



Single Straight-Tube Coriolis Flowmeter Titanium Tube Type

ALTI*mass* Type **S**

【Titanium tube for corrosion resistance】

【Easy-to-clean construction】

【Suitable for clean processes】

【Extensive maintenance and self-diagnostic functions】



Separately mounted (Ferrule)

Integrally mounted (Flange)

■ GENERAL PERFORMANCE

Item	Description				
Model	CS010	CS015	CS025	CS040	CS050/CSR50
Flowrate	Min. setting rate (kg/h)	72	240	720	1800
	Max. service rate (kg/h)	1220	4080	12200	30600
	Max. allowable rate (kg/h)	1830	6120	18300	45900
	Accuracy	±0.15% ± zero stability error of reading			
	Repeatability	±0.075% ± 1/2 zero stability error of reading			
	Zero stability (kg/h)	0.12	0.41	1.22	3.06
	Density accuracy (Option)	±0.002g/mL			

$$\text{Zero stability error} = \frac{\text{Zero stability}}{\text{Flowrate at the moment}} \times 100\%$$

■ GENERAL SPECIFICATIONS

Item	Description					
Model	CS010	CS015	CS025	CS040	CS050	CSR50
Nominal size	10mm or 1/2"	15mm or 1/2"	25mm or 1"	40mm or 1-1/2"	50mm or 2"	80mm or 3"
Materials	Titanium alloy					
	SB338 Grade-9 + TB480H					
Process connection	JIS10, 20K/ASME (JPI) 150/IDF Ferrule (*1)					
Applicable fluids	Liquid					
Temperature range	- 40 to +130°C (*2)					
Heatproof temperature	Max. 150°C					
Density range	0.5 to 1.0g/mL, 0.7 to 1.3g/mL, 1.0 to 1.5g/mL (*3)					
Max. operating pressure	Max. 2.45MPa (Depends on flange rating)					
Sensor housing withstand	2.8MPa					
Pressure Losses	0.1MPa (at Max. service rate, viscosity 1mPa·s)					
Flow direction	Bidirectional					
Explosionproof specification	TIIS, ATEX, IECEx, KOSHA/KTL, CSA, GOST, NEPSI					TIIS, ATEX, IECEx

*1: Loose flange is applied. Ferrule connections of CS010 and CS015 comply with ISO2852.

*2: If temperature of the fluid exceeds 80°C for the measurement with integrally mounted type, make sure to keep the ambient temperature at 45°C or below.

*3: Density range varies depending on the fluid to be used.

■ TRANSMITTER SPECIFICATIONS

Item	Description	
Model	PA0K	
Power supply	85 to 264VAC 50/60Hz or 20 to 30VDC	
Power consumption	Max. 15W	
Ambient temperature	-40 to +55°C (*1)	
Transmission length (separate type)	Max. 100m (Dedicated cable used) (*2)	
Dusttight, waterproof configuration	IP66/67	
Communication interface	HART (Standard)	HART protocol version 7, Bell202 (*3)
	Modbus	RS-485 Modbus protocol, Baudrate : 9600bps, 19200bps, 38400bps RTU or ASCII, Response time : 25 to 50 ms
	FOUNDATION fieldbus	AI block×4, IT block×2, with Link Master function
	PROFIBUS PA	AI block×4, TOT block×2
Operation	Damping (default): Flow rate 0.8sec, density 4sec, temperature 2.5sec. Low flow cutoff (default): Under 1.5% of max. service flow rate	
Pulse output	Open drain output (Min. 10V to Max. 30V, 50mADC) or Voltage pulse (Low level: 1.5V max., High level: 13V min. Output impedance: 2.2kΩ) Setting range: 0.1 to 10000Hz (Max. output 11000Hz)	
Analog output	4 to 20mADC (max. load 600Ω) Select two outputs from instant flowrate (mass or volume), temperature, and density.	
Status output	Open drain output (Max. 30V, 50mADC) Select one from error (*4), flow direction, or high/low alarm (default is error)	
Status input	Contact-closure input (Form "a" contact) Short: 200Ω max., Open: 100kΩ min. Select one from remote zero, total reset, 0% signal lock, or function off (default is function off).	

*1: Below -20°C, the display loses its visibility due to weakened contrast. Both the display and infrared sensor may exhibit slow responses below -20°C.

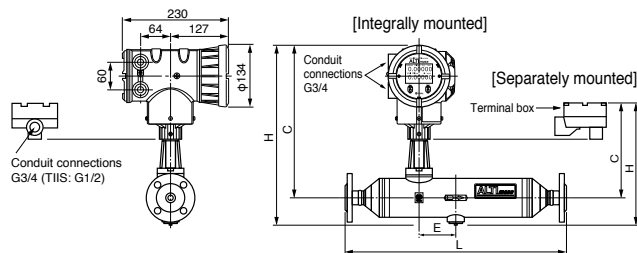
*2: If signal transmission length exceeds the max. transmission length, consult the factory.

*3: Of the two analog output systems, only analog output 1 is available for HART communication.

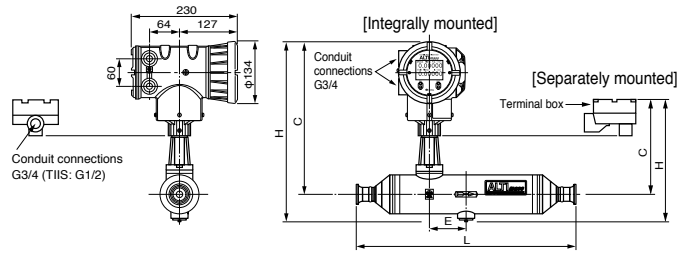
*4: Of error outputs, "zero is in progress" status output can also be set up.

■ DIMENSIONS (Unit in mm)

● Flange connection (Integrally mounted, Separately mounted)



● Ferrule connection (Integrally mounted, Separately mounted)



Model	Nominal size	L			H		C		E	Approx. Weight (kg)	
		JIS10K Ferrule	JIS20K	ASME/JPI150	Integrally mounted	Separately mounted	Integrally mounted	Separately mounted		Integrally mounted	Separately mounted
CS010	10(1/2"), 10A	426	452	458	390	246	340	197	69	10	7
CS015	15(1/2"), 15A	464	490	496	390	246	340	197	80	11	8
CS025	25(1"), 1-1/2S	529	555	570	423	280	353	210	88	18	15
CS040	40(1-1/2"), 2S	716	733	749	439	296	359	216	112	28	25
CS050	50(2"), 2-1/2S	882	906	919	474	332	372	229	153	38	35
CSR50	80(3"), 3-1/2S	1032	1046	1073	474	332	372	229	153	40	37

Nominal size: A = mm, S = inch (sanitary version)

The specification as of July, 2015 is stated in this catalog. Specifications and design are subject to change without notice.



OVAL Corporation

3-10-8 Kamiochiai, Shinjuku-ku, Tokyo 161-8508
Phone: +81 3-3360-5121 FAX: +81 3-3365-8605

<http://www.oval.co.jp/english>

