

## VTVN series Coriolis force mass flowmeter

- ▶ Measurement of liquids, slurries and high density gases
- ▶ Micro-bending design, compact structure, easy to self-emptying
- ▶ Double temperature compensation, high pressure compensation technology, improve the field performance
- ▶ Dynamic vibration balance (DVB) matching technology to improve system stability
- ▶ ASIC circuit with full digital closed loop control (DLC) to expand the range of gas-liquid two-phase flow applications



VN series Coriolis mass flowmeter is VORTORQ's new generation of micro-curved double flow tube Coriolis mass flowmeter. It is equipped with an electronic conversion device based on digital signal processing (DSP), which integrates the digital closed-loop vibration control (DLC), signal processing, calculation and diagnostic function of the sensor, and has the advantages of high measurement accuracy, wide range ratio and high reliability. It can communicate with the manual operator through HART or PC through Modbus, and directly perform online node configuration, fault diagnosis and data recording.

The volumetric flow rate, cumulative mass, cumulative volume and component ratio of the fluid can be calculated while measuring the mass flow rate, density and temperature of the fluid in real time.

### Specifications

<b>Accuracy</b>	Liquid: $\pm 0.10\%$ , $\pm 0.15\%$ , $\pm 0.20\%$ optional
	Gas: $\pm 0.5\%$
<b>Repeatability</b>	Liquid: $\leq 0.05\%$ ; Gas: $\leq 0.25\%$
<b>Proof Pressure</b>	Provide suitable solutions according to working conditions
<b>Caliber</b>	DN02-DN50
<b>Temperature Range</b>	
<b>Measuring Range</b>	$-50^{\circ}\text{C} \sim 180^{\circ}\text{C}$
<b>Medium Temperature</b>	$-40^{\circ}\text{C} \sim 180^{\circ}\text{C}$
<b>Storage Temperature</b>	$-50^{\circ}\text{C} \sim 70^{\circ}\text{C}$
<b>Ambient Temperature</b>	$-25^{\circ}\text{C} \sim 60^{\circ}\text{C}$ (Have a display) ; $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$ (no display)
<b>Materials</b>	
Flow tube	316 Stainless Steel
Current diverter	316 Stainless Steel
Flange	316 Stainless Steel
Sensor	304 Stainless Steel
Transducer	Cast aluminium alloy
Separate junction box	Cast aluminium alloy
<b>Protection class</b>	IP65 , IP67 , IP68 (Separate sensor optional)
<b>Approval and Certification</b>	CSA, CE, PCEC, ExdibIICT6Gb

### Applications

- ▶ Process control
- ▶ Material ratio
- ▶ Concentration measurement
- ▶ Batch filling

### Performance

#### Pressure correction factor table

Specification	Influence of pressure on flow rate Kiq		Effect of pressure on density Kip	
	Pressure unit psi	Pressure unit bar	Pressure unit psi	Pressure unit bar
NE0002	not have	not have	not have	not have
NE0005	not have	not have	not have	not have
NE0010	not have	not have	not have	not have
NE0015	not have	not have	not have	not have
NE0025	not have	not have	not have	not have
NE0040	0.00014	0.002	0.014	0.2
NE0050	0.00042	0.006	0.014	0.2

### Proof Pressure

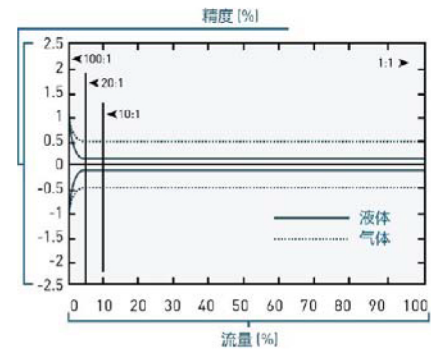
Specification	Zero stability	
	lb/min	kg/h
VTNE0002	0.00011	0.003
VTNE0005	0.0011	0.03
VTNE0010	0.0036	0.10
VTNE0015	0.0333	0.30
VTNE0025	0.0555	0.90
VTNE0040	0.111	1.50
VTNE0050	0.333	3.00

Specification	Range		K-Gas factor
	lb/min	kg/h	
VTNE0002	3.66	100	40
VTNE0005	18.3	500	60
VTNE0010	36.6	1000	60
VTNE0015	660	18000	70
VTNE0025	1100	30000	70
VTNE0040	2200	60000	80
VTNE0050	6600	180000	80

Description: Gas flow range = liquid flow range x gas working density (unit: kg/m<sup>3</sup>) /K

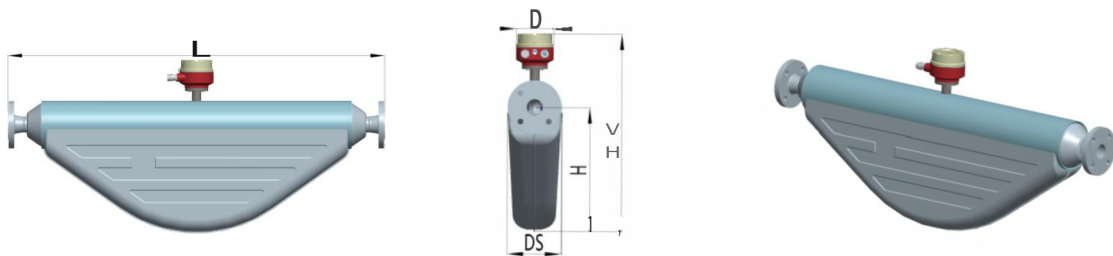
### pressure loss

Range ratio	500:1	100:1	20:1	10:1	1:1
Liquid accuracy(±%)	2.5	0.8	0.1	0.1	0.1
Gas accuracy(±%)	2.5	1.5	0.5	0.5	0.5
Pressure loss					
liquid (psi)	~0	~0	0.1	0.25	14.5
liquid (bar)	~0	~0	0.01	0.02	1.00
Gas (psi)	0	0	0.1	0.35	15.0
Gas (bar)	0	0	0.01	0.02	1.03



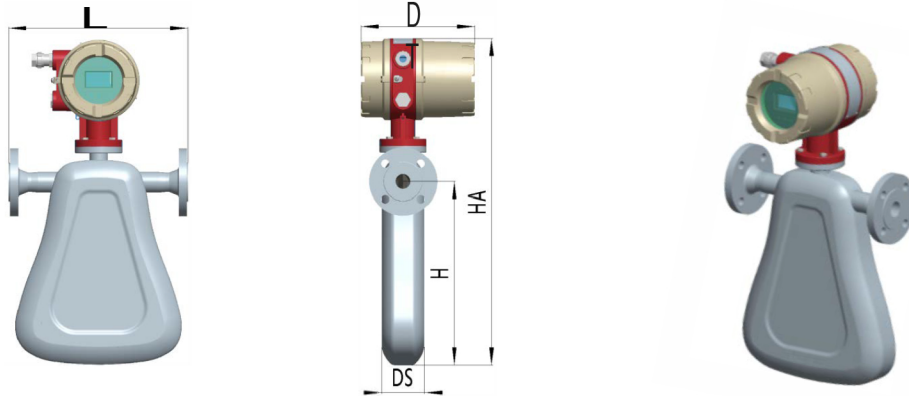
### Dimensions

#### V-type flowmeter inch / mm



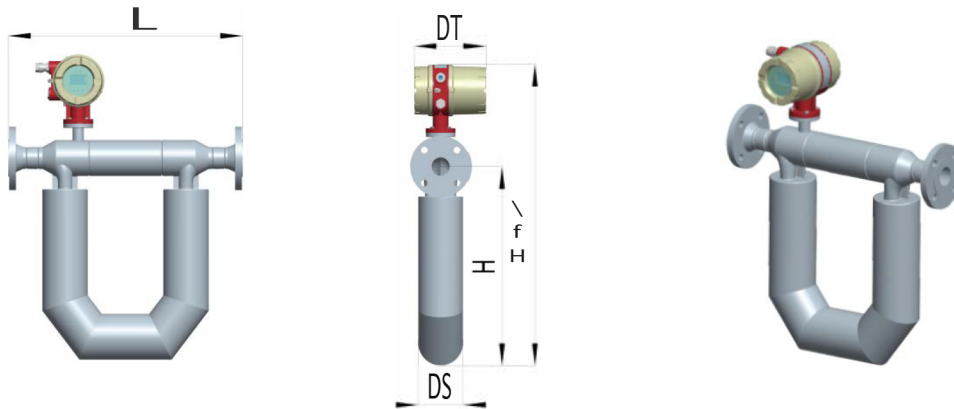
Type	Length of flange end face		Flange center height		Overall height HA		Sensor thickness DS		Junction box diameter	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
NE0002	14.48	368	4.21	107	10.74	273	1.93	49	4.6	117
NE0005	14.48	368	4.21	107	10.74	273	1.93	49	4.6	117
NE0010	15.23	387	5.59	142	12.12	308	1.93	49	4.6	117

## T-type flowmeter inch / mm



Type	DN	Length of flange end face		Flange center height		Overall height HA		Sensor thickness DS		Transmitter thickness DT	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
VTNE0015	15	10.07	256	9.05	230	18.11	460	2.52	64	9.44	240

## T-type flowmeter inch / mm



Type	Length of flange end face		Flange center height		Overall height HA		Sensor thickness DS		Transmitter thickness DT	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
VTNE0025	22.6	574	20.55	522	31.26	794	4.76	121	7.56	192
VTNE0040	24.48	622	21.33	542	32.16	817	4.76	121	7.56	192
VTNE0050	27.63	702	25.9	658	36.85	936	5.9	150	7.56	192

## Model Number

OrderNO.	STPY	DN	Measuring range Kg/H	Process connection
VTNE0002	Slightly curved body type	DN02	100	DN15 Flange EN 1092-1 (DIN) PN 100
VTNE0005		DN05	500	DN15 Flange EN 1092-1 (DIN) PN 100
VTNE0010		DN10	1000	DN15 Flange EN 1092-1 (DIN) PN 100
VTNE0015	Triangular monotypy	DN15	6000	DN15 Flange EN 1092-1 (DIN) PN 100
VTNE0025	U-shape	DN25	18000	DN25 Flange EN 1092-1 (DIN) PN 100
VTNE0040		DN40	30000	DN40 Flange EN 1092-1 (DIN) PN 100
VTNE0050		DN50	60000	DN50 Flange EN 1092-1 (DIN) PN 100



U-shape


 $\Delta$ -shape


V-shaped body type