The selection is detailed on page 4

CL70 Cryogenic Mass Flowmeter

Working principle

Coriolis mass flowmeters work by vibrating a flow tube through which a medium flows. Although the vibration is not completely circular, it still forms a rotating coordinate system, which causes the Coriolis effect. Sensors detect and analyze changes in flow tube frequency, phase difference and amplitude. The specific detection method will vary depending on the flowmeter design. These observed changes represent the mass flow of the fluid.



Functional characteristics

Easy to install and use: no straight pipe section requirements, no rectification device, no moving parts, simple maintenance.

Product description

The CL70 series mass flowmeter is a Coriolis mass flowmeter

developed by Rodeweig for measuring low temperature medium such as liquefied natural gas. The flowmeter consists of a CL70 mass flow sensor and transmitter. The CL70 series sensor adopts the quadrilateral structure, which has the advantages of high measurement accuracy, wide range ratio and high reliability.

Efficient heat insulation technology is used to effectively control the

heat exchange between low-temperature media such as LNG and

the outside world when flowing through the sensor, and reduce the gasification of low-temperature media such as LNG in the pipeline, thereby reducing the impact of gasification on flow measurement. The transmitter uses digital signal processor (DSP) to process the acquired signal, and has the function of judging the real-time state

of the medium and other intelligent self-diagnosis.

Direct measurement of media variables:

- Medium mass flow rate: proportional to the phase difference of the vibration of the measuring tube
- Medium density: proportional to the vibration frequency of the measuring tube
- Medium temperature: temperature sensor measurement
- Indirect measurement of other variables in the medium

Medium volume flow, mass accumulation, volume accumulation and other variables

Product application

Mainly applicable to liquefied natural gas (LNG) liquid nitrogen, liquid oxygen, liquid CO2, liquid argon, liquid ammonia

Liquid plant, receiving station, terminal, laboratory,gasplant

Low temperature pump valve manufacturer test center





Technical parameter

Model number	Nominal o	diameter	Flow range	Maximum discharge	Zero point stability Eo kg/h		
Wodernumber	mm	in	kg/h	kg/h			
CL70-06	6	1/4	0-800	1600	0.06		
CL70-15	15	1/2	0-3000	5500	0.2		
CL70-25	25	1	0-12000	17000	0.9		
CL70-32	32	1 1⁄2	0-21000	30000	1.4		
CL70-50	50	2	0-60000	70000	4		
CL70-80	80	3	0-120000	160000	9		

Zero point stability

When the flow value approaches the minimum limit range of the flow range, the flowmeter accuracy begins to deviate from the declared accuracy, then the zero point stability must be considered, as described in the range ratio section. When the accuracy of the operating flow begins to deviate from the declared accuracy, the flowmeter accuracy will depend on the formula: Accuracy =(zero stability/flow value) x 100%. Repeatability is also affected by small flow measurements.

Process pressure rating

The maximum operating pressure of the sensor indicates the highest rating that the specified sensor can attain. The type of process connection as well as the ambient temperature and process fluid temperature may be reduced to the highest grade.

The maximum working pressure of the sensor

unit	stress
Sensor and process connector assembly	50 bar

Use EN 1092-1 PN40 F316/316L for sensor pressure and temperature ratings in the case of butt welded flanges



Environmental condition

unit	stress
Process medium temperature	-196 to +60°C
Ambient temperature	-40 to +60°C





Size mm





Process connection	Number of Flux tube	С	D	E	А	В
DN25	2	265	208	142	210	115
1 英寸	2	265	208	142	235	108
1 英寸	2	265	208	142	248	124

Cable

Cable Type	minimum bend radius						
	Static (no load)	Dynamic (with load)					
Sheathed cable	80mm	159mm					
Shielded cable	108mm	216mm					





CL70-Selection and composition Type selection example CL70 A G S C L O G 0.002 O 1-10 N G K G O B A H X 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

1.Instrur	nent struc	ture A	U-sł	naped													
	2.inp	ut/output G Two outputs, one 4-20mA output. one RS-485 (Modbus RTU)															
	signa		н	Densit	Density and temperature output												
			I	4-20m	4-20mA+switch output												
			J	4-20m	A												
			4-20m	4-20mA, HART protocol signal													
			L	FF bus	FF bus												
			М	PF bus	PF bus												
			Ν	GPRS	GPRS												
		3.Signal	type	S	S Analog signal processing												
				U	U digital signal processing												
				T()	othe	r											
		4.In	stallatio	on method	Α	Split	type	e (ind	cludir	ng 7i	m co	mmu	unicati	on cab	le)		
					В	Disk	mou	intec	type	Э							
					С	One	body	y typ	е								
			5	5.Langu	age	L	En	glish	1								
						М	Ge	erma	n								
						N	Ch	Chinese									
						T()	ot	her									
				6.	Conne	ection	0) .	Junct	tion	box	M20	x1.5				
) (Quick	soc	cket	WY2	4 (10P)				
									With	prod	cesso	or M2	20x 1.5				
					7.Accuracy G 0.10%												
							H 0.15%										
									I.	I 0.2%							
									Κ	0.2	25%						
								-	T()	otł	ner	r					
						8	.Dens	sity		S()	Note	densit	y			
								9.Wo	rking	pow	/er	Ν	exch	ange: /	AC220	V (50~	60Hz)
							1	supp	IY			0	direc	t-curre	ent: DC	24V	
												Ρ	DC24	V-110	/ and A	C80-2	20V(50~60Hz)
									10.	Rang	ge ro	ange	R()	Rang	e (Note	e range	e range)
					11.Explosion-proof A							Α	Intrinsi	cally safe	explosion protection		
						requirement B flameproof							eproof				
														Ν	There	e is no	
												12.F	Process co	onnection	G	Franc	cois
												Inte	erface		Н	Screv	v thread
															I	clam	0
													13.	Pressure	e rating	K	1.6MPa
																L	4.0MPa
																М	6.3MPa
																N	10MPa



CL70	Selectio	on exar	nd con	nposit 70 A	tion / G	S / C / L /	0 / G	/0.002/	0 /1	-10/ N	I / G	/ K	/ G	/ O	/ B	/ A	/ H	/ X
13 Pres	sure ratina	Δ	Class	150														
10.1103	Surcruting	B	Class	300														
		C	Class	400														
		D	Class	600														
		T()	Othe	rpress	ure lev	els												
	14 Tempe	rature	G	G -50~+180°C														
	range	racare	н	-50~+	-50~+245℃													
			1	-196~	+80°C													
	15.F	lanaes	tandard	N	GB9	12												
		5		0	HG/1	20592												
				Р	HG/1	20615												
				Q	NPT	DN10以下)												
				R	ANS													
				T()	Othe	connection st	andar	ds										
		16.	Flange co	nnection	U	DN03												
		sp	ecification	1	V	DN04												
					W	DN06												
					Х	DN10												
					Υ	DN15												
					Z	DN20												
					Α	DN25												
					В	DN32												
					С	DN40												
					D	DN50												
					Е	DN65												
					F	DN80												
					G	DN100												
					Н	DN150												
					I.	DN200												
					J	DN250												
					К	DN300												
					L	1"												
					М	2"												
					Ν	3"												
					0	4"												
					Р	5"												
					Q	6"												
					R	8"												
					S	10"												
					T()	Other flange s	pecific	ations										





CL70-Selection and composition

Type selection example CL70 | A | G | S | C | L | O | G | 0.002| O |1-10| N | G | K | G | O | B | A | H | X | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

17.Me	easuring	Α	316L									
tube	material	В	haste	hastelloy								
		С	Titan	Titanium product								
		T()	Other	r mater	ials							
	18.Lining m	naterial	G	PFA								
				H PTFE								
			I	rubb	er							
		19.Measurement			Х	General application						
	ap			n	Y	No precooling at low temperature						
					Z	Tracing heat						

Instructions:

It indicates that the CL70 low-temperature mass flowmeter structure is U-shaped, the input and output type is two outputs, one 4-20mA output, one RS-485 (Modbus RTU) signal type is analog signal processing, the installation mode is integrated, the display language is English, the wiring mode is junction box M20*1.5, 0.10% density: ±0.002g/cm3, 24VDC power supply, 1-10m³/h measurement range, no explosion proof, process interface flange, flange specification is DN25, pressure class is 1.6MPa, flange standard is HG/T 20592, temperature range is -50~+180°C, measuring tube material is 316L, lining material is PTFE, Item 19 in the table is optional.



Product Certification

Compliance and approval; Rodwig flow meters meet key standards and certifications for process measurement technology; To ensure the highest reliability in such settings;



