General

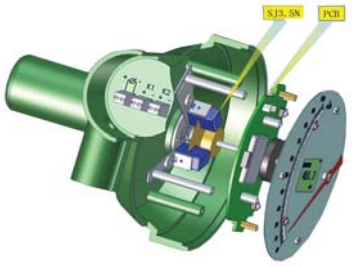
F56 metal cone variable area flowmeters are used for measure instantaneous and accumulated flow rate of liquid, gas and steam in closed pipeline s. It is suitable for me tering flow value on site or electronic remote.

The measuring principle is based on the hydrodynamic effects , This makes float moving from bottom to top in vertical Pipe. As the displacement of float is in related to flow rate, which can be read from t he indicator by means of the magnetic drive system in non-contact form . Also, flowmeter s output electrical signal (4-20)mA / hart communication protocol with h igh / low limit Warning switches/integrating flow PCB broad can be configured.

P8 Type
- Machnical indicator

P10I Type
- Machnical indicator
- Limit Low /High Alarm

P10 Type Exia or Exd
- LCD Display
- 4-20 mA output
- Limit Low /High Alarm



Limit Switch
KG22 consists of two parts.
One is inductance approach switch K1：Low limit
SJ3.5N and cutting discs on rotation axis K2：High limit

Flow measuring and process control of Liquid s, gases, vapors in petroleum, chemical industry , metallurgy , electric power , food processing industry , pharmacy, papermaking , etc.

Operating principle

F56 series variable area flowmeter s (fig. 2-1) is made up of flow sensor and flow indicator . Float is placed vertically inside of conical measuring tube and can freely move up and down along the conical tube owing to hydr odynamic effects . A high-performance permanent magnet is set inside float , by this way the magnetic field around permanent magnet will change along with the float moving up and down.When fluid keeps a stable flow value and float locates in a dynamic balan ce state in position, the magnetic field around permanent magnet keep s constant also. The magnetic signal will be transmitted in non -contact form b y means of the flow Indicator mechanically connected to conical tube. In another word, the indicator is able to detect and process flow value of liquid by magnetic drive system and finally the corresponding flow rate value can be read from the scale on site. Also it can indicat e outputs as standard electrical signa l (4-20)mA / hart communication protocol M easur ement of gases

When the valve is opened suddenly in pipeline or pressure is unstable during metering gases, airflow will be pulsating. As a result, float move s up and down along the conical tube ceaselessly. In the meantime, system is out-of-control since pointer swing ing constantly lead to output signal instability . In this conditions, damping device must be install ed inside measuring tube (see fig.2-2). The damping device become a self-centering damper of preventing block through special design and precision work of numerical control machin e centre. The damping device is consists of aluminum oxide ceramic (purity is 99.99%) and characterized by a long service life , resistant to corrosion , structure novelty , practicality better.

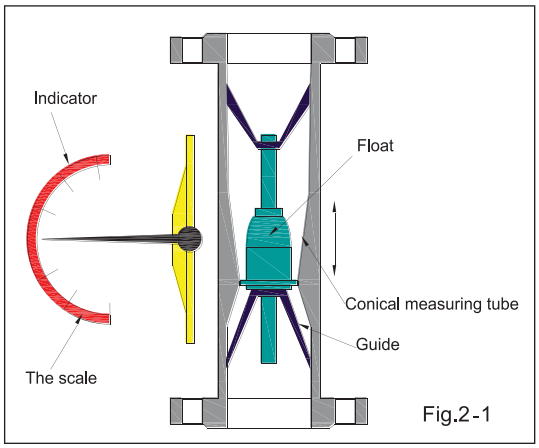


Fig.2-1

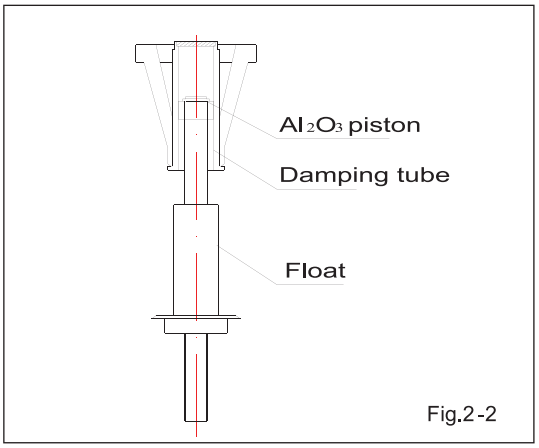


Fig.2-2

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Flow Table

Nominal size	Float number	Flow range: H2O (water)		Flow range: Air
		Materiel1: CrNiSteel	Materie2: PTFE	Materiel: CrNiSteel
DN15	F15.00~F15.30	10 l/h~1000l/h	25 l/h~500 l/h	0.30 Nm³/h~30.00 Nm³/h
DN20	F20.00~F20.05	800 l/h~2500 l/h	400 l/h~1600 l/h	24.0 Nm³/h~75.0 Nm³/h
DN25	F25.00~F25.11	1000 l/h~6000 l/h	600 l/h~4000 l/h	30.0 Nm³/h~180.0 Nm³/h
DN32	F32.00~F32.03	4000 l/h~8000 l/h	4000 l/h~5000 l/h	120.0 Nm³/h~240.0 Nm³/h
DN40	F40.00~F40.03	5000l/h~10000 l/h	5000 l/h~6000 l/h	150.0 Nm³/h~300.0 Nm³/h
DN50	F50.00~F50.08	6000l/h~25000 l/h	6000 l/h~16000 l/h	180.0 Nm³/h~750.0 Nm³/h
DN65	F65.00~F65.04	12000l/h~30000 l/h	12000 l/h~20000 l/h	360.0 Nm³/h~900.0 Nm³/h
DN80	F80.01~F80.07	25000l/h~65000 l/h	25000 l/h~40000 l/h	750.0 Nm³/h~1,950.0 Nm³/h
DN100	F100.0~F100.5	50000l/h~100000 l/h	50000 l/h~60000 l/h	1,500.0 Nm³/h~3,000.0 Nm³/h
DN125	F125.0~F125.2	100000 l/h~150000 l/h	100000l/h~125000 l/h	3,000.0 Nm³/h~3,800.0 Nm³/h
DN150	F150.0~F150.4	125000 l/h~200000 l/h	125000 l/h~150000 l/h	3,800.0 Nm³/h~4,500.0 Nm³/h
DN200	F200.0~F200.3	160000 l/h~250000 l/h	160000 l/h~180000 l/h	
DN250	F250.0~F250.2	220000 l/h~300000 l/h	220000 l/h	

Technical Data

Type	F56	
Medium	Liquids, gases, vapors	
Rang(conversion to 100% value of reference fluid)	Water : 20℃	(10-300000)L/h , Special order on request
	Air : 0.1013MPa, 20℃	(0.7-3000)Nm³/h, Special order on request
The turn-down ratio	10 : 1	
Accuracy class	Mechanical indicator	1.0, 1.5, 2.0, 2.5
	Mechanical indicator with LCD（battery powered, service life: 2 years）	1.0, 1.5, 2.0, 2.5
	Mechanical indicator with two-wire signal output (4-20)mA/hart	1.0, 1.5, 2.0, 2.5
Medium temperature	Machinery indicator with LCD（battery powered, service life: 2 years）	-80℃~+300℃ (PTFE:0~80℃) High temperature 400℃
	Mechanical indicator（battery powered, service life : 2 years）	-40℃~+120℃ (PTFE:0~80℃) High temperature 400℃
	Mechanical indicator with two-wire signal output (4-20)mA/hart communication protocol	-40℃~+120℃ (PTFE:0~80℃) High temperature 400℃
Ambient temperature	Mechanical indicator	-40℃~+120℃
	Mechanical indicator with LCD（battery powered, service life: 2 years）	-20℃~+60℃
	Mechanical indicator with two-wire signal output (4-20)mA/hart	-20℃~+60℃
Viscosity of fluid	DN15: F15.00~F15.03 η<5 mPa.s, F15.04~15.30 η<30 mPa.s; DN25: η<250 mPa.s; DN50~250: η<300	
Nominal pressure	DN15~DN50	4.0MPa（Max DN15: 42MPa, DN25: 42MPa, DN50: 32MPa）
	DN80~DN250	1.6MPa（Max DN80: 10MPa, DN100: 6.4MPa, DN125: 4.0MPa, DN150: 4.0MPa, DN200: 2.5MPa, DN250: 2.5Mpa）
Process connection	Flange connection, Standard: DIN2501, ANSI, JIS（select Chinese standard freely, priority select DIN）	
	Hygiene clamp, screw joint are selected in the order	
Electrical connection	M20×1.5 1/2"G 1/2"NPT 3/4"G 3/4"NPT	
Installation	Vertical mounting（bottom in up out and up in bottom out, Horizontal mounting（left in right out and right in left out）bottom in side out, side in side out	
Straight unimpeded inlet	≥ 5D	
Straight unimpeded outlet	≥ 250 mm	
Degree of protection	IP67(Others need specify in the order)	
Ex marking	EEx ia II CT5	
	EEx d II CT6	
Ex electrical data	Ui = 28V Ii = 93mA Pi = 0.65W Ci ≤ 5nF Li =0mH	
Safety barrier data	Uo ≤ 28V Io ≤ 93mA Po ≤ 0.65W Co ≥ Ci+Cc Lo ≥ Li+Lc	
Carried Standard	JB/T 6844-93	

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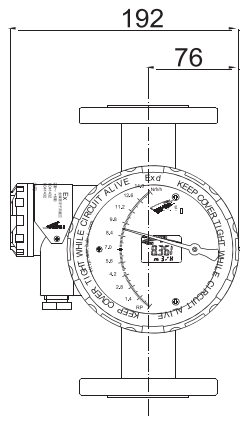
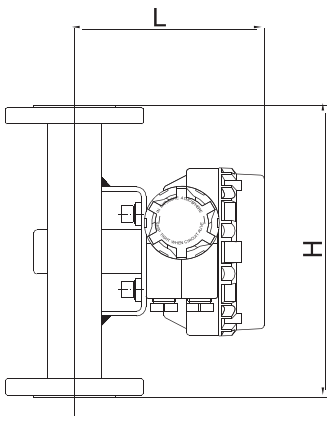
Materials

Type	Measuring tube	Flange	Float
F56/PI, F56/UP F56/HI, F56/BO F56/SO	304/304SS 304L/304LSS 316/316SS 316L/316LSS 317/317SS 317L/317LSS	304/304SS 304L/304LSS 316/316SS 316L/316LSS 317/317SS 317L/317LSS	304/304SS 304L/304LSS 316/316SS 316L/316LSS 317/317SS 317L/317LSS Al, Ti
F56/SP	1Cr18Ni9Ti With PTFEliner	1Cr18Ni9Ti	PTFE Hastelloy B1, B2, C4 Ti
F56/PV	PV	PV	PV
F56/PP	PP	PP	PP
F56/Ni	Hastelloy B1, B2, C4 N6	Hastelloy B1, B2, C4 N6	Hastelloy B1, B2, C4 Ti N6
F56/Ti	Ti	Ti	Ti Hastelloy B1, B2, C4
F56/Zr	Zr	Zr	Zr
F56/Cu			Cu
F56/ Al			Al

Note: Hastelloy : nickel base alloy , PTFE:Teflon , Ti:titanium alloy

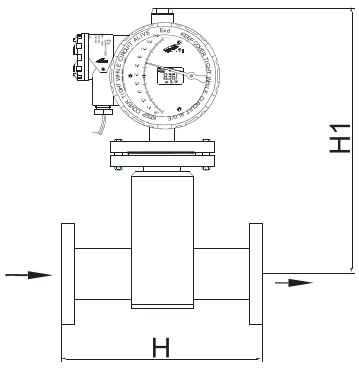
Flange Connection Dimension(mm)





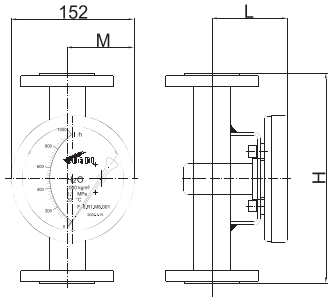
Dimensions		H	L
Nominal size	DN15	250	150
	DN20	250	156
	DN25	250	159
	DN32	250	165
	DN40	250	171
	DN50	250	174
	DN65	250	181
	DN80	250	188
	DN100	250	197
	DN125	400	207
	DN150	400	221
	DN200	450	246
	DN250	500	273

Vertical mounting



Dimensions		H	H1
Nominal size	DN15	200	400
	DN20	200	400
	DN25	200	400
	DN32	200	400
	DN40	200	450
	DN50	250	450
	DN65	250	450
	DN80	250	500
	DN100	300	500
	DN125	350	500
	DN150	350	500
	DN200	450	650
	DN250	500	800

Horizontal mounting



Dimensions		H	L	M
Nominal size	DN15	250	56	78
	DN20	250	62	83
	DN25	250	65	87
	DN32	250	71	93
	DN40	250	77	98
	DN50	250	80	101
	DN65	250	88	110
	DN80	250	95	115
	DN100	250	103	125
	DN125	400	113	134
	DN150	400	127	150
	DN200	450	152	174
	DN250	500	178	200

P8 mounting

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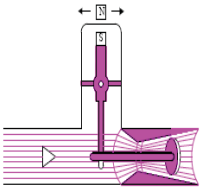
FW58 Series Flow Switch

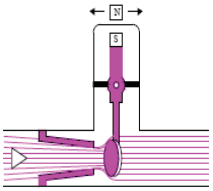
1. Brief introduction:

The FW58 series of flow switches are used for visual and electrical checking of various liquids. Unique streamline structure, accurate and stable design, widely apply to monitor the flow of liquids in pipes and cooling and lubrication system in all kinds of large, medium, minimum devices, such as electric generating unit, electric motor unit, rolling mills, compressors, transfer system and so on. The instrument will output a control signal when the pre-set switching points are exceeded. In addition, they can be installed in any position, which makes installation much easier.

Measuring Principle



Measuring system -3

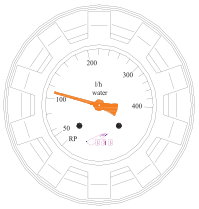


Measuring system -5

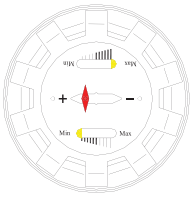
It can be widely applied to monitor industrial flow in a variety of industries, such as oil field and petroleum refining industry, chemical and ethylene plants, pharmaceutical and metallurgical industries, power plant and paper mill, food products and wine factories, light industry and textile industry, industrial welding and water disposal industries, etc.

2. Technical data for general standard switches

FW581 Tread connection	FW582 flange connection	Indicator 1&7 Range l/h
3/4"	DN15	20~2500
1"	DN25	200~4000
1/2"	DN40	500~10000
2"	DN50/65	1200~20000
FW583 (flange connection)		Indicator 7Flow range(M^3/h)
DN80		10~710
DN100		15~120
DN125		25~200
DN150		40~250
DN200		60~250



Type 1 Indicator

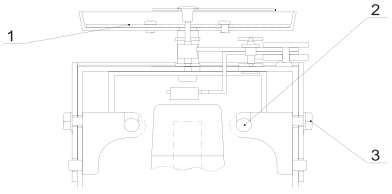


Type 7 Indicator

Electrical Technical
- Max. supply power：220V AC
- Max. Current: 0.5A
- Electric clearance>6mm, at 220VAC
- Creepage distance>12mm,at 220VAC
- Max. ignition temperature T3:200℃T3:200℃
- The inlet unit which is connected with platen and pipe coupling has earth stud bolt with symbol.
- Encapsulation: Adopting epoxide resin glue and glassfibre 24 hrs drying time.
- Protection class:IP65

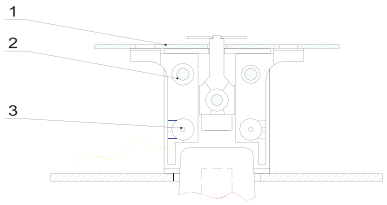
Mechnical Technical
-H2-type for medium temperature<200℃
-H3-type for medium temperature<300℃

Debug diagram of Indicator 1：



1. Dial/graduated disc
2. Limit switch
3. Adjusting screw

Debug diagram of Indicator 7



1. Dial/graduated disc
2. Adjusting screw
3. Limit switch

J

C

M7 indicator

KF800 series metallic rotameter is one of variable-area flowmeter with simple structure,work reliable,wide application field,high precision,convenient installing. It is suitable for compatible liquids,gases.

KF800DX series metallic rotameter with LCD and 4-20mA electricity signal output, restrict alarm and many kinds of signal. Compared with other flowmeters, this series has the characteristics of high-pressure-proof, high-temperature proof, safety, ocular reading etc. It s suitable for chemical industry, petroleum, metallurgy, power plant, environmental protection, medical science.

Working temp.: ≤100°C
Working pressure: ≤1.6MPa

Note: Indicators only means for case shapes.

Specifications

DN mm	Measuring Range			Pressure Loss(KPa)			
	Water (L/h)		Air (Nm^3/h)	Orifice Plate		Cone Pipe	
	Normal type	Corrosion-proof type	Normal/Corrosion-proof	Water	Air	Water	Air
15	2.5~25 4.0~40 6.3~63 10~100 16~160 25~250 40~400 63~630	- - 2.5~25 4.0~40 6.3~63 10~100 16~160 25~250 40~400	0.07~0.7 0.11~1.1 0.18~1.8 0.28~2.8 0.48~4.8 0.7~7.0 1.0~10.0 1.6~16.0	5.5 5.5 5.5 5.6 5.6 5.8 6.1 7.3	7.1 7.2 7.3 7.5 8.0 10.8 10.0 14.0	2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.2	2.6 2.6 2.6 2.6 2.6 2.6 2.8 3.2
25	63~630 100~1000 160~1600 250~2500 400~4000	40~400 63~630 100~1000 160~1600 250~2500	1.6~16 3~30 4.5~45 7~70 11~110	5.7 5.9 6.0 6.8 9.2	7.2 7.7 8.8 12.0 19.0	2.4 2.4 2.5 2.6 3.0	3.2 3.3 3.4 3.8 4.5
40	160~1600 250~2500 400~4000	100~1000 160~1600 250~2500	4.5~45 7~70 11~110	6.0 6.8 9.2	8.8 12.0 19.0	2.5 2.6 3.0	3.4 3.8 4.5
50	630~6300 1000~10000 1600~16000	400~4000 630~6300 1000~10000	18~180 25~250 40~400	6.8 9.4 14.5	8.6 10.4 15.5	3.3 3.8 4.3	7.4 7.7 8.4
65	1600~16000 2500~25000 4000~40000	1000~10000 1600~16000 2500~25000	40~400 70~700 100~1000	6.0 6.9 8.0	10 12.9 18.5	3.0 3.6 4.6	5.5 6.8 8.7
80	2500~25000 4000~40000	1600~16000 2500~25000	70~700 100~1000	6.9 8.0	12.9 18.5	3.6 4.6	6.8 8.9
100	6300~63000 10000~100000	4000~40000 6300~63000	160~1600 250~2500	8.5 8.8	19.2 19.6	5.8 6.4	12.0 12.8

* Note: We need detail datas of working pressure,working temperature, density for gas medium.

KF800 Series

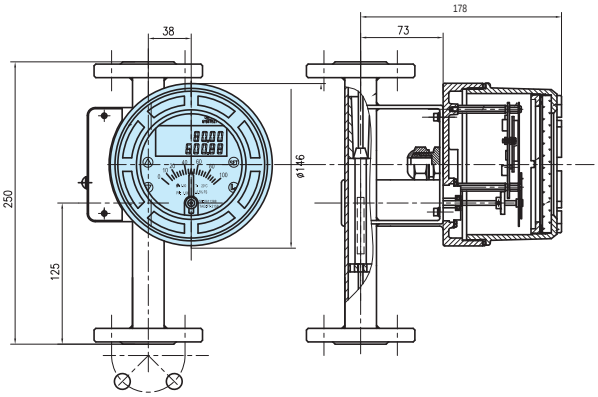
Metallic Tube Variable-Area Flowmeters

M8 indicator
(Ex-proof type)

KF800 series metallic rotameter is one of Variable–area flowmeter with simple structure,work reliable,,wide application field,high precision,convenient installing.it is suitable for compatible liquids,gases .

KF800DX series metallic rotameter with LCD and 4-20mA electricity signal output、restrict alarm and many kinds of signal.compared with other flowmeters,this series has the characteristics of high-pressureproof,high-temperature proof,safety,ocular reading etc.it is suitable for chemical industry, petroleum, metallurgy, power plant, environmental protection,medical science.

Working temp.: ≤100°C
Working pressure: 1.6MPa



Note: Indicators only means for case shapes.

Specifications

DN mm	Measuring Range			Pressure Loss(KPa)			
	Water (L/h)		Air (Nm^3/h)	Orifice Plate		Cone Pipe	
	Normal type	Corrosion-proof type	Normal/Corrosion-proof	Water	Air	Water	Air
15	2.5~25 4.0~40 6.3~63 10~100 16~160 25~250 40~400 63~630	- - 2.5~25 4.0~40 6.3~63 10~100 16~160 25~250 40~400	0.07~0.7 0.11~1.1 0.18~1.8 0.28~2.8 0.48~4.8 0.7~7.0 1.0~10.0 1.6~16.0	5.5 5.5 5.5 5.6 5.6 5.8 6.1 7.3	7.1 7.2 7.3 7.5 8.0 10.8 10.0 14.0	2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.2	2.6 2.6 2.6 2.6 2.6 2.6 2.8 3.2
25	63~630 100~1000 160~1600 250~2500 400~4000	40~400 63~630 100~1000 160~1600 250~2500	1.6~16 3~30 4.5~45 7~70 11~110	5.7 5.9 6.0 6.8 9.2	7.2 7.7 8.8 12.0 19.0	2.4 2.4 2.5 2.6 3.0	3.2 3.3 3.4 3.8 4.5
40	160~1600 250~2500 400~4000	100~1000 160~1600 250~2500	4.5~45 7~70 11~110	6.0 6.8 9.2	8.8 12.0 19.0	2.5 2.6 3.0	3.4 3.8 4.5
50	630~6300 1000~10000 1600~16000	400~4000 630~6300 1000~10000	18~180 25~250 40~400	6.8 9.4 14.5	8.6 10.4 15.5	3.3 3.8 4.3	7.4 7.7 8.4
65	1600~16000 2500~25000 4000~40000	1000~10000 1600~16000 2500~25000	40~400 70~700 100~1000	6.0 6.9 8.0	10 12.9 18.5	3.0 3.6 4.6	5.5 6.8 8.7
80	2500~25000 4000~40000	1600~16000 2500~25000	70~700 100~1000	6.9 8.0	12.9 18.5	3.6 4.6	6.8 8.9
100	6300~63000 10000~100000	4000~40000 6300~63000	160~1600 250~2500	8.5 8.8	19.2 19.6	5.8 6.4	12.0 12.8

* Note: We need detail datas of working pressure,working temperature, density for gas medium.

Metallic Tube Variable-Area Flowmeters

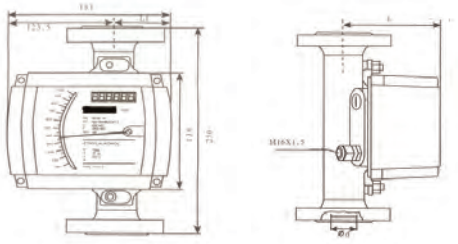
C

M10 indicator
(cone pipe)

KF800 series metallic rotameter is one of Variable–area flowmeter with simple structure,work reliable,,wide application field,high precision,convenient installing.it is suitable for compatible liquids,gases .

KF800DX series metallic rotameter with LCD and 4-20mA electricity signal output、restrict alarm and many kinds of signal.compared with other flowmeters,this series has the characteristics of high-pressureproof,high-temperature proof,safety,ocular reading etc.it is suitable for chemical industry, petroleum, metallurgy, power plant, environmental protection,medical science.

Working temp.: ≤100°C
Working pressure: 1.6MPa



DIN		ANSI	L	L1	L2	Φd	Weight	
							DIN	ANSI
DN	PN	inches	mm				kg	kg
15	40	1/2"	107	70.5	100	20	3.5	4.8
25	40	1"	119	70.5	100	32	5.2	6.7
50	40	2"	132	57.5	120	65	8.7	10.4
80	16	3"	148	57.5	160	89	12.0	14.0
100	16	4"	158	57.5	150	114	14.0	16.6

Note: Indicators only means for case shapes.

Specifications

DN mm	Measuring range			Pressure Loss(KPa)			
	Water (L/h)		Air (Nm^3/h)	Orifice Plate		Cone Pipe	
	Normal type	Corrosion-proof type	Normal/Corrosion-proof	Water	Air	Water	Air
15	2.5~25 4.0~40 6.3~63 10~100 16~160 25~250 40~400 63~630	- - 2.5~25 4.0~40 6.3~63 10~100 16~160 25~250 40~400	0.07~0.7 0.11~1.1 0.18~1.8 0.28~2.8 0.48~4.8 0.7~7.0 1.0~10.0 1.6~16.0	5.5 5.5 5.5 5.6 5.6 5.8 6.1 7.3	7.1 7.2 7.3 7.5 8.0 10.8 10.0 14.0	2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.2	2.6 2.6 2.6 2.6 2.6 2.6 2.8 3.2
25	63~630 100~1000 160~1600 250~2500 400~4000	40~400 63~630 100~1000 160~1600 250~2500	1.6~16 3~30 4.5~45 7~70 11~110	5.7 5.9 6.0 6.8 9.2	7.2 7.7 8.8 12.0 19.0	2.4 2.4 2.5 2.6 3.0	3.2 3.3 3.4 3.8 4.5
40	160~1600 250~2500 400~4000	100~1000 160~1600 250~2500	4.5~45 7~70 11~110	6.0 6.8 9.2	8.8 12.0 19.0	2.5 2.6 3.0	3.4 3.8 4.5
50	630~6300 1000~10000 1600~16000	400~4000 630~6300 1000~10000	18~180 25~250 40~400	6.8 9.4 14.5	8.6 10.4 15.5	3.3 3.8 4.3	7.4 7.7 8.4
65	1600~16000 2500~25000 4000~40000	1000~10000 1600~16000 2500~25000	40~400 70~700 100~1000	6.0 6.9 8.0	10 12.9 18.5	3.0 3.6 4.6	5.5 6.8 8.7
80	2500~25000 4000~40000	1600~16000 2500~25000	70~700 100~1000	6.9 8.0	12.9 18.5	3.6 4.6	6.8 8.9
100	6300~63000 10000~100000	4000~40000 6300~63000	160~1600 250~2500	8.5 8.8	19.2 19.6	5.8 6.4	12.0 12.8

* Note: We need detail datas of working pressure,working temperature, density for gas medium.

How To order

KF800	Metallic tube variable-area flowmeters	
	ZH	Flow rate field display
	DH	Flow rate field display with 4-20mA output.
	DX	Totalizer with flow rate LCD display, 4-20mA output.
	DN15-100	Pipe size(mm)
tube material	RR1	304SS, 1Cr18Ni9Ti
	RR2	316L, 00Cr17Ni14Mo2
	RR0	316SS, 0Cr18Ni12Mo2Ti
	Ti	Titanium alloy
	F	304 SS with PTFE liner
Meter selection	M7 indicator : for DN15~DN50	M8 indicator: aluminium alloy
	M9 indicator: Explosion proof	M10 indicator: All stainless steel
Power Supply	D0	Non
	D1	24V power supply (For 4~20mA output)
	D2	Battery power supply
	N	Without
	Ks	High alarm
	Kx	Low alarm
Flow direction	BT	Vertical, from bottom to top
	RL	Horizontal, from right to left
	LR	Horizontal, from left to right
	N	Without
	T	Keep warm

KF800 □ — □ — □ — □ — □ — □ — □ — □ — □