SLW Liquid Turbine Flow Meter

Product Overview

Liquid Turbine flow meters are used to measure clean liquids such as hydrocarbons, chemicals, water, fuels and other types of liquids with lower viscosity, and for applications requiring highly accurate and precise measurements.

Overview

SLW series Turbine Flow has its simple structure, light weight, high-accuracy, perfect repeatability, sensitivity, easy maintenance and use. It is widely used to measure liquid which has no chemical corrosive reaction with stainless steel 1Cr18Ni8Ti,2Cr13, corundum Al2O3and cemented carbide. This kind of measured liquid has no impurities such as fiber and particles. The movement viscosity is lower than $5\times10^{-6}m^2/s$ at working temperature. If the viscosity is higher than $5\times10^{-6}m^2/s$, the flow meter should be calibrated in the liquid before use. It can finish batch control, alarm and etc., if matched with special digital controllers. It is also the ideal meter for flow measuring and energy saving.

Features

- High accuracy; Normal type can reach ±1%R, ±0.5%R. High accuracy type can reach to ±0.25%R.
- Excellent repeatability, repeatability in a short time can reach to 0.05%~0.2%. Due to the excellent repeatability; customers can use it for trade purpose.
- Output pulse frequency signal, suitable for total flow measuring and connecting computer, no zero drift and strong ability in anti-noise.
- High frequency signal (10Hz~1.5KHz), strong signal resolution.
- Wide turn down ratio, max 1:20.
- Compact and light structure, convenience in installation and maintenance.
- Suitable to measure in high pressure. No need to open aperture on the meter, so it is easy to make high pressure meter.

Technical Specification

Table 1

Manufacture Standard	Turbine flow meter (JB/T9246-1999)	
Medium	Clean, low viscosity(≤5×10^{-6}m^2/ s), non-corrosive liquid	
Flange Standard	Standard GB/T9113-2000,option ANSI,JIS,DIN	
Thread Standard	Standard BSPP(male),option BSPP (female), NPT., etc.	
Accuracy	1.0%, 0.5%	
Turn Down Ratio	1:10-1:20	
Calibration	Methods	Master meter calibration Static weigh mass flow calibration
	Environment	Environment temperature: 20℃ Relative Humidity :65%
Working Condition	Medium temperature	T1: -20 ~80℃ T2: -20 ~120℃ T3: -20 ~150℃
	Environment temperature	-20 ~60℃
	Relative Humidity	5%-90%
	Atmospheric pressure	86Kpa-106Kpa
Enclosure Protection	SLW-N: IP60; others IP65	
Transmission Distance	No more than 1000 m	
Material	Housing: Standard-304 Stainless Steel; Optional-316 Stainless Steel Bearings and Shaft: Tungsten Carbide; Rotor: 2Cr13 Stainless Steel, duplex steel option Retaining Rings: 304 Stainless Steel	
Consumption	< 1W	
Communication	Modbus RTU/Hart Protocol	

Flow Range & Connection & Pressure Rating

Table 2

Size (mm)	Standard Flow (m^3/h)	Extended Flow (m^3/h)	Connection	Standard Pressure	Special Pressure
DN4	0.04-0.25	0.04-0.24	Thread	6.3Mpa	≤16Mpa
			Wafer	1.6Mpa	≤42Mpa
DN6	0.1-0.6	0.06-0.6	Thread	6.3Mpa	≤16Mpa
			Wafer	1.6Mpa	≤42Mpa
DN10	0.2-1.2	0.15-1.5	Thread	6.3Mpa	≤16Mpa
			Wafer	1.6Mpa	≤42Mpa
DN15	0.6-6	0.4-8	Thread	6.3Mpa	≤16Mpa
			Wafer	1.6Mpa	≤42Mpa
			Flange	4.0Mpa	≤10Mpa
DN20	0.8-8	0.45-9	Thread	6.3Mpa	≤16Mpa
			Wafer	1.6Mpa	≤42Mpa
			Flange	4.0Mpa	≤10Mpa
DN25	1-10	0.5-10	Thread	6.3Mpa	≤16Mpa
			Wafer	1.6Mpa	≤42Mpa
			Flange	4.0Mpa	≤10Mpa
DN32	1.5-15	0.8-15	Thread	6.3Mpa	≤16Mpa
			Wafer	1.6Mpa	≤42Mpa
			Flange	4.0Mpa	≤10Mpa
DN40	2-20	1-20	Thread	6.3Mpa	≤16Mpa
			Wafer	1.6Mpa	≤42Mpa
			Flange	4.0Mpa	≤10Mpa
DN50	4-40	2-40	Thread	1.6Mpa	≤16Mpa
			Wafer	1.6Mpa	≤25Mpa
			Flange	4.0Mpa	≤10Mpa

Size (mm)	Standard Flow (m^3/h)	Extended Flow (m^3/h)	Connection	Standard Pressure	Special Pressure
DN65	7-70	4-70	Thread	1.6Mpa	≤16Mpa
			Wafer	1.6Mpa	≤25Mpa
			Flange	1.6Mpa	≤6.3Mpa
DN80	10-100	5-100	Thread	1.6Mpa	≤16Mpa
			Wafer	1.6Mpa	≤25Mpa
			Flange	1.6Mpa	≤6.3Mpa
DN100	20-200	10-200	Wafer	1.6Mpa	≤16Mpa
			Flange	1.6Mpa	≤6.3Mpa
DN125	25-250	13-250	Wafer	1.6Mpa	≤16Mpa
			Flange	1.6Mpa	≤2.5Mpa
DN150	30-300	15-300	Wafer	1.6Mpa	≤16Mpa
			Flange	1.6Mpa	≤2.5Mpa
DN200	80-800	40-800	Wafer	1.6Mpa	≤10Mpa
			Flange	1.6Mpa	≤2.5Mpa

Product Classification

Table 3 SLW-N

No display, output pulse to upper computer, PLC, DCS., etc., Low cost and compact size, Enclosure Protection :IP60		
Power supply		DC 24V
Consumption		< 0.5W
Input signal Frequency		0~3000Hz
Pulse output	Pulse load	>1000Ω
	High level	>22V
	Low level	<0.8V
	Pulse width	$1/2f_{in}$×1000(ms)*1
Insulation resistance*2		>500MΩ

*1: fin is electrical pulse signal frequency which is inducted by coils from rotor.
*2: Insulation resistance is the insulation between test terminal and housing.

Table 4 SLW-A

No display, output 4-20mA to upper computer, PLC, DCS., etc., Low cost and compact size, Enclosure Protection: IP65		
Power supply		DC 24V
Consumption		< 0.5W
Input signal Frequency		0~3000Hz
4-20mA output	Current load	< 600Ω
	Output	2 wire 4-20mA
Insulation resistance*2		>500MΩ

*1: f_{in} is electrical pulse signal frequency which is inducted by coils from rotor.
*2: Insulation resistance is the insulation between test terminal and housing

Table 5 SLW-B

With display, output 4-20mA to upper computer, PLC, DCS., etc., Muti-points correction function, direct reading, not affected by outside power supply, thunder proof; □ 10 years data recorded after power off; Low cost and compact size, Enclosure Protection: IP65;		
Power supply		DC 3 V Battery powered
Min working voltage		>2V
Consumption	Working current	290±5uA
	Saving current	320±5uA *1
Battery Nominal Capacity		12Ah
Battery life time		56 months *2
Input signal Frequency		0~3000Hz
Insulation resistance		>500MΩ

*1 Saving current is the instant current peak value to save every 10 seconds when the transmitter in working status.
*2 Battery life time and working current is calculated value, Specific situations is different result.

Table 6 SLW-C, C1, C2, C3

With display, output 4-20mA or pulse to upper computer, PLC, DCS., etc., Modbus or Hart Protocol options		
Power supply		DC24V
Consumption		< 0.5W
Input signal Frequency		0~3000Hz
Pulse output (Option)	Pulse load	>1000Ω
	High level	>22V
	Low level	<0.8V
	Pulse width	$1/2f_{in}$×1000(ms)*1
4-20mA output (Option)	Current load	< 700Ω
	Output	4-20mA
Battery Nominal Capacity		12Ah
Insulation resistance*2		>500MΩ
Communication		RS485/Hart

*1: f_{in} is electrical pulse signal frequency which is inducted by coils from rotor.
*2: Insulation resistance is the insulation between test terminal and housing

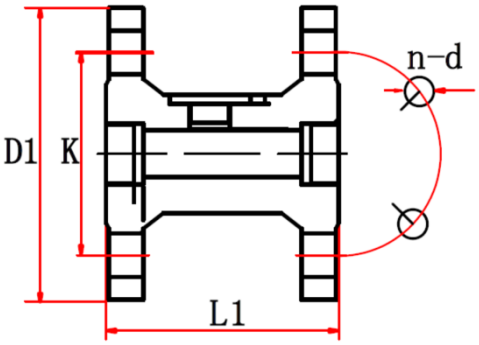
Model Selection

Table 7

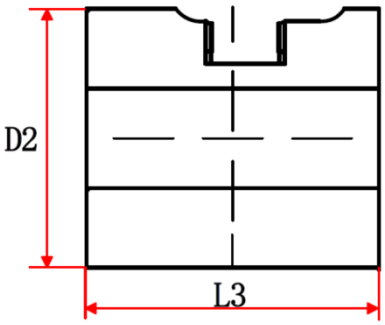
Item	Code	Description
General	SLW	Silver Liquid turbine flow meter
Nominal Diameter	DN4-200	DN4-DN200
Type	N	Without display, pulse output, 24VDC power supply
	A	Without display, 4-20mA output, 24VDC power supply
	B	With display, Battery powered, without output
	C	With display,4-20mA output, 24VDC power supply
	C3	With display, Pulse output, 24VDC power supply
	C2	With display,4-20mA output and Hart, 24VDC power supply
	C1	With display,4-20mA output and RS485, 24VDC power supply
	Cx	Customized
Accuracy	10	±1.0% of reading (DN4-DN10,DN125-DN200)
	05	±0.5% of reading (In line type,DN15-DN100)
	S	Customized
Flow Range	S	Standard (refer to table 2)
	E	Extended (refer to table 2)
Housing Material	S	304 Stainless Steel
	L	316 Stainless Steel
Rotor Material	H1	2Cr13
	H2	Duplex steel
Explosion Proof	N	Non explosion proof
	E	ExdIIBT6
Pressure rating	N	Standard, (refer to table 2)
	H(x)	Customized,(refer to table 2)
Temperature	T1	-20 ~80℃
	T2	-20 ~120℃
	T3	-20 ~150℃
Installation	FL	Flange connection
	LW	Thread Connection (Specify Thread standard when ordering)
	Tri	Tri-clamp
	JZ	Wafer type connection
	S	Others
Addition option	H	With Hausman Connector

Sample: SLW-25/C/05/S/S/H1/N/T1/FL
Liquid turbine flow meter, DN25, With display, 4-20mA output, 24VDC power supply, accuracy 0.5%, standard flow range 1-10m3/h, 304 Stainless Steel Housing Material, non explosion proof, 4.0Mpa, temperature: -20~80℃, flange connection.

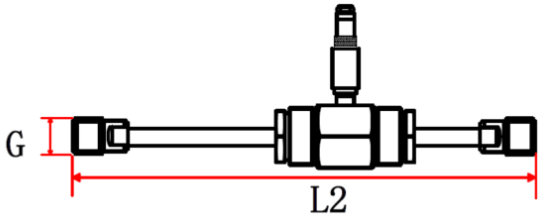
Dimension



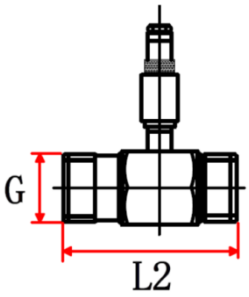
DN15-DN200 Flange Connection



DN4-DN200 Wafer Type



DN4-DN10 Thread Connection



DN15-DN50 Thread Connection

Table 8

Size (mm)	Flange					Thread		Wafer	
	L1(mm)	D1(mm)	K(mm)	d(mm)	n(Hole)	L2	G(male)	L3	D2
4						225	G1/2	50	38
6						225	G1/2	50	38
10						345	G1/2	50	38
15	75	95	65	14	4	75	G1	55	47
20	80	105	75	14	4	80	G1	60	54
25	100	115	85	14	4	100	G4/5	60	57
32	140	140	100	14	4	140	G2	70	66
40	140	150	110	18	4	140	G2	70	72
50	150	165	125	18	4	150	G5/2	70	92
65	170	185	145	18	4			80	100
80	200	200	160	18	8			90	112
100	220	220	180	18	8			100	137
125	250	250	210	18	8			120	165
150	300	285	240	22	8			150	190
200	360	340	295	22	12			150	243