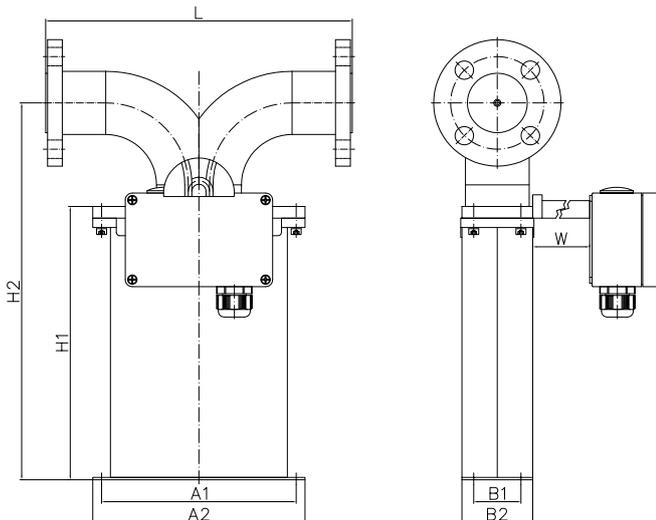
**SFO:** Seal-less serial measuring tube construction with sanitary connections\*



H2 = 255 mm (10.04 in)

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

**SFO:** Seal-less serial measuring tube construction with flange connections\*



H2 = 322 mm (12.86 in)

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

The sensor is manufactured with two internal measurement tubes arranged side by side. In serial or single path sensors, the tubes are connected end to end creating a single path through which all fluid flows. For customization of face to face length and/or special fittings other than the ones listed on this page, please consult factory.  
*Note that larger diameter flange process connections are always possible.*

### Common Dimensions

A1 = 165 mm (6.50 in)    A2 = 180 mm (7.09 in)    B1 = 40 mm (1.57 in)    B2 = 60 mm (2.36 in)    H1 = 234 mm (9.21 in)

W: temp. range T1, TA = 0 mm (0 in), temp. range T2, T3, T4 = 150 mm (5.91 in)

Electrical box: std. = 125 x 80 x 58 mm (4.92 x 3.15 x 2.28 in), RHE16 compact = 120 x 120 x 80 mm (4.72 x 4.72 x 3.15 in)

\*SFO meters contain brazed joints. Brazing material is B-Ni82CrSiBFe-970/1000. Customer should confirm that this material is suitable/acceptable for their process.

\*\*P<sub>max</sub> for sanitary fittings is 40 bar (580 psi) @ 120°C (248°F).

### Weights and Shipping Dimensions

Typical weight for standard manifold construction (PM0/SM0) sensor with female threads: approx. 5 kg (11 lb).

Typical weight for standard seal-less construction (PF0/SFO) sensor with 150# flanges: approx. 8 kg (18 lb).

RHM06 sensors typically ship in a carton approx. 60 x 41 x 32 cm (24 x 16 x 13 in) complete with transmitter and cable.

Typical gross shipping weight example: RHM06 seal-less construction sensor with 150# flanges c/w RHE08 transmitter approx. 15 kg (33 lb).

