

液位测控 LEVEL MEASUREMENT AND CONTROL
产品手册 INSTRUCTION OF OPERATION



工作原理 WORKING PRINCIPLE

磁性浮子液位计是利用其内部的磁性浮子随着液位变化产生的磁位移，使得液位视窗内的红(蓝)白磁翻柱作相应的推转(180°)来指示液位的高度。

Magnetic Float Level Indicators takes advantage of magnetic displacement arisen from interior magnetic float varying with level of liquid. Magnetic roller display with two colors of red, (blue) and white inside Level Window is pushed magnetically to upturn (180°) correspondingly to indicate level of liquid.

当浮子上升时，磁翻柱由白色转为红(蓝)色，当浮子下降时，由红(蓝)色变为白色，红(蓝)色始终表示液位的高度。

If float rises, magnetic roller display changes from white to red (blue). If float falls, magnetic roller display changes from red (blue) to white, color of red (blue) indicates height of liquid persistently.

技术特点 TECHNICAL CHARACTERISTICS

- 液体介质和测量指示完全隔离。

Liquid medium is separated from indication of measurement completely.

- 可用于测量和显示腐蚀性、易燃，易爆性、强毒性、放射性及浑浊性的液体的液位。

Used to measure and display level of liquids of erosion, flammability, explosiveness, extreme toxicity, radioactivity and turbidity.

- 测量结果同时可通过二线制4~20mA变送器或HART协议变送器及总线制变送器信号远传，传感器分辨率可按5mm、10mm、20mm选择，达到远距离控制和检测目的。

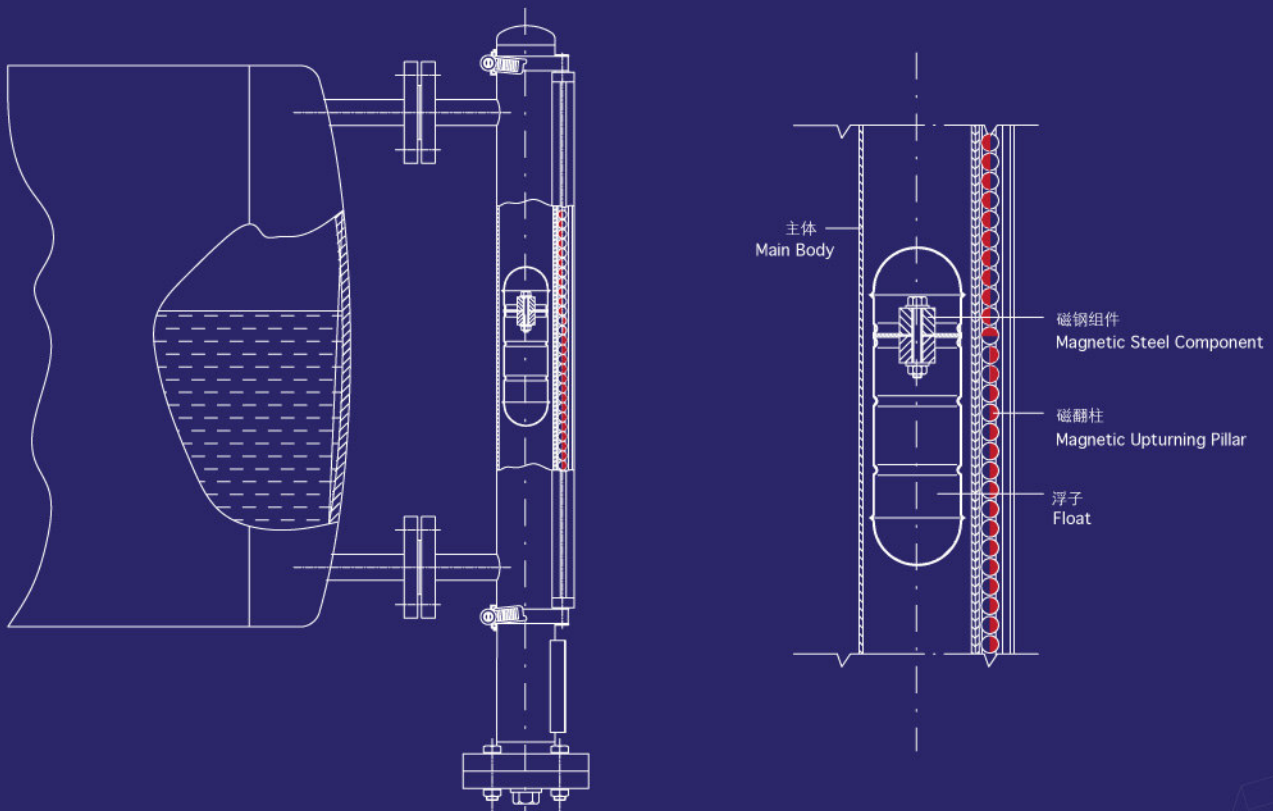
Data of measurement can be sent remotely by 2-wire transmitter of 4~20mA or HART Protocol transmitter and BUS transmitter. Resolution of transmitter is optional among 5mm, 10mm, 20mm for purpose of remote control and detection.

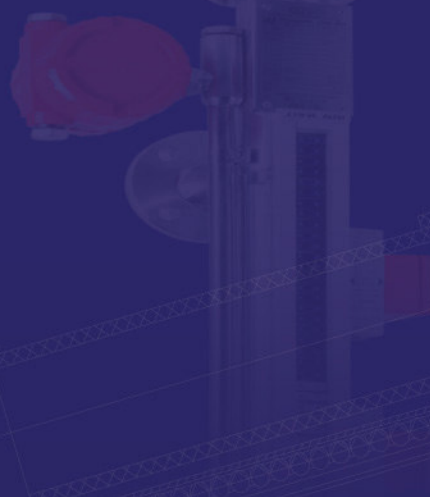
- 设定点可以利用由磁性保持开关提供报警和控制信号及在测量范围内任意调整。

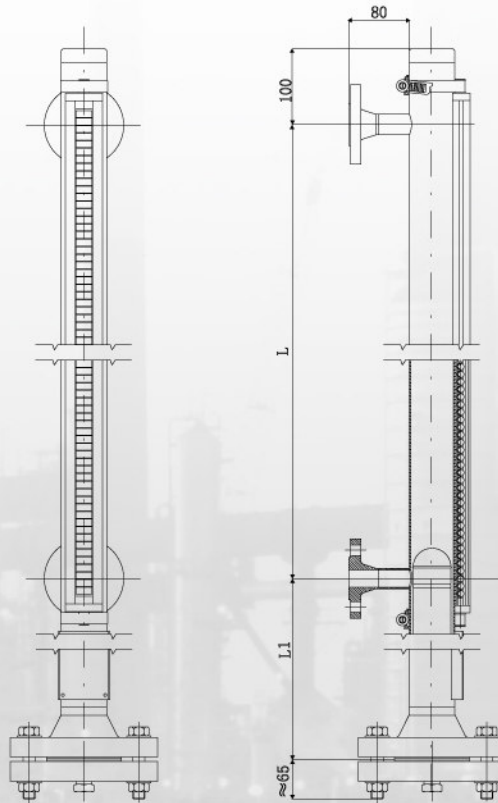
Magnetic holding switch can be used on setting points to issue signals of alarming and control. Setting points can be regulated within scale of measurement freely.

- 除了基本型外，还有夹套型、防霜型、防腐型、顶装型、吊绳型、内衬型、气化型、卫生型等各种形式的液位计。

Besides basic types, there are other kinds of level meters available such as Jacket Type, Frost Preventive Type, Corrosion Resistant Type, Top Filling Type, Suspension Type, Lining Type, Type, Gasification Type and Sanitation Type.







形式图 Illustration

- 注:1. L=中心距
L1=浮子长度-30mm
2.中心距超过4000mm加装中心支撑

Remark:

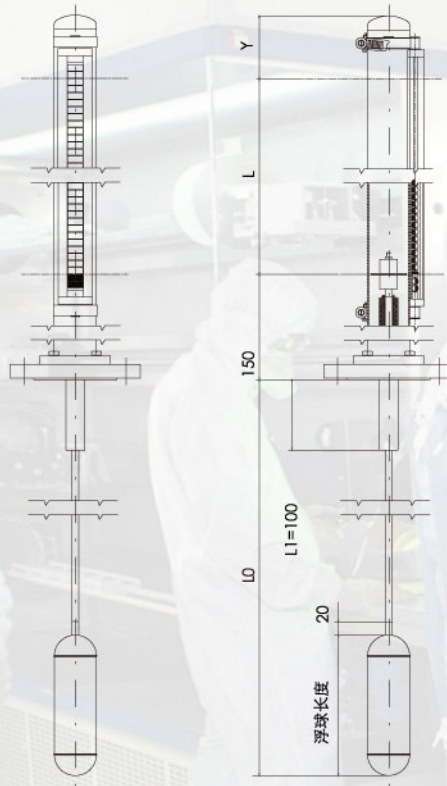
1. L= Center Distance
L1 = Length of Float -30mm
2. If center distance is above 4000mm, central support should be equipped additionally

磁性浮子液位计 MAGNETIC FLOAT LEVEL INDICATORS UHZ-511Y(高压型)

技术数据

主 管	$\varnothing 60.3 \times 2.6$ (PN=6.3MPa) $\varnothing 65 \times 3.5$ (PN=10.0MPa)		
旁路管顶部	1. 圆封头; 2. 平封头; 3. 法兰 选项: (见第23页) 一通气塞: M20 \times 1.5; 1/2"NPT 一通气阀: 3/8"球阀-Q11F-64P 1/2"NPT截止阀-J121W-400P 一通气法兰		
旁路管底部	法兰或法兰带排污 选项: (见第23页) 一排污塞: M20 \times 1.5; 1/2"NPT 一排污阀: 3/8"球阀-Q11F-64P 1/2"NPT截止阀-J121W-400P 一排污法兰		
旁路连接	1. 法兰; 2. 螺纹; 3. 焊接端 选项: (见第24页) 一法兰: DN15~DN25、PN6.3~PN10.0 法兰标准(HG20592-97) 一焊接端: S... (焊接端/外径) (按用户要求)		
中 心 距	300mm ~20000mm		
材 质	不锈钢(304, 316L) (按用户要求)		
工作 压力	PN6.3~PN10.0MPa		
工作 温度	-60 $^{\circ}$ C~+300 $^{\circ}$ C		
浮 子	型号	1. ZV (\cong PN6.3)	材质:不锈钢 适用比重 \cong 700 kg/m 3
		2. ZT (\cong PN6.3)	材质:钛 适用比重 \cong 600 kg/m 3
	浮子选型: (见第15页)		
液 位 显 示	塑料PBT (\cong 200 $^{\circ}$ C) 陶瓷 (>200 $^{\circ}$ C)		
标 尺 选 项	SA铝合金; SV不锈钢		
系 统 组 件	磁性开关 (见第19、20页) 液位变送器 (见第16、17、18页)		

Chamber	$\varnothing 60.3 \times 2.6$ (PN=6.3MPa) $\varnothing 65 \times 3.5$ (PN=10.0MPa)		
Top of Chamber	1. Round sealing head 2. Flat sealing head; 3. Flange Options: (please refer to Page 23) Breather Plug: M20 \times 1.5; 1/2"NPT Breather Valve: 3/8"Ball Valve-Q11F-64P 1/2"NPT Stop Valve-J121W-400P Breather Flange		
Bottom of Chamber	Blow-off Flange or Flange Belt Options: (please refer to Page 23) Breather Plug: M20 \times 1.5; 1/2"NPT Breather Valve: 3/8"Ball Valve-Q11F-64P 1/2"NPT Stop Valve-J121W-400P Breather Flange		
Process Connection	1. Flange 2. Screw 3. Welding End Options: (please refer to Page 24) Flange: DN15~DN25、PN6.3~PN10.0 Standard of Flange (HG20592-97) Welding End: S... (Welding end/ size) (It can be customized)		
Center Distance	300mm ~20000mm		
Material	Stainless Steel (304, 316L) (It can be customized)		
Working Pressure	PN6.3~PN10.0MPa		
Working Temperature	-60 $^{\circ}$ C~+300 $^{\circ}$ C		
Float	Model	1. ZV (\cong PN6.3)	Material :Stainless Steel Applicable specific gravity \cong 700 kg/m 3
		2.ZT (\cong PN6.3)	Material :Ti Applicable specific gravity \cong 600 kg/m 3
	Optional Model of Float (Please refer to Page 15)		
Display of Level	Plastic PBT (\cong 200 $^{\circ}$ C) Ceramics (>200 $^{\circ}$ C)		
Options of Scale	SA Aluminum Alloy; SV Stainless Steel		
Components of System	Magnetic Switch (Please refer to Page19、20) Level Transmitter (Please refer to Page 16, 17 and 18)		



形式图 Illustration

- 注:1. L=L0-浮子长度-L1-20
 Y: 90mm(圆封头); 100 mm (平封头)
 150mm(法兰)
 2. 浮球选型根据介质密度与插入深度L0而定
 3. 插入深度L0超过1000mm加装护管

Remark:

1. L= Center Distance
 L1 = Length of Float -30mm
 Y=90mm for round sealing head and 100 mm for flat sealing head,150mm (flange)
2. Model of float ball depends on density of medium and depth of L0 inserted.
3. If inserting depth L0 is above 1000mm, sleeving should be used.

磁性浮子液位计

MAGNETIC FLOAT LEVEL INDICATORS

**UHZ-515(顶装型
 Top Mounted design)**

技术数据

主 管	Ø60.3 × 2		
顶装管顶部	1. 圆封头; 2. 平封头; 3. 法兰 选项: (见第23页) 一通气塞: M20×1.5; 1/2"NPT 一通气阀: 3/8"球阀-Q11F-64P 1/2"NPT截止阀-J121W-400P 一通气管法兰		
连接形式	一法兰: DN65~DN150、PN0.6~PN2.5 法兰标准(HG20592-97) (按用户要求)		
测量范围 L	300mm ~4500mm (按用户要求)		
材 质	不锈钢 (304, 316L) (按用户要求)		
工作压力	0.6~2.5MPa		
工作温度	-40℃~+200℃		
浮 子	型号		
	1. ZV60 (≅PN2.5)	-40℃~+200℃	适用比重 ≥ 520 kg/m ³ L0=500mm时
	2. ZT50 (≅PN2.5)	-40℃~+200℃	适用比重 ≥ 480 kg/m ³ L0=500mm时
	3. ZV110 (≅PN1.6)	-40℃~+200℃	适用比重 ≥ 520 kg/m ³ L0=500mm时
	4. TSD110 (≅PN1.6)	-40℃~+200℃	适用比重 ≥ 480 kg/m ³ L0=500mm时
液位显示	塑料PBT (≅200℃) 陶瓷 (>200℃)		
标尺选项	SA铝合金; SV不锈钢		
系统组件	磁性开关 (见第19、20页) 液位变送器 (见第16、17、18页)		

TECHNICAL DATA

Chamber	Ø60.3 × 2		
Top Assembled Pipe	1. Round sealing head 2. Flat sealing head; 3. Flange Options: (please refer to Page 23) Breather Plug: M20×1.5; 1/2"NPT Breather Valve: 3/8"Ball Valve -Q11F-64P 1/2"NPT Stop Valve-J121W-400P Breather Flange		
Process Connection	Flange: DN65~DN150、PN0.6~PN2.5 Standard of Flange (HG20592-97) (It can be customized)		
Range of Measurement L	300mm ~4500mm (It can be customized)		
Material	Stainless Steel (304, 316L) (It can be customized)		
Working Pressure	0.6~2.5MPa		
Working Temperature	-40℃~+200℃		
Float	Model		
	1. ZV60 (≅PN2.5)	-40℃~+200℃	Applicable specific gravity ≥ 520 kg/m ³ L0=500mmh
	2. ZT50 (≅PN2.5)	-40℃~+200℃	Applicable specific gravity ≥ 480 kg/m ³ L0=500mmh
	3. ZV110 (≅PN1.6)	-40℃~+200℃	Applicable specific gravity ≥ 520 kg/m ³ L0=500mmh
	4. TSD110 (≅PN1.6)	-40℃~+200℃	Applicable specific gravity ≥ 480 kg/m ³ L0=500mmh
Display of Level	Plastic PBT (≅200℃) Ceramics (>200℃)		
Options of Scale	SA Aluminum Alloy; SV Stainless Steel		
Components of System	Magnetic Switch (Please refer to Page19、20) Level Transmitter (Please refer to Page 16, 17 and 18)		

磁性浮子液位计

MAGNETIC FLOAT LEVEL INDICATORS

浮子参数表

Float Parameters



浮子长度		150	200	250	300	350	400	450	500		
产品型号	工作压力MPa	浮子材料	介质温度	标准介质密度(Kg/m ³)							
UHZ-511/512/ 513/518/519	1.6	不锈钢	-40℃~+120℃	1258	847	717	642	589	554	528	506
			+120℃~+200℃	1352	902	757	675	616	576	548	524
		钛	-40℃~+120℃	1094	724	604	533	485	451	427	407
			+120℃~+200℃	1189	778	644	565	512	474	447	425
	2.5	不锈钢	-40℃~+120℃	1208	926	788	710	656	620	591	571
			+120℃~+200℃	1291	980	828	741	682	642	611	588
		钛	-40℃~+120℃	1064	800	674	600	551	517	490	470
			+120℃~+200℃	1147	854	714	632	578	539	509	488
	4.0	不锈钢	-40℃~+120℃	1269	980	839	756	701	663	634	613
			+120℃~+200℃	1352	1034	879	787	728	685	654	630
		钛	-40℃~+120℃	1125	851	722	644	595	559	532	512
			+120℃~+200℃	1208	905	762	676	621	581	551	529
UHZ-514	0.4	PVC	-40℃~+40℃	1714	1253	1032	900	815	755	708	674
	0.6	PP	-40℃~+80℃	1383	1071	838	727	654	602	564	533

注：表中未列的数据可根据用户要求制作。 Remark: Data not listed in the table can be customized.

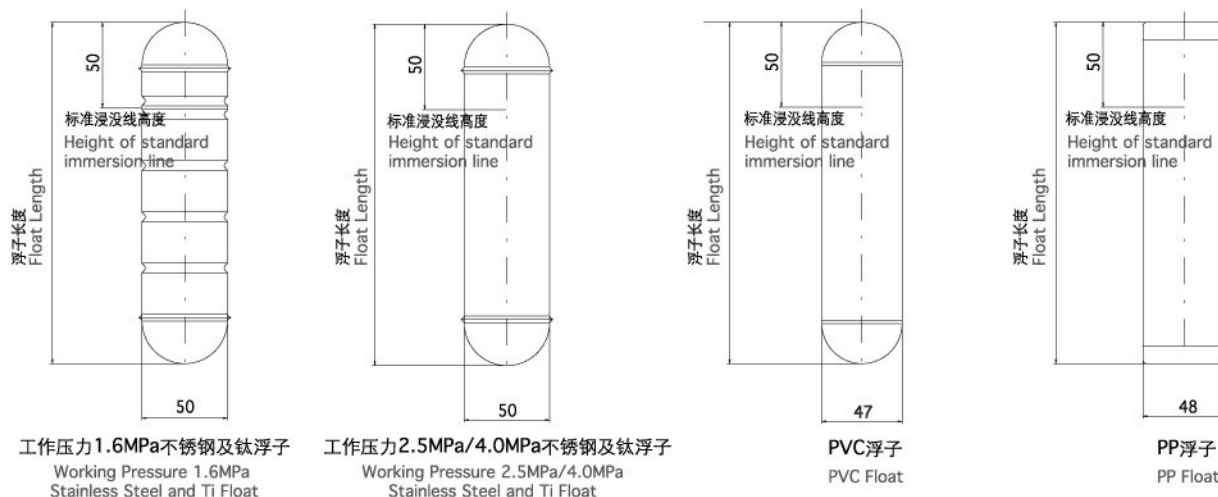
浮子选型 OPTIONAL MODEL OF FLOAT

旁路型磁性浮子液位计用浮子



参考实例 Reference Implementation:

ZV316L-50-1.6-80-200 (浮子材料 Float Material 316L、浮子外径 Float Outer Diameter 50mm、工作压力 Working Pressure 1.6MPa、介质温度 Medium Temperature 80℃、浮子长度 Float Length 200mm)



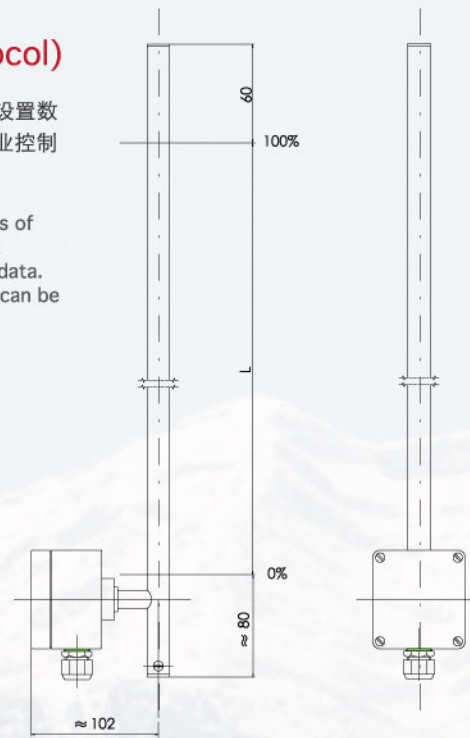
磁性浮子液位变送器

MAGNETIC FLOAT LEVEL TRANSMITTER

UHZ-51XH/XHBi (4-20mA)HART 协议(Protocol)

51XH/XHBi变送器符合HART规范要求,变送器可通过HART规范,读取和设置数据,使用HART终端和相应的数据描述语言可改变变送器参数,以达到工业控制过程参数修改.在现场和危险场所可以手持编程器进行数据编辑.

51XH/XHBi transmitter is in accordance with criteria of HART. Parameters of transmitter can be modified by terminal of HART and corresponding data descriptive language with help of protocol of HART and configuration of data. Thus parameters of industry process control can be modified. Operation can be done by handy programmer in site or dangerous cases.



技术数据

接线盒	A. 铝
电缆接头	规格 PG11
外管	Ø14 × 1 mm (圆管) 只适用于分辨率K10 Ø18 × 1.5 mm (圆管)
材质	不锈钢 (304) (按用户要求)
测量范围	300mm ~ 20000mm L (按用户要求)
测量精度	± 0.5%F.S. (L > 1000mm)
介质温度	-40℃ ~ +120℃
分辨率	K20 = 20 mm K10 = 10 mm K5 = 5 mm
工作电源	24 V.DC ± 10% RL=250Ω
输出信号	4~20mA (二线制)
输入回路	三线电阻器
传输距离	1000m
防爆标志 温度组别	T3: +200℃ T4: +135℃ T5: +105℃ T6: +85℃
使用环境温度	-25℃ ~ +55℃
防爆标记	Ex ExII C T3-T6
许可证号	GYB071574
防护等级	IP66

TECHNICAL DATA

Terminal box	A. Aluminum
Connect of wire	Specifications PG11
External Pipe	Ø14 × 1 mm (Round Pipe) Applies only to resolution of K10 Ø14 × 1 mm (Round Pipe)
Material	Stainless Steel (304) (Customized)
Range of Measurement	300mm ~ 20000mm L (Customized)
Precision of Measurement	± 0.5%F.S. (L > 1000mm)
Temperature of Medium	-40℃ ~ +120℃
Contact separation	K20 = 20 mm K10 = 10 mm K5 = 5 mm
Power Supply	24 V.DC ± 10% RL=250Ω
Output Signal	4~20mA(2-wire system)
Input Loop	3-wire Resistor
Distance of Transmission	1000 m
Sign of Explosion Proof Division of Temperature	T3: +200℃ T4: +135℃ T5: +105℃ T6: +85℃
Working Environment Temperature	-25℃ ~ +55℃
Sign of Explosion Proof	Ex ExII T3-T6
No. of Permit	GYB071574
Housing Protection	IP66

磁性浮子液位计-磁性开关

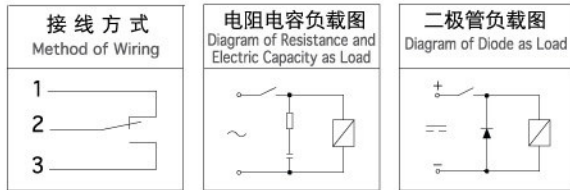
MAGNETIC FLOAT LEVEL INDICATORS, MAGNETIC SWITCHES



UHZ-51J Series

UHZ-51J磁性保持型开关用来设置液位的限定点,磁性保持型开关信号可以用来触发报警或其它控制

UHZ-51J Magnetic Holding Switch can be used to preset limit points of level. Magnetic Holding Switch can be used to trigger alarming signal or other control



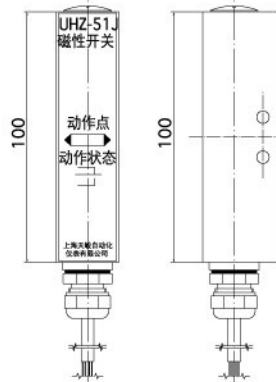
技术数据

代 码	J	JC
型 号	MGS	MGSA
触 点	干簧触点	
触点类型	1个SPDT (单刀双掷)	
触点状态	双稳态	
开关容量	J, JC	230V AC, 60VA, 1A 230V DC, 30W, 0.5A
最高工作温度	J	90℃
连接电缆	JC	150℃
(3×0.75mm ²)	J	1m PVC (灰色)
外 壳	铝, 阳极氧化处理	
外壳防护等级	IP66	
电缆接头	JC 规格 Pg11 线径Ø8	

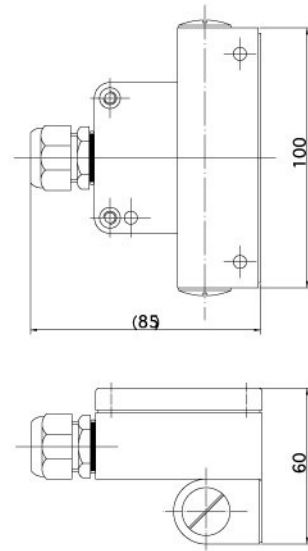
TECHNICAL DATA

Code	J	JC
Model	MGS	MGSA
Contactor	Reed contact	
Type of Contactor	One SPDT (single-pole double-throw)	
Condition of Contactor	Bi-stable State	
Capacity of J, JC Switch	J, JC	230V AC, 60VA, 1A 230V DC, 30W, 0.5A
Max Ambient Temperature	J	90℃
	JC	150℃
Cable (3×0.75mm ²)	J	J1m PVC (Grey)
	JC	
Housing	Aluminum, Anode Oxidation Process	
Housing Protection	IP66	
Connect of Cable	Specifications Pg11 Diameter of Wire: Ø8	

代码 型号
J MGS



代码 型号
JC MGSA



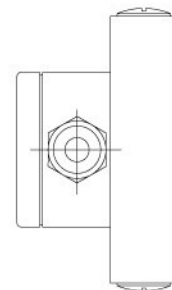
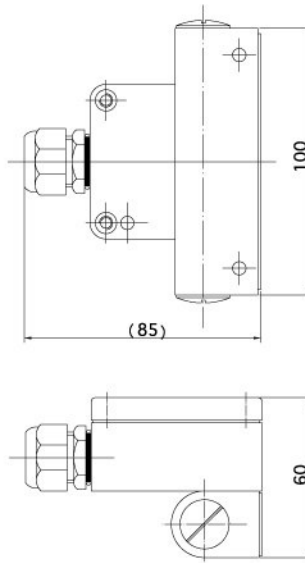
技术数据

代 码	JB
型 号	MGSB
触 点	干簧触点
触点类型	1个SPDT (单刀双掷)
触点状态	双稳态
开关容量	28VDC 100mA
环境温度	-25℃至 55℃
防爆标志	T3: +200℃T5: +100℃
温度组别	T4: +135℃T6: +85℃
外 壳	铝, 阳极氧化处理
外壳防护等级	IP66
电缆接头	规格 Pg11 线径Ø8
本质安全 (标记)	(Ex) 只限于代码JB ExiallC T3-T6
许可证号	GYB071576
并联设备参数	Ui = 30 V Io = 200 mA Ci = 0 uF Li = 0 mH

TECHNICAL DATA

Code	JB
Model	MGSB
Contactor	Reed Contact
Type of Contactor	One SPDT (single-pole double-throw)
Condition of Contactor	Bi-stable State
Capacity of J, JC Switch	28VDC 100mA
Max Ambient Temperature	From -25℃ to 55℃
Sign of Explosion Proof	T3: +200℃T5: +100℃
Division of Temperature	T4: +135℃T6: +85℃
Housing	Aluminum, Anode Oxidation Process
Housing Protection	IP66
Connect of Wire	Specifications Pg11 Diameter of Wire: Ø8
Intrinsic Safety (mark)	(Ex) for code of JBExiallC T3-T6 only
No. of Permit	GYB071576
Parameters of Cascaded Equipment	Ui = 30 V Io = 200 mA Ci = 0 uF Li = 0 mH

代码 型号
JB MGSB



磁性浮子液位计翻柱

ROLLER DISPLAY MAGNETIC FLOAT LEVEL INDICATORS



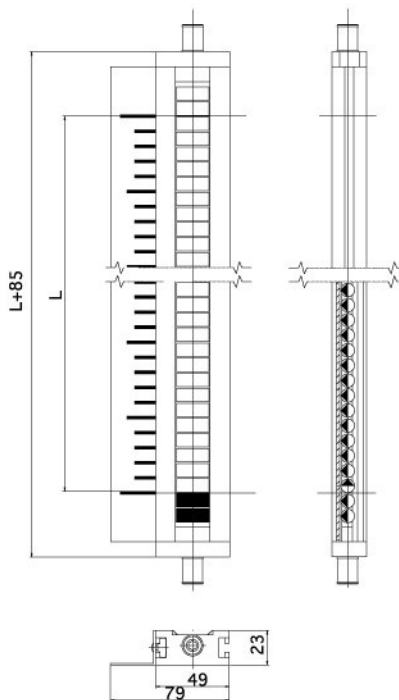
UHZ-51Z Series

技术数据

型号	ZWA(标准型)/ZWP(防腐型)	
材料	ZWA: 主体	LF21
	封盖	LF21
	抱箍架	LF21
	翻柱	塑料PBT
	视窗	有机玻璃
	ZWP: 主体	PVC
	封盖	LF21
	抱箍架	LF21
	翻柱	塑料PBT
	视窗	有机玻璃
(ZWP防腐型翻柱体适用于UHZ-514防腐型液位计)		
显示精度	10mm 白色转红色	
最高工作温度	ZWA: 200℃ ZWP: 40℃	
标尺选项	SA 铝 SV 不锈钢	

TECHNICAL DATA

Model	ZWA(Standard)/ZWP(Erosion Preventive)	
Material	ZWA: Main Body	LF21
	Cap	LF21
	Support of Hoop	LF21
	Turn column	Plastic PBT
	Window	Organic Glass
	ZWP: Main Body	PVC
	Cap	LF21
	Support of Hoop	LF21
	Turn column	Plastic PBT
	Window	Organic Glass
(ZWP erosion proof upturning pillar is applicable to UHZ-514 Erosion-proof Level-meter)		
Resolution of Display	10mm From white to red	
Max Working Temperature	ZWA: 200℃ ZWP: 40℃	
Options of Scale	SA Aluminum SV Stainless Steel	

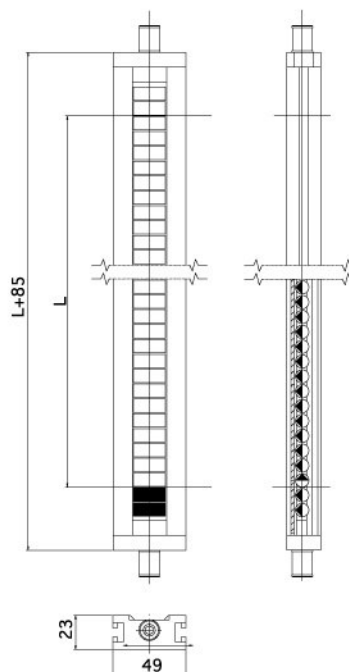


技术数据

型号	ZWH(高温型)	
材料	主体	LF21
	封盖	LF21
	抱箍架	LF21
	翻柱	陶瓷
	视窗	玻璃
	显示精度	10mm
显示形式	白色转蓝色	
最高工作温度	450℃	
标尺选项	SA 铝 SV 不锈钢	

TECHNICAL DATA

Model	ZWH(High-temperature Type)	
Material	Main Body	LF21
	Cap	LF21
	Support of Hoop	LF21
	Turn column	Plastic PBT
	Window	Organic Glass
	Resolution of Display	10mm
Method of Display	From white to blue	
Max Working Temperature	450℃	
Options of Scale	SA Aluminum SV Stainless Steel	



磁性浮子液位计

MAGNETIC FLOAT LEVEL INDICATORS

UHZ-51系列(顶、底部选项)

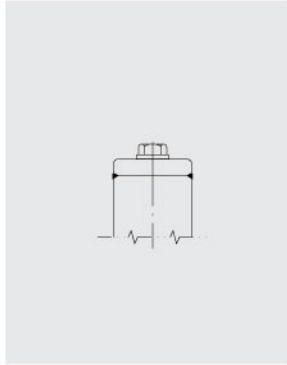
UHZ-51 Series (Options of Top and Bottom)



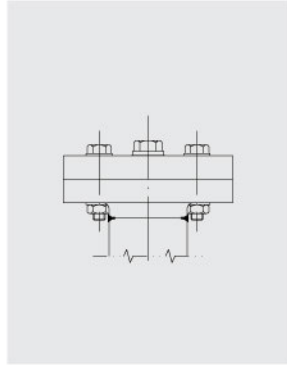
旁路顶部选项图 Chamber end top



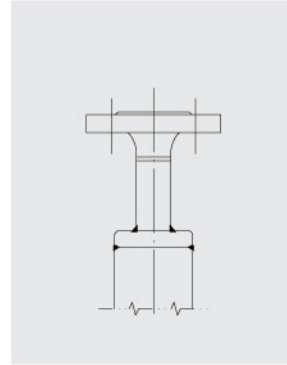
1.圆封头
Welding cap



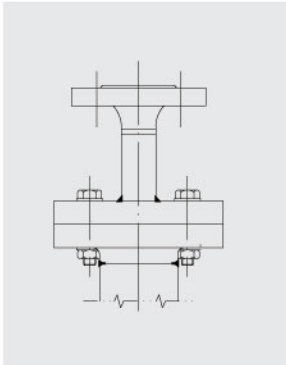
2.平封头带通气塞
Flat top with vent plug



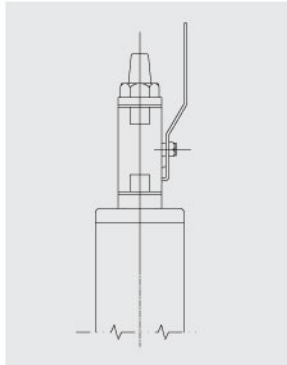
3.法兰带通气塞
Flange with vent plug



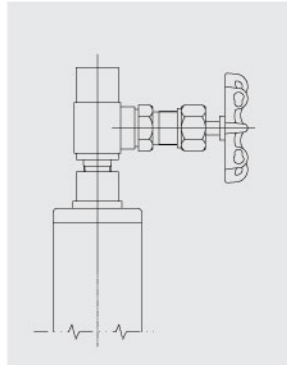
4.顶部工艺接口
Flat top with vent flange



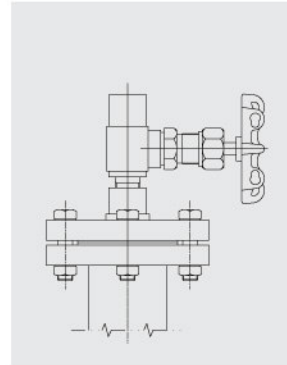
5.顶部带法兰工艺接口
Flanged with vent flange



6.顶部放液球阀
Flat top with vent valve

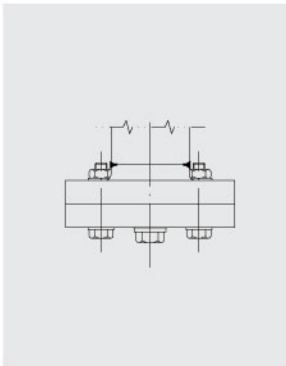


7.顶部通气阀
Flat top with vent valve

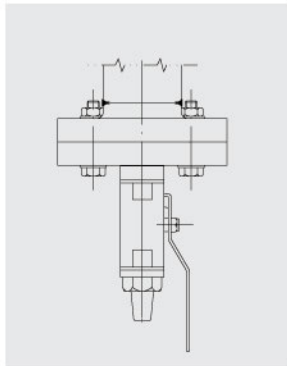


8.顶部法兰带通气阀
Flanged with vent valve

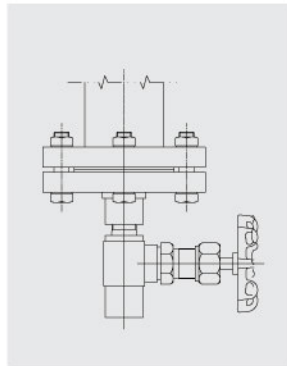
旁路底部选项图 Options for Bottom of Byway



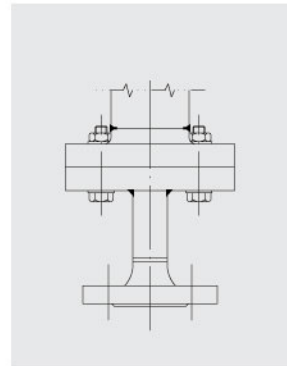
9.底部放液塞
Flanged with drain plug



10.底部放液球阀
Flanged with drain valve



11.底部放液闸阀
Flanged with drain valve



12.底部工艺接口
Flanged with drain flange

注:出厂标准顶部为1、底部为9.

Remark: 1 for top and 9 for bottom in ex-factory standard