KLINGER LIQUID TURBINE

Flow meter

The liquid turbine flow sensor is based on the principle of torque balance and belongs to the velocity-type flow meter.

The sensor has the characteristics of simple structure, lightweight, high precision, good repeatability, sensitive response, convenient installation and maintenance, etc. It is widely used in petroleum, chemical, metallurgy, water supply, papermaking, and other industries. It is an ideal instrument for flow measurement and energy saving.

FEATURES

- Simple structure, lightweight, high accuracy, good repeatability.
- Multiple outputs can be optional.
- Low power consumption, long life, and easy to operate.
- High-definition backlight LCD.
- Professional explosion-proof enclosure.

PRODUCTS GALLERY

LCD Flange Connection Type

Sanitary Tri-clamp Connection Type

Pulse or 4-20mA Output Type

Original Pulse Output Type

TECHNICAL DATA

DIAMETER	DN4-DN200 (DN4-DN40 supports thread connection; DN15-DN200 supports flange connection)
ACCURACY	±0.5%
SENSOR MATERIAL	SS304 as default; SS316L is optional
AMBIENT TEMPERATURE	-20°C to +60°C
MEDIUM TEMPERATURE	-20°C to +120°C
PROTECT LEVEL	IP65
OUTPUT	Pulse, 4~20mA

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COMMUNICATION	Modbus-RS485
POWER SUPPLY	24V DC as default; battery & 220V AC as optional
ELECTRICAL INTERFACE	Basic type: Horseman connector or three-conductor cable Explosion-proof type: M20*1.5
EXPLOSION-PROOF	ExdIICT4
PROCESS CONNECTION	Flange/wafer/thread/tri-clamp

FLOW RANGE & PRESSURE RATING

DN (MM)	FLOW RANGE (M3/H)	PRESSURE RATING (MPA)
DN4	0.04-0.25	Thread 6.4MPa
DN6	0.1-0.6	Thread 6.4MPa
DN10	0.2-1.2	Thread 6.4MPa
DN15	0.6-6	Thread 6.4MPa
		Flange 2.5MPa
DN20	0.8-8	Thread 6.4MPa
		Flange 2.5MPa
DN25	1-10	Thread 6.4MPa
		Flange 2.5MPa
DN32	1.5-15	Thread 6.4MPa
		Flange 2.5MPa
DN40	2-20	Thread 6.4MPa
		Flange 2.5MPa
DN50	4-40	Flange 2.5MPa
DN65	7-70	Flange 1.6MPa
DN80	10-100	Flange 1.6MPa
DN100	20-200	Flange 1.6MPa
DN125	25-250	Flange 1.6MPa
DN150	30-300	Flange 1.6MPa
DN200	80-800	Flange 1.6MPa

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INSTALLATION DIMENSION

The installation method of the sensor is different according to the specifications, using thread or flange connection, the installation method is shown in Figure 1, Figure 2, and Figure 3.

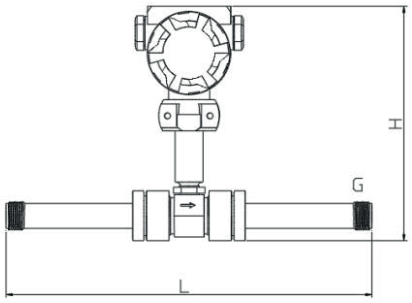

Figure 1 DN4-DN10mm Threaded connection type (including straight pipe section)

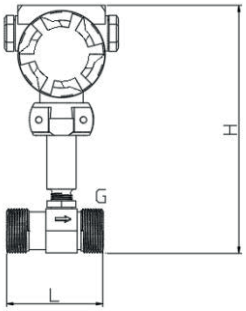

Figure 2 DN15-DN50 mm Threaded connection type

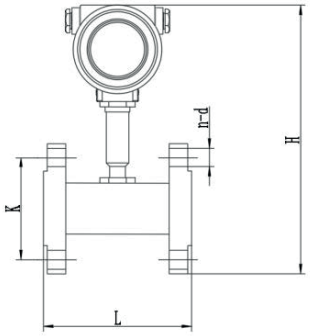

Figure 3 DN15-DN200 mm Flange connection type

NOMINAL DIAMETER (MM)	METER LENGTH L (MM)	MALE THREAD G	FLANGE OUTER DIAMETER D (MM)	CENTER DISTANCE K (MM)	HEIGHT H (MM)	BORE DIAMETER D (MM)	BORE COUNT (N)
DN4	225	G1/2			200		
DN6	225	G1/2			200		
DN10	345	G1/2	90	60	200	14	4
DN15	75	G1	95	65	260	14	4
DN20	85	G1	105	75	270	14	4
DN25	100	G1/-1/4	115	85	280	14	4
DN32	120	G1/-1/2	140	100	290	18	4
DN40	140	G2	150	110	300	18	4
DN50	150	G2/-1/2	165	125	310	18	4
DN65	175	G3	185	145	330	18	4
DN80	200		200	160	340	18	8
DN100	220		220	180	360	18	8
DN125	250		250	210	390	18	8
DN150	300		285	240	420	22	8
DN200	360		340	295	470	22	12

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INSTALLATION DIMENSION

The sensor can be installed horizontally and vertically, and the fluid direction must be upwards when installed vertically. The liquid should fill the pipe and there should be no air bubbles. When installing, the direction of liquid flow should be consistent with the direction of the arrow indicating the flow direction on the sensor housing. The upstream end of the sensor should have at least a straight pipe section with a length of 20 times the nominal diameter, and the downstream end should have a straight pipe section with a length of not less than 5 times the nominal diameter. The axis of the pipeline of the sensor should be aligned with the axis of the adjacent pipeline, and the gasket used for connection and sealing should not penetrate the inner cavity of the pipeline.

The sensor should be kept away from external electric and magnetic fields, and effective shielding measures should be taken if necessary to avoid external interference. In order not to affect the normal delivery of the liquid during maintenance, it is recommended to install a bypass pipe at the installation location of the sensor. When the sensor is installed in the open air, please do waterproof treatment on the amplifier and plug.

When the fluid contains impurities, a filter should be installed. The mesh of the filter is determined according to the flow rate of impurities, generally 20 to 60 mesh. When the fluid is mixed with free gas, an air eliminator should be installed. The entire piping system should be well sealed. Users should fully understand the corrosion of the measured medium to prevent the sensor from being corroded.

Use and adjustment

- When using, the liquid to be tested should be kept clean and free of impurities such as fibers and particles.
- When the sensor starts to use, it should fill the sensor with liquid slowly, and then open the outlet valve. It is strictly forbidden for the sensor to be impacted by high-speed fluid when it is in a liquid-free state.
- The maintenance period of the sensor is generally half a year. When overhauling and cleaning, be careful not to damage the parts in the measuring chamber, especially the impeller. When assembling, please pay attention to the positional relationship between the guide and the impeller.
- When the sensor is not in use, the internal liquid should be cleaned, and protective sleeves should be placed on both ends of the sensor to prevent dust and dirt from entering, and then stored in a dry place.
- The filter should be cleaned regularly when it is used. When not in use, the liquid inside should be cleaned. Like the sensor, add a dust cover and store it in a dry place.
- The transmission cable of the sensor can be laid overhead or buried (iron pipes should be covered when buried.)
- Before installing the sensor, firstly connect the cable with the display instrument or oscilloscope, turn on the power supply, blow the impeller by mouth or turn the impeller by hand to make it rotate quickly to observe whether there is a display, and then install the sensor when there is a display. If there is no display, check the relevant parts and troubleshoot.

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MODEL SELECTION

SPECIFICATIONS	MODEL CODE										DETAILS
LWGY											Liquid Turbine Flow meter
DIAMETER	XXX										Stand for diameter 004: DN4; 006: DN6 100: DN100; 200: DN200
CONVERTER TYPE		P1									24V DC; Pulse output; No display
		P2									24V DC; Pulse output; No display; Ex
		A									24V DC; 4-20mA output; No display; Ex
		D1									Battery power supply; No output; Ex; Digital display
		D2									24V DC; 2/3 wires4-20mA/ Pulse output; Ex; Digital display
ACCURACY			05								± 0.5 % of rate
BODY MATERIAL					S4						SS304
					S6						SS316L
EXPLOSION-PROOF							CT				SS304
							NA				SS316
CONNECTION									THM		Male thread; Available from DN4... DN50
									THF		Female thread; Available from DN4...DN50
									WAF		Water connection
									TRC		DN10-DN 100 (Sanitary type)
									DXX		D16: DIN PN16 Flange; D25: DIN PN25 Flange...
									AXX		A15: ANSI 150# Flange; A30: ANSI 300# Flange...
									JXX		J10: JIS 10K Flange; J20: JIS 20K Flange

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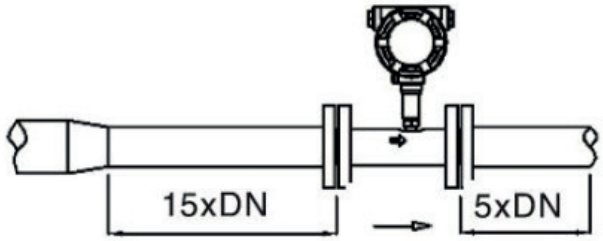
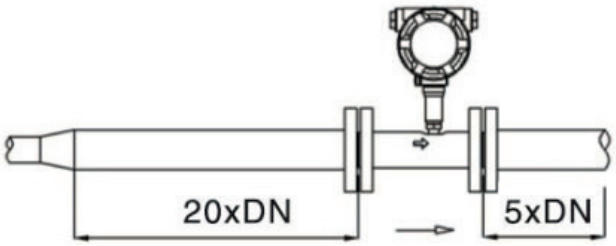
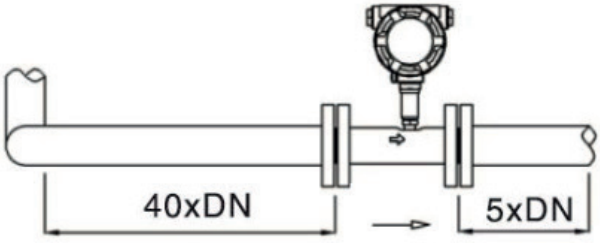
INSTALLATION



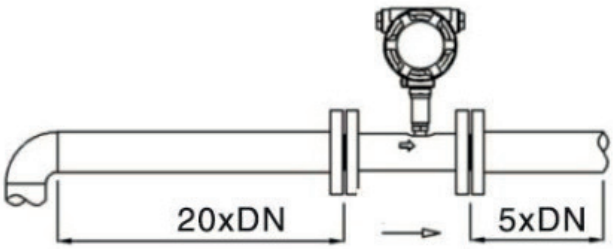
1. Concentric contraction fully open valve



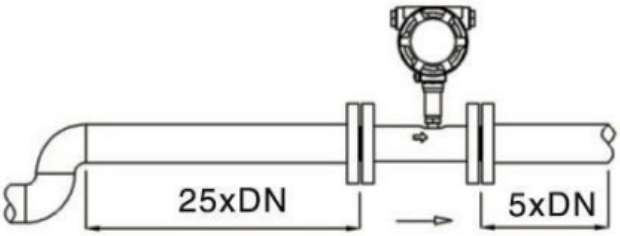
2. Concentric expansion valve



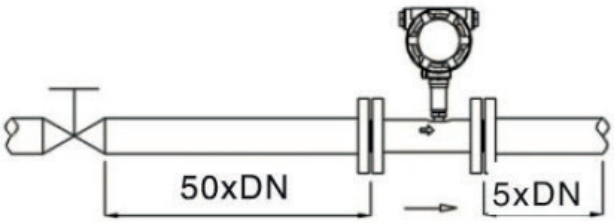
3. Two 90 degree bends on different levels



4. One 90 degree bend



5. Two 90 degree bends on one level



6. Half opening valve of regulating valve

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