UHZ-50系列磁性翻柱液位计

UHZ-50 Magnetic Liquid Level Meter

一、概述

UHZ-50系列磁性翻柱液位计是一种浮球式金属管现场指示型液位计。该系列产品可以做到高密封、防泄漏和在高温、高压、高粘度、强腐蚀性条件下安全可靠地测量液位，全过程测量无盲区，显示醒目，读数直观，且测量范围大，配上液位报警、控制开关，可实现液位或界位的上、下限报警和控制，配上液位变送器，可将液位、界位信号转换成二线制4~20mADC标准信号，实现远距离检测、指示、记录与控制。该系列产品广泛用于电力、石油、化工、冶金、环保、船舶、建筑、食品等各行业生产过程中的液位测量与控制。

二、原理

液位计是根据浮力原理和磁性耦合作用原理工作的。当被测容器中的液位升降时，液位计主导管中浮子也随之升降。浮子内的永久磁钢通过磁耦合传递到现场指示器，驱动红、白翻柱翻转180°；当液位上升时，翻柱由白色转为红色，当液位下降时，翻柱由红色转为白色，指示器的红、白界位处为容器内介质液位的实际高度，从而实现液位的指示。精密的红白磁性翻柱，普通型采用塑料树脂；高温型采用精密氧化铝陶瓷烧结工艺，嵌入高温永久磁钢耐温可达520℃。

三、选配项

配套TKL-121系列液位远传变送器

TKL-121系列液位远传变送器是将磁性系统耦合过来的液位信号作用于传感器内的电阻链上的每一个干簧管，引起输出电阻连续变化，从而引起测量电压的连续变化，此电压与罐体液位成正比，通过变送转换器，输出二线制4-20mA模拟信号，也可以带现场显示和HART通讯协议。

配套TKWL-130系列磁致伸缩液位变送器

TKWL-130系列磁致伸缩变送器是将磁性系统耦合过来的液位信号，以间隔1.5μs发送的脉冲，精确地测量液位计中磁浮子的位置。这个脉冲产生的磁场沿波导管向下传导。当磁浮子的磁场和脉冲电流磁场相遇时，产生返回脉冲。敏感元件探测到这个返回脉冲。根据电流脉冲与返回脉冲之间的时间，通过单片机计算出浮子的位置，确定被测液位和界位。

TKWL-130系列产品适用于对测量精度要求高的场合，也适用于高温型磁翻板液位计的远传变送，变送器输出二线制4~20mA DC信号，可带HART通讯协议，也可输出RS485信号。

四、技术参数

测量范围：300~15000mm；

精度：±10mm；

介质密度：≥350kg/m³；

环境震动：≤25Hz；

介质粘度：≤0.4PaS；

对于粘度大的介质或温度低时易结晶的介质，可选用加热夹套型液位计。

Overview

UHZ-50 magnetic liquid level meter is a floater type metal tube liquid level meter with scene indications. This series of products can reach strict sealing and leakproofness, and it can also safely and reliably measure the liquid level under the condition of high temperature, high pressure, high viscosity and strong corrosivity. In its whole measurement process, it has no blind area, striking display, visualized reading and large measuring range. Combined with liquid level alarming and control switch, it can realize limit alarming and control of the liquid level or the boundary level. Combined with liquid level transmitter, it can convert the liquid level or the boundary level signals to two-wire system 4-20ADC standard signals, thus realizing distant detection, direction, record and control. This series of products are widely used in the liquid level measurement and control in the manufacturing process of industries like electricity, petroleum, chemical industry, metallurgy, environmental protection, shipping, construction and food.

Principle

The liquid level meter operates according to principles of buoyancy effect and magnetic coupling. When the liquid level in the measured container rises or falls, the floater in the primary duct of the liquid level meter will rise or fall accordingly. The permanent magnetic steel inside the floater transmits to the site indicator, driving the red and white reversible column to reverse 180°; when the liquid level rises, the reversible column turns from white to red, and when the liquid level falls, it turns from red to white. The red and white boundary on the indicator is the actual height of the medium liquid level in the container, thus realizing indicator of liquid level. As to the precise red and white magnetic reversible column, the ordinary type uses plastic resin; the high temperature type uses precise alumina ceramics sintering technology, whose implanted high temperature permanent magnetic steel can reach temperature resistance of 520℃.

Optional Attachment

Matched TKL-121 liquid level teletransmission transmitter

TKL-121 liquid level teletransmission transmitter works the liquid level signal from magnetic system coupling on every reed switch in the resistance chain inside the sensor, which gives rise to continuous changes of output resistance, thus causing the continuous change of measuring voltage. This voltage is in direct proportion to the tank's liquid level. Through the transmitting converter, it outputs two-wire system 4-20mA analog signal, which can also be equipped with status display and HART communication protocol.

Matched TKWL-130 magnetostriction liquid level transmitter

TKWL-130 magnetostriction liquid level transmitter accurately measures the position of the magnetic floater in the liquid level meter with the pulse sent at the interval of 1.5μs. The magnetic field produced by this pulse transmits downward along the waveguide. When the magnetic field of the magnetic floater meets with the pulse current of the pulse, reset pulse emerges. Then the sensitive element detects this reset pulse. According to the time between the current pulse and the reset pulse, the single chip can work out the position of the floater, thus confirming the measured liquid level and boundary.

TKWL-130 products apply to occasions with higher requirements of measurement accuracy as well as teletransmission and transmission of magnetic liquid level meter. The transmitter outputs two-wire system 4-20mA DC signals, which can be equipped with HART communication protocol and output RS485 signals.

Technical Parameters

Measurement range: 300-15000mm

Precision: ±10mm

Medium density: ⩾350kg/m³

Environmental vibration: ⩽25Hz

Medium viscosity: ⩽0.4PaS

As to medium with higher viscosity or medium that are easy to crystallize under low temperature, heating jacket liquid level meter can be used.

材质：304、316、316L、Ti、PP、PVC、PTFE、Ta、Monel、Hastelloy C-276；

可特殊定做其他材质；

过程连接法兰：

标准型HG20592-20635 DN25 PN1.0-PN3.2；

可特殊定做其他标准法兰；

工作温度：-196~520℃；

防护等级：IP66。

Material:304, 316, 316L, Ti, PP, PVC, PTFE, Ta, Monel, Hastelloy C-276, or other customized materials can be made.

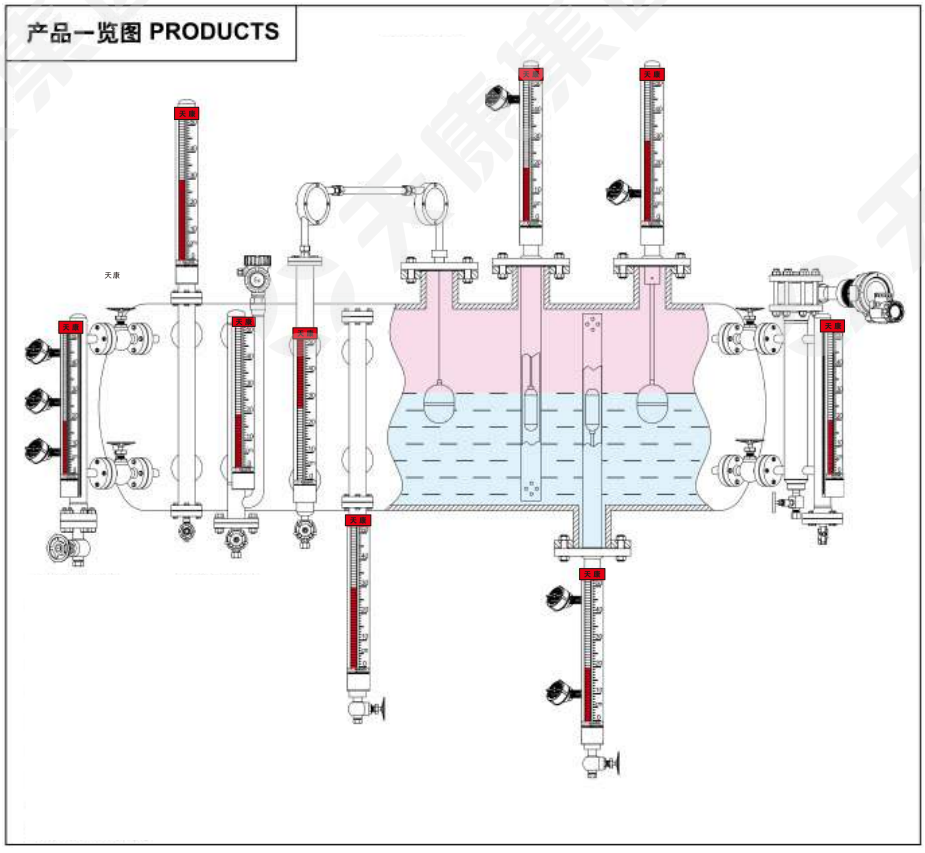
Process connecting flange:

Standard type HG20592-20635 DN25 PN1.0-PN3.2

Other connecting flange can be customized.

Operating temperature: -196-520℃

Protection grade: Ip66



五、安装使用和维护

1、液位计安装必须垂直，以保证浮球组件在主体管内 能上下运动自如。

2、最好在容器与液位计之间装上截止阀，以便清洗和检修液位计时切断物料。

3、液位计主体管周围不容许有导磁物体靠近，否则直接影响液位计正常使用。

4、液位计安装完毕后，需要用磁钢进行校正，对翻柱导引一次使零位以下显示红色，零位以上显示白色。

5、液位计投入运行时应先打开上端截止阀，再打开下端进料引液管阀门，让液体介质平稳进入主体管，避免液体介质带着浮球组件急速上升，而造成翻柱失灵和乱蹦。（若发生此现象待液面平稳后可用磁钢重新校正。）

6、为了不使浮球组件在运输工程中损坏，故出厂前浮球组件取出液位计主体管外。待液位计安装时打开底部排污法兰，再将浮球重新装入主体管内，注意浮球组件重的一头朝上，不能倒装。

7、根据介质情况，可定期打开排污法兰清洗主体管内沉淀物。

Installation and Maintenance

1. The liquid level meter must be installed vertically so as to make sure that the floater element can move up and down freely in the main tube.
2. It is better to install a stop valve between the container and the liquid level meter so as to make it possible to cut off the material when cleaning and maintaining the liquid level meter.
3. Magnetic objects are not allowed to get close to the main tube of the liquid level meter, or it will directly influence the normal usage of the liquid level meter.
4. After the installation of the liquid level meter, magnetic steel should be used to check, making the reversible column guide display red below zero and white above zero.
5. In actual operation, the stop valve at the upper end should be opened first, and then the feeding liquid guide tube valve should be switched on to make the liquid medium enter the main tube smoothly in order to avoid the fact that the liquid medium rises rapidly with the floater element, which may lead to malfunction and jumping of the reversible column. (If this happens, when the liquid level becomes smooth, magnetic steel can be used to recalibrate.)
6. To avoid the damage to the floater element in transportation process, before delivery, the floater element is taken out of the main tube of the liquid level meter. When installing the liquid level meter, first open the sewage disposal flange at the bottom, and then install the floater into the main tube. Pay attention to it that the heavier end of the floater element is upwards, which can't be inversed.
7. According to different conditions of the medium, the sewage disposal flange can be opened regularly to clean the sediment inside the main tube.

六、结构外形尺寸

Structure Dimension

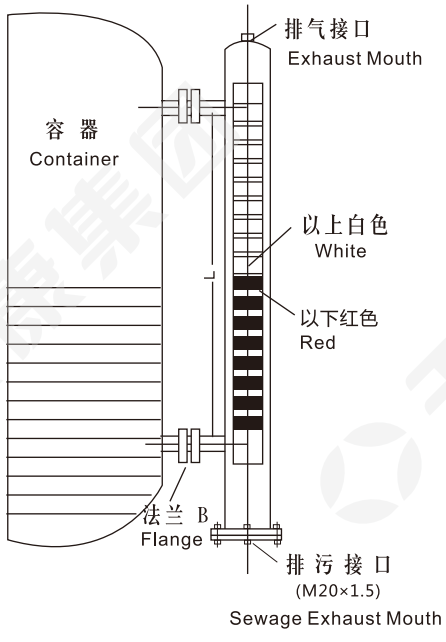


Figure 1 Working Theory

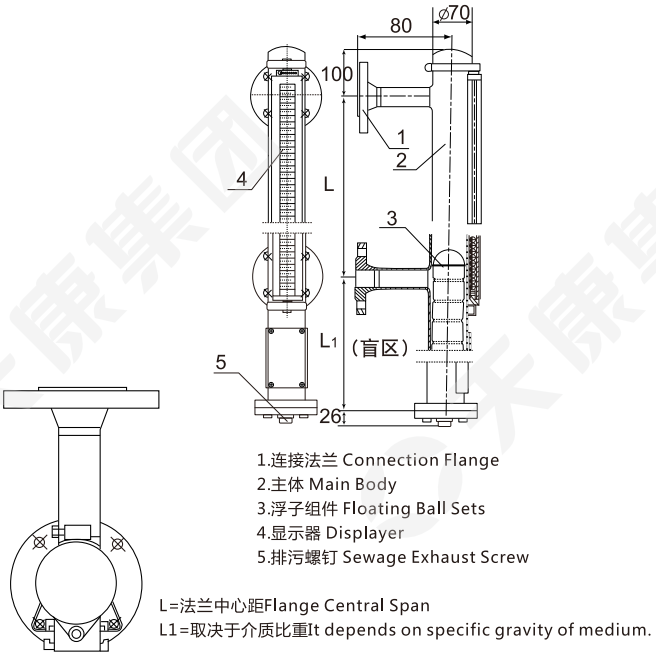


Figure 2 (Basic Type)

七、特点

1、适用于容器内液体介质的液位测量，除现场显示 外，还可配远传变送器、液位控制器等功能。

2、显示直观醒目，可根据用户要求改变显示方向。

3、测量范围大，不受容器高度限制。

4、显示器组件与被测介质完全隔离，故密封性好，可靠安全。

5、结构简单，安装方便，维修简易。

6、耐腐蚀，防爆。

Features

1. It applies to the liquid level measurement of liquid medium inside the container. Apart from status display, it can also be equipped with functions like teletransmission transmitter and level controller.
2. Its display is visualized and striking, and the display direction can be changed according to users' requirements.
3. The measurement range is large, which is not limited to the height of the container.
4. The display element is completely separated from the measured medium, so it has good leakproofness, both reliable and safe.
5. It has simple structure, easy to install and maintain.
6. it is corrosion resistant and blast-proof.

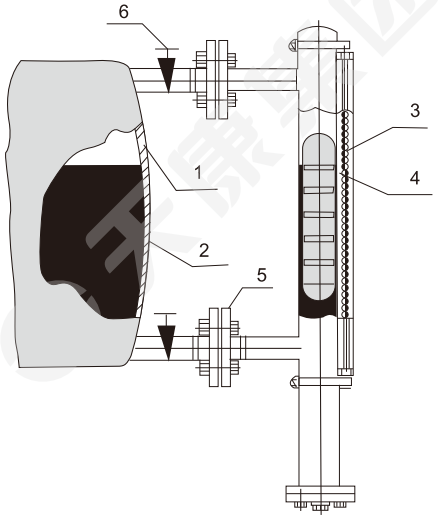


图3. 安装图 Figure 3 Installation Figure

UHZ-50系列磁性翻柱液位计订购信息
Order Information of UHZ-50 Magnetic Liquid Level Meter

UHZ-50						
安装方式 Installation method 底-侧式 Bottom-side type 侧-顶式 Side-top type 侧-侧式 Side-side type 顶部 Top 其他安装方式 Other installation methods	A B C D Z					
主体管材质 Main tube material 304 316L PP PVC 304+PTFE 316+PTFE 其他特殊材质 Other special material		1 2 3 4 5 6 Z				
排污法兰 Sewage disposal flange 盲板排污法兰 Blind plate sewage disposal flange 排污法兰配排污螺钉 Sewage disposal flange matched with sewage disposal bolt 排污法兰配排污阀 Sewage disposal flange matched with blow-down valve			F L P			
配套仪表与安装类型 Matched meter and installation type 无配套仪表 No matched meter 上接线盒式配TKL-121变送器 Upper junction box type matched with TKL-121 transmitter 下接线盒式配TKL-121变送器 Bottom junction box type matched with TKL-121 transmitter 上接线盒式配TKWL-130变送器 Upper junction box type matched with TKWL-130 transmitter				B0 B1 B2 B3		
接线盒形式 Junction box form 无接线盒 No junction box 普通型 Ordinary type 隔爆 ExdⅡBT4-6 Explosive-proof ExdⅡBT4-6 本安 ExaⅡCT4-6 Intrinsic safety ExaⅡCT4-6					P S D E	
测量范围 Measurement range						

UHZ-50					
过程连接 Process connection 法兰 Flange 螺纹 Thread 短管 Short pipe					
工作压力 Operating pressure					
工作温度 Operating temperature					
介质密度 Medium density					

附件选择 Attachment selection	
无附件 No attachment	0
电伴热带 Electric tracing band	1
蒸汽伴热 Steam tracing	2
真空夹套 Vacuum jacket	3
凸轮开关 Cam switch	4
干簧开关 Reed switch	5
其他 Others	9