

LSZ Series Double-Rotator Flowmeter

General:

LSZ Series Double-Rotator Flowmeter (Also called Bi-Rotor Flowmeter) is a self-research and designed product by Shanghai Yinuo Instrument Co., Ltd. This Series flowmeter is a new kind positive displacement flowmeter developed specifically to serve as the heart in loading facilities at oil product depots. Contained in measuring chamber are a pair of rotators having special spiral gear teeth, the design of which is responsible for successfully eliminating pulsation in flow stream. The special sands proof and self-lubricant designing can measure sands content and high water contain oil. This type flowmeter has many advantages such as high accuract, high security, smooth running, low noise and long lifetime.

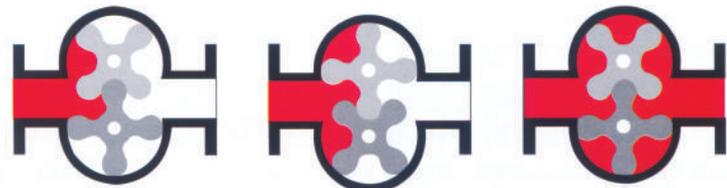
Patent No:ZL-00216334.9 and ZL-99250679.4.



Picture 1

Feature:

- 1) Superior Accuracy to 0.1%
- 2) Uniform rotation means low pressure loss
- 3) Long service lifetime
- 4) Self-lubrication
- 5) Very low noise and vibration
- 6) Easy maintenance
- 7) Low Pressure Drop
- 8) Double Cases
- 9) Superior reliability
- 10) Multi-option counter
- 11) Excellent cost effectivity



Flow In

Measuring

Flow Out

Picture 2



Picture 3 Stainless Steel Double-Rotator Flowmeter

Main Technical Datum

Table 1

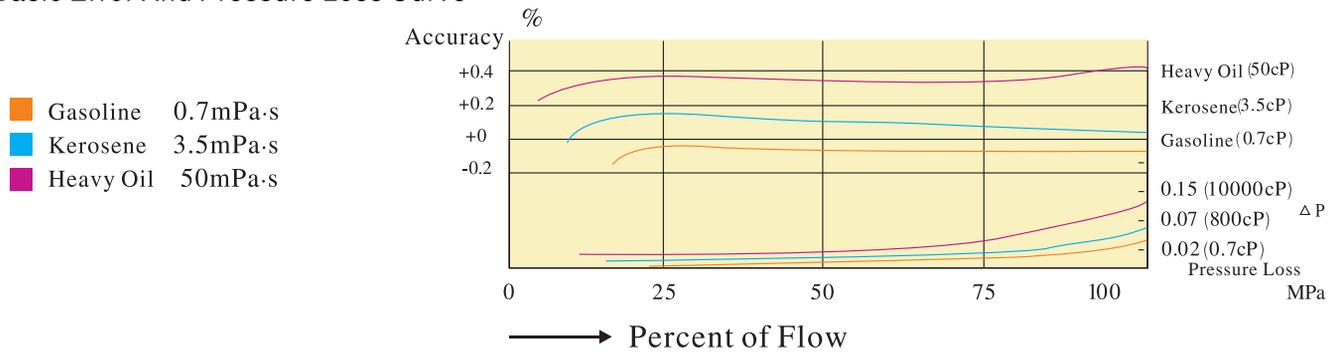
Nominal Diameter (mm)	8~400		
Accuracy	0.1%	0.2%	0.5%
Repeatability	≤0.033%	≤0.067%	≤0.167%
Pressure Loss	0~1000mPa.s<80KPa, 1000~20000mPa.s<150KPa		
Nominal Pressure	1.6, 2.5, 4.0, 6.4MPa		
Medium Temperature	-20℃~+80℃, 0℃~+150℃, 0℃~+250℃		
Viscosity Range	0~20000mPa.s		
Ambient Temperature	-30℃~+70℃		
Connection Flange	GB9115.0719-2000 JB/TB2-94 or other customer named Standard		
Anti-Explosion Grade	Anti-Explosion Grade: Exd II CT6 Certification No.:GYB03478		
Electrical Counter	Anti-Explosion Grade: Exd II CT6 Certification No.:GYB03479		
Enclosure	IP65		



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Character Curve

Basic Error And Pressure Loss Curve



Picture 4

Flow Range

Accuracy: 0.5%, 0.2% Temp.: -20-150 °C

Table 2

DN (mm)	Flow Range (m ³ /h)												Litre/Pulse
	0.32~0.8mPa.s		0.8~2mPa.s		2~5mPa.s		5~400mPa.s		400~2000mPa.s		2000~20000mPa.s		
	Gasoline/LPG		Kerosene		Diesel Oil		Heavy /Crude Oil		High Viscosity Liquid		Extreme Viscosity Liquid		
	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	
15	0.6~3		0.4~4		0.4~4		0.4~4		0.3~2.4		0.3~2.4		0.001
25	3~8		1.5~10		1~10		1~10		1~8		1~6		0.01
40	8~20	8~20	2.7~22	5.5~22	2.5~25	4.4~22	2.5~25	4.4~22	2.1~18	4.2~18	1.5~12	3~12	
50	9~36	15~36	4.5~36	9~36	4~40	7.2~36	4~40	7.2~36	2.8~24	6~24	2.2~18	4.5~18	
80	20~80	32~80	10~80	20~80	9~90	16~80	9~90	16~80	6.5~56	14~56	5~40	10~40	0.1
80A	25~100	30~90	10~90	20~90	10~100	20~100	10~100	20~100	10~60	12~60	5~50	10~50	
100	25~100	40~100	13~100	25~100	12~120	20~100	12~120	20~100	8.5~72	18~72	6.5~54	14~54	
100A	30~120	40~120	15~120	25~120	15~150	35~150	15~150	35~150	10~90	20~90	8~70	15~60	
150	55~225	88~220	31~250	57~225	25~250	44~220	25~250	44~220	18~150	38~150	12~100	25~100	
200	90~360	150~360	50~400	90~360	40~400	72~360	40~400	72~360	28~240	53~210	20~160	40~160	
250	135~540	180~540	68~540	135~540	60~600	108~540	60~600	108~540	42~360	90~360	30~240	60~240	0.1
300	220~900	300~900	112~900	225~900	100~1000	180~900	100~1000	180~900	70~600	150~600	54~450	113~450	
400	400~1600	550~1600	200~1600	400~1600	180~1800	320~1600	180~1800	320~1600	130~1100	275~1100	90~750	180~750	

Accuracy: 0.1% Temp.: -20-150 °C

Table 3

DN (mm)	Flow Range (m ³ /h)							Litre/Pulse
	0.32~2mPa.s		2~5mPa.s	5~50mPa.s	50~400mPa.s	400~2000mPa.s	2000~20000mPa.s	
	Gasoline/LPG	Kerosene	Diesel Oil	Crude Oil	Heavy Oil	High Viscosity Liquid	Extreme Viscosity Liquid	
40	11~22	9~22	7.5~22	7.5~22	7.5~22	4~12	3.3~10	0.01
50	18~36	14.4~36	12~36	12~36	12~36	7.5~22	6~18	
80	40~80	32~80	26.7~80	26.7~80	26.7~80	16~48	13~40	0.1
100	50~100	40~100	34~100	34~100	34~100	24~72	18~54	
150	115~220	90~220	73~220	73~220	73~220	40~120	30~90	
200	180~360	144~360	120~360	120~360	120~360	60~180	50~150	
250	270~540	216~540	180~540	180~540	180~540	100~300	60~180	
300	450~900	360~900	300~900	300~900	300~900	200~600	150~450	
400	800~1600	640~1600	530~1600	530~1600	530~1600	400~1200	250~700	



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Electrical Counter

Accuracy: 0.5%, 0.2%

Temp.: -20+150 °C

Table 4

DN (mm)	Flow Range (m ³ /h)												Litre/ Pulse
	0.32~0.8mPa·s		0.8~2mPa·s		2~5mPa·s		5~400mPa·s		400~2000mPa·s		2000~20000mPa·s		
	Gasoline/LPG		Kerosene		Diesel Oil		Crude /Heavy Oil		High Viscosity Liquid		Extreme Viscosity Liquid		
	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	
8	0.06~0.3	0.10~0.3	0.05~0.3	0.07~0.3	0.03~0.3	0.06~0.3	0.03~0.3	0.06~0.3	0.03~0.27	0.06~0.27	0.03~0.24	0.06~0.24	0.01
15A	0.2~0.8	0.27~0.8	0.1~1	0.2~1	0.1~1.5	0.1~1	0.1~1.5	0.1~1	0.1~0.8	0.16~0.8	0.08~0.7	0.15~0.7	
15B	0.25~1.5	0.33~1	0.25~1.5	0.25~1	0.25~3	0.3~3	0.3~3	0.4~3	0.1~1.5	0.2~1.5	0.1~1.2	0.2~1.2	
25	1.5~6	2~6	1.2~6	1.5~6	0.6~10	1.2~10	0.6~10	1.2~10	0.6~6	1.2~6	0.6~5	1.2~5	0.1

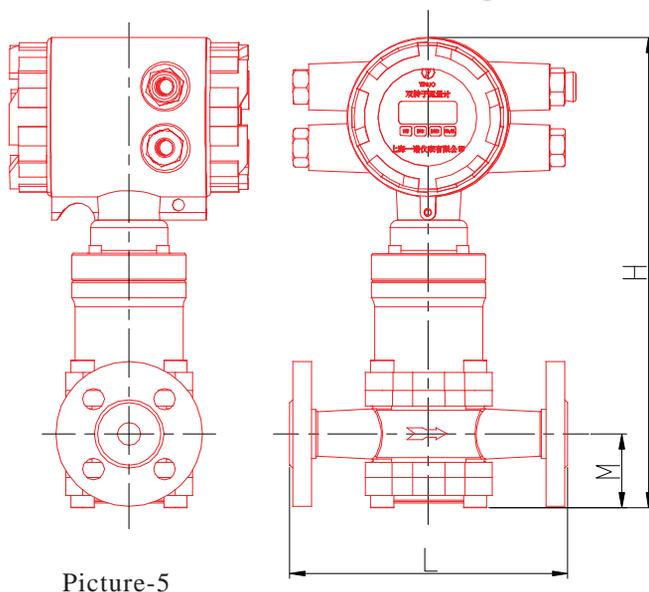
For Stainless Steel Body(-20°C+80°C)

Accuracy: 0.5% and 0.2%

Table 5

DN (mm)	Flow Range (m ³ /h)												Litre/ Pulse
	0.32~0.8mPa·s		0.8~2mPa·s		2~5mPa·s		5~400mPa·s		400~2000mPa·s		2000~20000mPa·s		
	Gasoline/LPG		Kerosene		Diesel Oil		Crude /Heavy Oil		High Viscosity Liquid		Extreme Viscosity Liquid		
	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%	
15	0.75~3		0.75~3		0.6~3		0.6~3		0.6~3		0.5~2.5		0.001
25	2~8		2~8		1.6~8		1.6~8		1.2~6		1~5		0.01
40	6~24	8~24	6~24	8~24	4.8~24	6~24	4.8~24	6~24	3.6~18	4~16	2.4~12	2.5~10	
50	9~36	12~36	9~36	12~36	7.2~36	9~36	7.2~36	9~36	4.8~24	5.5~22	3.6~18	4~16	
80	20~80	27~80	20~80	27~80	16~80	20~80	16~80	20~80	12~56	12~48	8~40	9~36	0.1
80A	25~100	30~90	10~90	20~90	10~100	20~100	10~100	20~100	10~60	12~60	5~50	10~50	
100	25~100	34~100	25~100	34~100	20~100	25~100	20~10	25~100	15~75	15~60	11~54	11~45	
100A	30~120	40~120	15~120	25~120	15~150	35~150	15~150	35~150	10~90	20~90	8~70	15~60	
150	55~220	75~220	55~220	75~220	45~220	55~220	45~220	55~220	30~150	35~135	20~100	23~90	
200	90~360	120~360	90~360	120~360	72~360	90~360	72~360	90~360	43~210	50~200	32~160	38~150	
250	135~540	180~540	135~540	180~540	108~540	135~540	108~540	135~540	72~360	90~360	48~240	60~240	
300	225~900	300~900	225~900	300~900	180~900	225~900	180~900	225~900	120~600	150~600	90~450	113~450	

Outline Dimension And Weight



Picture-5

Electric counter (DN15-25) See Pic 5, table6

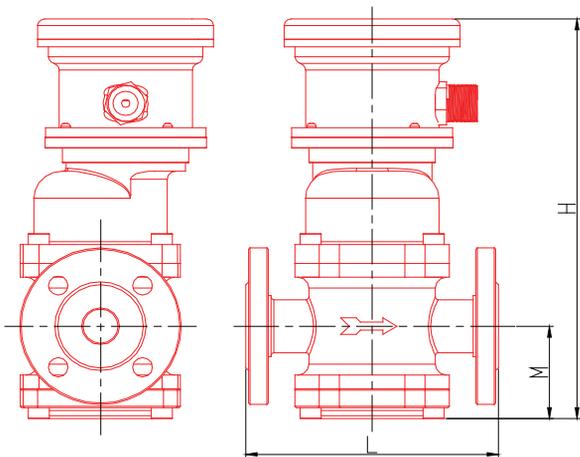
Table 6

DN (mm)	Flange Distant (L)	Total Height (H)	Centre Height (M)	Weight Kg
15	180	305	50	8
25	200	350	68	14



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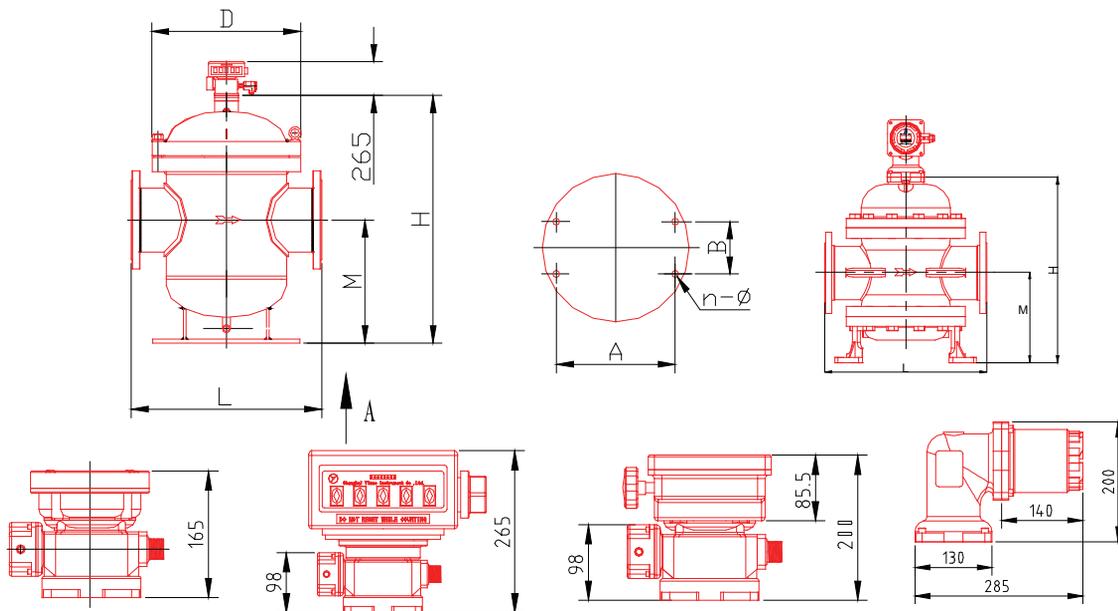
Picture-6

Round counter (DN15-25) See Pic 6, table7

Table 7

DN (mm)	Flange Distant (L)	Total Height (H)	Centre Height (M)	Upper Dia (D)	Weight Kg
15	180	260	50	108	8
25	200	300	68	150	14

Outline Dimension of Vertical Type(See pic-7, table 8)



Picture-7

Table 8

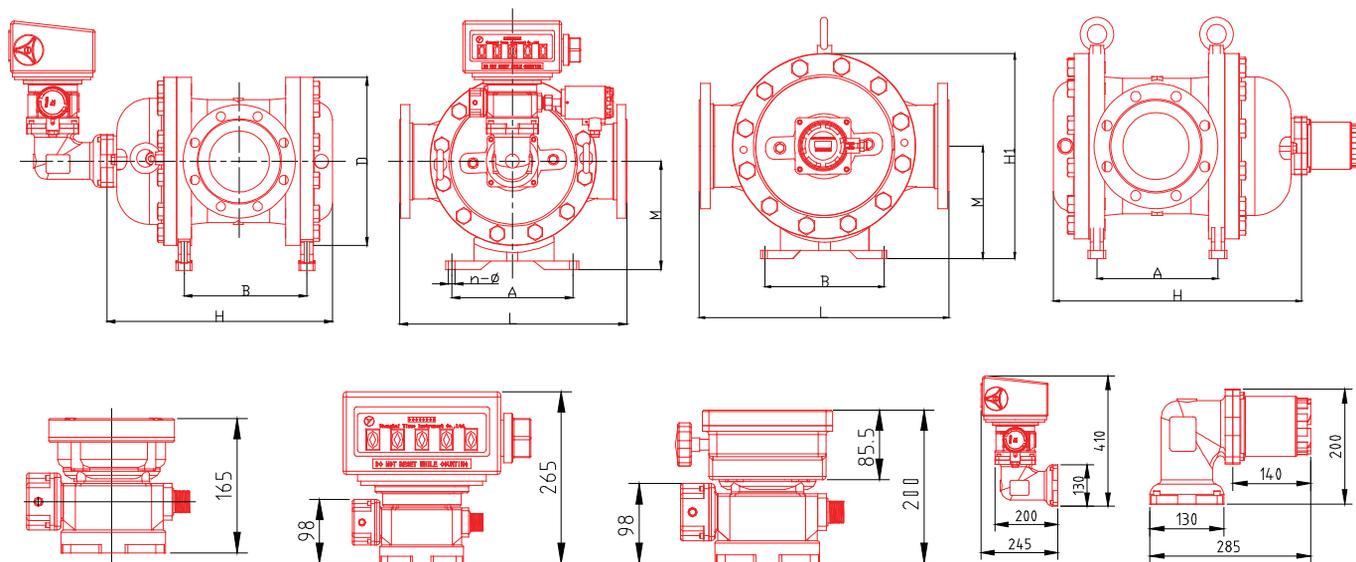
DN (mm)	Flange distant (L)	Total Height (H)	Center Height (M)	Upper Dia (D)	Install Dim A B	Bolt hole size n-Φ	Weight Kg
40	250	335	126	185			40
50	360	410	150	235			60
80A	400	465	178	280			100
80B	400	535	222	305			115
100	450	580	270	325	340 215	4-Φ23	150
100Weld	450	580	270	310	235 170	4-Φ23	150
150	560	675	318	415	450 240	4-Φ23	315
150Weld	560	675	318	415	190 190	4-Φ23	315
200	700	945	450	530	445 200	4-Φ23	560
250	1000	1029	500	620	524 250	4-Φ25	1000
300	1000	1295	640	780	645 300	4-Φ25	1460
400	1200	1584	750	980	Φ700	6-Φ25	2000

Note: 1) The height of counter should be added to the total height.



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Outline Dimension of Horizontal Type(See Pic9, Table 9)



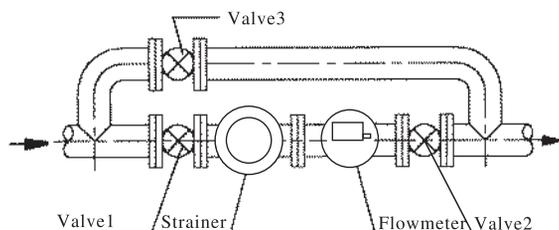
Picture-9

Table 9

DN(mm)	Flange Distant(L)		Total Weight H	Centre Weight M	Diameter D	Install Dimension A×B	Bolt Dimension n-φ	Weight Kg
	Standard	Special						
40	250	300	335	95	185			40
50	360	378	410	120	235			60
80	400	380	465	140	280			100
80A	400	380	535	153	305			115
100	450	500	515	210	325	250×220	4~φ20	150
100Weld	450	500	540	210	310	250×210	4~φ20	145
150	560	650	585	255	415	250×270	4~φ20	315
150Weld	560	650	630	255	415	255×250	4~φ20	315

Note: The height of counter should be added to the total height.

Sample Installation



Picture -10

1. Pipe Connection, See Picture-10

a. The installing position should be selected without large vibration, extrem temperature and high magnetic field interfere. And the position is also easy to install and maintain.

b. When installing flowmeter to a new pipe, the pipe should be cleared thoroughly before install flowmeter to pipe.

c. The flowmeter can be installed at any angle. There should leave enough space for maintenance. The picture is a sample of installation.

d. Please notice that the flow direction should be same as the arrow on the flowmeter body.

e. A filter or strainer should be installed before the flowmeter avoid flowmeter blocked by impurity. When gas contained in the measured liquid, a gas eliminator is recommended to install before flowmeter. The gas eliminator can expell the gas in the liquido better the accuracy.

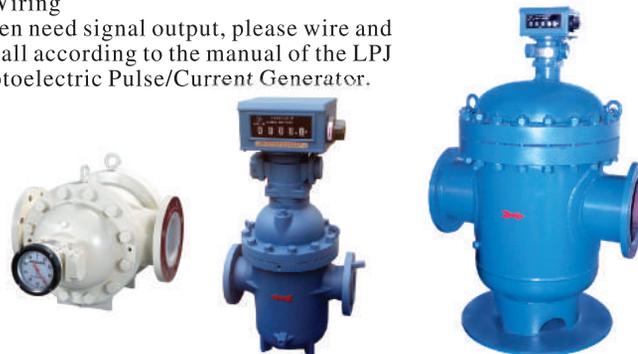
f. The adjusted valve should be installed down stream of the flowmeter.

g. When the counter can not easily read, the user can remove the bolt of the flowmeter and circle the counter to the easily read direction.

h. For the material of cast steel flowmeter, there should avoid water flow in the flowmeter. The water may cause the rotator rusted and blocked.

2. Wiring

When need signal output, please wire and install according to the manual of the LPJ Photoelectric Pulse/Current Generator.





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Model Selection

Table 10

Type	1	2	3	4	5	5	6	7	8	9	Note
	DN	Counter	PN	Character	Jacket	Mtl.	Liquid Temp.	Signal Generator	Accuracy Adjuster	Accuracy	
LSZ	-										Double Rotator Flowmeter
	008										DN: 8mm
	015A										DN: 15Amm
	015B										DN: 15Bmm
	025										DN: 25mm
	040										DN: 40mm
	050										DN: 50mm
	080										DN: 80mm
	100										DN: 100mm
	150										DN: 150mm
	200										DN: 200mm
	250										DN: 250mm
	300										DN: 300mm
	400										DN: 400mm
		T									No Counter Only Signal Output(DN8~DN400)
		J									Mechanical Counter(DN15~DN400)
		D									Electrical Counter(DN8~DN400)
		M									Zero reset Mechanical counter(DN40~DN400)
		M1									Imported counter(DN40~DN400)
			16								PN:1.6MPa
			25								PN:2.5MPa
			40								PN:4.0MPa
			64								PN:6.4MPa
				P							General Type
				Q							Special for gasoline and LPG
					H						Heat Jacket
					N						No Heat Jacket
						G					Cast Steel
						2Cr13					Rotator Material 2Cr13 Stainless Steel
						S304					Rotator Material 304 Stainless Steel
						S316					Rotator Material 316 Stainless Steel
						SS304					All Material 304 Stainless Steel
						SS316					All Material 316 Stainless Steel
							A				Liquid Temp. : -20°C~+80°C
							B				Liquid Temp. : 0°C~+150°C
							C				Liquid Temp. : 0°C~+250°C
								F			LPJ Pulse Output
								I			LPJ 4~20mA Separate Output
								F1			Electrical Counter Pulse Output
								I1			Electrical Counter 4~20mA Output
									W		Stepless Accuracy adjust
									L		Gear Accuracy adjust
										05	Accuracy: 0.5%
										02	Accuracy: 0.2%
										01	Accuracy: 0.1%

Ordering Information

- Flowmeter Model: _____;
- Nominal Diameter: _____mm;
 - Fluid Pressure: Max.:_____ Normal_____ Min._____MPa;
 - Fluid Temperature: _____°C
 - Signal Output Position: _____;
 - Counter Type: _____;
 - Character: _____;
 - Need Signal Output: _____;
 - Accuracy: 0.5% 0.2% 0.1%;
 - Fluid Name: _____;
 - Fluid Density: _____;
 - Fluid Viscosity : _____mPa · s At _____°C
 - Flow Range: Max.:_____ Normal_____ Min._____m³/h;
 - Flange Standard: _____;
 - Filter or Filter and Gas Eliminator Model: _____.
 - Paint Color Code:_____.
 - Heat jacket: With Without;