



装配热电阻使用说明

Assembly Thermal Resistance Instruction



CN BOILER ENGINEERING SOLUTION LLC

铠装热电阻 Sheathed thermal resistance

1、产品应用

通常和显示仪表、记录仪表、电子计算机等配套使用。直接测量各种生产过程中的-200℃~500℃范围内液体、蒸汽和气体介质以及固体表面温度。

2、工作原理

铠装热电阻是利用物质在温度变化时，其电阻也随着发生变化的特征来测量温度的，当阻值变化时，工作仪表便显示出阻值所对应的温度值。

3、产品特点

- 热响应时间少，减小动态误差；
- 直径小，长度不受限制；
- 测量精确度高；
- 进口薄膜电阻元件，性能可靠稳定。

4、主要技术参数

产品执行标准：IEC60751，GB/T30121-2013。

偶丝直径材料

偶丝形式 Thermocouple wire type	单支式 Single support	双支式 Double support
套管直径 Casing diameter	φ3, φ4, φ5, φ6, φ8	φ4, φ5, φ6, φ8
套管材质 Casing material	1Cr18Ni9Ti	1Cr18Ni9Ti

Application

It is usually used along with display instruments, recording instruments, electronic computers and so on. It is able to directly measure the temperature of liquid, steam and gas and solid surface within the range of -200℃~500℃.

Working principle

Sheathed thermal resistance uses the feature that when the temperature of the material changes, its resistance will change too. When the resistance changes, the instrument will display relevant temperature corresponding to the resistance.

Characteristics

- Less thermal response time, which can reduce the dynamic error.
- Small diameter, so the length is not limited.
- High measurement accuracy.
- Imported thin-film resistor with reliable and stable performance.

Main technical parameters

Product implementation standard: IEC60751, GB/T30121-2013.

Material in the diameter of thermocouple wire

测温范围及允差

Range for temperature measurement and error-tolerance

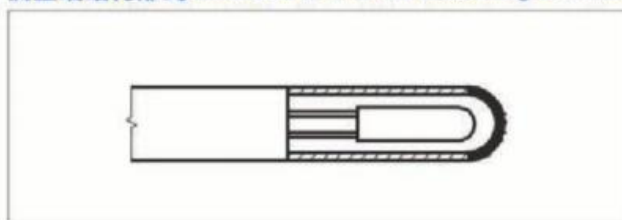
分度号 Graduation	允差等级 Tolerance level	有效温度范围 (°C) Range of Effective temperaturerange		允差范围 (°C) Tolerance range
		线绕元件 Wire wound element	膜式元件 Membrane element	
Pt100	AA	-50~250	0~150	$\pm (0.1+0.0017 t)$
	A	-100~450	-30~300	$\pm (0.15+0.002 t)$
	B	-196~600	-50~500	$\pm (0.3+0.005 t)$
	C	-196~600	-50~600	$\pm (0.6+0.01 t)$

|t| = 温度绝对值, 单位为℃ t=temperature Absolute value, units for C

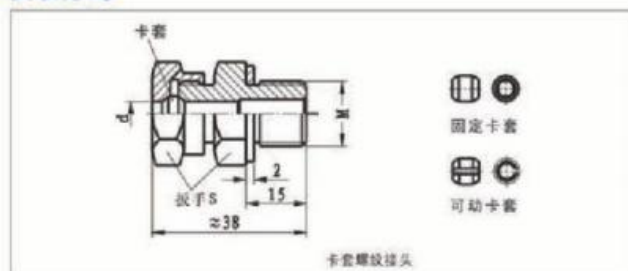
热响应时间 Thermal response time

套管直径 Casing diameter	热响应时间 (s) Thermal response time
φ3	≤3
φ4	≤5
φ5	≤8
φ6	≤12
φ8	≤15

测量端结构形式 Structure form of the measuring terminal

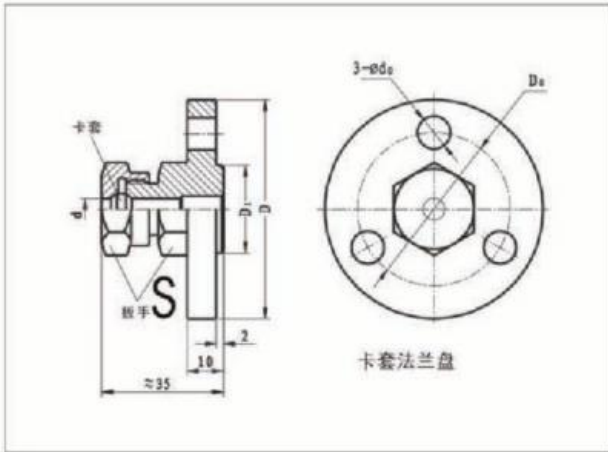


安装方式



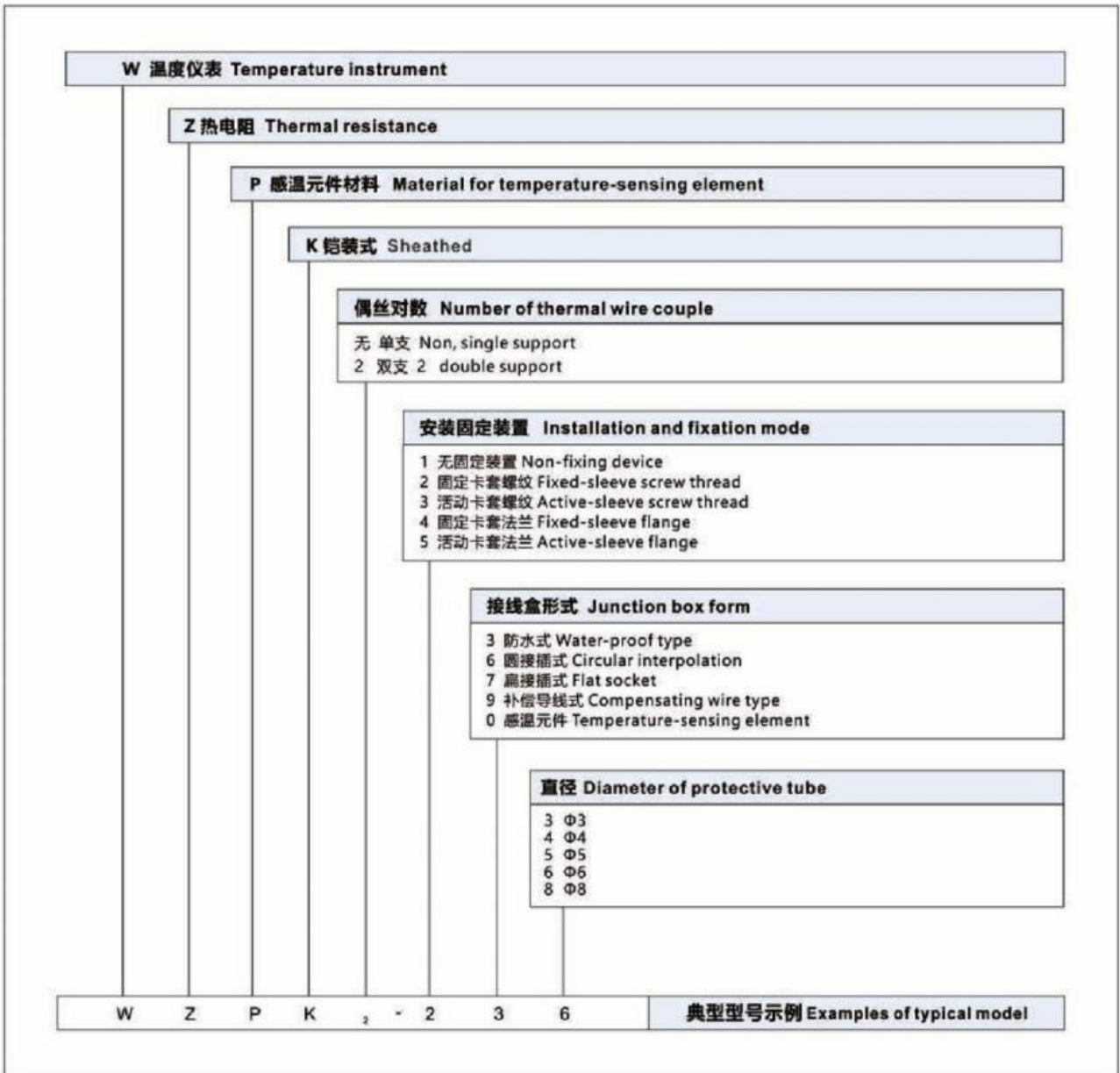
Installation method

套管直径 Casing diameter	铠装阻外径 The outer diameter of sheathed resistance	
	φ8, φ6, φ5	φ4, φ3
M	M16×1.5	M12×1.5
S	22	19

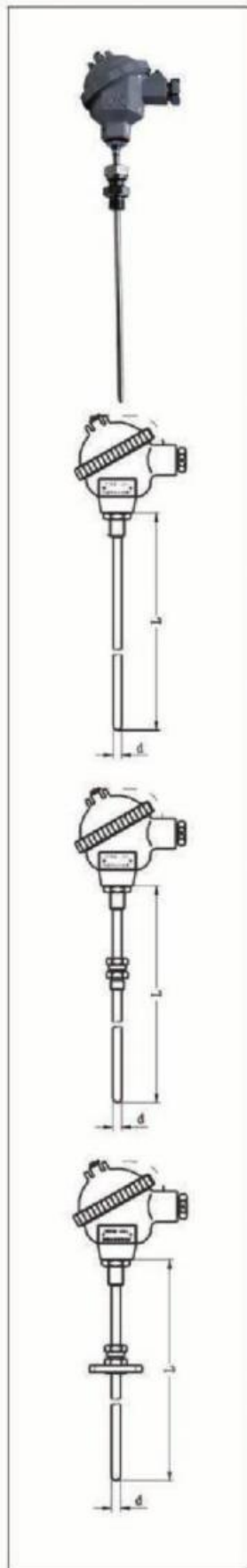


代号和尺寸 Code and size	铠装阻外径 The outer diameter of sheathed resistance	
	φ8, φ6, φ5	φ4, φ3
D	φ60	φ50
D ₀	φ42	φ36
D ₁	φ24	φ20
S	φ22	φ19
d ₀	φ9	φ7

型号命名方法 Naming method for model



防水式铠装热电阻 Waterproof type sheathed thermal resistance



型号 Model	分度号 Graduation	测量范围 (°C) Range of temperature measurement °C	等级 Grade	安装固定装置 Installation and fixation device
WZPK-133	Pt100	A级 -30-300 B级 -50-500	A级或B级 A or B	无固定装置 No fixation device
WZPK-134				
WZPK-135				
WZPK-136				
WZPK-138				
WZPK ₂ -134				
WZPK ₂ -135				
WZPK ₂ -136				
WZPK ₂ -138				
WZPK-233				
WZPK-234				
WZPK-235				
WZPK-236				
WZPK-238				
WZPK ₂ -234				
WZPK ₂ -235				
WZPK ₂ -236				
WZPK ₂ -238				
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WZPK ₂ -338				
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WZPK ₂ -438				
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WZPK ₂ -538				

- 1) 铠装防护等级IP55;
- 2) 热电阻A级按协议订货;
- 3) 未注明测温范围及保护管材质, 保护管材质一律视为1Cr18Ni9Ti.

- 1) Protection grade of sheathed resistance Ip55.
- 2) Thermocouple I is ordered according to the agreement.
- 3) The material of protective tube is 1Cr18Ni9Ti if the temperature scope and material are noted.

运输与贮存

热电阻及其附件在安装前必须贮存在不受震动和碰撞的地方，最合适的贮放场所条件为：环境温度 10-35℃、相对湿度不大于 80%，周围空气不含有可能造成热电阻零件腐蚀的杂质。

热电阻在长距离运输过程中应仔细地包装好。

可能发生的故障及其修理

序号	故障现象	可能原因	修理方法
1	显示仪表显示值比实际偏低或示值不稳定	保护管内有水或接线盒上有金属屑、灰尘或热电阻短路	(1) 倒出水或清除灰尘，并将潮湿部分加以干燥处理；提高绝缘（不能火烤）。 (2) 用万用电表检查断路或接地的部位，并清除之。
2	显示仪表显示值无限大	热电阻断路	(1) 用万用电表检查断路部位，确定是连接导线还是感温元件短路。 (2) 如系敏感元件断路应进行更换。
3	显示仪表显示下限值	(1) 热电阻短路 (2) 显示仪表接线错误	(1) 用万用电表检查确定短路部位，如系感温元件短路应进行修复或更换。 (2) 重新连接导线。

Storage and transportation

Before fixing , the resistance thermometer sensor and its accessories should be stored away from vibration . The suitable ambient conditions for storage are as follows:temp. range from 10–35°C, relative humidity not more than 80% , free from foreign substances that will cause corrosion.

During long-distance transportation, the resistance thermometer sensor should be well packaged.

Troubleshooting

Order	Trouble	Possible cause	Remedy
1	The display value than practical value or is insteacy	There is water in the protective tube Metal crumbs or dust accumulated in terminal bead. The resistance thermometer sensor shortcircuited	1.Clear away water or dust and dry out the exposed part (dry by a fire is not allowed) 2.To find out short-circuit with a voltmeter and eliminate it if sensing element short-circuited it should be replaced
2	The readings of the display device is infinite	The wire in resistance thermometer sensor	1.To define whether the conductor or the sensing element is broken with a voltmeter. 2.If the conductor is broken, It can be replaced or renovated.3.If the sensing element is broken, it should be replaced.
3	the display device indicates	1.resistance thermometer sensor is short-circuit. 2.the wiring for the display device is incorrect	1.To determine the short-circuit If the sensing element short-circuited 2.To rewire correctly.

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