Model LB
Scraper Flow Meter

Model LB scraper flow meter is a kind of volumetric flow-measuring instrument, used to measure the volume flow in the enclosed pipes.

This flow meter can provide on-site display of accumulated flow; when coupled with relevant photoelectron pulse converter and various flow totalizers through its transmission output interface, it can also carry out remote measurement、display、and control.

High accuracy、excellent repeatability、wide range ability、and not so strict demand for straight pipe on upstream or downstream side of flow meter is its outstanding features.

This flow meter is suitable for those fluids with higher viscosity, and the change of viscosity will not have great influence on measurement value. However, it can be only usable for non-corrosive liquid such as crude oil and petroleum products.

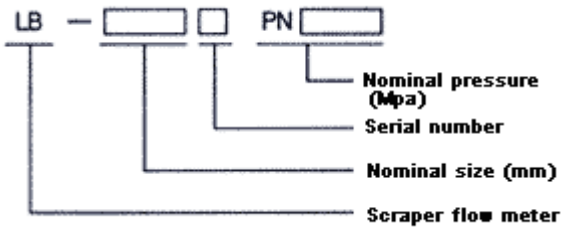
The standard for this product is Q/YXBM 193-2001, while the inspecting regulation thereof is JJG 667-97 'for volumetric flow meter of liquid'.

□Principal Specifications

Model	Nominal size mm	Nominal pressure MPa	Maximum flow rate m3/h	Speed of transmission output shaft m3/r
LB-50	50	1.6 2.5 4.0 6.3	25	0.01
LB-80	80		60	
LB-100	100		100	
LB-150	150		250	0.1
LB-200	200		400	
LB-250	250		600	
LB-300	300		1000	

Accuracy:	0.2 % (for range ability 5 : 1)
	0.5 % (for range ability 10 : 1)
Temperature of medium:	0～120℃ (special order for temperature: ＞120℃)
Viscosity range of medium:	3～500 mPa · s
Maximum pressure loss:	＜0.03Mpa (when viscosity = 3 mPa · s)
Mode of pipe connection:	flange connection (with flanges according to the standard JB/T79-94)

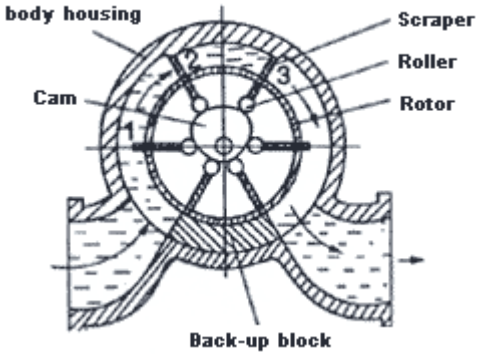
□Model designation



□Operating Principle

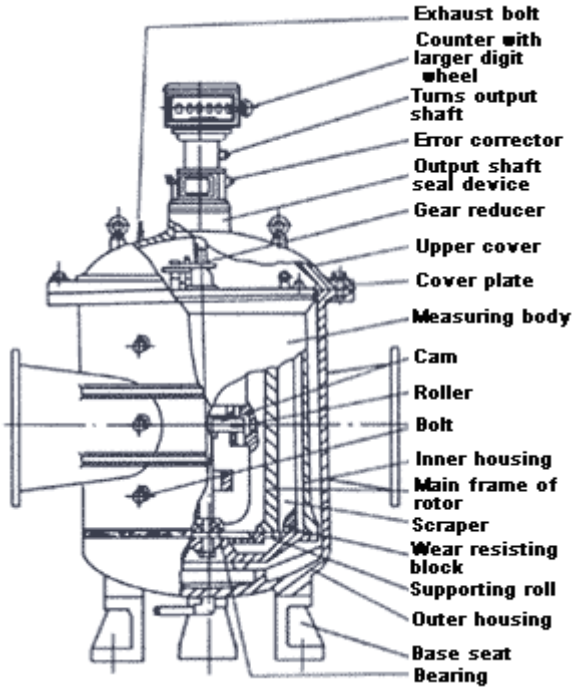
As shown in figure below, the scrapers could be pushed to rotate together with the rotor by the driving force of fluid. In the process of rotation, individual scrapers would stretch out or draw back in sequence one after another under the

action of cam, thus continuously forming a measuring cavity of changing shape between the meter wall and scrapers. Since the volume of cavity is constant, turns of rotor should be proportional to the volume flow of passing fluid. And with the help of reduction gear, the volume flow could be displayed by the counter of flow meter.

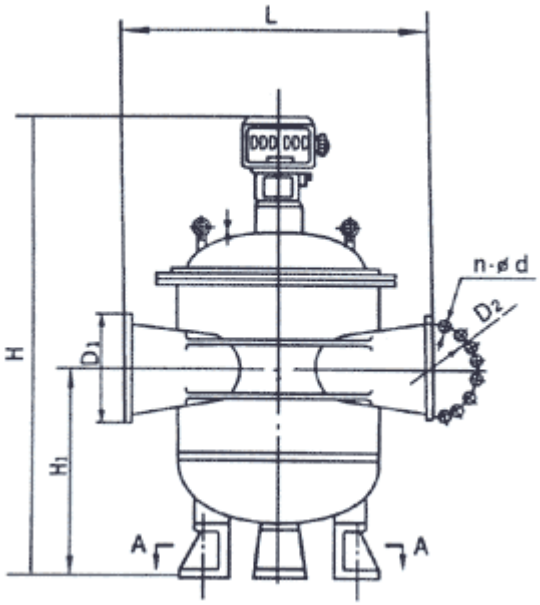


☐Structure Diagram

Scraper flow meter is principally composed of body、measuring cavity、gear reducer、output shaft seal device、error corrector、and counter.

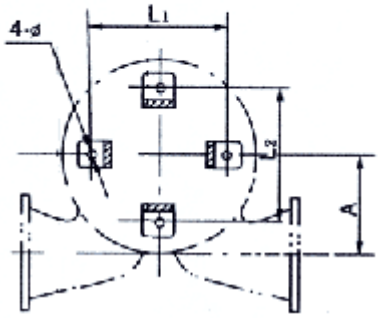


☐Overall dimensions for mounting



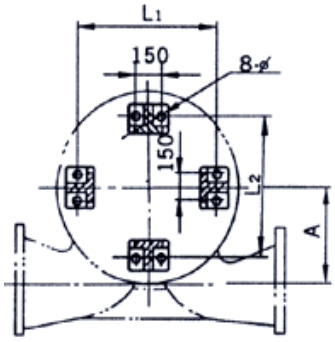
• LB–50 ~ 200

A-A



• LB–250 ~ 300

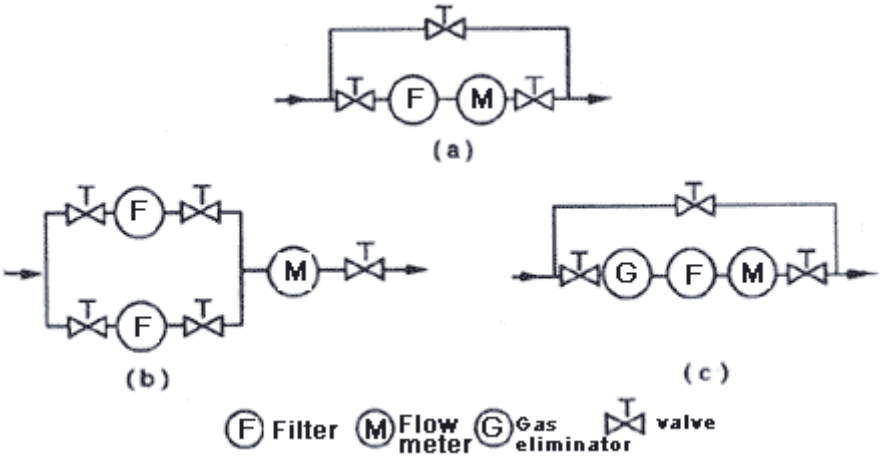
A-A



Model	Nominal Pressure MPa	Overal lheight H	Height ofcenter H1	Location ofbase seat A	Location of basebolts L1×L2	Aperture ofbase bolts Φ	Distance between flanges L	Outer diameter of flanges D1	Circle of bolthole centers D2	Aperture of bolts n-Φd	Connecting bolts n-Md1	Weight kg
LB-50	1.6	868	208	100	230×230	4-Φ23	360	Φ160	Φ125	4-Φ18	4-M16	55
	2.5							Φ160	Φ125	4-Φ18	4-M16	55
	4.0							Φ160	Φ125	4-Φ18	4-M16	55
	6.3							Φ175	Φ135	4-Φ23	4-M20	55
LB-80	1.6	963	310	150	320×320	4-Φ23	460	Φ195	Φ160	4-Φ18	4-M16	95
	2.5							Φ195	Φ160	4-Φ18	4-M16	95
	4.0							Φ195	Φ160	4-Φ18	4-M16	95
	6.3							Φ210	Φ170	4-Φ23	4-M20	95
LB-100	1.6	963	310	150	320×320	4-Φ23	500	Φ215	Φ180	4-Φ18	4-M16	100
	2.5							Φ230	Φ190	4-Φ23	4-M20	100
	4.0							Φ230	Φ190	4-Φ23	4-M20	100
	6.3							Φ230	Φ200	4-Φ25	4-M22	100
LB-150	1.6	1263	420	190	420×420	4-Φ27	650	Φ280	Φ240	8-Φ23	8-M20	380
	2.5							Φ300	Φ250	8-Φ25	8-M22	380
	4.0							Φ300	Φ250	8-Φ25	8-M22	380
	6.3							Φ340	Φ280	8-Φ34	8-M30	380
LB-200	1.6	1343	500	300	480×480	4-Φ27	700	Φ335	Φ295	12-Φ23	12-M20	700
	2.5							Φ360	Φ310	12-Φ25	12-M22	700
	4.0							Φ375	Φ320	12-Φ30	12-M27	700
	6.3							Φ405	Φ345	12-Φ34	12-M30	700

LB-250	1.6	1650	680	350	560×560	8-Φ23	1000	Φ405	Φ355	12-Φ25	12-M22	1200
	2.5							Φ425	Φ370	12-Φ30	12-M27	1200
	4.0							Φ445	Φ385	12-Φ34	12-M30	1200
	6.3							Φ470	Φ400	12-Φ41	12-M36	1200
LB-300	1.6	1720	786	410	660×660	8-Φ23	1000	Φ460	Φ410	12-Φ25	12-M22	2200
	2.5							Φ485	Φ430	16-Φ30	16-M27	2200
	4.0							Φ510	Φ450	16-Φ34	16-M30	2200
	6.3							Φ530	Φ460	16-Φ41	16-M36	2200

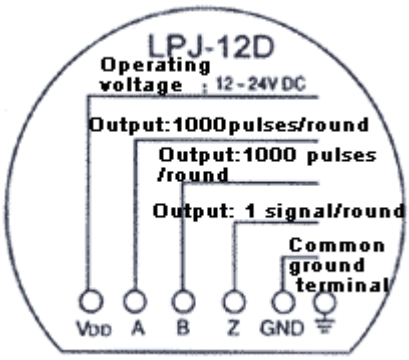
☐Mode of pipe installation (sketch)



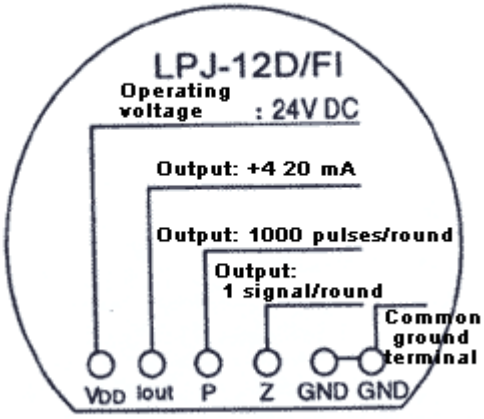
Notes: Requirements for mounting:
• Select mounting location with less vibration and free from high temperature and moisture.
• Mount the flow meter upright on a horizontal pipe.
• Before mounting flow meter, it is necessary to clear away all impurities as sludge and welding dregs out of the pipe.
• The flow meter should be located at a lower place so as to separate gas from the measured fluid at other higher places. If necessary, a gas eliminator should be mounted ahead of the flow meter.
• Filter and gas eliminator should be mounted on the upstream side of flow meter, while adjusting valve should be mounted on the downstream side.

☐Wiring terminal diagram of photoelectron pulse converter

• LPJ-12D (explosion-proof type)



• LPJ-12D/FI (explosion-proof type)



Attachable instruments

• Photoelectron pulse converter

Model	Function Description
LPJ-12D	Explosion isolation type, contact signal: 1 time/round,dual channel pulse signal: 1000 times/round with phase difference 90°.
LPJ-12D/FI	In addition to the functions of LPJ-12D, output of analogue signal 4～20mA could be provided.

• Digital flow totalizer

Model	Function Description
XSJ-39A(I、K)	Simultaneously displaying momentary flow rate and total flow; 4 to 20 mA output; flow control for fixed displacement is feasible.
XSJ-39B(I)	Total flow and flow rate display; 4 to 20 mA output; with error less than ±0.1%; compact structure; LED or LCD display selectable; power off protection durable over five years.
XSF-40A	Accumulating total flow and indicating instantaneous flow rate; 0～10 mA or 4～20 mA output.
SXP-3113	Modular design; compensating for temperature、pressure as desired; displaying total amount、momentary rate and its percentage of mass or volume flow; 0～10mA or 4～20 mA output, also usable for accumulating and indicating gas flow.
XSK-10B	Digital flow controller for fixed displacement, usable for proportional bottling; displaying flow rate and total flow of liquid.

□Ordering Information

1.If dirt or silt might be contained in the fluid medium, it is necessary to install filters.
2.If gas might be contained in liquid, it is necessary to allocate gas eliminators.
3.If remote display and allocation of controller、recorder or other instruments are required, customers can order various photoelectron pulse converters and flow totalizers of this company for use with flow meters. For details, refer to related manuals.
·please submit the model of flow meter and its specifications;
·please point out name of fluid medium, with its viscosity、normal pressure、nominal pressure and range of operating temperature.
·Please submit normal flow rate、flow range of fluid and required measuring accuracy .
·If allocations of this company's photoelectron pulse converter、filter、gas eliminator and flow totalizer are required, they could be ordered at the same time.
·For special requirements, please consult with our sales department.