QTLC Series
Oval Gear Flow Meter

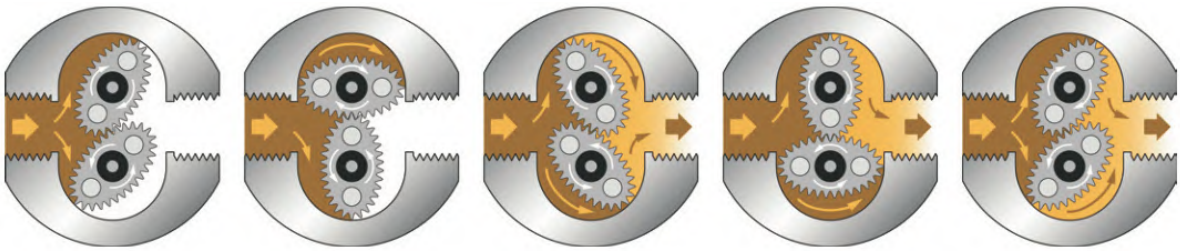
CATALOGUE

Overview

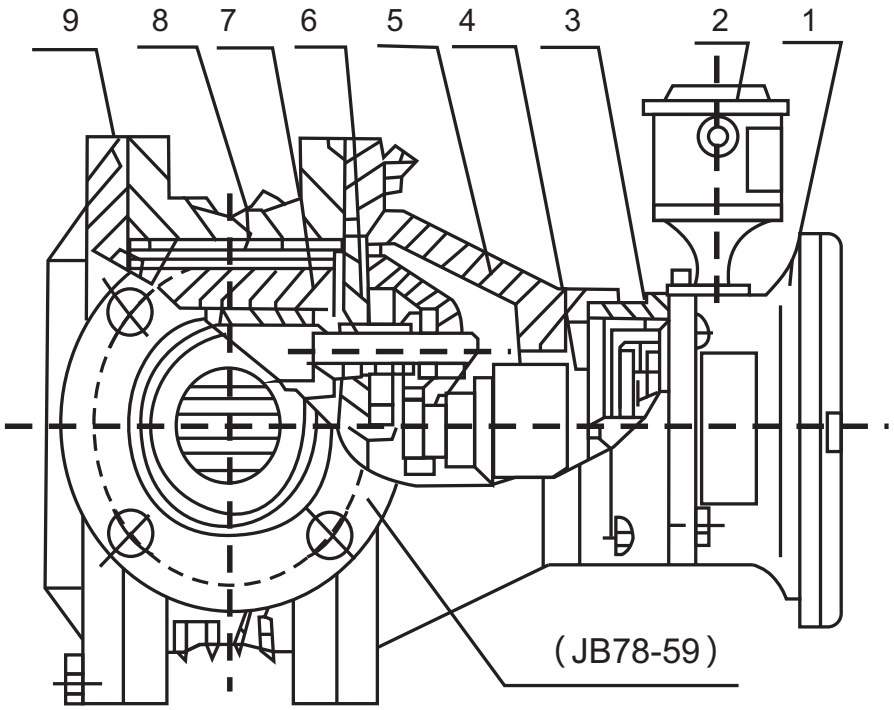
Oval gear flow meter is one of positive displacement flow meter and is mainly composed of meter shell, oval gear rotor and converter. It is an instrument used for continuous or discontinuous metering and control of liquids in the pipeline. It has advantages of large metering range, excellent accuracy, small pressure loss and high viscosity adaptability etc; It has good performance on measuring high-temperature and high-viscosity liquids. It is applicable to the calibration and metering of crude oil, chemical, chemical fiber, traffic, commerce, food, medicine and health, scientific research and military etc.

Working Principle And Structure

Flow meter is installed in the metering tank and the measurement of a pair of oval box gear, with the upper and lower cover an early Lunar sealed cavity (due to rotation of the gear, so sealing is not an absolute) as a unit of emissions. When measured by the pipe into the liquid flow meter, due to pressure generated by the Import and Export Department to promote a pair of differential gears for rotation, the constant measurement by cavity after the beginning of the Lunar liquid delivery to the exit, elliptical gear with each revolution time displacement is the product of four times the measured volume of liquid flow.



Flow meter is made by the shell, counter, oval gear and coupling (magnetic coupling and sub-axial coupling) and so on.

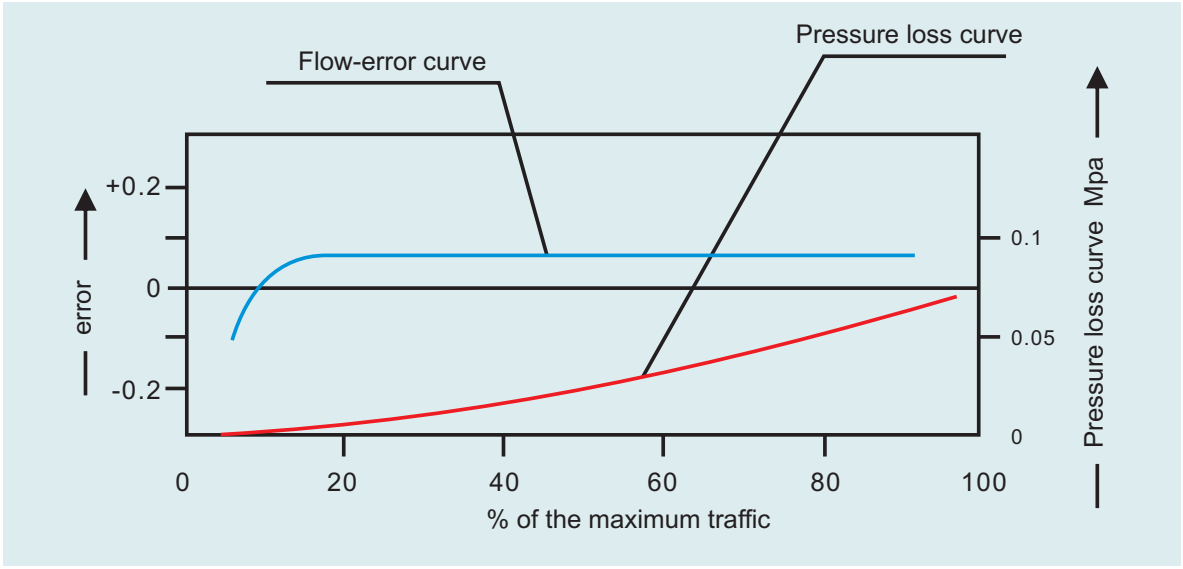


1. Counter
2. Signal output
3. Precision regulator (DN50 and above only)
4. Sealing the coupling
5. Front cover
6. Flat
7. Oval gear
8. Shell
9. Rear cover

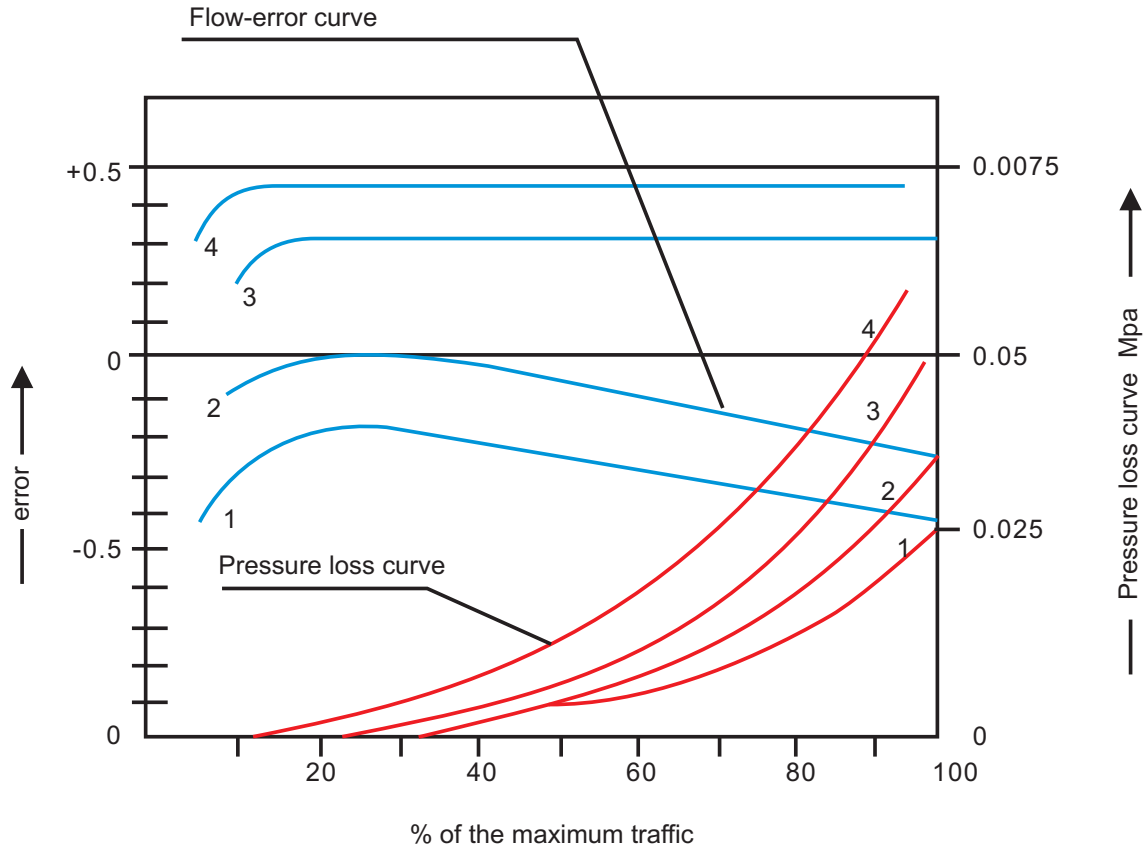
Main Technical Parameters

Model	QTLC
Transmitter Type	Pointer with zero returning, Pointer display with Output, LCD display
Medium	Fuel Oil, Petroleum, Petroleum Products, Vegetable Oil, Food, Chemicals
Accuracy	±0.2%, ±0.5%
Nominal Diameter	DN8~DN200 (1"~4")
Nominal Pressure	1.6~6.3MPa
Fluid Temperature	Mechanical: -20°C~+80°C std, -20°C~+200°C opt. Digital display: -20°C~+60°C std, -20°C~+150 opt
Fluid Viscosity	2~10000mPa.s
Power Supply	12VDC, 24VDC
Output Signal	Pulse, DC4~20mA, RS485
Display	Accumulative Flow, Single Measurement(Mechanical Dial), Remote transmission of total and instantaneous flow
Error Adjustment	Changing Gear Adjustment
Level Of Protection	IP65
Explosion Proof	Flame-proof Type, ExdIIBT4
Ambient Temperature	-20°C~+55°C
Sensor Material	Cast Iron, Cast Steel, Stainless Steel
Sensor Connection	Flange, Thread, Tri-clamp

0.2% Accuracy Flow Meter Error And Pressure Loss Curve



0.5% Accuracy Flow Meter Error And Pressure Loss Curve



Flow Range for Different Model

Cast Iron type (A), Cast Steel type (E), Stainless Steel type (B)

Item \ Model	LC-A Cast Iron		LC-E Cast Steel		LC-B Stainless Steel	
Pressure (MPa)	1.0, 1.6		2.5, 4.0, 6.4		1.0, 1.6	
Medium's Viscosity	2~200 mPa.s					
Operating Temperature	Mechanical: -20°C~+80°C std, +200°C opt. Digital display: -20°C~+60°C std, +150 opt					
Flow range m^3/h						
Nominal size (mm) \ Model	LC-A Cast Iron		LC-E Cast Steel		LC-B Stainless Steel	
	±0.5%	±0.2%	±0.5%	±0.2%	±0.5%	±0.2%
8	0.02~0.5	0.024~0.5	0.02~0.5	0.024~0.5	0.02~0.5	0.024~0.5
10	0.08~0.4	0.1~0.4	0.08~0.4	0.1~0.4	0.1~0.5	0.1~0.5
15	0.25~1.5	0.3~1.5	0.25~1.5	0.3~1.5	0.3~1.5	0.3~1.5
20	0.5~3	0.6~3	0.5~3	0.6~3	0.6~3	0.6~3
25	1~6	1.2~6	1~6	1.2~6	1.2~6	1.2~6
40	2.5~15	3~15	2.5~15	3~15	3~15	3~15
50	4~24	4.8~24	4~24	4.8~24	4.8~24	4.8~24
80	10~60	12~60	10~60	12~60	12~60	12~60
100	16~100	20~100	16~100	20~100	20~100	20~100
150	32~190	38~190	32~190	38~190	38~190	38~190
200	34~340	68~340	34~340	68~340	68~340	68~340

High temperature Cast Iron (TA), Cast Steel type (TE), Stainless Steel type (TB)

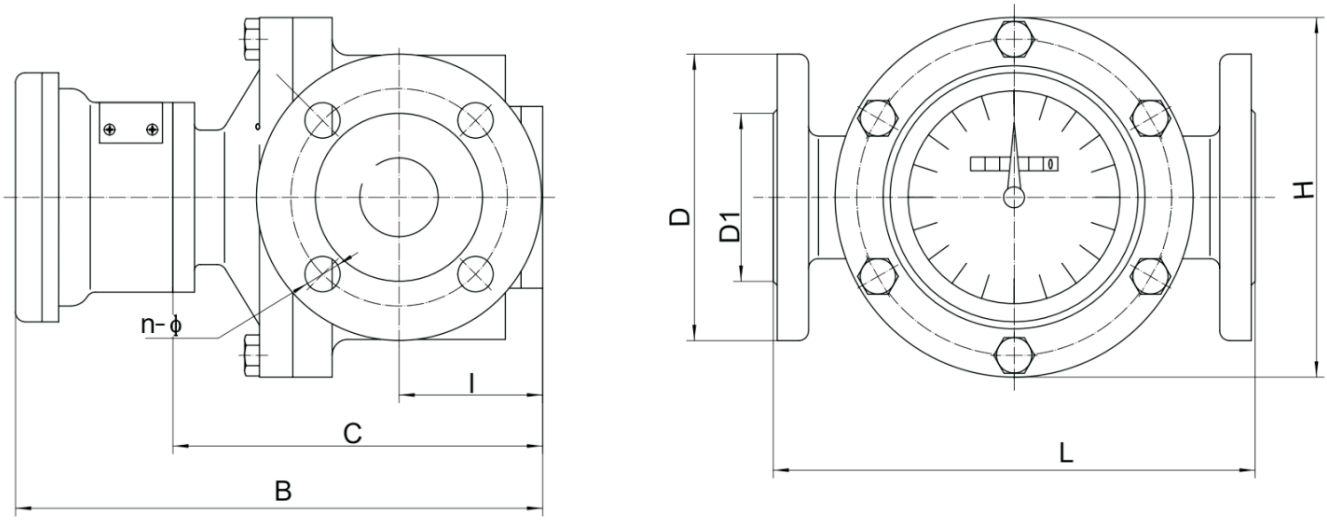
Model / Item	LC-TA Cast Iron		LC-TE Cast Steel		LC-TB Stainless Steel	
Pressure (MPa)	1.0, 1.6		2.5, 4.0, 6.4		1.0, 1.6	
Medium's Viscosity	2~200 mPa.s					
Operating Temperature	Mechanical: -20°C~+80°C std, +200°C opt. Digital display: -20°C~+60°C std, +150 opt					
Flow range m^3/h						
Model / Nominal size (mm)	LC-TA Cast Iron		LC-TE Cast Steel		LC-TB Stainless Steel	
	±0.5%	±0.2%	±0.5%	±0.2%	±0.5%	±0.2%
8	0.02~0.5	0.024~0.5	0.02~0.5	0.024~0.5	0.02~0.5	0.024~0.5
10	0.08~0.4	0.1~0.4	0.08~0.4	0.1~0.4	0.1~0.5	0.1~0.5
15	0.24~1.35	0.35~1.35	0.24~1.35	0.35~1.35	0.36~1.35	0.36~1.35
20	0.54~2.7	0.72~2.7	0.54~2.7	0.72~2.7	0.72~2.7	0.72~2.7
25	1.2~5.4	1.4~5.4	1.2~5.4	1.4~5.4	1.4~5.4	1.4~5.4
40	2.7~13.5	3.6~13.5	2.7~13.5	3.6~13.5	3.6~13.5	3.6~13.5
50	4.4~21.6	5.75~21.6	4.4~21.6	5.75~21.6	5.75~21.6	5.75~21.6
80	10.8~54	14.4~54	10.8~54	14.4~54	14.4~54	14.4~54
100	18~90	24~90	18~90	24~90	24~90	24~90
150	38~170	45.6~170	38~170	45.6~170	45.6~170	45.6~170
200	34~340	68~340	34~340	68~340	68~340	68~340

High viscosity Cast Iron (NA), Cast Steel type (NE)

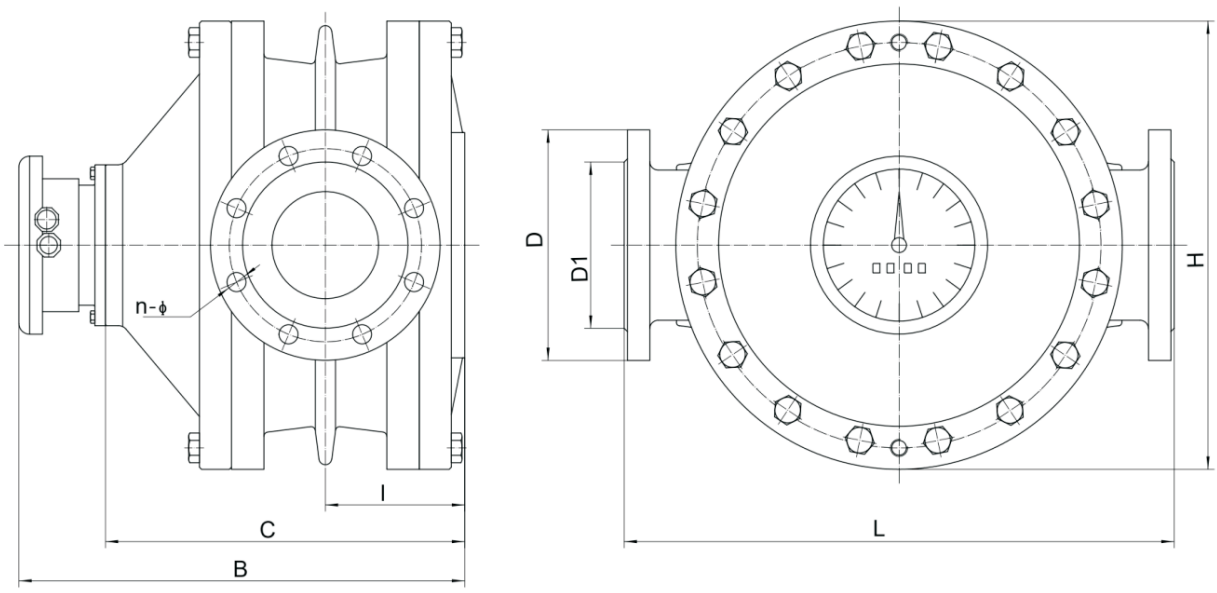
Model	LC-NA Cast Iron	LC-NB Stainless Steel	LC-NE Cast Steel
Pressure (MPa)	1.6		2.5,6.4
Medium's Viscosity	200~3000 mPa.s		
Temperature	Mechanical: -20°C~+60°C std, +80°C opt. Digital display: -20°C~+60°C std, +150°C opt		
Accuracy	±0.5%		

Flow range m^3/h										
DN	10	15	20	25	40	50	80	100	150	200
Flow	0.04~0.2	0.15~0.75	0.3~1.5	0.6~3	1.5~7.5	2.4~12	6~30	10~50	38~100	34~300

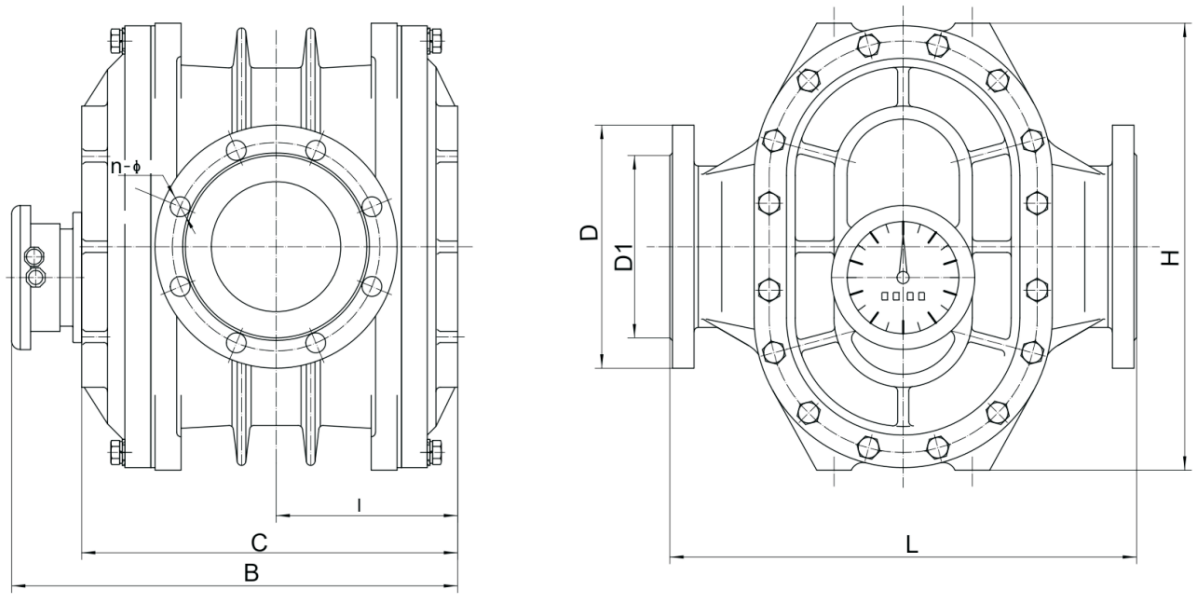
Dimensions



DN10~DN40



DN50~DN100



DN150, DN200

(A) Cast iron type; Cast iron high viscosity type; High temperature cast iron type; Other cast iron type (Units: mm)

DN	L	H	A	B	D	D1	N	Φ
10	150	100	165	210	90	60	4	14
15	170	118	172	226	95	65	4	14

20	200	150	225	238	105	75	4	14
25	260	180	232	246	115	85	4	14
40	245	180	249	271	145	110	4	18
50	340	250	230	372	160	125	4	18
65	420	325	270	386	180	145	4	18
80	420	325	315	433	195	160	8	18
100	515	418	370	458	215	180	8	18
150	540	515	347	557	280	240	8	23
200	650	650	476	720	335	295	12	23

Note: Above oval gear flow meter drawing is DIN PN16 flange, other standards can be provided on request.

(B) Cast steel type, steel high viscosity type, high temperature steel type Units: mm

DN	L	H	B	A	D	D1	N	Φ
15	200	138	232	180	105	75	4	14
20	250	164	220	160	125	90	4	18
25	300	202	252	185	135	100	4	18
40	300	202	293	208	165	125	4	23
50	384	262	394	312	175	135	4	23
80	450	337	452	332	210	170	8	23
100	555	442	478	310	250	200	8	25
150	540	510	557	347	300	250	8	26
200	650	650	720	476	36	310	12	26

Note: Above oval gear flow meter drawing is DIN PN16 flange, other standards can be provided on request.

Cast iron, cast steel oval gear flow meters type high-temperature size: DN15 ~ DN25, A, B according to the table, data size plus 160mm extension tube heat: DN40 ~ DN80, A, B-size table size increases by thermal extension of 300mm pipe, rest size of the corresponding size table Ibid

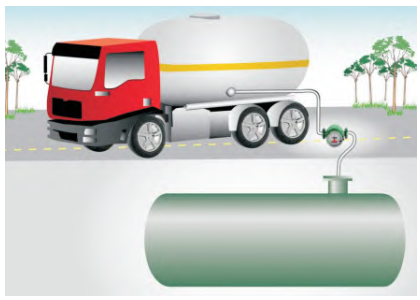
(C) Stainless steel type Units: mm

DN	L	H	B	A	D	D1	N	Φ
15	208	120	228	172	95	65	4	14
20	236	150	238	225	105	75	4	14
25	287	195	246	232	115	85	4	14
40	265	178	349	265	145	110	4	18
50	265	178	349	265	160	125	4	18
65	365	260	436	319	180	145	4	18
80	420	305	459	324	200	160	8	18
100	515	400	554	373	220	180	8	18
150	540	515	607	397	280	240	8	23

Above oval gear flow meter drawing is DIN PN16 flange, other standards can be provided on request.

Application Examples

Oil Depot System



Fuel Oil transferring

On Boat

Oil Truck

Model Selection

QTLC	xxx	x	x	x	x	x	x	x	x	x	x	x
Size (mm)	DN8~DN200mm (1/4"~4")											
Media viscosity	2~200 mPa·s		D									
	200~1000 mPa·s		E									
	1000~2000 mPa·s		F									
	3000~10000 mPa·s		H									
Accuracy	±0.5% (Standard)			5								
	±0.2%			2								
Body material	Cast iron				CI							
	Cast steel				CS							
	SS304				SS							
Fluid Temperature	Mechanical:-20℃~+80℃, digital display: -20℃~+60℃					L						
	Mechanical:-20℃~+200℃, digital display: -20℃~+150℃					H						
Display	Pointer + Zero return						P					
	LCD + Zero return						L					
Power Supply	Mechanical type							M				
	24VDC							2				
	12VDC							1				
Output	No								N			
	Pulse								Y			
	4-20mA								4			
Communication	No									N		
	RS485									R		
	HART									H		
Connection	Flange (DN8~DN200)	DIN D10: PN10, D16: PN16, D25: PN25, D40: PN40									D**	
		ANSI A15: 150#, A30: 300#, A60: 600#									A**	
		JIS J10: 10K, J20: 20K, J30: 30K, J40: 40K									J**	
	Tri-clamp (DN8~DN80)										C	
	Thread (DN8~DN150)										T	
Ex-proof	With											E
	Without											N