



# SH-CMF-Coriolis Mass Flow Meters

## Product Overview

True mass flow measurement; Additional temperature and density measurements; Very high accuracy for mass flow measurements; Unaffected by pressure, temperature and viscosity; No inlet and outlet sections required.

## Principle

The structure of Coriolis Mass Flow Meters was consisted of a pair of bended tubes. The principle is to detect Coriolis force which is forced on a pair of tubes from inner mass flow by fluid.

A new force-Coriolis force would be appearing while two conditions are met:

- Vibrating with normal frequency in a pair of bended tubes,
- Fluid flowing in tubes. This force was produced upon synthesis from vibrating force and flowing force by fluid in tubes. And tubes would be wresting symmetric the center line because the force forced. Two displacement sensors on sides of tubes detect the force and output electric signals.

The signals regulated and mass flow directly produced.

## Main Technical Parameters

- Medium: liquid, gas, solid, or two phases mixed fluid
- Flow Accuracy:  $\pm 0.5\% \sim \pm 0.1\%$  flow
- Density Accuracy:  $\pm 0.002\text{g/cm}^3$ ,  $\pm 0.001\text{g/cm}^3$
- Repeatability:  $\pm 0.10\%$ ,  $\pm 0.05\%$
- Operation Pressure: (0~32) MPa (in case of other high pressure, it must be of special order)
- Medium Temperature:  $-50^\circ\text{C} \sim +350^\circ\text{C}$ ,
- Environment temperature:  $-20^\circ\text{C} \sim +70^\circ\text{C}$  for transmitters, and  $-40^\circ\text{C} \sim +150^\circ\text{C}$  for sensors
- Output signal:
  - (1) 4-20mA current signal of flow, with load resistance  $\leq 500\Omega$
  - (2) 0-10KHz, frequency signal of instant flow.
  - (3) RS485 Communication protocol
  - (4) Hart protocol
- Power supply voltage: 24VDC
- Material of measuring Tube: 316L stainless steel or hastelloy alloy C
- Response time: 0.1s~5s, adjustable
- Explosion-proof grade: EXd IIG Ex db IIC T6-T2Gb

## Model Selection

SH-CMF			Silver Coriolis Mass Flow Meters		
Model	Sensor Size	Flow range(t/h)	Model	Sensor Size	Flow range(t/h)
1	DN1	0~10kg/h	40	DN40	0~22T/h
2	DN2	0~70kg/h	50	DN50	0~33T/h
3	DN3	0~150kg/h	65	DN65	0~60T/h
6	DN6	0~200kg/h	80	DN80	0~100T/h
10	DN10	0~1500 kg/h	100	DN100	0~160T/h
15	DN15	0~3.0T/h	125	DN125	0~230T/h
20	DN20	0~7.0T/h	150	DN150	0~300T/h
25	DN25	0~13T/h			
<b>P Pressure</b>					
P1	1.6Mpa				
P7	2.5Mpa				
P2	4.0Mpa				

P3	32Mpa
P5	25Mpa
P6	20Mpa
P4	Special demand
H	Structure Form
H1	Compact Display
H2	Remote Display with 1.2 m cable
T	Fluids Temperature
T1	(-50~150°C)
T2	(-50~250°C)
T3	(-50~350°C)
T4	(-200~150°C)
O	Output
O1	4~20mA
O2	Frequency/pulse
O3	0~5V
C	Communication
C1	None
C2	RS485/Modbus
C3	Hart
C4	Profibus-PA
E	Hazardous Area
E1	Explosion proof
A	Accuracy
A1	0.15%
A2	0.2%
A3	0.1%
A4	0.5%
B	Transmitter Environment Temperature
B1	(-20~50°C)
B2	(-41~80°C)
P	Power supply
P1	24V DC
P2	220V AC
M	Wet Parts Material
M1	316L
M2	Hastelloy alloy C-276
M4	Hastelloy alloy B3
M5	Alloy20 (N08020)
M6	Titanium (ASTM B265)
M7	Tantalum (ASTM B708)
M8	C4 steel ASTM A600T12004
M9	Copper-nickel alloy
M10	Nickel-based alloy
M3	Others
PC	Process Connection
PC1	Flange (specify standard)
PC2	Tri-clamp
PC3	Weld thread
PC5	Compressing fitting
PC4	Others

\* Sensor size and corresponding flow range is reference flow range for low viscosity liquid, please provide to us your parameters to calculate proper size flow meter when measuring high viscosity liquid, gas or steam.

\* Please provide density, temperature of the medium, also cable length (if needed) when ordering

Dimensions

unit: mm

a) Transmitter Size

Integral Display Type

L	L1	L2	L4	L5	L6	H4
156	125	118	130	70	102	46

Unit: mm

b) Sensor size 1~6mm

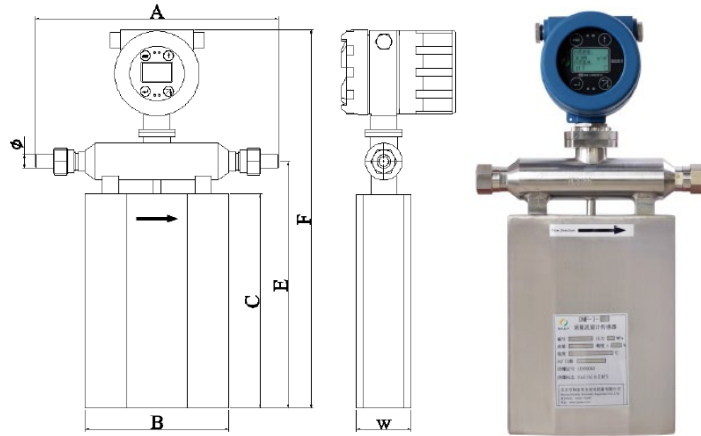
Model	OD φ	A	B	D	E	F
SH-CMF-1	6	170	120	137	353.5	146
SH-CMF-2	6	170	120	137	353.5	146
SH-CMF-3	8	180	135	152	368.5	152
SH-CMF-6	8	200	100	263	472	170

c) Sensor size 10~150mm

DN	Mpa	A	B	C	E	F	W	G	K	d	D
10	4.0	280	210	235	285	485	80	14	60	41	90
15	4.0	280	210	275	325	525	80	14	65	46	95
20	4.0	290	230	325	375	575	90	14	75	56	105
25	4.0	410	300	440	500	696	120	14	85	65	115
40	4.0	520	360	480	585	790	130	18	110	84	150
50	4.0	550	370	548	670	875	153	18	125	99	165
65	4.0	560	440	600	715	836	200	18	145	118	185
80	2.5	660	470	650	767	988	220	18	160	132	200
100	2.5	670	490	720	831	1052	220	22	190	156	235
125	1.6	700	510	790	908	1142	260	18	210	184	250
150	1.6	900	700	930	1110	1350	280	22	240	211	285

DN10, 15, 20, 40, 65,100,125,150, slip on flange, flange standard China Standard GB/T9112-9124-2000.  
 DN25, 50, 80 lap joint flange, flange standard China Standard GB/T9112-9124-2000.  
 Please specify flange standard when ordering if customer needs special flange demand.

d) High Pressure Flow meter



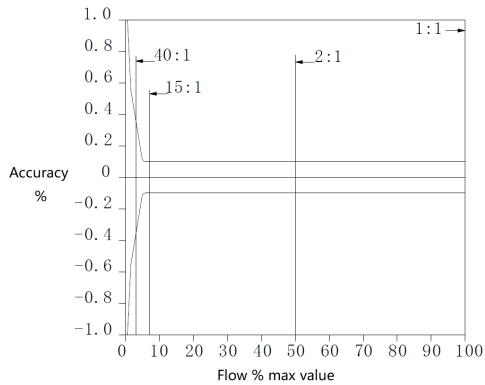
DN	Mpa	A	B	C	E	F	W	Φ
10	25	346	210	235	282	482	80	20×4
15	25	356	210	275	322	522	80	20×3
20	25	376	230	325	372	572	90	20×2
25	25	460	300	440	500	696	120	31×3

Process connection is weld joint

Technical Specification

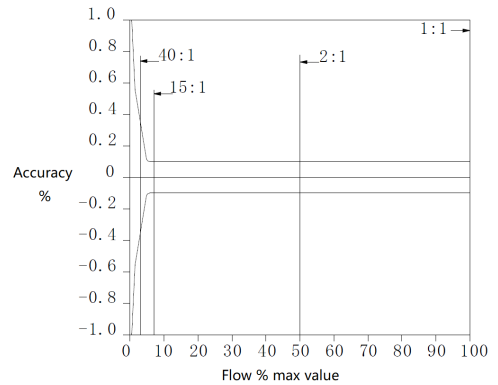
Instant Flow Accuracy:  $\pm 0.2\%$ , flow  $\pm$  [(zero stability/flow value)  $\times 100$ ]%

Flow response time: 1 second (adjustable)



Density Accuracy:  $\pm 0.002\text{g/cm}^3$  (liquid)

Density Range:  $0.5\sim 2.5\text{g/cm}^3$



Temperature Accuracy:  $\pm 1\text{ }^\circ\text{C}$

