

铠装热电偶 Sheath thermocouple

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0℃~1300℃范围内液体、蒸汽和气体介质以及固体表面温度。

工作原理

铠装热电偶的电极由两根不同导体材质组成。当测量端与参比端存在温差时，就会产生热电势，工作仪表便显示出热电势所对应的温度值。

特点

热响应时间少，减小动态误差；
可弯曲安装使用；
测量范围大；
机械强度高，耐压性能好。

主要技术参数

产品执行标准:IEC584, GB/T18404-2001。

测温范围及允差

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

注：t为检验温度点绝对值，单位为℃

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 in a variety of production processes within the range of 0~1300°C.

Working principle

The electrode of sheath thermocouple are consisted by two different materials of conductor. When there is a temperature difference between the measuring end and the reference end, it will generate the thermal electric potential. The working instrument will show the corresponding temperature value of the thermal electric potential.

Characteristics

Less thermal response time, which can reduce the dynamic error.
Flexible mounting for use.
Wide measuring scope.
High mechanical strength and good pressure resistance.

Main technical parameters

Product implementation standard:IEC584,GB/T18404-2001.

Range for temperature measurement and error-tolerance

常温绝缘电阻

铠装偶在环境温度为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。
即1m长的试样的绝缘电阻为1000MΩ；
10m长的试样的绝缘电阻为100MΩ。

偶丝直径及材料

偶丝形式 Graduation	单支式 Graduation	双支式 Graduation
套管直径 Graduation	Φ2, Φ3, Φ4, Φ5, Φ6, Φ8	Φ3, Φ4, Φ5, Φ6, Φ8
分度号 Graduation	E、J、T	1Cr18Ni9Ti
	K、N	1Cr18Ni9Ti GH3030
	S、R、B	GH3030

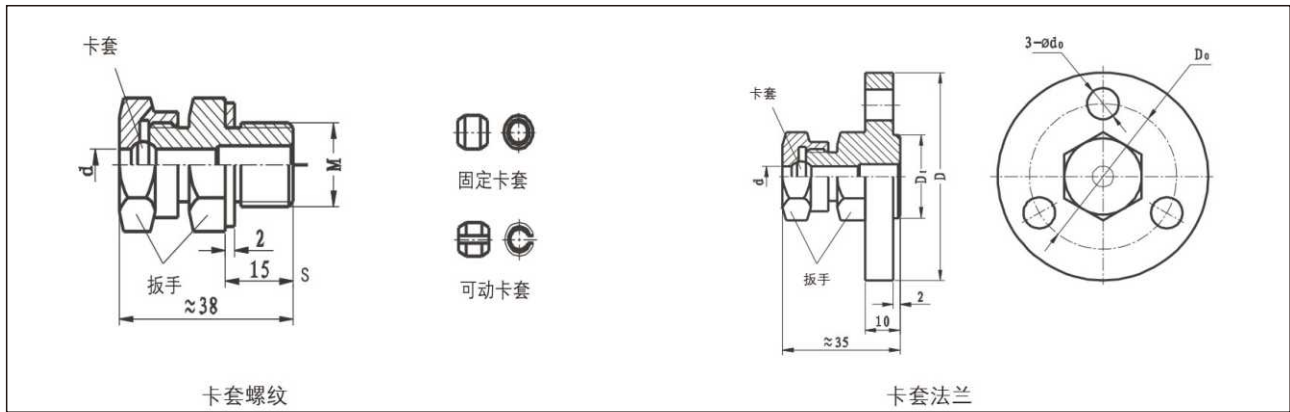
Insulation resistance for normal temperature

In terms of the sheath thermocouple, the environment temperature is 20 + 15℃, the relative humidity is not more than 80%, the test voltage is 500 + 50V(DC), the insulation resistance between electrode and outer sleeve≥1000MΩ.m.
That is to say, the insulation resistance for sample of 1m is 1000MΩ; the insulation resistance for sample of 10m is 100MΩ.

Diameter and material for the thermocouple wire

安装固定形式

Installation and fixation form



代号和尺寸 Code and size	铠装偶外径 The outer diameter of sheathed thermocouple	
	Φ8, Φ6, Φ5	Φ4, Φ3, Φ2
M	M16×1.5	M12×1.5
S	22	19
D	Φ60	Φ50
D ₀	Φ42	Φ36
D ₁	Φ24	Φ20
S	Φ22	Φ19
d ₀	Φ9	Φ7

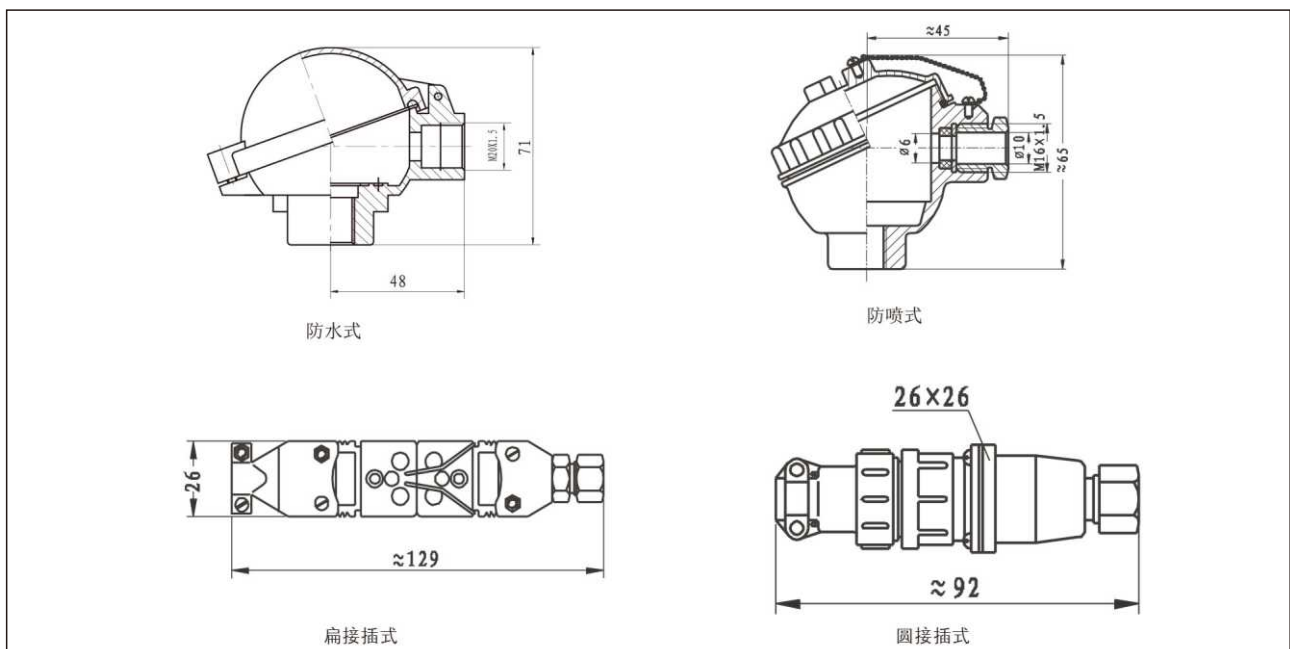
测量端结构形式

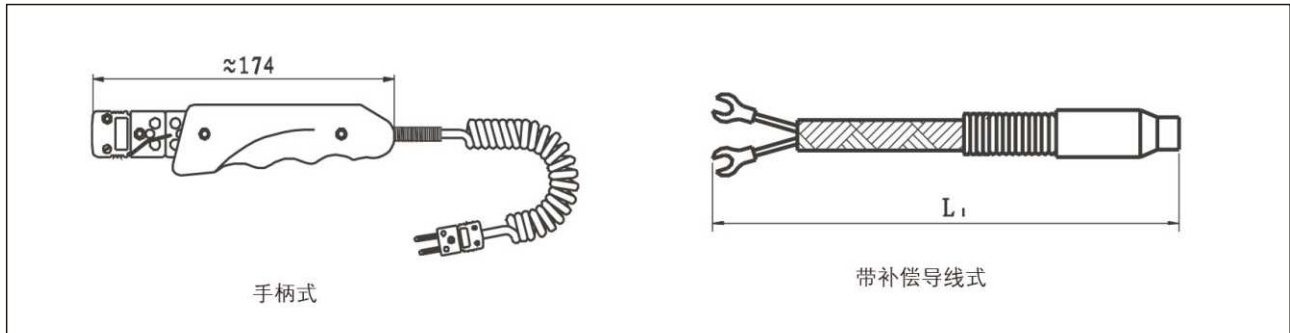
Structure form in the measuring terminal



接线盒形式

Junction box form





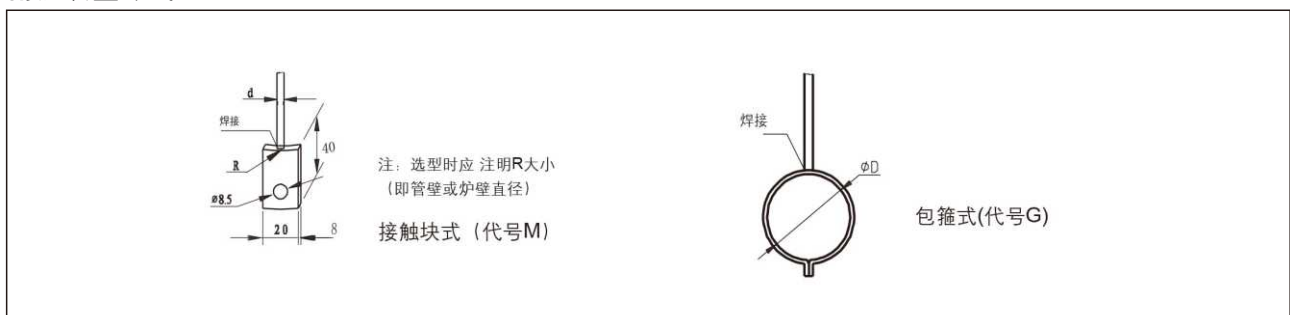
铠装热电偶推荐使用温度

Recommend temperature for use of sheathed thermocouple

品种 Category	套管材料 Casing material	外径(mm) Outer diameter(mm)	使用温度(°C) Temperature for usage (°C)	
			长期使用 Long-term use	短期使用 Short-term use
镍铬-镍硅 Nickel chromium -nickel silicon	1Cr18Ni9Ti	2.0	600	700
		3.0,4.0,5.0,6.0,8.0	800	900
	GH3030	2.0,3.0	800	900
		4.0,5.0 6.0,8.0	900 1000	1000 1100
镍铬硅-镍 Nichrome -nickel silicon	1Cr18Ni9Ti	2.0	600	700
		3.0,4.0,5.0,6.0,8.0	800	900
	GH3030	2.0,3.0	900	1000
		4.0,5.0 6.0,8.0	1000 1100	1100 1200
		2.0,3.0,4.0, 5.0,6.0,8.0	1000 1100	1100 1200
	镍铬-铜镍 Nickel chromium -nickel copper	1Cr18Ni9Ti	2.0,	500
3.0,4.0,5.0			600	700
6.0,8.0			700	800
铁-铜镍 Iron-copper nickel	1Cr18Ni9Ti	2.0	400	500
		3.0,4.0,5.0,	500	600
		6.0,8.0	600	750
铜-铜镍 Copper-copper Nickel	1Cr18Ni9Ti	2.0,3.0,4.0,5.0	250	300
		6.0,8.0	300	350
铂铑10-铂 Platinum10-rhodium	GH3030	2.0,3.0,4.0	1000	1100
		5.0,6.0,8.0	1100	1200
铂铑13-铂 Platinum10-rhodium	1Cr18Ni9Ti	2.0,3.0,4.0,5.0	250	300
		6.0,8.0	300	350
铂铑30-铂 Platinum10-rhodium	Gh3039	2.0,3.0,4.0	1000	1100
		5.0,6.0,8.0	1100	1200

附加装置形式

Form of additional device



型号命名方法 Naming method for model

W 温度仪表 Temperature instrument

R 热电偶 Thermocouple

感温元件材料 Material for temperature-sensing element

P 铂铑10-铂 Platinum10- rhodium
 Q 铂铑13-铂 Platinum10- rhodium
 M 镍铬硅-镍硅 Nichrome-nickel silicon
 N 镍铬-镍硅 Nickel chromium-nickel silicon
 E 镍铬-铜镍 Nickel chromium-copper nickel
 C 铜-铜镍 Copper-copper nickel
 F 铁-铜镍 Iron-copper nickel

K 铠装式 Sheathed type

偶丝对数 Number of thermal wire couple

无 单支 Non, single support
 2 双支 2 double support

安装固定装置 Installation and fixation mode

1 无固定装置 Non-fixing device
 2 固定卡套螺纹 Fixed-sleeve screw thread
 3 活动卡套螺纹 Active-sleeve screw thread
 4 固定卡套法兰 Fixed-sleeve flange
 5 活动卡套法兰 Active-sleeve flange

接线盒形式 Junction box form

2 防喷式 Anti-spray type
 3 防水式 Water-proof type
 6 圆接插式 Circular interpolation type
 7 扁接插式 Flat socket type
 8 手柄式 Handle type
 9 补偿导线式 Compensating wire type
 0 感温元件 Temperature-sensing element

工作端形式 Form in the working terminal

1 绝缘式 Upper and lower limitation
 2 接壳式 Double upper limitations
 附加装置形式 Double lower limitations

附加装置形式 Additional device form

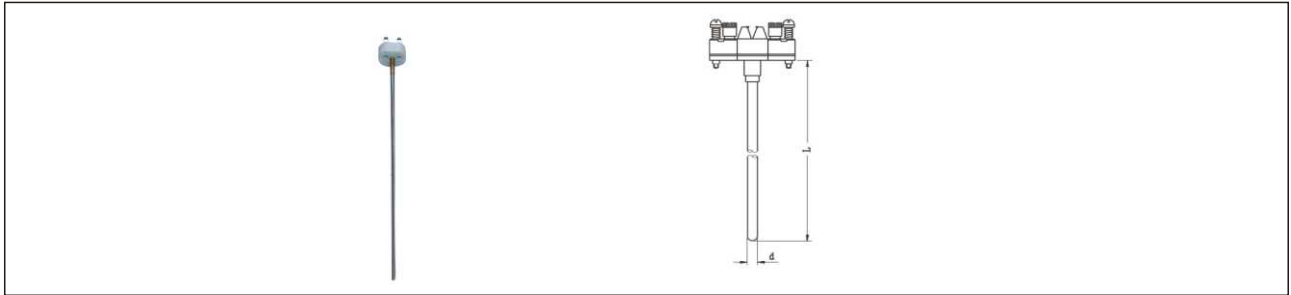
M 接触块式 Upper and lower limitation
 G 包箍式 Double upper limitations

W R N K 2 - 2 3 1 M

典型型号示例 Examples of typical model

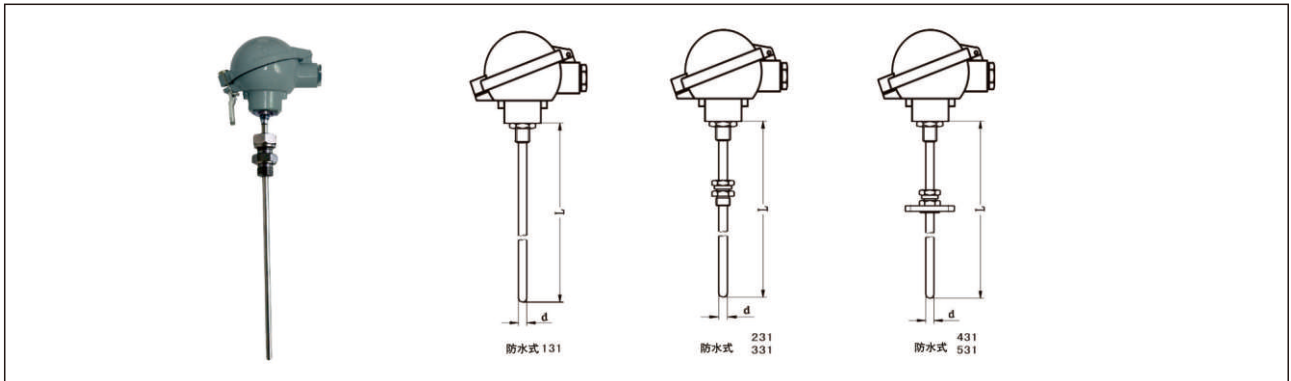
感温元件

Temperature-sensing element



名称 Name	型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	规格 Specification	
				d	L
镍铬硅-镍硅 Nichrome-nickel silicon	WRM-101	N	0~1000	Φ3 Φ4 Φ5 Φ6 Φ8	310
	WRM2-101				360
镍铬-镍硅 Nickel chromium nickel silicon	WRN-101	K	0~800		410
	WRN2-101				460
镍铬-铜镍 Nickel chromium-nickel copper	WRE-101	E	0~350		510
	WRE2-101				560
铜-铜镍 Copper-copper Nickel	WRC-101	T	0~600	660	
	WRC2-101			910	
铁-铜镍 Iron-copper nickel	WRF-101	J	0~600	1160	
	WRF2-101				

防水式铠装热电偶 Sheath thermocouple of waterproof type



型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	保护管材质 Material for protective tube	安装固定装置 Installation and fixation device
WRPK-131	S	0~1300	GH3039	无固定装置 No fixation device
WRMK-131	N	0~1100	GH3030	
		0~800	Cr18Ni9Ti	
WRNK-131	K	0~1100	GH3030	
		0~800	Cr18Ni9Ti	
WREK-131	E	0~800	1Cr18Ni9Ti	
WRCK-131	T	0~350		
WRFK-131	J	0~600		