Cancoppas LIMITED

IMC Coppas Québec Ltée.

Rheonik Coriolis Mass Flowmeters



When you need quality process measurement, control and environmental instrumentation - Challenge us to find your solution

OVERVIEW

CORIOLIS FORCE AND THE RHEONIK RANGE



Metering asphalt at 360°C and 93 bar

The Coriolis effect was initially discovered by Gustave Gaspard Coriolis around 1835 and can be explained as the inertial force exerted on an object as a result of movement relative to a rotating frame of reference. It is an extension of the Newtonian theory. Since its discovery it has been applied to ballistic missile trajectories, hydraulics, machine performance, ergonomics, ocean and atmospheric circulation.

The use of coriolis force as a technique for liquid and gas mass flow measurement has been firmly established for over 20 years. During this time a number of different configurations and technological signal processing advances have been made. Cancoppas Limited is at the forefront with the Rheonik range. It is worth noting that only the Rheonik range has all of the capabilities listed below.

- **Measurement of liquids, sludges, suspensions and gases**
- **Flow rates from 0.03 kg/h to 1,500,000 kg/h**
- **Diameters up to 12 inch / DN300**
- **Pressure over 890 bar**
- **Temperature from -200°C to +400°C**
- **Available in EEx ia IIC - EEx de IIC, Class 1 Div. 1& 2 Group A,B,C,D**
- **Fiscal approval (OIML R117)**
- **Measurement of multiphase flow and erratic flow profiles**
- **Unaffected by viscosity, density and pressure pulsations**
- **Density measurement**
- **Available in Stainless Steel, Hastelloy, Monel and Tantalum**



The Rheonik range is characterised by its unique and patented omega tube element, which allows the most challenging of applications to be solved. The omega tube has a torsional or swinging movement, rather than the bending motion traditionally associated with Coriolis, this allows increased tube wall thickness, which means exceptional resistance to abrasion, operation under high pressures, plus it eliminates the requirement for a secondary containment associated with other element designs.



Metering Oxygen

SPECIFICATION

TECHNICAL DATA FOR RHEONIK CORIOLIS MASS FLOWMETER RHM..

Type	Typical measuring range[2]		Nominal rate	Pressure rating[7]	Standard process connections	
	Parallel (lb/min)	Serial (lb/min)	Parallel (lb/min)	For temperature up to 248°F (psi)	Threaded[1/3]	Flanged
RHM015(4)	0.008 - 1.3 [5]	0.004 - 0.6 [5]	1.3	4350 (5800)	NPT 1/4"	DN15/ 1/2"
RHM03	0.22 - 11	0.11 - 5.5	11	(2175) 4350	NPT 1/4"	DN15/ 1/2"
RHM04	0.44 - 22	0.22 - 11	22	2175	NPT 1/4"	DN15/ 1/2"
RHM06	1.10 - 55	0.55 - 27.5	44	(2755) 5510	NPT 1/2"	DN25/ 1"
RHM08	2.2 - 110	1.10 - 55	110	4200	NPT 1/2"	DN25/ 1"
RHM12	4.4 - 220	2.20 - 110	165	2755 (4200)	NPT 3/4"	DN25/ 1"
RHM15	8.8 - 440	4.40 - 220	330	2175 (4350)	NPT 3/4"	DN25/ 1"
RHM20	13 - 660	6.60 - 330	660	1595 (3260)	NPT 1"	DN50/ 2"
RHM30	26 - 1320	13 - 660	1100	2175 (3260)	NPT 1½"	DN50/ 2"
RHM40	66 - 3305	33 - 1650	2755	580 (3625[6])	-	DN80/ 3"
RHM60	132 - 6610	66 - 3305	5510	580 (2900[6])	-	DN100/ 4"
RHM80	350 - 17,635	175 - 8810	11,020	580 (1450[6])	-	DN150/ 6"
RHM100	530 - 26,450	-	22,040	580	-	DN200 / 8"
RHM160	1100 - 55,115	-	50,705	580	-	DN300/ 12"

(1) Others available on request
(2) Only for standard meters Special ranges available on request
(3) Standard version with PTFE seal ing up to RHM 30, different sizes available
(4) Types RHM 007 and 01 are replaced by RHM 015
(5) With extra calibration: parallel 0.004 - 1.3 [lb/min] (options on request) serial 0.002 - 0.6 [lb/min]
(6) Max. pressure rating of tube (fitting to be clarified)
(7) Pressure rating in (…) refers to Heavy Duty or Special versions
* Only selected models available as Gold Line - check with us

For the selection of a suitable meter size, considering the relevant pressure drop etc., please contact us.

Accuracy*

Range 1:20	± 0,2 % of rate and better*
Range 1:50 (RHM015 1:100)	± 0,5 % of rate and better*
Repeatability	better than ± 0,1 % of rate *
Gold Line Models fine tuned for your application:	
Range 1: 5	± 0,10 % of rate and better*
Range 1:10	± 0,15 % of rate and better*
Repeatability	better than ± 0,05 % of rate *

***Accuracy, Repeatability** refers to reference conditions incl. zero drift
(Reference conditions: H2O, 14 psi, -4°F - regarding accuracy, range is turn dow from nominal flow rate)
Special calibration and fine tuning to customer flow range possible

Pressure rating

According to above table (for normal temperature version)
Please note: pressure ratings decrease with higher temperature rating
Higher pressure ratings are available on request (up to 14500 psi)

Temperature range

	RHM type	Temperature in °C	Temp. class (for EEx ia IIC version)
Normal	NT	-20 to +120°C	T4 - T6
Extended 1	ET1	-200 to +50°C	T6 (Ex-approval for T > -45°C only)
Extended 2	ET2	-45 to +210°C	T3 - T6
High	HT	0 to +350	T1 - T6
Very High	VHT	0 to +400°C	No EEx / only selected sizes

Material of wetted parts

Standard 1.4571 (316 Ti) or 1.4539 (904 L)
Hastelloy, Tantalum, Monel, Inconnel and others available on request

Above data table covers the standard program only!
Please specify your special requirements

SPECIFICATION

TECHNICAL DATA FOR REMOTE UNITS



RHE 01.03

Plastic housing for wall mounting
Protection class: IP54
Power supply: 230/115VAC, 24VDC
Dimensions: 190x190x140mm



RHE 06/06F+ (EEx [ia] IIC)

Alum. housing painted, for wall mounting
Protection class: IP64
Power supply: 220, 110 VAC
Dimensions: 200x200x110mm
RHE06F has NM/OIML custody tranfer approval

Basic version is microprocessor based with free scalable pulse output via rotary switches. Outputs include flow pulse, error, flow direction (status outputs also indicated via LED). These units can be configured for very fast response time (up to 60ms, depending on sensor type).
*The RHE 06F+ has double pulse output with 90°C phase shift.

These remote transmitters are easy to program and provide self-diagnosis of set up parameters in plain English. Features include low flow cutoff, response time, in-/outputs, units, etc. All settings are stored in a non-volatile memory, with all in/outputs being galvanically isolated (digital outputs via open collector photocoupler).



RHE 07 (EEx [ia] IIC optional)

Rack version (1/3 19" - 28TE 3HE)
Protection class: IP20
Power supply: 230/115VAC, 24VDC
Dimensions: 28TEx3HEx250mm
RHE07F has NM/OIML custody tranfer approval



RHE 08 (EEx [ia] IIC)

Alum. housing painted, for wall mounting
Protection class: IP64
Power supply: 230/115VAC, 24VDC
Dimensions: 207x148x302mm



RHE 11 (EEx de [ia] IIC)

Plastic housing for wall mounting
Protection class: IP65
Power supply: 230/115VAC, 24VDC
Dimensions: 244x225x200mm

General data for all remote units:

Temperature range:	-20 to 50°C
Power consumption:	< 15 watt
Power supply:	230/115 VAC +/- 10%, 50-60Hz 24 VDC +/- 10%
EEx (ia) IIC version:	RHE 06, RHE 06F+, RHE 07 and RHE 08 remote units have to be installed outside of hazardous area RHM can be installed in hazardous area
EEX de (ia) IIC:	RHE 11 can be installed in the hazardous area

RHE 07, 08

Programming: Free programmable via 3 push-buttons, µP based remote unit
Analogue outputs: 2 programmable 0/4-20 mA (Flow, density, temperature, volume) Galvanically isolated, max. load <1000 Ohm, Accuracy +0.05% of full scale
Digital outputs: 1 frequency- or pulse output (0-10000 Hz, max. 30V/50mA), 3 status outputs (limit, error/alarm, flow direction etc.)
Digital inputs: 2 status inputs (zeroing, hold totalizer, tot. reset, quit error/alarm)
RS422/485: Serial interface (as option). Remote units with RS485 interface HART can be addressed in a 4-wire DIN-bus, Profibus-DP converter available - for RHE 07 no HART available
LCD display: 2 lines with each 16 digits (digit height 8mm)

RHE 11

Programming: Via 3 photo sensors behind the glass cover
Analogue outputs: 2 programmable analogue outputs
Digital outputs: 1 frequency- or pulse output
Digital inputs: 1 status output 1 status input o.R.
RS422/485: If serial interface RS 422 (option) will be activated, status in- and outputs cannot be used
LCD display: 2 lines with each 16 digits (digit height 4mm)

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