YSLZ Series
All Metal Float Flowmeter
Manual

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1.Introduce

A float moves up in vertical measuring table according to fluid dynamics acting for float flowmeter .The float displacement is in proportion to flow rate between float and orifice.Local display is a pointer from .It is able to have standard signal with rotary angle for electric signal or pnumatic transmitter for pneumatic signal. So that it is used with unit-complsed meter.

Seriable flowmeter have advanced characteristic,such as simple construction,easy maintains,Liner Scale and reliable operating.And it could measure flow rate for liquids and gases.

The flowmeter with uper and lower limite alarms could use in the control system.

Bottom in and top horizontal out type

Bottom horizontal entry and top horizontal exit type

Left-in and right-out type

Right-in, left-out type

Horizontal spring type

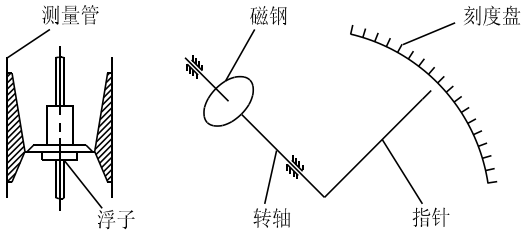
Top in, bottom out style

2.Functional

The Series YSLZ flowmeter consists essentially of three basic parts:

- ✧ the metering tube
- ✧ the tapered float
- ✧ the indicator.

The flow rate determines the position of the float,the meter float is in dynamic balance,when the difference between the weight of the float and the weight of the displaced fluid equals the upward pressure resulting from the fluid velocity through the meter .The annular area between the tapered float and the tube increases until the upward and downward forces are in dynamic balance.



Since the position of the float in the metering tube can not be seen,an indicator isrequired,this indicator employs a magnetic coupling where a magnet follows the position of the float .The float encase an AlNICO-transmitting magnet with two follower magnets arranged in parallel on the indicator shaft.

3.Special features

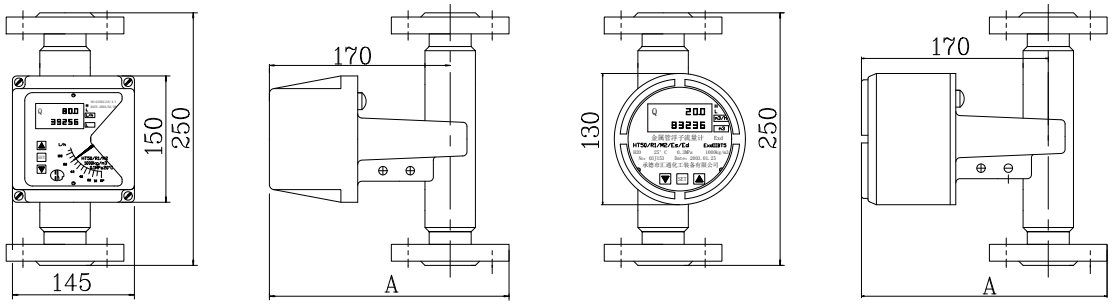
- ✧ Rugged all-metal design
- ✧ Easy stocking of parts thanks to modular concept
- ✧ Complete interchangeability of all components and assemblies
- ✧ Linear display
- ✧ Adjustable to any fluid through replaceable cam plate
- ✧ Shot-stroke design/parts do not project beyond the flanges,no matter what position the float is in
- ✧ Electrical or pneumatic remote data transmission system
- ✧ Limit switches can be installed

4.Technical data

Metering range(100% values)	water (20℃)	6～15000 l/h
	Air （0.1013MPa 20℃）	0.05～4000 m3/h
Rangeability	10:1	
Accuracy class	1.5 （Special version 1.0）	
Operating data		
Max pressure	DN15～DN50 PN4.0MPa （Special versio 25MPa）	
	DN80～DN100 PN1.6MPa （Special versio 16MPa）	
Temperature of fluid	-80℃～+220℃	
Ambient temperature	Max 120℃(Max.60℃ if signal output is electrical)	
Viscosity of fluid	DN15： ≤5mPa.s(H15.1～H15.3)	
	≤30mPa.s(H15.4～H15.9)	
	DN25： ≤250mPa.s	
	DN50～DN150：≤300mPa.s	
Connection	Standard：Flange to DIN2501 or ANSI	
	Special Other standards on request	
Electaic	M20×1.5、PG11、1/2”NPT	
Owerall height	250mm	
Protection category to DIN 40050	IP65	
Explosion Proof	ExiaIICT3～6	
	ExdIIBT4	

5.Dimensions ,weights

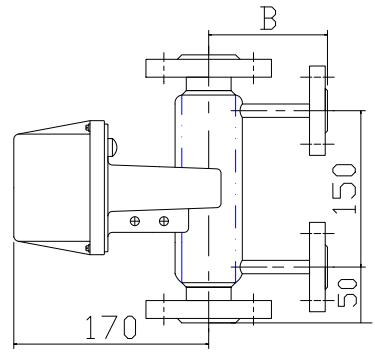
1)

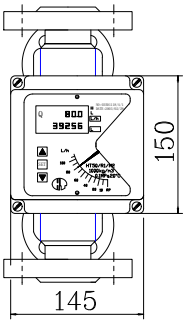


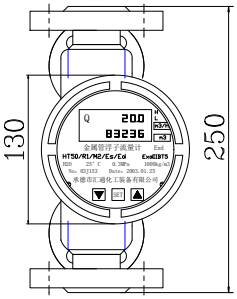
iaIICT6 **dIIBT5**

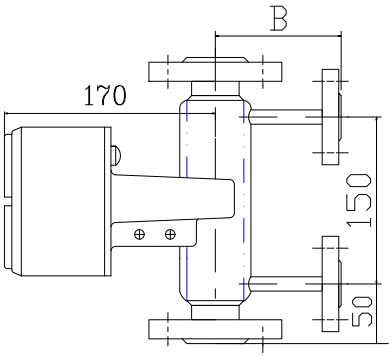
Nominal Size	DN15	DN25	DN50	DN80	DN100	DN150
A (mm)	220	230	255	270	280	320
Weight (kg)	5.0	6.5	10	15.5	17	35

a)



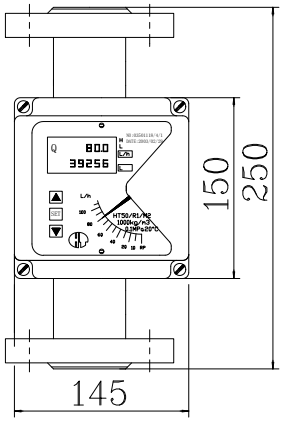


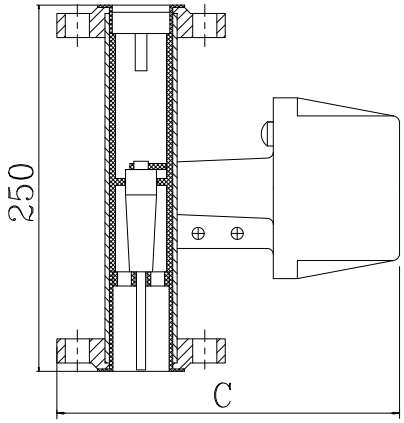




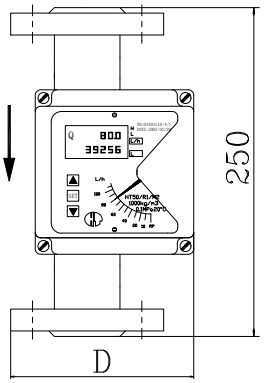
Nominal Size	B (mm)	Weight(kg)
DN15	100	7.5
DN25	110	10
DN50	120	13
DN80	140	19
DN100	150	21
DN150	180	38

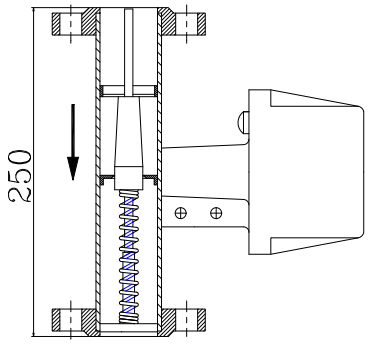
b)





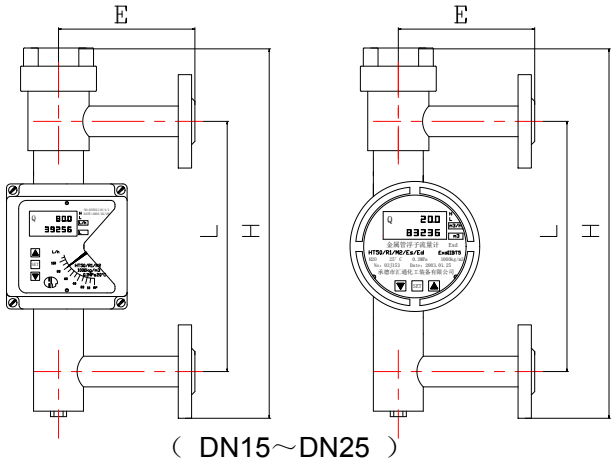
Nominal Size	C (mm)	Weight(kg)
DN15	220	5.0
DN25	230	6.5
DN50	255	10
DN80	270	15.5
DN100	280	16.5





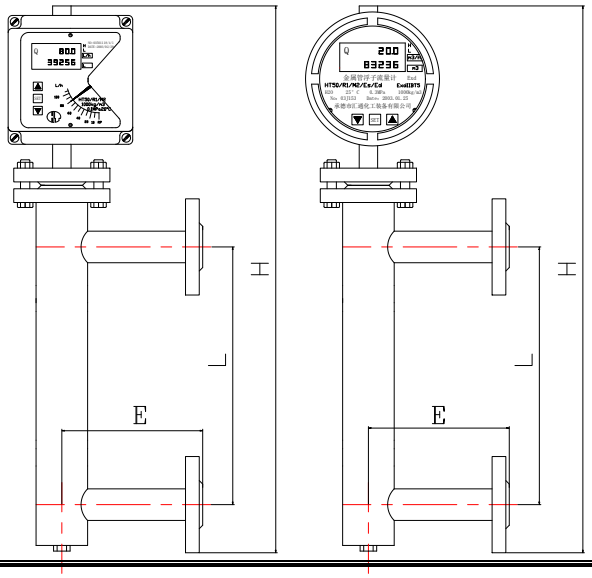
Nominal Size	D	Weight	Pressure loss
	(mm)	(kg)	（kpa）
DN50	190	10	18
DN80	220	15.5	22
DN100	240	17	28
DN150	320	35.5	35

2)



（ DN15～DN25 ）

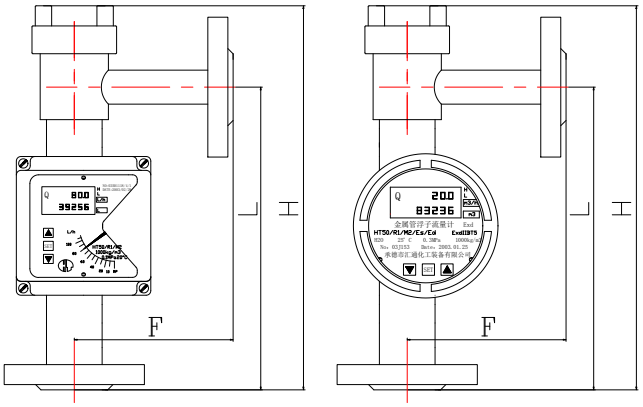
Nominal Size	DN15	DN25
E（mm）	120	120
L（mm）	250	250
H（mm）	500	500
Weight(kg)	6	7.2
Pressure loss (kpa)	21	30



Nominal Size	E	L	H	Weight	Pressure loss
	（mm）	（mm）	（mm）	kg	kpa
DN50	120	250	650	13	36
DN80	150	300	800	34	45
DN100	150	300	800	49	58
DN150	180	350	850	66	63

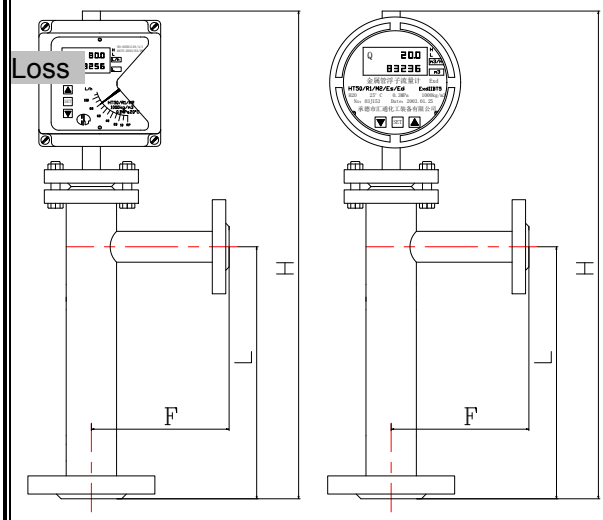
（ DN50～DN150 ）

3)



（ DN15～DN25 ）

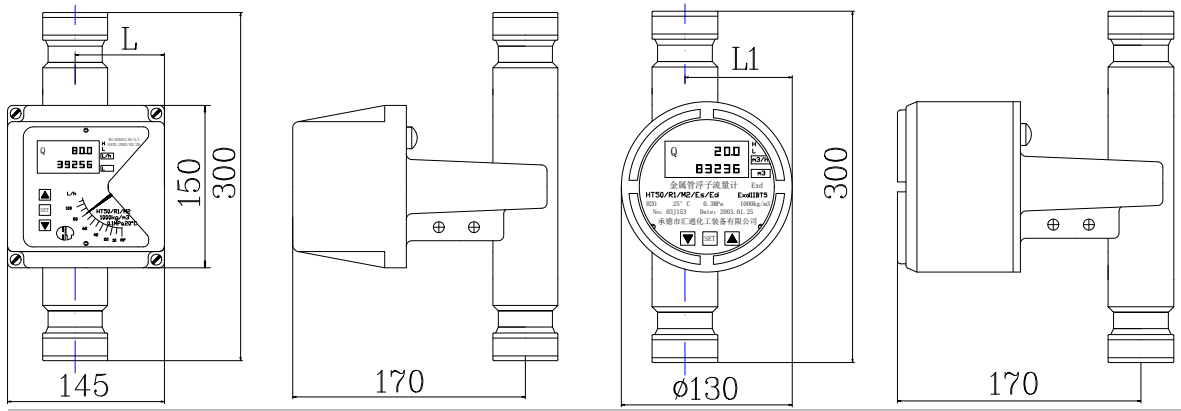
	DN15	DN25
F（mm）	120	120
L（mm）	250	250
H（mm）	350	350
Weight(kg)	4.5	7
Pressure loss(kpa)	18	22



Nominal Size	F（mm）	L（mm）	H（mm）	Weight kg	Pressure kpa
DN50	120	250	600	13	28
DN80	150	250	700	34	35
DN100	150	250	700	49	45
DN150	180	300	760	66	58

（ DN50～DN150 ）

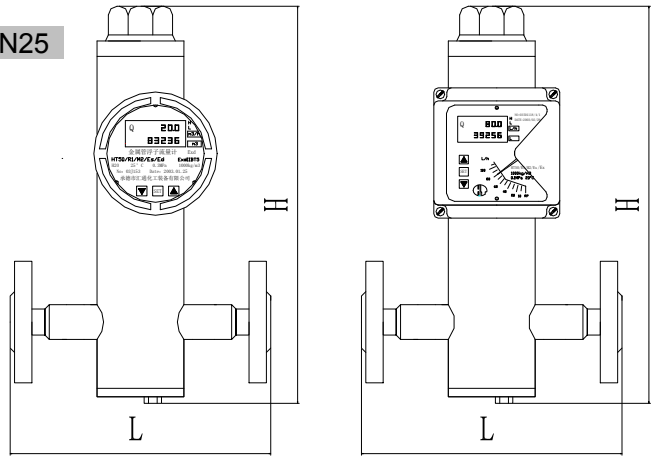
4)



Nominal Size	Permitted Max Operating Pressure（bar）	L（mm）	L1（mm）	Weight（kg）
DN15	40	80	75	2
DN25	40	90	85	3.5
DN50	40	105	100	5
DN80	25	120	115	7.5
DN100	25	130	125	10.5

5)Dimensions,Weights,Pressure Loss

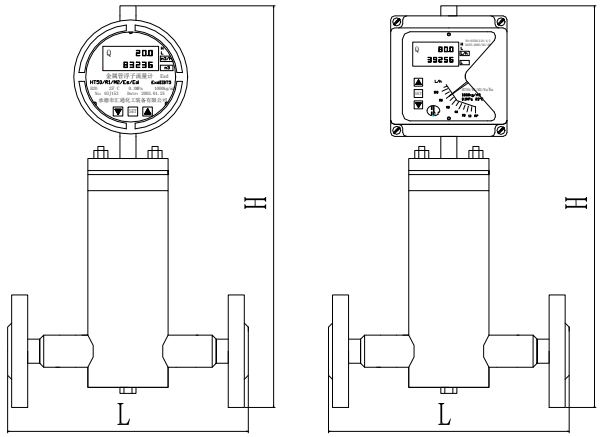
DN25



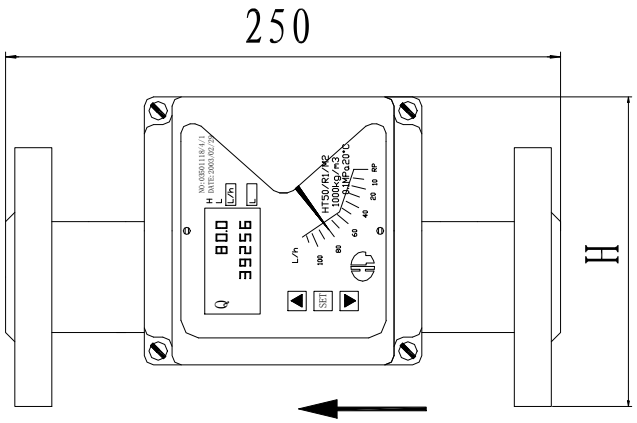
Nominal Size	DN15	
L（mm）	250	250
H（mm）	380	400
Weight(kg)	5.5	9.5
Pressure Loss（kpa）	30	35

（ DN15～DN25 ）

DN50



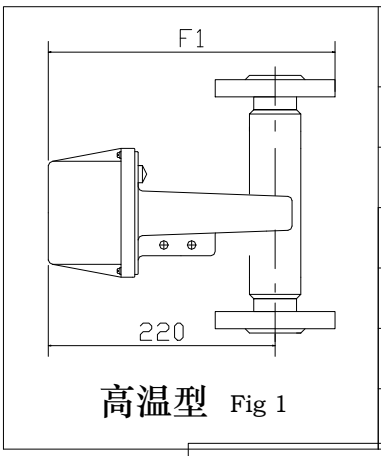
Nominal Size	DN50
L（mm）	250
H（mm）	480
Weight(kg)	20
Pressure Loss（kpa）	42



Nominal Size	DN80	DN100	DN150
H（mm）	220	240	320
Weight (kg)	15.5	17	35.5
Pressure Loss（kpa）	22	28	35

（ DN80～DN150 ）

6.Installation and special structure



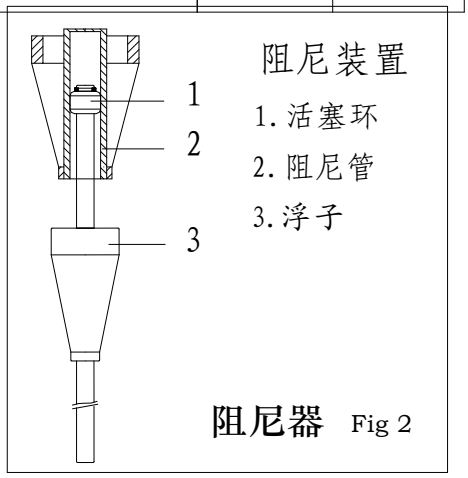
高温型 Fig 1

口径	F1
DN15	270
DN25	280
DN50	305
DN80	320
DN100	330
DN150	370

1)Pipiling Prepartion:

Before installing the flowmeter,blow out Pipeline to remove all traces of dirt,welding beads,etc.

Install suitable fiters upstream of the flowmeter if the liquid product contains solids.Should the fluid contain ferromagnetic particles,install a magnetic filter upstream of the flowmeter.

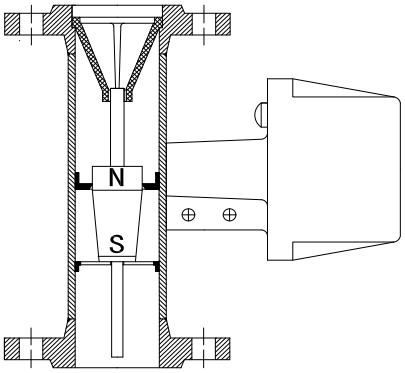


阻尼器 Fig 2

The filter contains bar magnets in helical arrangement for optimum efficiency at minimal pressure losses.All magnets are coated with PTFE as Protection against corrosion.

2)Installation in the pipeling:

The series F56 armored flowmeter must be installed vertically in the pipeline.It is connected with pipe by flanges,Meterintube has a lengh enough for full displacement of float in the tube.Use a straight unimpeded inlet run of 5 DN up-stream of the flowmeter and an outlet run of the 250mm downstream of the floweter. On installation,



高压型 fig 3

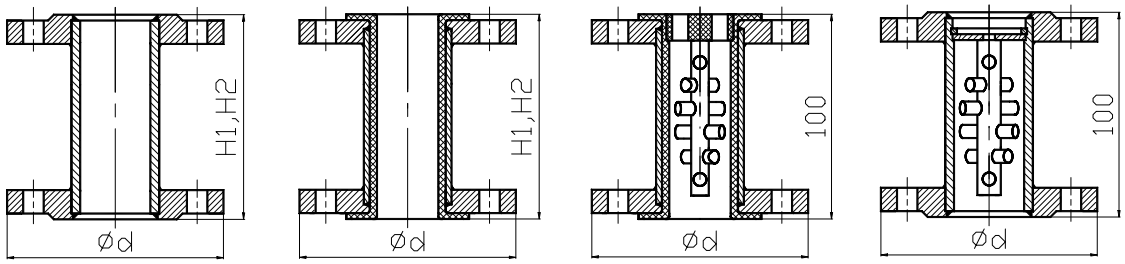
we recommend to use levelling instrument or plumbbob,so that the flowmeter is in the axle line of pipe. Flowmeters for gases are calibrated for a specific pressure.If the gas is discharged into atmosphere downstream of the flowmeter,the gas pressure will drop at the float and cause the measured value to be falsified.Given such operating conditions,install a valve downstream of the flowmeter to allow setting of required flow rate.

The gas will then expand at the valve,while the calibrated pressure is maintained at the float.

Provide counterflanges and gaskets to DIN 2501(or equivalent national standard) in keeping with pressure rating.

Install the flowmeter in the pipe run without incurruing stresses.Suitable support the pipeline upstream and downstream of the flowmeter to minimize stresses on the flowmeter.

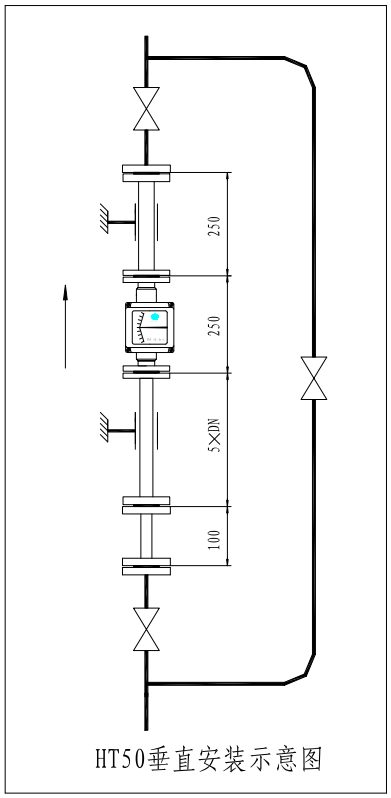
Take special care when installing measuring tubes with a PTFE liner.PTFE is deformable under pressure in the cold state.For that reason ,the flange nuts must not be tighted arbitrarily.See table 3 for maximum torques.



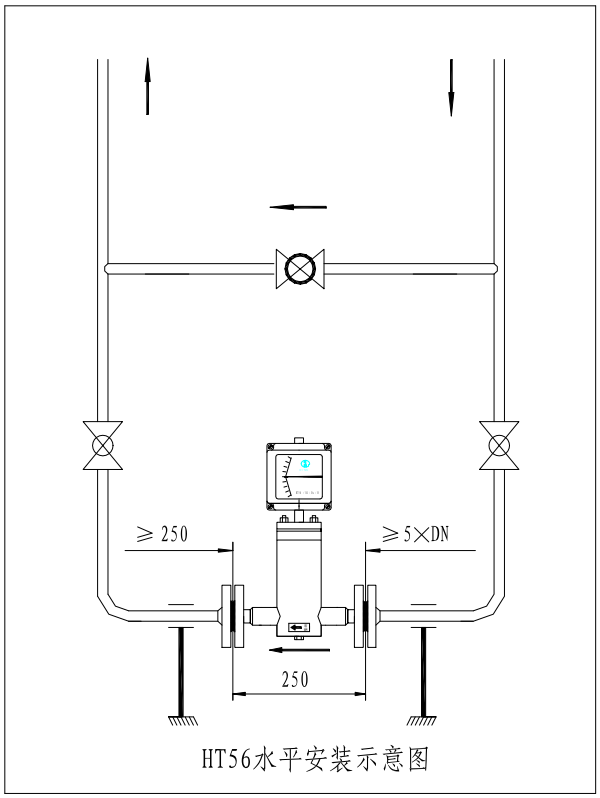
Pipeline PTFE Pipeline PTFE Magnetic filter Magnetic filter

Meter size	DN15	DN25	DN50	DN80	DN100	DN150
H1≥（mm）	75	125	250	400	500	750
H2≥（mm）	250	250	250	250	250	250
Φd（mm）	95	115	165	200	220	285

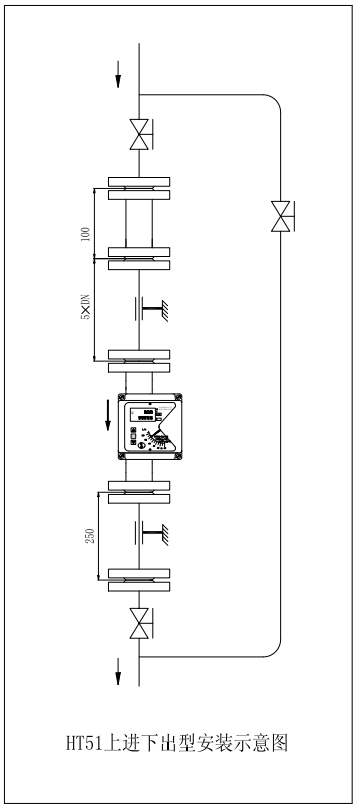
1) Installation Fig.



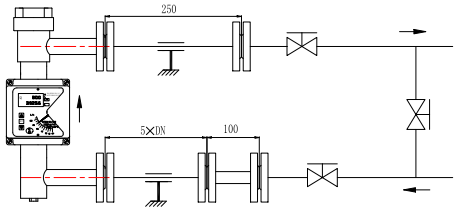
HT50垂直安装示意图



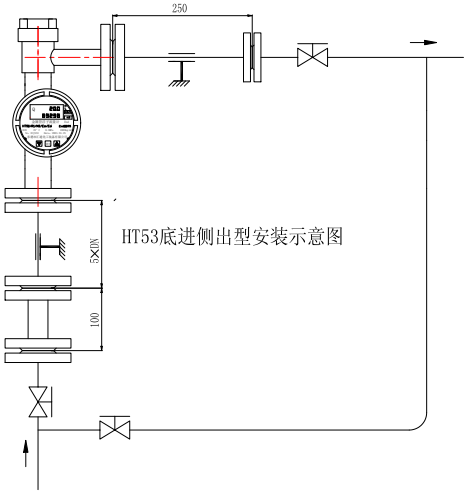
HT56水平安装示意图



HT51上进下出型安装示意图



HT52侧进侧出型安装示意图



HT53底进侧出型安装示意图

7.Flow table

float materal： 1□1Cr18Ni9Ti 0Cr18Ni12Mo2Ti Hastelloy 2□ PTFE

DN	Float No	water (20℃) l/h		Air 0.1013MPa 20℃ m3/h	Pressure loss KPa	
		1□	2□	1□	water	Air
15	F15.1	16	-	0.5	2.0	7.0
	F15.2	25	16	0.7	2.3	7.2
	F15.3	40	25	1.1	2.5	7.3
	F15.4	63	40	1.8	2.5	7.5
	F15.5	100	63	2.8	2.5	7.8
	F15.6	160	100	4.8	2.6	8.0
	F15.7	250	160	7.0	2.7	10.0
	F15.8	400	250	10.0	2.9	10.8
	F15.9	630	400	16.0	3.4	14
25	F25.1	630	400	16	4.0	7.0
	F25.2	1000	630	30	4.1	8.0
	F25.3	1600	1000	45	4.4	12.0
	F25.4	2500	1600	70	5.2	19.0
	F25.5	4000	2500	110	7.0	25.0
	F25.6	6300	4000	180	12.5	33.0
50	F55.1	6300	4000	180	4.7	8.0
	F55.2	10000	6300	250	5.1	15.0
	F55.3	16000	10000	400	6.2	22.0
	F55.4	25000	16000	1000	8.0	35.0
80	F85.1	25000	16000	1000	5.3	15.0
	F85.2	40000	25000	1200	7.8	22.0
100	F105.1	63000	40000	1800	11.4	35.0
	F105.2	100000	63000	3000	16.7	
150	F155.1	150000	100000	4000	17.0	

8.Electrical signal output

The Kinax 3W2angle-of-rotation transducer can be used in hazardous as well as in nomal conditions. For hazardous areas.

Technical data　Angle-of-rotation transducer Kinax3W2

Power supply:12～36(33)VDC　　Linearity:≤±1%(±0.5%)

Current consumption: ≤30mADC　　Self-capacitance:15nF only relevant for hazardous operation!

Ambient temperature:-25～+60℃　　Temperature influence : ≤0.5%/10℃(0.2%/10℃)

Protection category:IP65　　Load resistance dependence: ≤0.2%

Power influence: ≤0.2%　　Output:4～20mA 2-wire system;

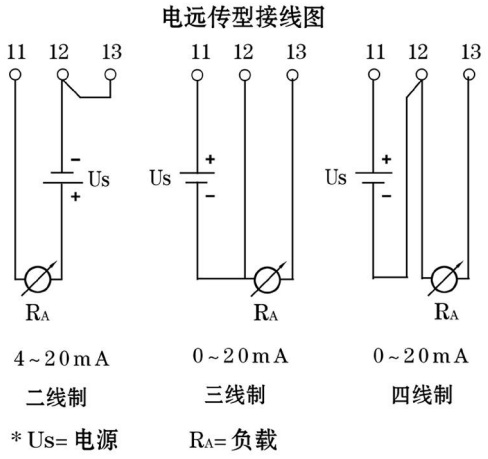
Sefe-inductance:2mH(50μH)　　0～10mA、0～20mA、3-or 4-wire system

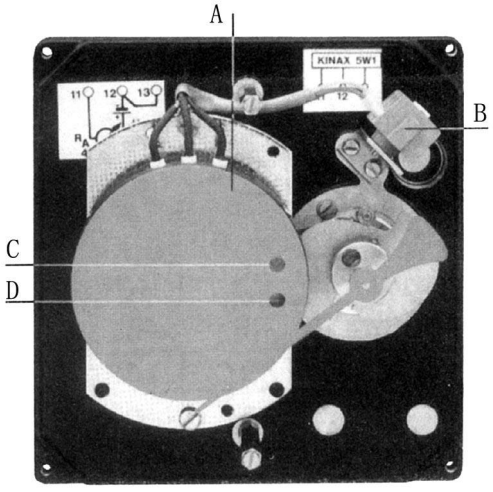
Max.load resistance：2-wire system：$Ra = \dfrac{U_b - 12(v)}{I_a(mA)} \quad (K\Omega)$

3-and 4-wire system：$Ra = \dfrac{U_b - 5.3(v)}{I_a(mA)} - 0.335 \quad (K\Omega)$

式中:U_b=Supply power；Ia=max.output current

Connection diagrams KINAX3W2

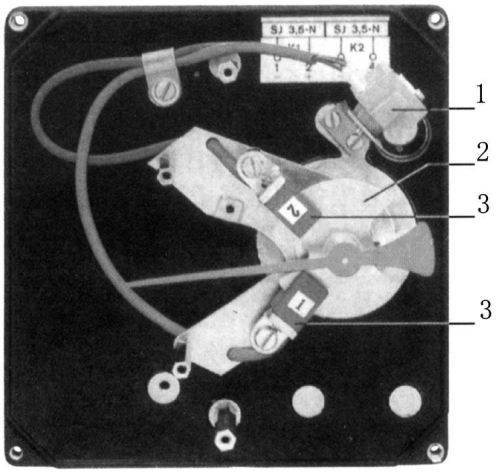




A.Angle-of-rotation transducer B.Terminals C. Range expansion . Adjusting screw for range threshold D.50% adjusting screw

Limit switches

The TG22 limit switch is a slot initiator of the the SJ3.5-N type that is inductively activated by an aluminium disc attached to the pointer spindle.Limit values can be set at any point over the full metering range and marked by arrows on the indicator



Limit switches TG22

Rated voltage 8VDC

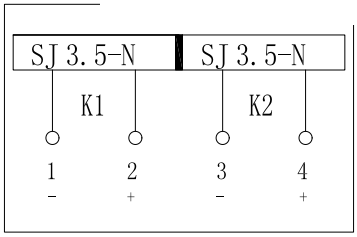
Current consumption

active area clear ≥3mADC

active area obscured ≤1mADC

Self-inductance 160μH Only Relevant for hazardous operation!

Self-capacitance 20nF Only Relevant for hazardous operation!



1. 限位开关K1 端子1, 2
2. 限位开关K2 端子3, 4

Flange DIN2501

DN	PN	ΦD	ΦK	ΦD4	b	n×Φd	f
15	4.0	95	68	45	16	4×14	2
25	4.0	115	85	68	18	4×14	2
50	4.0	165	125	102	20	4×18	2
80	1.6	200	160	138	20	8×18	3
100	1.6	220	180	162	20	8×18	3
150	1.6	285	240	212	22	8×23	3