CORIOLIS MASS FLOWMETER
KC-7777-S
(Straight Pipe type)

The nation's development item, 100% domestic goods,Patent **NO.** 10-1606497

CORIOLIS MASS FLOW METER (KC-7777-S)

Product Features

- **Measuring diameters:** DN08, DN15, DN25, DN40, DN50
- **Instantaneous and totalized flow rate, volumetric and mass flow rate, temperature, and density display**
- **Power supply:** AC 85–265 V (50/60 Hz), DC 18–36 V
- **Output accuracy:** ±0.005% F.S. (HART 4–20 mA)
- **Interface (RS-485) allows on-site adjustment in case of flow meter malfunctions**
- **Direct mass flow measurement eliminates the need for separate temperature and pressure compensation**
- **Simple on-site signal processing and calibration (precision calibration:** 5–8 calibration points)
- **Short upstream and downstream straight pipe sections (10D front end ~ 5D rear end)**
- **Excellent reproducibility and outstanding long-term stability**
- **Hygienic design with 3A certification**
- **CIP/SIP cleaning capability to ensure product quality**
- **Best price-to-performance ratio**
- **Easy adaptability to different applications**
- **Wide measurable flow rate range (100:1 turndown ratio)**
- **Fast response to flow rate changes (0.1 second)**
- **No moving parts**
- **CE, IP66, IP67**

KC-7777-S Straight Pipe type
Liquid, Gas

Application

- Precision Measurement from 0 to 650 kg/minMass flow rate design for precision metering and process control in the layered field

Product Introduction

The structure consists of two parts: the sensor and the transmitter, and features ARM pure digital drive, DSP signal processing, and high oscillation frequency.

It features a high-performance microprocessor and LCD display for convenient and fast parameter setting and self-checking and self-diagnosis functions.

It boasts high stability, high shock resistance, fast response, high accuracy, low pressure loss, and multi-parameter measurement (including mass flow rate, density, temperature, and percentage).

It has a wide range of applications (it can be used to measure all types of non-Newtonian fluids, slurries, suspensions, and high-viscosity fluids).

It has low installation requirements (straight pipe requirements before and after the Coriolis mass flow meter are low).

It is stable and requires minimal maintenance.

Product Performance

- **Accuracy**
  Liquid, Oil : R.D 0.15 / 0.2
  Gas : R.D ±0.5% , ±1.0%
- **Repeatibilty**
  R.D 0.075%, 0.1%, 0.25%, 0.5%
- **Density Measurement**
  Density range : 0.3 ~ 3.0 g/cm3
  Accuracy : ±0.001 g/cm3(±1kg/㎥)
- **Response Time**
  Within 0.1 second
- **Measurement Range**
  0~29,000kg/min
- **Function**
  Flow Rate & Total, Volume, Mass, Density, Temperature Measurable

Operating Specification

- **Fluid**
  Liquid, Oil, Liquid+Solid Mixed Mass & Volume Measrement
- **Input Power (Optional)**
  24VDC, 220VAC/24VDC self-adaption
- **Output Signal (Optional)**
  pulse+4~20mA+RS485
  pulse+4~20mA+HART
- **Pressure Drop**
  0.15 kpa
- **Fluid & Environment Temperature**
  Fluid : -50~+150 ℃ 옵션 : -50~+230 ℃, -50~+350 ℃
  -200~+150 ℃, -255~+150 ℃
  Environment : -20 ~ 60 ℃ (-4 ~ 140 ℉) Options : -40~60 ℃ (-40~140 ℉)

Coriolis Mass Flow Meter (KC-7777-S)

- **Pressure (limitations)**
  16 Bar Std.
  40, 63, 100, 160, 200, 250, 300, 350, 400, 700, 900, 1200Bar (Option)

- **Diplays**
  Display instructions: instantaneous & integration, volume, mass measurement
  Alphanumeric 2 X 16 backlight LCD
  Adjustable variables via remote control switch or Smart interface software
  Adjustable : Full scale : (0 ~100) %
  Flow: ㎥/h(㎥), L/h(L), mL/h(mL), kg/h(kg)
  Time response 0.1 sec / Correction factor setting 0.5 ~ 5 /
  Zero & Span

- **Totalizer**
  Flow rate and total oxygen point (0000. / 000.0/ 00.00 / 0.000)
  Seven digits (9,999,999,99.9 Count) in engineering units Reset table by Software

- **Software (Option)**
  Smart interface Windows® -based Software 8MB RAM of RAM, prefereed 16MB of RS-485 communication Additional features: Zero cut-off adjustment / Linearization adjustment / Save / Load configuration / For meter validatio

Physical Specification

- **Wetted Materials**
  Measuring Tube – SS 316L / HC Hastelloy, Titanium, PTFE (Option)
  Body – SS 304, SS 316L

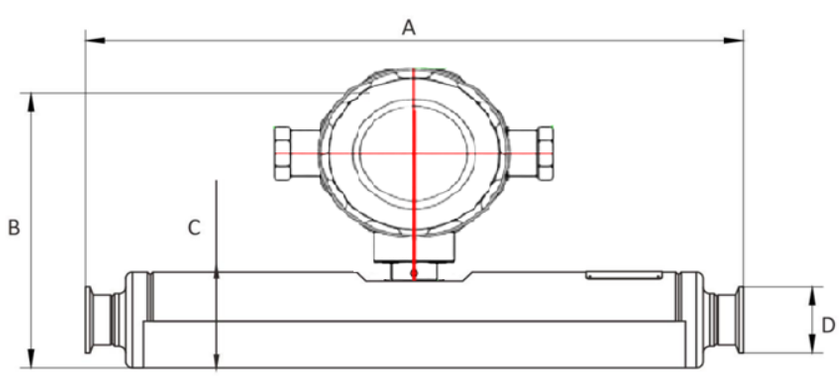
- **Cnclosure**
  General type IP66 & Waterproof, dustproof, explosion-proof IP67
  (Ex d ib IIc T6 Gb : Ex db ia IIc T6 Gb Ex tb IIIc T80℃ Db)

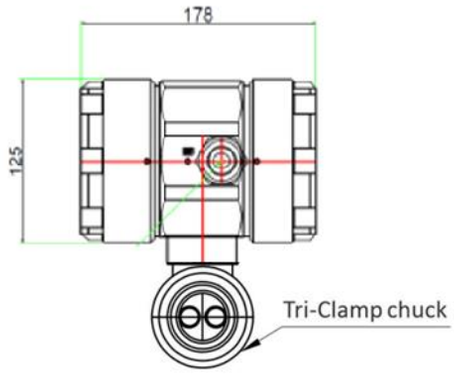
- **Electrical Connection**
  2 X ½" NPT , M20X1.5

- **Mounting (Selection)**
  ANSI 150lb Flange, JIS 10k RF Flange
  ANSI 300lb Flange, JIS 20K RF Flange (Option)

- **Certification**
  CE (All Case)
  [Korea Gas Safety Corporation is preparing for hydrogen explosion-proof certification.]

❖ Drawing Dimension Specifications & Chart "S" (Straight pipe sensor) Type





Size	A	B	C	D
¼"(DN08)	382	207	Φ73	Φ50.5
½"(DN15)	382	207	Φ73	Φ50.5
1" (DN25)	483	209	Φ73	Φ50.5
1- ½" (DN40)	750	260	Φ125	Φ91
2"(DN50)	750	260	Φ125	Φ91

❖ Specifications by size (flow rate, temperature, pressure)

Size		Max. Flow Rate		Medium Temp'	Max. Working Pressure
inch	mm	Kg/min	Lb/min		
1/4"	DN08	20	44	-50~150℃	100Bar
1/2"	DN15	60	132		
1"	DN25	200	440		
1-1/2"	DN40	450	992		
2"	DN50	650	1433		

❖ Zero stability

Size		Zero stability(Kg/min)
¼"	DN08	0.002
½"	DN15	0.006
1"	DN25	0.010
1- ½"	DN40	0.020
2"	DN50	0.025

Coriolis Mass Flow Meter (KC-7777-S)

The Coriolis mass flow meter realizes the following control with the current output signal:

01 – Mass flow(kg/h) Control
02 – Density (g/cm2) Measuring
03 – Volume flow(m3/h) Control
04 – Temperature('C) Measuring

Application : Batch Control / Mixed / Process Control / Filling & Dispensing / Loading & UnLoading / Measurement of commercial and process liquids and oils

Respond to customer needs with fast response speeds and achieve energy savings with ±0.1% F.S. precision control, minimizing losses in industrial settings.

Upstream and downstream straight pipe conditions **(KC-7777-S Straight tube type)**

Vertical pipe length required for measurement			
Line Condition	KC-7777 Smart– IN™		Orifice Plate(3)
	upstream(1)	downstream(2)	
90° Elbow or T-Junction	10D	5D	28D
Reduction (4:1)	10D	5D	14D
Expansion (4:1)	10D	5D	30D
After the control valve	10D	5D	32D
Two 90° elbows (same horizontal plane)	10D	5D	36D
Two 90° elbows (different horizontal planes)	10D	5D	62D

Note:

(1) The straight pipe diameter multiple (D) is the straight pipe required between obstructions upstream of the flow meter.

(2) The required straight pipe length can be shortened due to field-specific calibration.

(3) For comparison with our flow meter, this is the straight pipe required for an orifice flow meter with a diameter ratio of 0.7, as defined by ISO-5167.

(4) For pressure effects, please contact the manufacturer.

Order Code-Coriolis Mass Flow meter (KC-7777-S)

	Type		Flange		Conn' Spec'			Enclosure			Power		Output		DIsplay		Direction	Cal1	Cal2	Press'	Option
KC-7777-		-		-				E			P		V				-				
	1		2		3	4	5	6	7		8		9		10		11	12	13	14	15

Type	Code 1
Straight tube (Liquid) type	SL
Straight tube (Gas) type	SG
Agency approved, customer specified	W

Process Connection	Code 2
Thread	T
Tri-clamp	TC
Lok Fitting	L
DIN / ANSI / JIS Flange	D / A / J
Agency approved, customer specified	W

Connction Spec' [1,3]	Code 3,4,5		
Size	DIN	150lb	JIS10k
¼" (DN08)	Thread or Lok		
1/2" (DN15)	D2	F2	J2
1" (DN25)	D4	F4	J4
1-1/2" (DN40)	D6	F6	J6
2" (DN50)	D7	F7	J7
Agency approved, customer specified			W

Enclosure[5]	Code 6,7
Hazardous-Area Location Enclosure	2
Remote Hazardous-Area Location Enclosure(Only with Meter)	3(Ft)
Remote Hazardous-Area Location Enclosure(Only with Junction Box)	4)Ft)
IP66 or IP67	N2
Remote IP66 with Junction Box	N4(Ft)
Agency approved, customer specified	W

Input Power	Code 8
DC 24V, 500mA	2
AC 220V or 22-245V, 60Hz	3
Agency approved, customer specified	W

Output Signal (Selection)	Code 9
Modbus RTU / RS-485S, Pulse active Profibus PA Modbus RTU / RS-485, Pulse active	1
DC 4~20 mA Hart or Current Loop	2
Agency approved, customer specified	W

Display	Code 10
No Readout	NR
Digital Display	DD
Agency approved, customer specified	W

Flow Direction	Code 11
Horizontal Left to Right or Vertical UP	1
Horizontal Right to Left or Vertical Down	2
Agency approved, customer specified	W

Calibration1[9] (Gas)	Code 12
Standard Calibration	A
Air, only for 1/2" and small pipe Size	
Compressed Air, only for 2" and large pipe size	D
Customer Calibration	B
Air	
Agency approved, customer specified	W

Calibration1[9] (liquid)	Code 12
Standard Calibration	A
Water, only for 1/2" and small pipe Size	
Water, only for 2" and large pipe size	D
Customer Calibration	B
Water	
Agency approved, customer specified	W

Calibration2[9] (Gas)	Code 13
70 °F(21 ℃) 14.7 psig (1.103 barg)	A
32 °F(0 ℃) 14.7 psig (1.103 barg)	B
Agency approved, customer specified	W

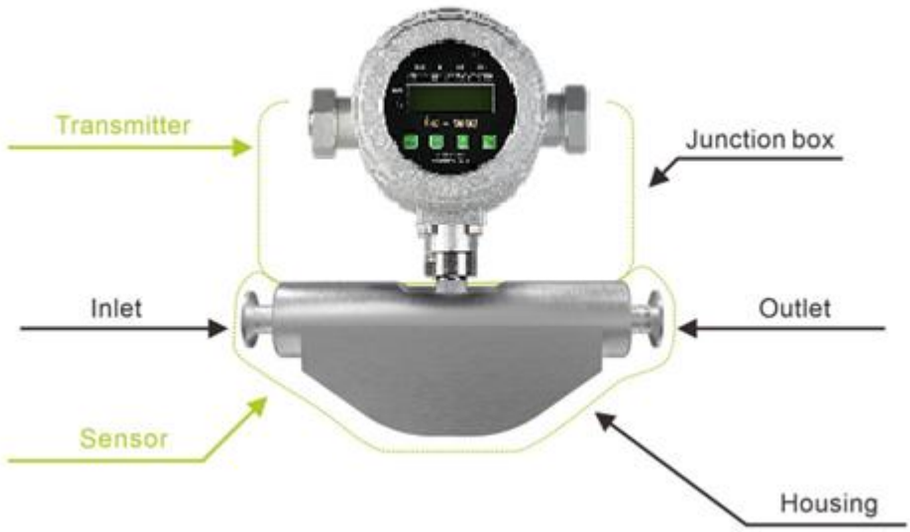
Calibration2[9] (Liquid)	Code 13
64.4 °F(18 ℃) 14.7 psig (1.103 barg)	A
32 °F(0 ℃) 14.7 psig (1.103 barg)	B
Agency approved, customer specified	W

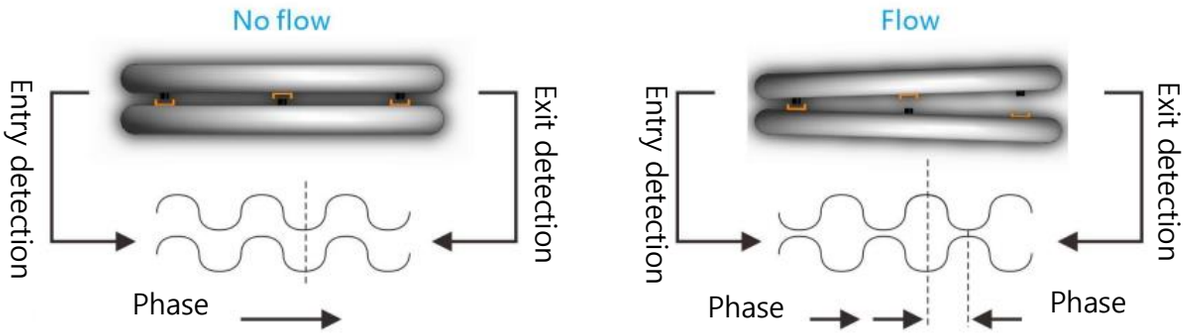
Pressur Limit	Code 14
16 bar	1
40 bar	2
900 bar	3
Agency approved, customer specified	W

Option	Code 15
High Temp'(-50~+230 or -255~150'C)	ST
High Press' (max.1,200 Bar)	HP
Mat'l : HC Hastelloy, Titanium, PTFE	SM
Agency approved, customer specified	W

Measurement Principle

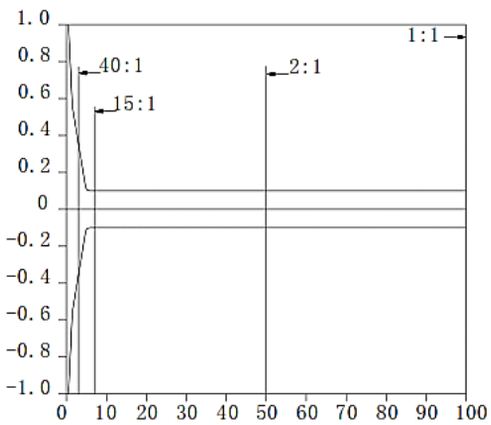
A Coriolis mass flow meter vibrates a flowmeter tube as fluid passes through it, based on the Coriolis principle.A sensor detects and analyzes the frequency, phase difference, and temperature changes in the flowmeter tube.This allows for direct measurement of the fluid's mass flow rate, and density is calculated from the vibration frequency.Other process variables, such as mass flow rate, volume flow rate, density, and temperature, can also be obtained.



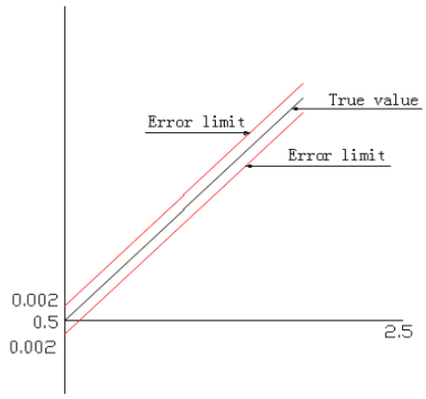


Instantaneous Flow Accuracy: ±0.20%
Flow Rate ± [(Zero Stability/Flow Rate) * 100] %

Flow Rate Response Time: Factory set to 1 second (user adjustable)



Density measurement accuracy:
±0.002 g/cm3 (applicable to liquids only)As shown in the graph below, the origin coordinates start at 0.5.



<Density accuracy curve>

KOLAS Standard equipment : SONIC NOZZLE(Gas)

CORIOLIS MASS FLOW METER (Liquid)

Disclaimer:
All data used in product descriptions is not legally binding.
Related technical details are subject to change for further improvement.

Coriolis Mass Flow Meter (KC-7777)

※ Just choose the one that suits your needs.

Application	Type		Mass Flowmeter	
			Coriolis Mass	
Object of Measurement	Liquid, Oil		O	
	Gas		O	
	Vaper		O	
	steam		O	
Application	control		O	
	Monitor		O	
	Supply		O	
Operating condition	Temperature (max)		Gas, Liquid	-50 ~ 230˚C -255 ~155˚C
	Pressure (max)		Max 1,200 Bar (120 MPa)	
	Pressure loss		Negligible	
	Range ability		Large	
Installing condition	Bore		Ø3 to Ø150	
	Straight	upstream	10D	
	Pipe length	downstream	5D	
	Piping work		Required	
	Explosion-proofing		O	
Performance	Accuracy		Liquid	±0.15~0.2% R.D
			Gas	±0.5%, 1.0% R.D
	Flow Range Velocity		Liquid, Gas	0.2 ~ 29,000 kg/min
Turndown Ratio	Up to 100:1 ~ max 1000:1 (for low frequencies)			

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www.goldenrules.co.kr

Gas, Liquid, Steam type Mass & Volume Flow Meter specialized manufacturing company

Detailer

Certified in accordance with
KC Q ISO 9001 : 2015
KC Q ISO 14001 : 2015

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