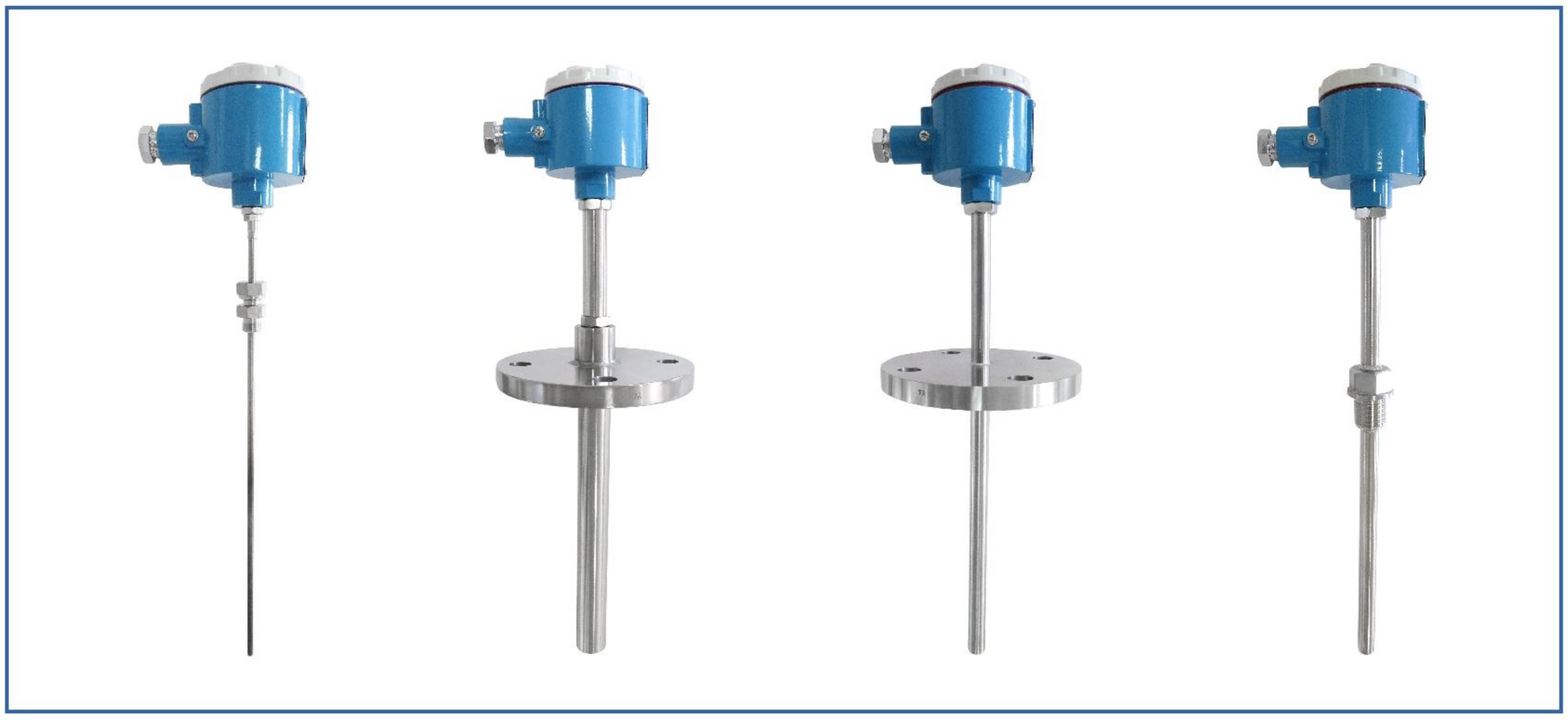
天康集团

防爆热电偶

Explosion-proof Thermocouple



产品应用

Product Application

通常和显示仪表、记录仪表、电子计算机等配套使用。直接测量生产现场存在爆炸性混合物的（0～1300）℃范围内液体、蒸汽和气体介质以及固体表面温度。

Usually used in conjunction with display instruments, recording instruments, electronic computers and so on. Direct measurement of various production processes (0～1300)℃ range of liquid, steam and gas media and solid surface temperature.

产品原理

Product Principle

防爆热电偶是利用间隙隔爆原理，设计具有足够强度的接线盒等部件，将所有会产生火花、电弧和危险温度的零部件都密封在接线盒腔内，当腔内发生爆炸时，能通过接合面间隙熄火和冷却，使爆炸后的火焰和温度传不到腔外，从而进行隔爆。

According to the gap explosion-proof principle, explosion-proof thermocouples are designed with sufficient strength of the junction box and other components, all the parts that will produce sparks, arcs and dangerous temperatures are sealed in the junction box cavity. When an explosion occurs in the cavity, it can be quenched and cooled through the gap between the joint surfaces, so that the flame and temperature after the explosion can not be transmitted outside the cavity, thus providing explosion-proof.

产品特点

Product Features

- 适用于多种防爆环境；
- 弹簧压紧式感温元件，抗振性能好；
- 测量范围大；
- 机械强度高，耐压性能好。

- Suitable for a wide range of explosion-proof environments.
- Spring compression type temperature sensing element, good vibration resistance.
- Large measuring range.
- High mechanical strength, good pressure resistance.

技术参数
Technical Parameter

1、产品执行标准

GB/T30429、GB/T3836系列标准。

2、常温绝缘电阻

热电偶在环境温度为20±15℃，相对湿度不大于80%，试验电压为500±50V（直流）电极与外套管之间的绝缘电阻≥1000MΩ·m。

1. Executive Standard of the Product

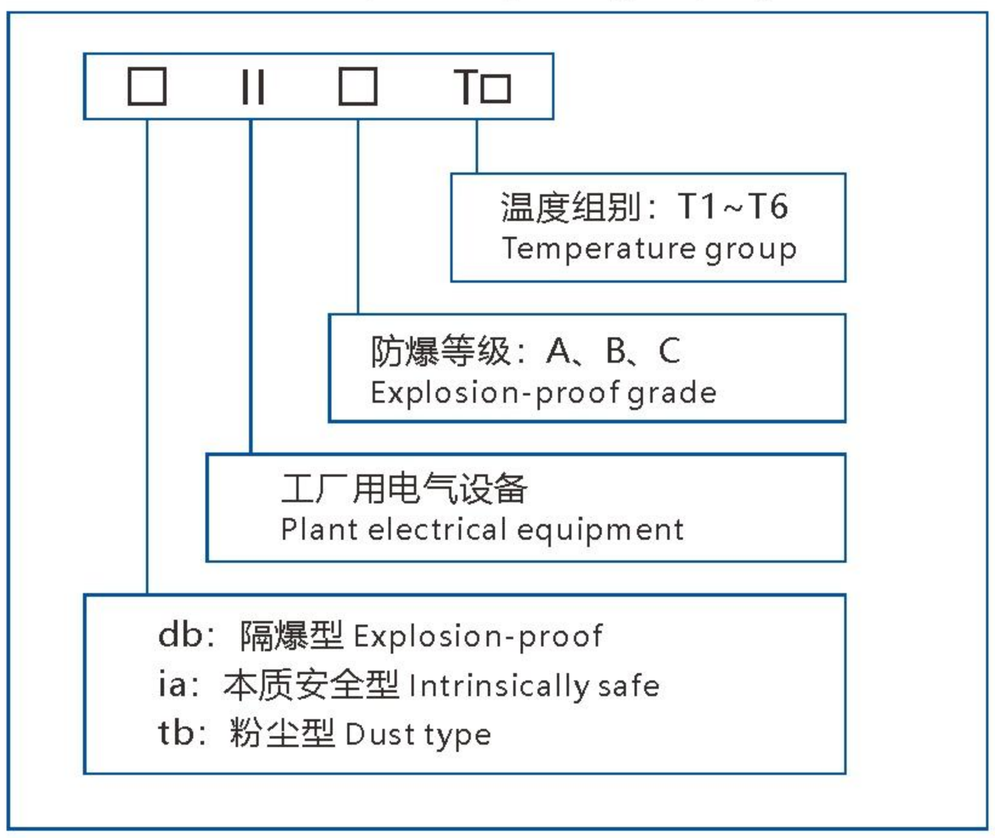
International standard IEC60584; National standard GB/T18404, GB/T304292.

2. Room temperature insulation resistance

The insulation resistance of Thermocouple is ≥1000MΩ between the electrode and the outer casing at an ambient temperature of (20±15)°C, a relative humidity of not more than 80%, and a test voltage of (500±50)V (DC).

型号 Model	分度号 Graduation	允差等级 Tolerance level			
		I		II	
		测温范围 ℃ Temperature measurement range	允差值 Tolerance value	测温范围 ℃ Temperature measurement range	允差值 Tolerance value
WRNK	K	-40~+375	±1.5℃	-40~+333	±2.5℃
		375~1000	±0.004ltl	333~1200	±0.0075ltl
WRMK	N	-40~+375	±1.5℃	-40~+333	±2.5℃
		375~1000	±0.004ltl	333~1200	±0.0075ltl
WREK	E	-40~+375	±1.5℃	-40~+333	±2.5℃
		375~800	±0.004ltl	333~900	±0.0075ltl
WRFK	J	-40~+375	±1.5℃	-40~+333	±2.5℃
		375~750	±0.004ltl	333~750	±0.0075ltl
WRCK	T	-40~+125	±0.5℃	-40~+133	±1.0℃
		125~350	±0.004ltl	133~350	±0.0075ltl
WRPK	S	0~+1100	±1.0℃	0~600	±1.5℃
		1100~1600	±[1+0.003(t-1100)]	600~1600	±0.0025ltl
WRQK	R	0~+1100	±1.0℃	0~600	±1.5℃
		1100~1600	±[1+0.003(t-1100)]	600~1600	±0.0025ltl
WRRK	B	/	/	600~1700	±0.0025ltl

3、防爆分组形式 Explosion proof grouping form



4、防爆级别 Explosion proof level

Exdb II □ T□
EXia II □ T□
EXtb III □ T□

5、Ⅱ类电气设备的最高表面温度分组
Maximum surface temperature grouping of Class II electrical equipment

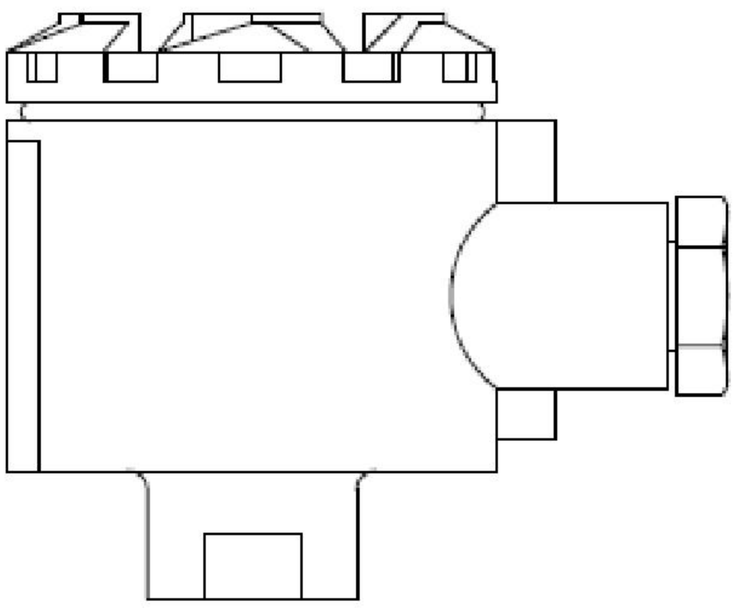
温度组别 Temperature grouping	最高表面温度 ℃ Maximum surface temperature
T1	≤450
T2	≤300
T3	≤200
T4	≤135
T5	≤100
T6	≤85

6、接线盒形式

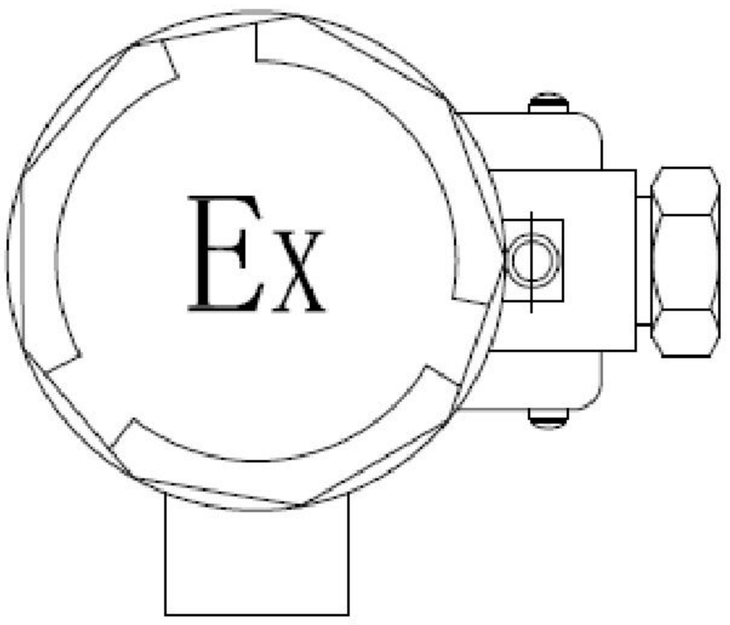
6.Terminal box form

防护等级：IP65、IP66、IP68

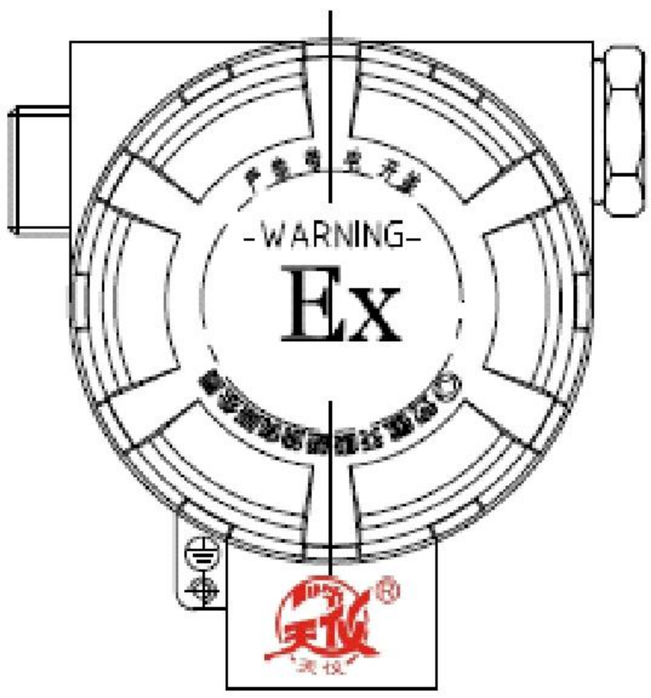
Protection level



A型



B型



C型

7、取证一览表

7. List of certification information

名称 Name	最高表面温度 ℃ Maximum surface temperature	认证机构 Certificate authority
防爆热电偶 Explosion proof thermocouple	Ex db ⅡC T4…T6 Gb / Ex tb ⅢC T80℃…T130℃ Db	NEPSI
	Ex db ⅡB T4…T6 Gb, Ex tb ⅢB T80℃…T130℃ Db	NEPSI
本安热电偶 Intrinsic safety thermocouple	Ex ia ⅡC T4…T6 Ga, Ex ia ⅢC T200135℃ Da	NEPSI

注：NEPSI防爆认证系国家级仪器仪表。

Note: NEPSI Explosion-proof certification is a national instrumentation.

型号命名方法
Model Naming Method

W	温度仪表 Temperature Instruments

R	热电偶 Thermocouples

感温元件材料 Temperature sensing element material	
N	K 镍铬-镍硅 Nickel-chromium-nickel-silicon
E	E 镍铬-铜铬 Nickel-chromium-copper-chromium
M	N 镍铬硅-镍硅 Nickel-chromium-silicon-nickel-silicon
F	J 铁-铜镍 Iron-copper-nickel
C	T 铜-铜镍 Copper-copper-nickel
P	S 铂铑10-铂 Platinum-rhodium 10-platinum
Q	R 铂铑13-铂 Platinum-rhodium 13-platinum
R	B 铂铑30-铂铑6 Platinum-rhodium 30-platinum-rhodium 6

K	铠装式 Armored
空白 None	装配式 Assembly

偶丝对数 Coupling wire pairs	
无 None	单支 Single branch
2	双支 Double branch

安装固定形式 Fixed installation	
1	无固定装置 No fixed installation
2	固定螺纹 Fixed thread
3	活动法兰 Adjustable flange
4	固定法兰 Fixed flange
6	固定螺纹锥形式 Flexible tube joint type
7	直行管接头式 Straight tube fitting type
8	固定螺纹管接头式 Fixed thread tube fitting type
9	活动螺纹管接头式 Adjustable thread tube fitting type

接线盒形式 Terminal box type	
4	防爆式 Explosion-proof

保护管直径 Protective tube diameter
0：Φ16，1：Φ20，2：Φ2，3：Φ3，4：Φ4， 5：Φ5，6：Φ6，8：Φ8，可为空白 May be blank

套管形式：见附件 Sleeve form: See attachment

W	R	N	K	2	-	2	4	6	-		典型型号示例 Typical Model Example

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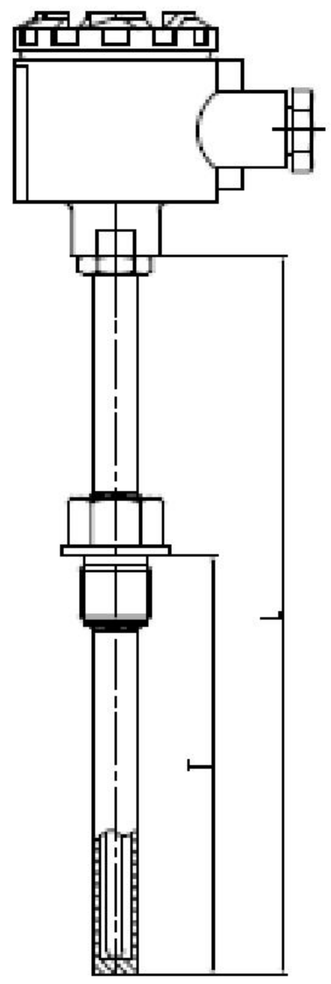
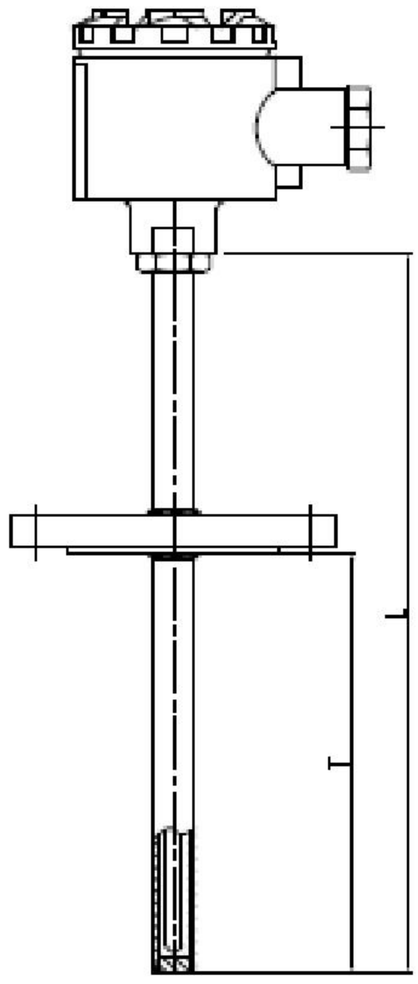
结构示意图

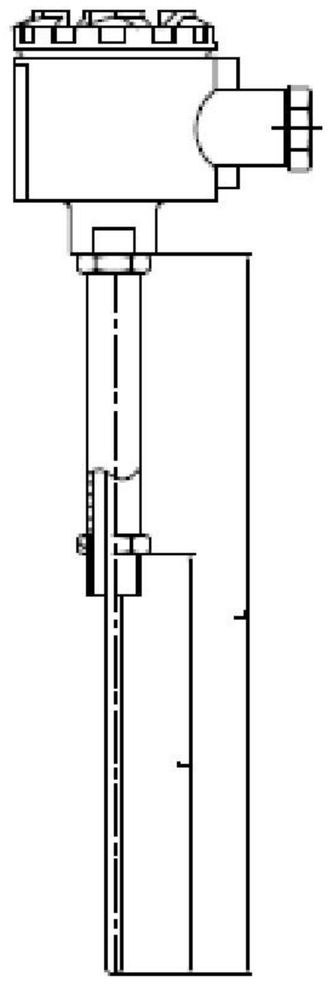
Structure diagram



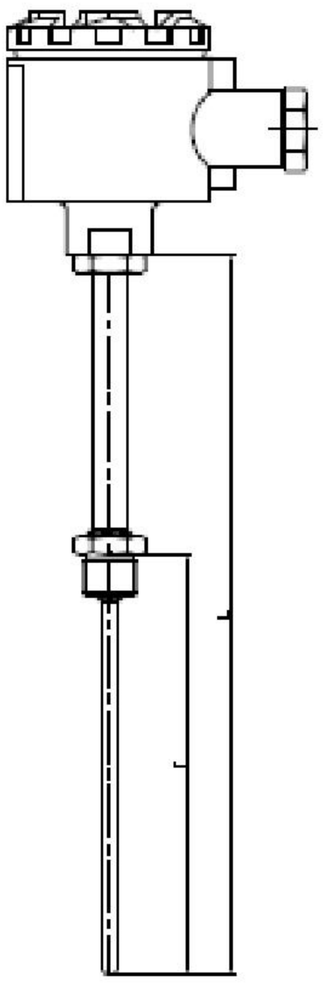
WRN-240/241



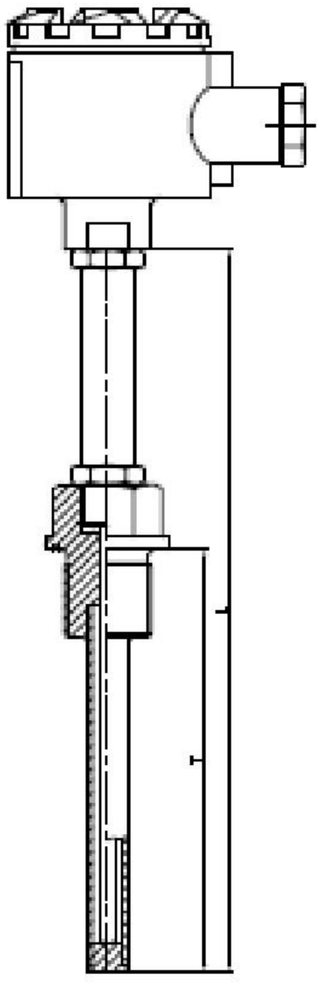
WRN-440/441



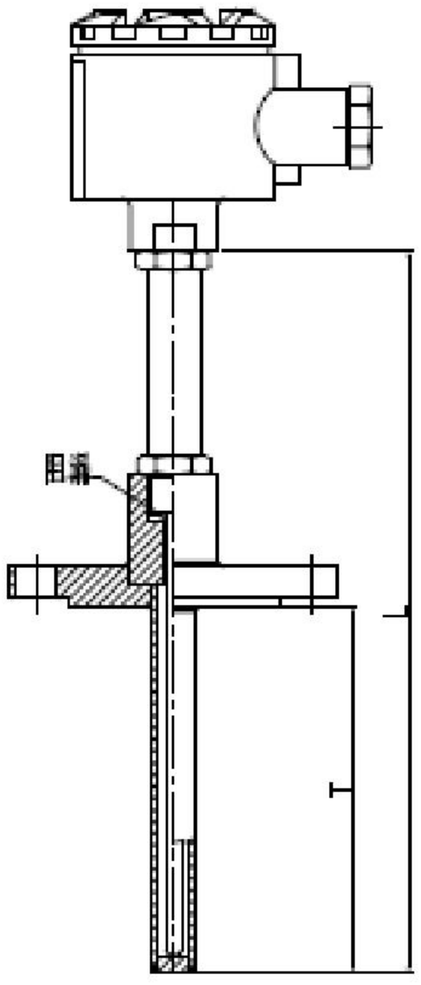
WRN-74



WRN-84

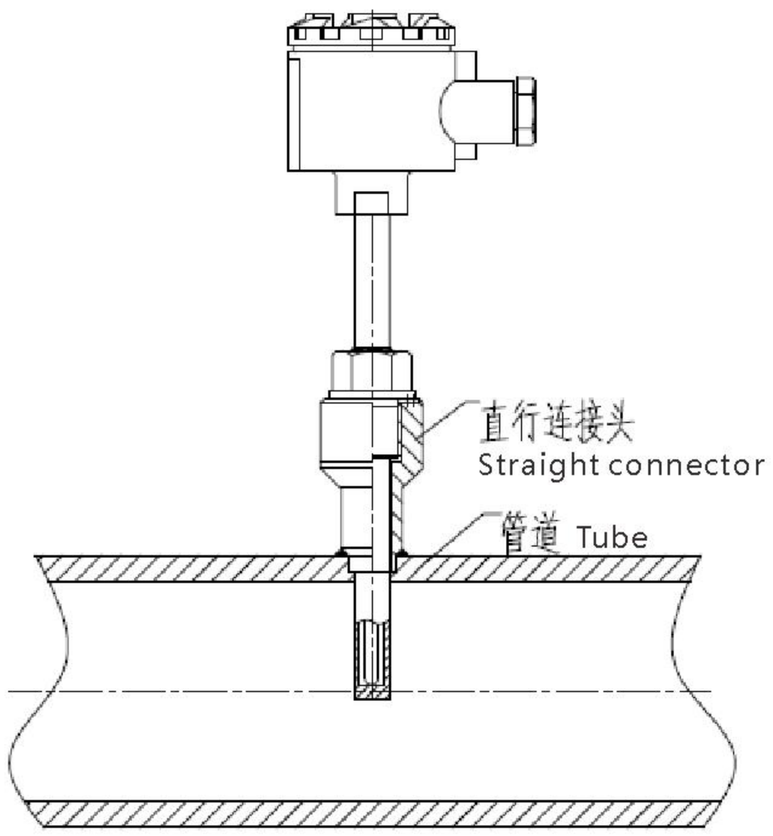


WRN-74-TH03H

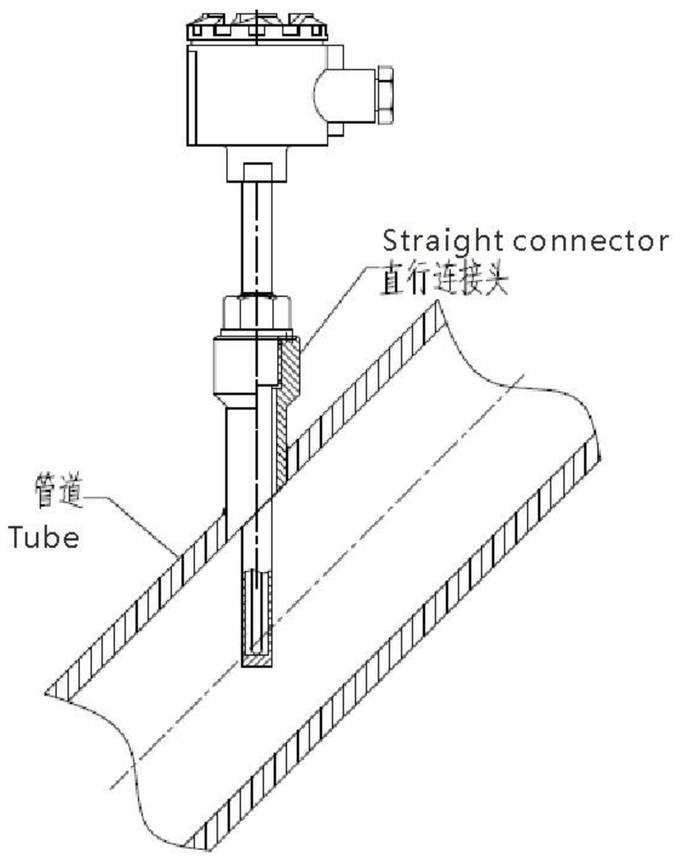


WRN-74-TH02B

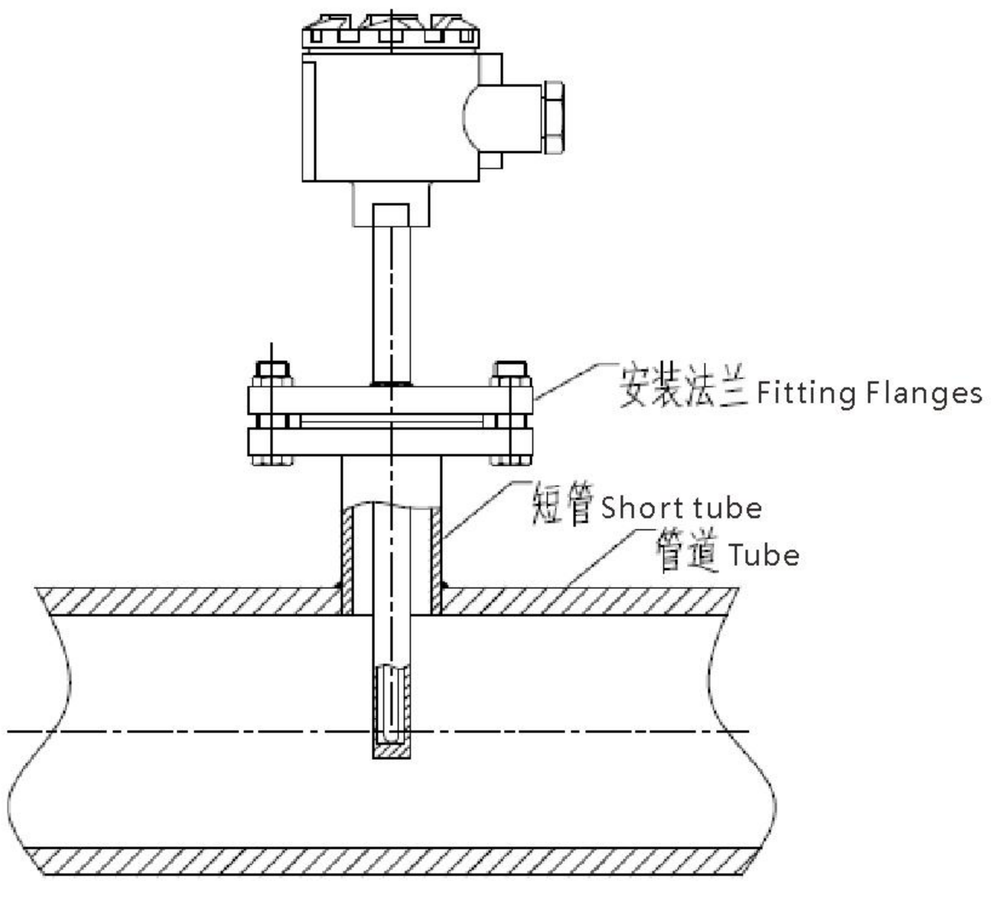
安装形式
Installation form



垂直管道安装
Vertical pipeline installation



倾斜管道安装
Inclined pipeline installation



法兰安装
Flange installation