ELCMF 200

CORIOLIS MASS FLOW METER

ELECTRONET

Features

- Flow accuracy: ±0.2% Optional ±0.1%
- Diameter: 15NB to 50NB
- Flow repeatability: ±0.1
- Density measuring: 0.3 to 3.000g/cm³
- Density accuracy: ±0.002g/cm³

Description

ELCMF-200 Coriolis mass flow meter is designed according to Coriolis principle. It is a leading precision flow and density measurement solution offering the most accurate and repeatable mass flow measurement for virtually any process fluid, with exceptionally low pressure drop. Coriolis flow meters are considered to be true mass flow meters because they tend to measure mass flow directly, while other flow meter techniques measure volume flow.

Therefore, Coriolis mass flow meters are widely used in chemical, pharmaceutical, energy, rubber, paper, food and other industrial sectors, and are quite suitable for batching, loading and custody transfer.

Advantages

It has high measurement accuracy, standard accuracy 0.2%; And the measurement is not affected by the physical properties of the medium. Coriolis type flow meter provide a direct mass flow measurement without the addition of external measurement instruments. While the volumetric flow rate of the fluid will vary with changes in density, the mass flow rate of fluid is independent of density changes.

There is no moving parts to wear and need to be replaced. These design features reduce the need for routine maintenance. The Coriolis mass flow meter is insensitive to viscosity, temperature and pressure. The Coriolis flow meter can be configured to measure positive or reverse flow. Flow meters are operated by flow characteristics such as turbulence and flow distribution. Therefore, upstream and downstream direct pipe operating requirements and flow regulation requirements are not required.

The Coriolis flow meter does not have any internal obstacles, which may be damaged or blocked by viscous slurry or other types of particulate matter in the flow. It can take measurement of high viscosity fluids, such as crude oil, heavy oil, residual oil and other liquids with higher viscosity..

Application

- Accurate measurement of medium and high pressure gases, such as CNG oil and gas.

  High viscosity materials, such as asphalt, heavy oil and grease.
- Petroleum, such as crude oil, coal slurry, lubricant and other fuels.
- Micro-flow measurements, such as fine chemical and pharmaceutical industries;
- Easy to solidified materials, such as asphalt.
- Suspended and solid particulate matter materials, such as cement slurry and lime slurry.

Technical Specifications

Flow accuracy	±0.2% Optional ±0.1%
Diameter	15 NB to 50 NB
Flow repeatability	±0.1
Density measuring	0.3 to 3.000g/cm³
Density accuracy	±0.002g/cm³
Temperature measuring range	-200 to 300°C (Standard Model -50 to 200°C)
Temperature accuracy	+/-1°C
Output of current loop	4-20mA; Optional signal of flow rate/Density/Temperature
Output of frequency/pulse	0-10000HZ; Flow signal (Open collector)
Communication	RS485, MODBUS protocol
Power supply of transmitter	18-36VDC power < 6W
Flow Tube Protection class	IP-68
Material	Measuring tube SS316L housing:SS304
Pressure rating	4.0Mpa (Standard pressure)
Explosion-proof	Exd(ia) IIC T6Gb
Ambient temperature	-20 to -70°C
Environment humidity	5% to 95% RH at 25°C

TABLE : Dimensional Details

Line Size	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
DN 15	270	180	250	60	210
DN 20	350	200	260	60	210
DN 25	586	450	360	80	210
DN 40	556	500	650	140	210
DN 50	556	500	650	140	210

TABLE : Coriolis Mass Flow Meter Flow Range

Line Size	Flow Range (kg/h)	Zero stability, kg/h		
		0.2%	0.15%	0.1%
DN 15	0-3000-4200	0.63	0.42	0.42
DN 20	0-6000-7800	1.17	0.78	0.78
DN 25	0-10200-13500	2.025	1.35	1.35
DN 40	0-30000-36000	5.4	3.6	3.6
DN 50	0-48000-60000	9	6	6

Assembly Overview - Integral

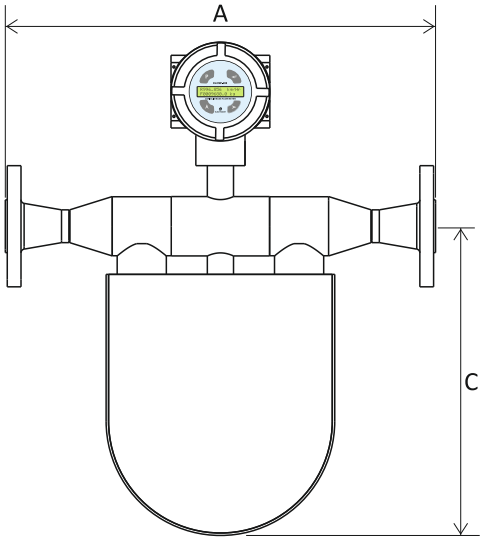

Fig. 1 Front View

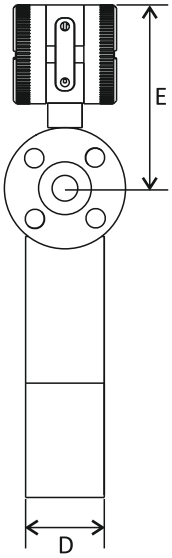

Fig. 2 Side View

Assembly Overview - Remote

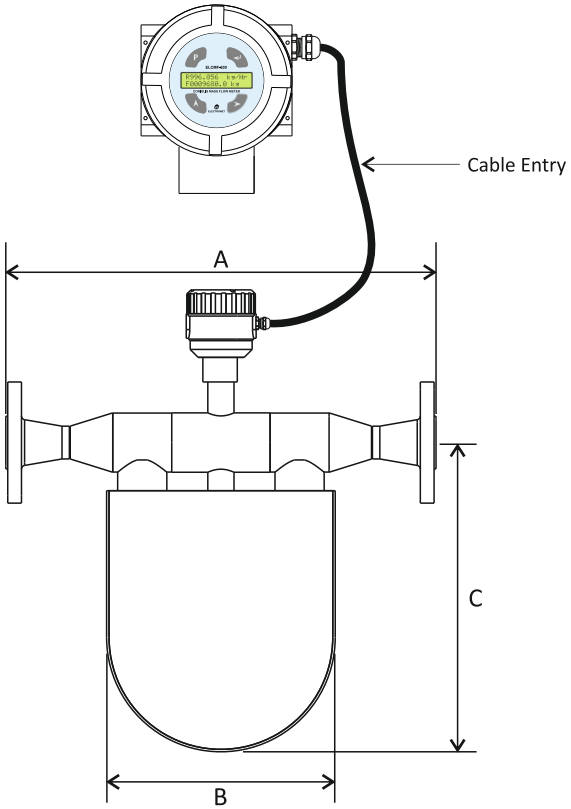

Fig. 3 Front View

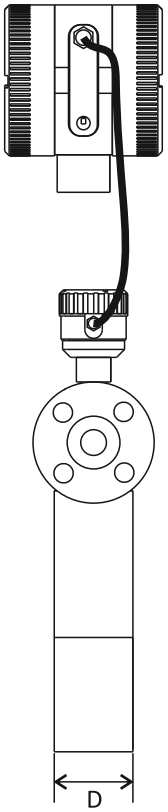

Fig. 4 Side View

Installation

Basic Requirements on installation

1. Flow direction should be in accordance with ELCMF-200 sensor flow arrow.

2. Properly supporting is required for preventing tubes vibrating.

3. If a strong pipeline vibration is inevitable, it is recommended to use a flexible tube to isolate the sensor from the pipe.

4. Flanges should be kept parallel and their center points should be located on the same axis to avoid subsidiary force generation.

5. Installation vertically, make the flow from the bottom up when measuring, meanwhile, the meter should not be installed on the top to prevent air getting trapped inside the tubes.

Installation Direction

In order to ensure the reliability of the measurement, the ways of installation should consider the following factors:

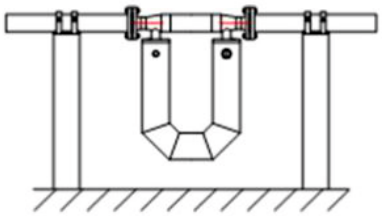

Figure 1

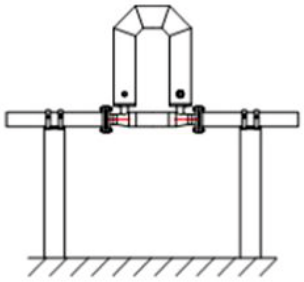

Figure 2

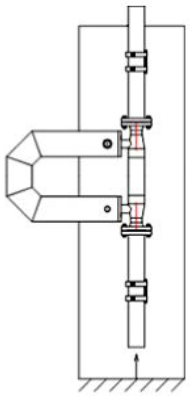

Figure 3

1. The meter should be installed downward when measuring liquid flow (Figure 1), so that air cannot get trapped inside the tubes.

2. The meter should be installed upward when measuring gas flow (Figure 2), so that liquid cannot get trapped inside the tubes.

3. The meter should be installed sideward when the medium is turbid liquid (Figure 3) to avoid particulate matter accumulated in the measuring tube. The flow direction of medium goes from the bottom up through the sensor.

Ordering Information of Transmitter

Sample Order Code: ELCMF 200-TX-A1-B1-C1-D1-E1-F1-G1-H1-I1

Parameter		Code	Value
A	Transmitter Mounting	A1	Integral (Local)
		A2	Remote (Max 1 mtr)
B	Power Supply	B1	24 VDC
		B2	230 VAC
C	Enclosure MOC	C1	Aluminium Die Cast
		C2	SS316
		CY	Other
D	Enclosure IP Rating	D1	IP54
		D2	IP67
		D3	IP68
E	Hazardous Certification	E1	ATEX
		E2	FF(CMRI 2A ,2B)
		EX	NA

(Only For Electronics Enclosure)

Parameter		Code	Value
F	Electrical Connection	F1	M20
		F2	1/2 NPT
		FY	Other
G	Electrical Output 1 (Current)	G1	4 to 20 mA
		G2	4 to 20 mA with HART
		GX	NA
H	Electrical Output 2 (pulse)	H1	Pulse (OC)
		HX	NA
I	Communication Output 1	I1	RS-485
		IX	NA

Ordering Information for Flow Tube

Sample Order Code : ELMAG 200W- FT50-N1-O1-P1-Q1-R1-S1

Parameter		Code	Description	Code	Description
FT	Flow Tube	FT 15	15 NB	FT 32	32 NB
		FT 20	20 NB	FT 40	40 NB
		FT 25	25 NB	FT 50	50 NB
N	Electronics Location	N1	Integral (local)		
		N2	Remote		
O	Process Connection	O1	Threaded		
		O2	Flanged		
		O3	Triclover		
		O4	SMS Union		
P	Flow Tube MOC	P1	SS-304		
		P1	SS-316		
		PY	Other		

Note :
- Due to our continuous product revisions, design specification & model numbers are subject to change without notice.
- To be used for industrial applications.
- Accuracy defined at Lab Conditions.
- For other requirement please consult factory.
- This product is meant for laboratory/Process application only & not for custody transfer application.

Parameter		Code	Description
Q	Flange Standard and Rating	Q1	ANSI 150 B16.5
		Q2	ANSI 300 B16.5
		Q3	ANSI 600 B 16.5
		Q4	DIN PN 10 EN 1092-1
		Q5	DIN PN 16 EN 1092-1
		Q6	DIN PN 25 EN 1092-1
		Q7	DIN PN 40 EN 1092-1
		Q8	IS 1538
		QY	Other
		QX	NA
R	Nominal Pressure	R1	0.6 MPA
		R2	1 MPA
		R3	1.6 MPA
		RY	Other
S	Temperature	S1	-50 °C to +150 °C
		S2	-50 °C to +200 °C
		SY	Other

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