



Technology Solutions

# TEK-COR 1100CT

## Custody Transfer Coriolis Mass Flow Meter



FLOW



Used within Oil & Gas Industry as highly accurate and reliable.  
Certified for use in Custody Transfer Applications.

[www.tek-trol.com](http://www.tek-trol.com)

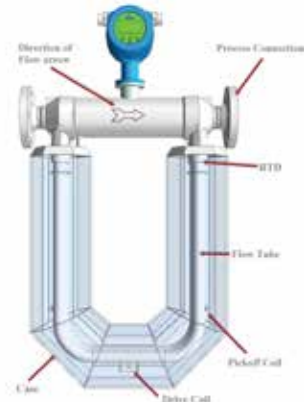
Flow | Level | Temperature | Pressure | Valves | Analyzers | Accessories | TekValSys

## Introduction

There can often be more than one type of fluid used in your process, each with different properties. Your process and product quality completely depend on the accuracy with which you measure each of these fluid. Our range of Coriolis mass flow meters are designed to suit your need to measure almost any fluid across any application. Built on the Coriolis principle, these meters measure the mass of the fluids directly, rather than volume and hence they do not require compensations for factors such as temperature and pressure which impact volume and accuracy of measurement.

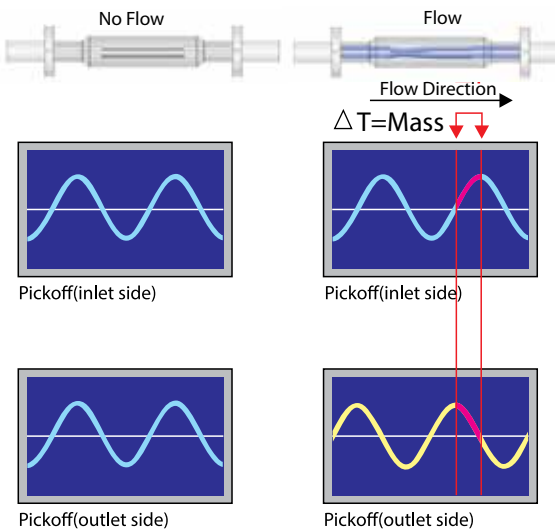
## Measuring Principle

The Coriolis measuring principle refers to the effect that a moving mass has on a body in a rotating frame of reference. The moving mass exerts an apparent force on the body, causing a deformation. This force is called the Coriolis force. It does not act directly on the body, but on the motion of the body. This principle is used in Coriolis flow meters.

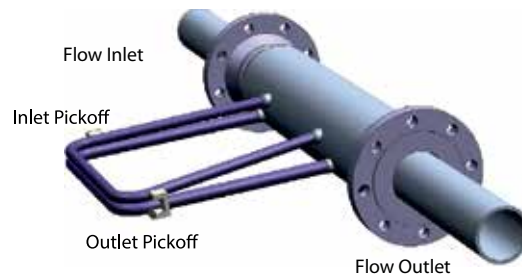


U-Shaped Coriolis Flow Meter

## Operation



A Coriolis flow meter consists of two parallel tubes that are made to oscillate using a magnet. These oscillations are recorded by sensors fitted at the inlet and outlet of each tube. In a no-flow state, the oscillations are synchronised, since there is no mass exerting any force on the tubes. On the other hand, any fluid, gas flowing through the tubes generates Coriolis forces, causing the tubes to twist in proportion to the mass flow rate of the medium.



A diagram showing phase shift

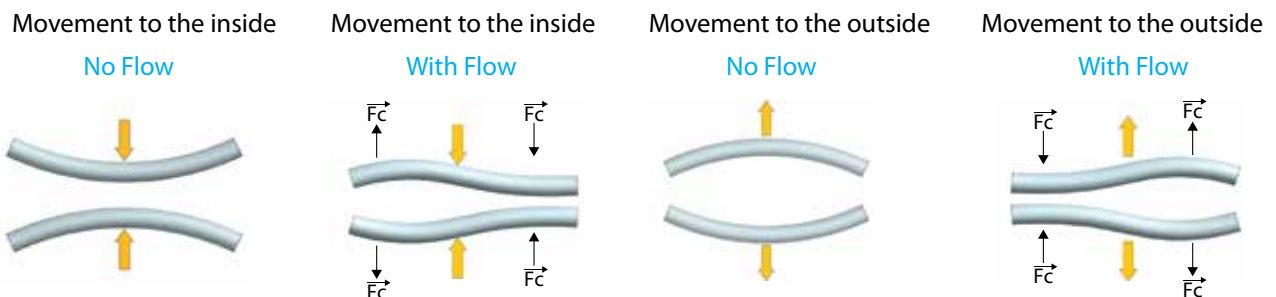


Diagram showing the movement of the flow sensors

## Tek-Cor 1100CT Series Coriolis Flow Meter

The Tek-Cor 1100CT Series Coriolis Flow Meter is available in the following configuration:



- *U-Shaped*

These flow meters are comprised of two tubes that are arranged in the shape of the letter 'U', a magnet and coil assembly, and sensors at the inlet and outlet of the tubes. Coriolis forces exerted by the flow medium are used to determine the mass flow rate and density of the medium.

U-Shaped sensor (Size 1 1/2" to 12")

## Tek-Cor 1100CT Transmitter

The Tek-Cor 1100CT transmitter is a high-performing transmitter that uses a micro-processor and offers zero calibration, adjustable pulse outputs, an RS485, and a HART communication protocol. It is highly stable and accurate, as well as easy to install and operate. It requires low maintenance which keeps your process downtime to a minimum and covers the cost of ownership over the long term.



Tek-Cor 1100CT Transmitter

## Benefits

- Suitable for aggressive and contaminated media.
- Measurement and Display of percent water-cut for oil or water mixtures.
- High Phase Shift Frequency.
- Measuring tubes vibrated at natural frequency.
- Higher Sampling and Digital Filtering.
- Short response time.
- No moving parts.
- Full Sensor Diagnostics.
- Measures mass flow, density, temperature, and volume flow with high accuracy.
- OLED with 2 line display.
- Multiple Flange (150# To 900#) and Process Connections.
- Net Oil Measurement.
- Density accuracy upto 0.001 g/cm<sup>3</sup> or better.
- Suitable for harsh conditions.
- Process Temp Ranges From -200 to 300°F.
- Certified for use in Fiscal and Custody Transfer Applications.

## Application

- Used to measure steady uniform flow of common viscous fluid, non-Newtonian fluid, slurry containing some solid components, and liquids containing some trace of gases.
- Suitable for the bulk measurement of products like Oil, LPG and Liquid Hydrocarbons.

## Specifications

Accuracy	±0.1% , 0.05%	
Density Accuracy	0.001g/cm <sup>3</sup> or better for CT applications	
Repeatability	± 0.05% or better	
Sensor Options	U-Series Shaped	
Process Media	Liquid Hydrocarbons	
Transmitter	Digital type/Analog type	
Power Supply	18-28VDC, 85-220VAC	
Maximum Pressure	3770PSI (26 MPa)	
Signal Output	4-20 mA and Pulse , Optional: HART or Modbus RS485	
Process Connections	DIN, ANSI Flanges	
Approvals	Certified for use in Fiscal and Custody Transfer Applications.	
Electronics	Direct Mount or Remote Mount	
Diagnostic Functions	Reset Totalizer	
Graphic Display	OLED	
Operating Elements	3 optical keys for operator	
Additional Features	Low Flow Cut-off, Oil and Water Content Analysis, Zero Calibration, Flow Calibration, Long-Term Stability, Zero Point Adjustment, Conforms IEC 61362 (Industrial) EMC Directive	
Temperature Range	Direct Mount	-58 °F to 257 °F (-50 °C to 125 °C)
	Remote Mount	-58 °F to 392 °F (-50 °C to 200 °C )

## Flow Ranges

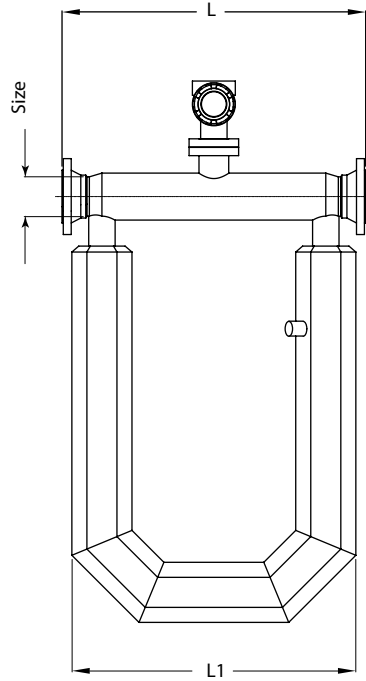
### Flow Range for liquid (U-Shaped)

Size (Inch)	Allowable Flow Range (lb/h)	Normal Flow Range for Accuracy 0.1% (lb/h)	Normal Flow Range for Accuracy 0.2%, 0.5% (lb/h)
1½"	706 – 70547	4410 – 70547	3307 – 70547
2"	1103 – 110231	6614 – 110231	5512 – 110231
3"	3087 – 308647	13228 – 308647	12126 – 308647
4"	4410 – 440924	33070 – 440924	26456 – 440924
6"	11024 – 1102311	77162 – 1102311	66139 – 1102311
8"	22047 – 2204622	154324 – 2204622	154324 – 2204622
10"	33065 – 4408015	270067 – 4408015	270067 – 4408015

\*12" available on request.

Size	Maximum Pressure						
	232 PSI (1.6 MPa)	363 PSI (2.5 MPa)	580 PSI (4.0 MPa)	914 PSI (6.3 MPa)	1450 PSI (10 MPa)	2321 PSI (16 MPa)	3626 PSI (25 MPa)
1½"	✓	✓	✓	✓	✓	—	—
2"	✓	✓	✓	✓	✓	—	—
3"	✓	✓	✓	✓	—	—	—
4"	✓	✓	✓	✓	—	—	—
6"	✓	✓	✓	✓	—	—	—
8"	✓	✓	✓	✓	—	—	—
10"	✓	✓	✓	✓	—	—	—
12"	✓	✓	✓	✓	—	—	—

## Outline Dimensions for U-Shaped

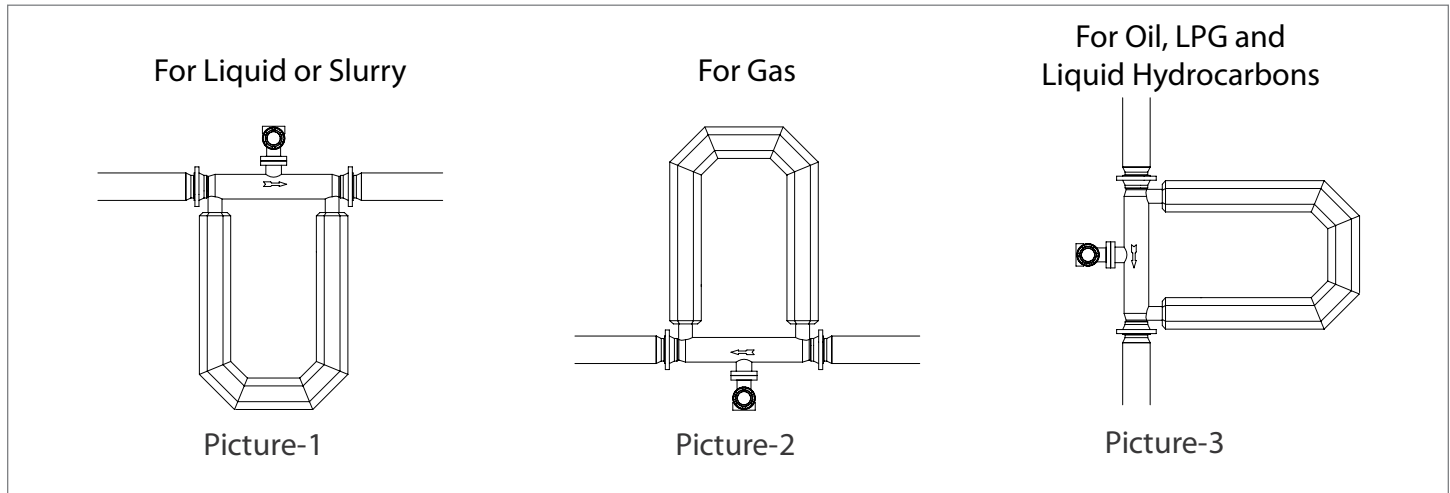


U-Shaped sensor (Size 1½" to 12")

Size	L		L1	H	H1	
	≤300# (4 MPa)	≥600# (6.3 MPa)			Integrated	Remote
1½"	20.47"	21.53"	18.5"	25.98"	11.02"	8.26"
2"	21.96"	23.14"	21.65"	27.95"	11.41"	8.66"
3"	30.70"	31.81"	27.95"	40.94"	12.59"	9.84"
4"	36.22"	37.32"	33.85"	44.88"	13.77"	11.02"
6"	43.30"	44.88"	41.33"	59.84"	14.96"	12.20"
8"	53.70"	55.51"	45.66"	65.15"	16.53"	13.77"
10"	63.40"	66.10"	50.78"	69.08"	17.86"	14.87"

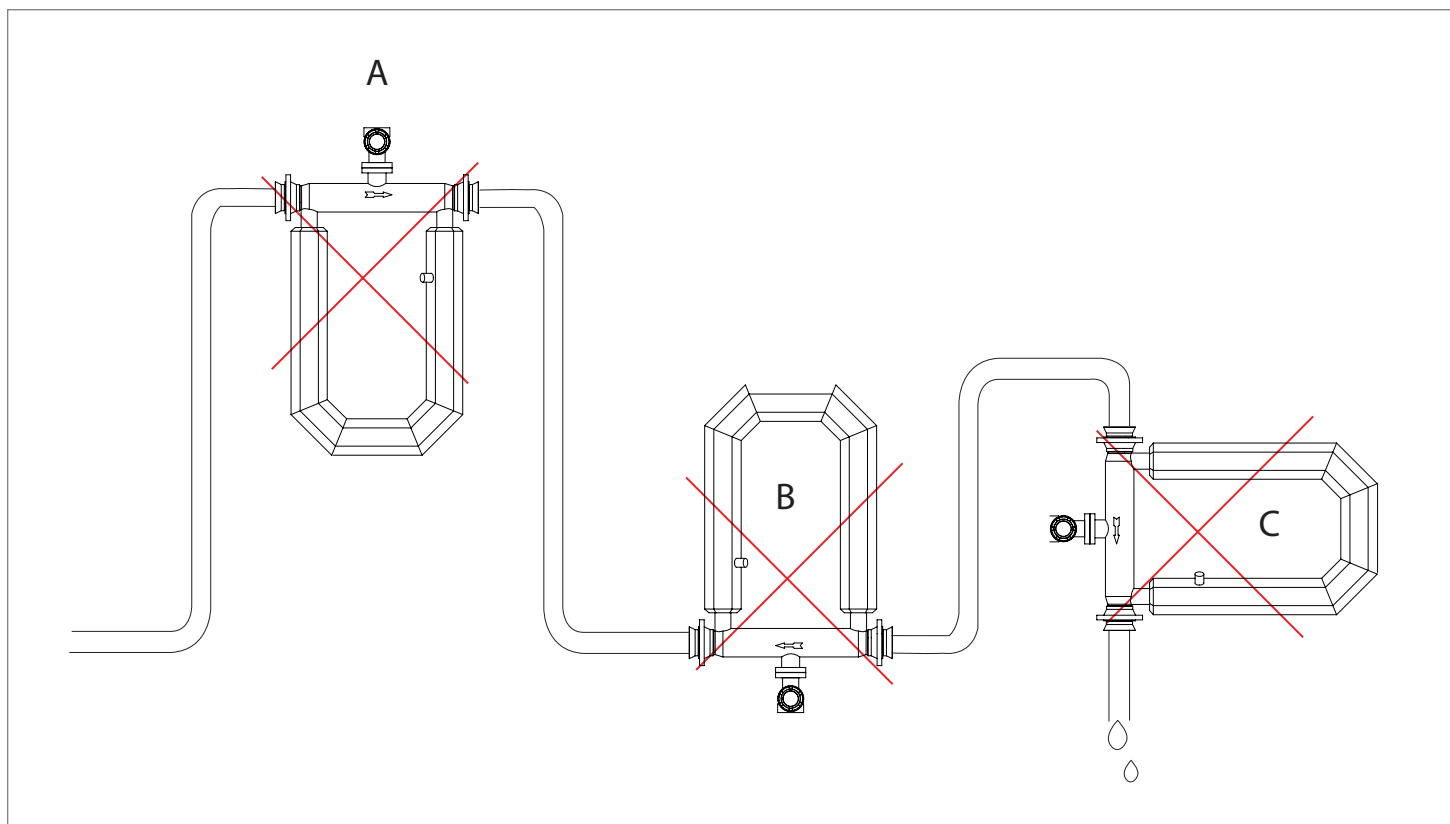
\*12" available on request.

## U-Shaped Installation



For the horizontal installation, the measuring tube should be installed downside of the pipeline when the process medium is liquid or slurry (shown in Picture 1) and upside of the pipeline when the process medium is gas (shown in Picture 2). For vertical installation, the measuring tube should be installed beside the pipeline when the process medium is liquid, slurry, or gas (shown in Picture 3).

If gas bubbles are expected, the meters must not be mounted at the highest point of the tubing (A). If solid particles are expected the meters must not be mounted at the lowest point (B) of the pipeline. The meters must not be mounted in a drop line near the open end (C), as this can cause the meters to run empty.



## Model Chart

<b>EXAMPLE</b>	Tek-Cor 1100CT	2	1	025B	1	S	150	1	E	Tek-Cor 1100CT-2-1-025B-1-S-150-1-E
<b>Series</b>	Tek-Cor 1100CT									Coriolis Mass Flow Meter
<b>Type</b>		1								U-Shaped
<b>Process Media</b>			1							Liquid
<b>Size and Accuracy</b>				040C						1½", ± 0.1% Accuracy
				050C						2", ± 0.1% Accuracy
				080C						3", ± 0.1% Accuracy
				100C						4", ± 0.1% Accuracy
				150C						6", ± 0.1% Accuracy
				200C						8", ± 0.1% Accuracy
				250C						10", ± 0.1% Accuracy
				300C						12", ± 0.1% Accuracy
				040D						1½", ± 0.05% Accuracy
				050D						2", ± 0.05% Accuracy
				080D						3", ± 0.05% Accuracy
				100D						4", ± 0.05% Accuracy
				150D						6", ± 0.05% Accuracy
				200D						8", ± 0.05% Accuracy
				250D						10", ± 0.05% Accuracy
				300D						12", ± 0.05% Accuracy
<b>Electronics</b>					1					Direct Mount
					2					Remote Mount (comes with 10 meters of cable)
<b>Output</b>						1				4-20 mA, HART, Pulse
						S				4-20 mA, Modbus RS485, Pulse
<b>Process Connection</b>							025			DIN 2.5 MPa Flange
							040			DIN 4 MPa Flange
							160			DIN 10 MPa Flange
							100			DIN 16 MPa Flange
							260			DIN 26 MPa Flange
							150			150# ANSI Flange
							300			300# ANSI Flange
							600			600# ANSI Flange
<b>Power Supply</b>								1		18-28 VDC
								2		85-220 VAC
<b>Approvals</b>									E	Certified for use in Fiscal and Custody Transfer Applications.



# Customer Service & Support



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