



温度传感器选型样本

TEMPERATURE SENSOR
PRODUCT SELECTION CATALOGUE

安徽天康(集团)股份有限公司
ANHUI TIANKANG(GROUP) SHARES CO.,LTD

INNOVATION MAKES EXCELLENT

有 | 跨 | 越 | 才 | 有 | 卓 | 越

Brief Introduction

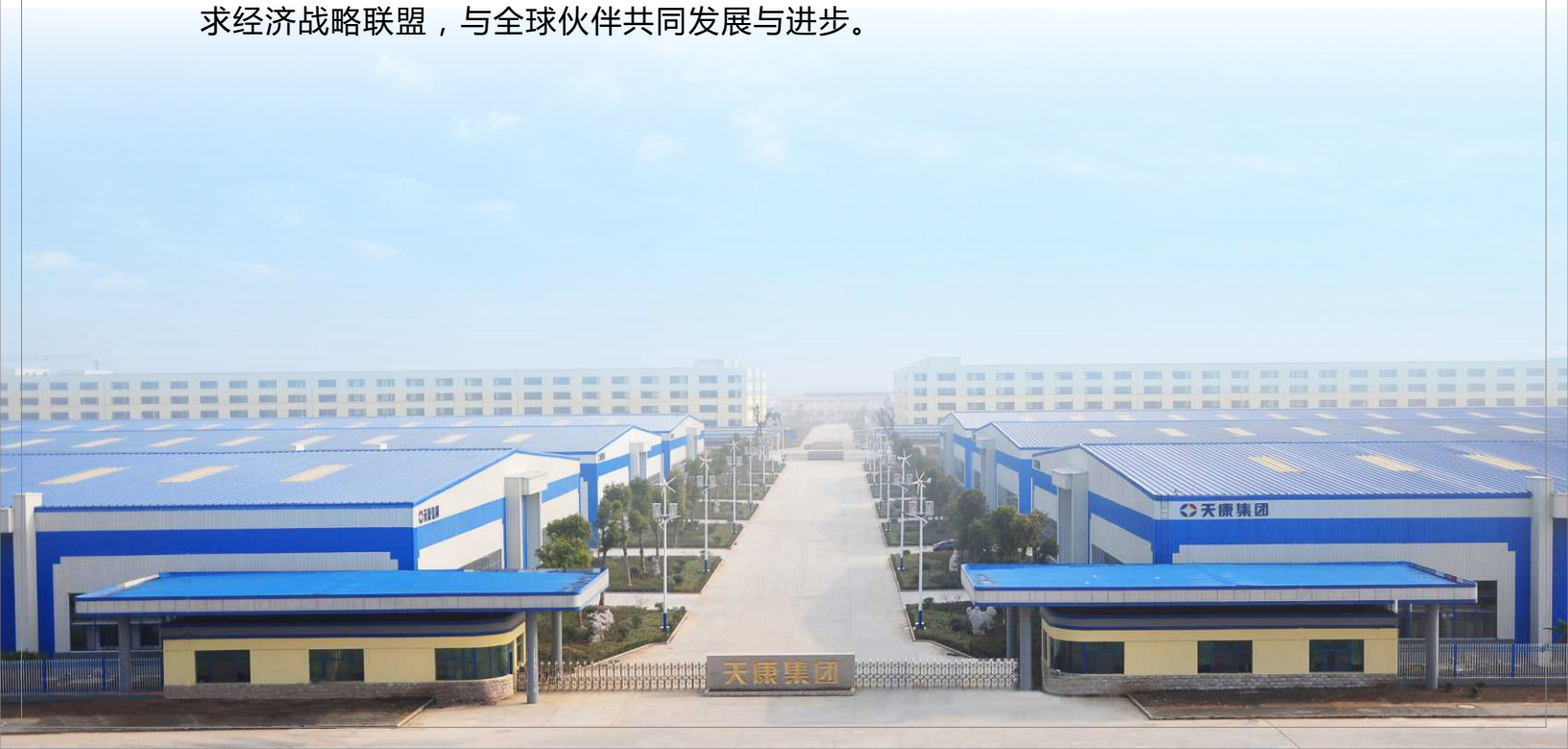
企业简介

安徽天康（集团）股份有限公司创建于1974年，总部位于“长三角”经济圈核心区域——天长市，是中国民营企业制造业500强企业、中国电子信息百强企业、国家级守合同重信用企业、国家高新技术企业、安徽省依法纳税先进企业、银行资信AAA级企业、中国仪表行业十强企业、中国电线电缆行业十强企业、安徽省重点骨干企业。

天康集团历经四十多年的发展，已形成集仪器仪表、光电缆、医疗卫生、锂电池等跨行业、多元化的集团公司，下属子公司达20余家。旗下产品被广泛应用于石油、电力、化工、通讯、卫生、新能源汽车及储能等行业和领域。

作为皖东经济最具活力与贡献的骨干企业之一，天康集团以“追求卓越，缔造满意”为目标，依托一流的产品、一流的管理、一流的服务，不仅在国内市场中赢得了广泛赞誉；在国际市场中，天康产品远销欧洲、非洲、亚洲等46个国家和地区，出口额连年攀升。

天康集团在发展中逐步形成了独特的品牌文化及着眼全球的经营布局，全力塑造“高科技、高品质、国际化”的品牌形象。始终秉持“有跨越才有卓越”的天康精神，在创建和谐企业的基础上，引进国际先进的构架与模式，组织企业的生产经营管理体系。在积极参与国际化竞争的基础上，不断把握市场发展脉搏，寻求经济战略联盟，与全球伙伴共同发展与进步。



Anhui Tiankang (Group) Shares Co.,LTD was founded in 1974,the headquarters is located in the "Yangtze River Delta" economic circle core region - Tianchang, it is China's top 500 enterprise in the manufacturing industry, China's top 100 electronic information enterprise, National contract and trustworthy enterprise, National high-tech enterprise, Anhui advanced enterprise paying tax according to law, AAA-level bank credit enterprise, China 's top 10 enterprise in the instrument industry, China's top 10 enterprise in the wire and cable industry , the key enterprises in Anhui Province.

After more than 40 years development, Tiankang group has formed a cross-industry and diversified group company which products include instruments, optical cable, medical and health, lithium battery etc, it has more than 20 subsidiaries. Its products are widely used in industries and fields of petroleum, electricity, chemical, communication, health, new energy vehicles and energy storage etc.

In recent years, the group has actively built Anhui largest new energy industry base, it invested 2 billion 600 million yuan to build 2 billion ampere hours LTO battery production line. In December 2012, Tiankang passed the identification of scientific and technological achievements, its nano LTO power / energy storage battery product has reached the level of leading in domestic and advanced in international. It has been listed as the national key new product by the ministry of science and technology and other three ministries and commissions, and the provincial & government of Anhui have taken this project as one of the five major economic growth projects in Anhui province. The product has advantages of safety, environmental protection, long life, high & low temperature characteristics, high rate charge & discharge characteristics, can be widely used in the power fields of new energy vehicles etc and energy storage fields, and also has important use in the fields of military system, shipping transportation, aerospace etc. As one of the backbone enterprises in east Anhui economy of the most dynamic and contribution, Tiankang group take "pursuit excellence, to create satisfaction" as the goal, relying on first-class product, first-class management, first-class service, the products not only won widespread praise in the domestic markets; but also in the international markets, the products were export to Europe, Africa, Asia etc 46 countries and regions, exports increased year by year.

Tiankang group formed a unique brand culture and focus on the global business layout in the development, and try to create a "high-tech, high-quality, international" brand image. It always uphold the spirit of "to stride to be outstanding", on the basis of creating a harmonious enterprise, introduce the international advanced architecture and model, and organize the production and management system of enterprise. On the basis of actively participating in international competition, we should constantly grasp the pulse of market development, actively seek for economic strategic alliances, and develop and progress with global partners.



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装配热电阻 Assembling thermal resistance

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测温。

工作原理

热电阻是利用物质在温度变化时，其电阻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对应的温度值

特点

1. 压簧式感温元件，抗振性能好；
2. 毋须补偿导线，节省费用；
3. 测量精度高；
4. 机械强度高，耐压性能好；
5. 进口薄膜电阻元件，性能可靠稳定；

主要技术参数

产品执行标准：IEC60751，GB/T30121-2013，JB/T8623-1997。

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

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

1. With temperature-sensing element of pressure spring type, so it has good anti-vibration performance;
2. With no compensation wire, which is cost-saving
3. High measurement accuracy;
4. High mechanical strength, good pressure resistance;
5. Imported thin-film resistor with reliable and stable performance;

Main technical parameters

Product implementation standard: IEC60751, GB/T30121-2013, JB/T 8623-1997.

测温范围及允差等级

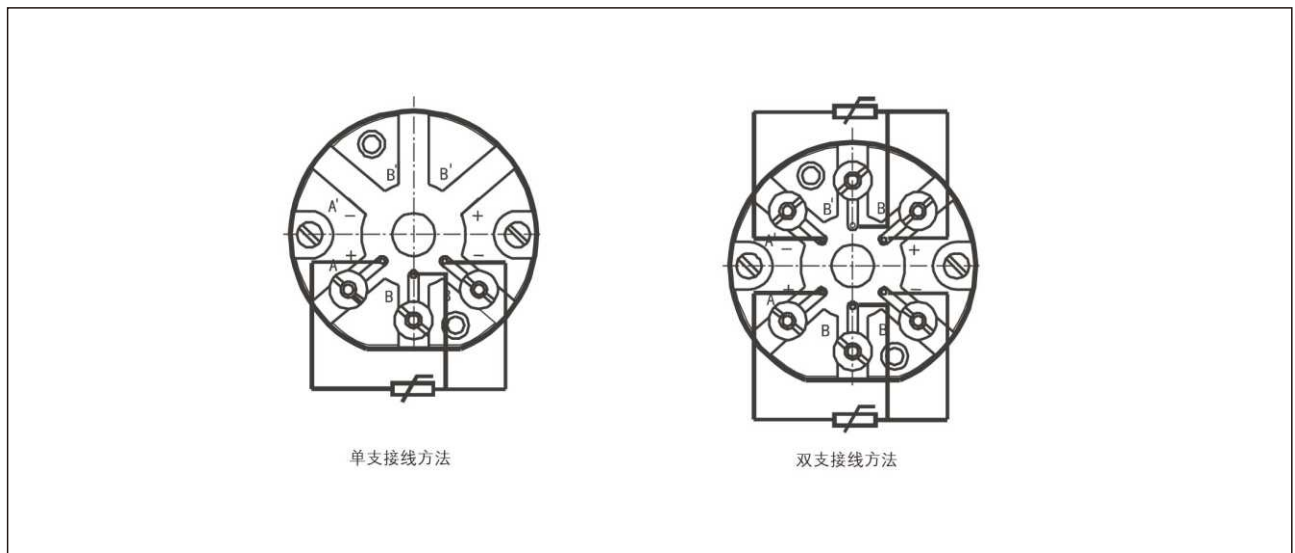
Temperature range and tolerance level

分度号 Graduation	允差等级 Tolerance level	有效温度范围/℃ Effective temperature range		允差℃ Range of temperature measurement °C
		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	$\pm (0.6+0.01 t)$
	—	-50~150	—	$\pm (0.3+0.006 t)$

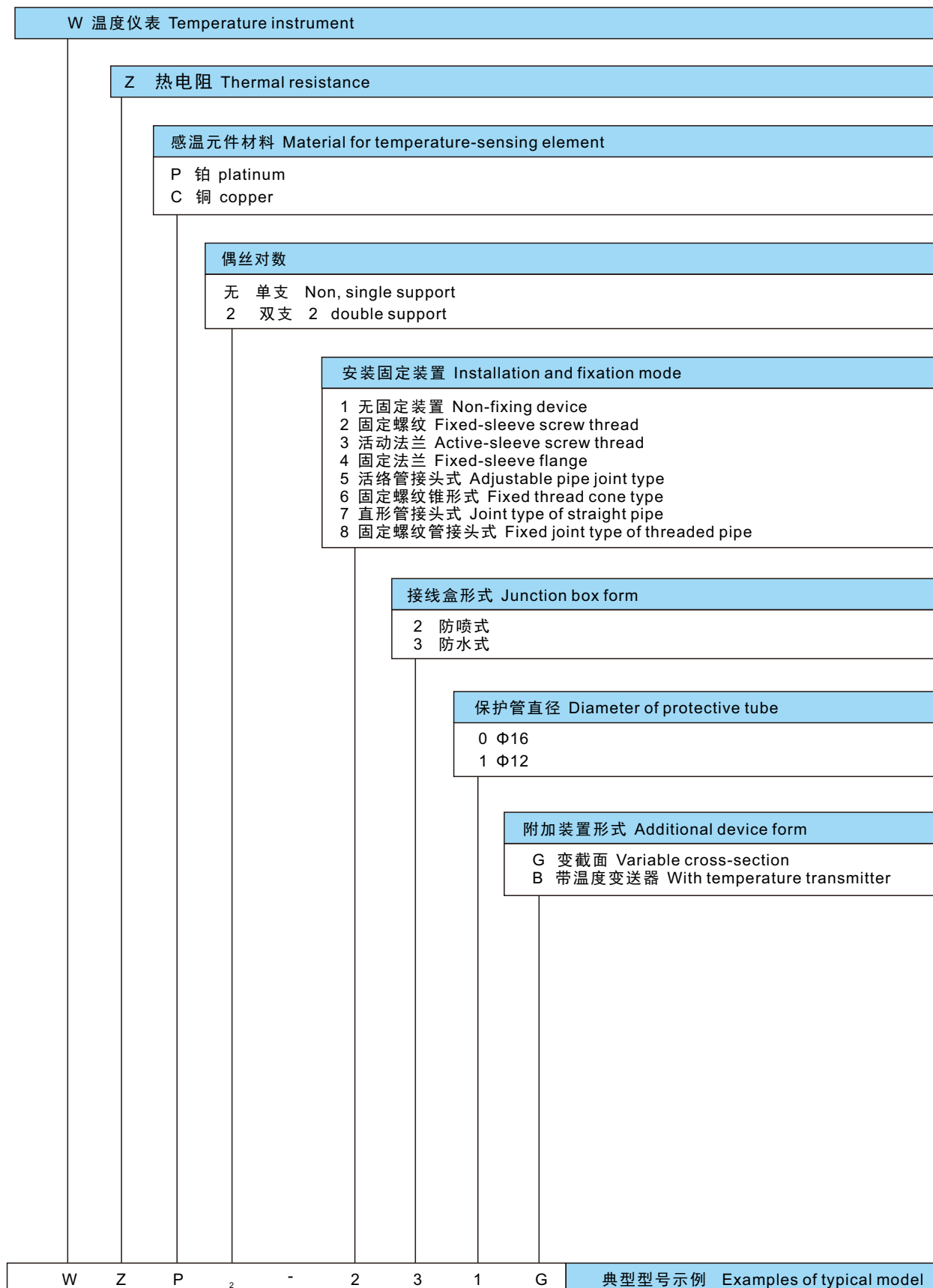
|t| = 温度绝对值，单位为℃
t = temperature Absolute value, units for C

接线方式

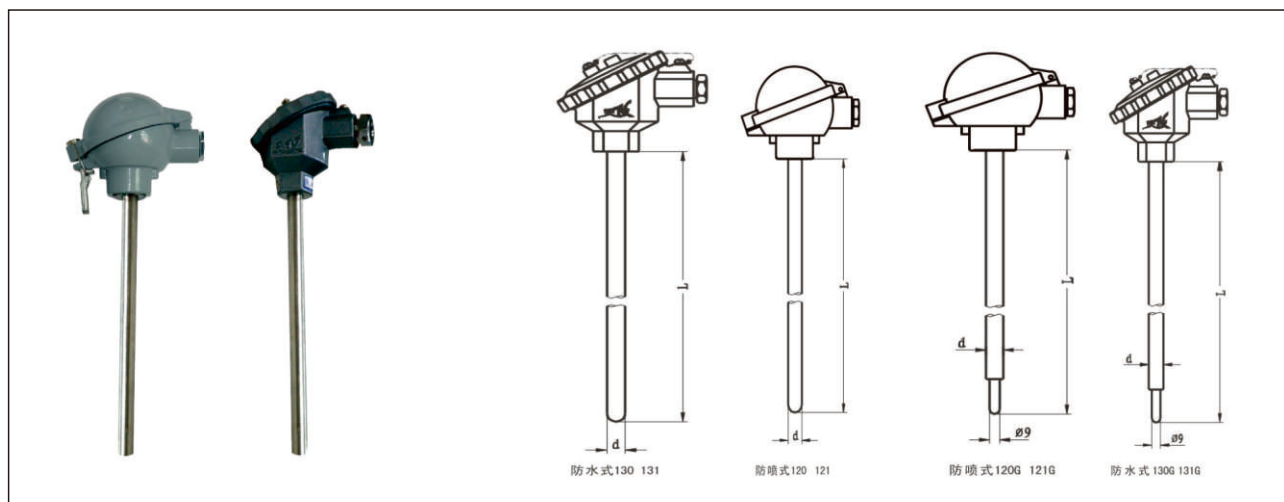
Wire-connection mode



型号命名方法 Naming method of model



无固定装置热电阻 Thermal resistance with no-fixed device



型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	热响应时间 Thermal response time	规格 Specification	
				d	L
WZP-120 WZP ₂ -120	Pt100	A级 -30-300 B级 -50-500	<90s	φ 16	300 350 400 450 500 550 650 900 1150 1650 2150
WZP-120G WZP ₂ -120G			<24s		
WZP-121 WZP ₂ -121			<90s	φ 12	
WZP-121G WZP ₂ -121G			<24s		
WZP-130 WZP ₂ -130			<90s	φ 16	
WZP-130G WZP ₂ -130G			<24s		
WZP-131 WZP ₂ -131			<90s	φ 12	
WZP-131G WZP ₂ -131G			<24s		
WZC-120G	Cu50 Cu100	-50~100	<120s	φ 16	
WZC-120			<40s		
WZC-130			<120s		
WZC-130G			<40s		
WZC-121			<120s	φ 12	
WZC-121G			<40s		
WZC-131			<120s		
WZC-131G			<40s		

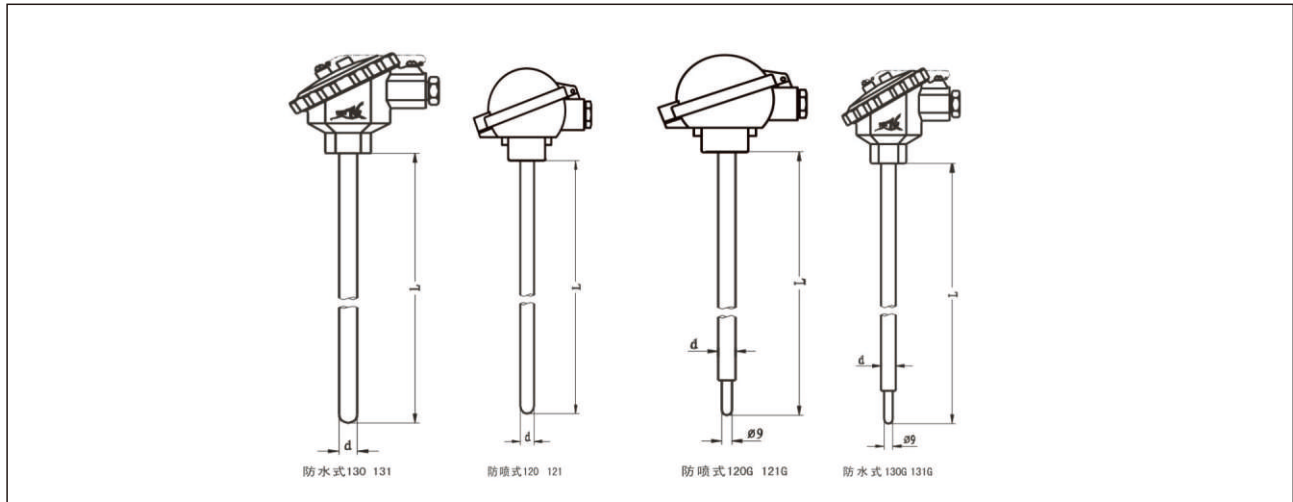
1) 型号120、121为防喷式，防护等级IP65;型号130、131为防水式，防护等级IP55;

2) 保护管材质为1Cr18Ni9Ti,其余材质根据协议订货。

1) Model 120 and 121 are anti-spring type with the protective grade being IP65; Model 130 and 131 are waterproof type with the protective grade being IP55.

2) Protective tube material is 1Cr18Ni9Ti and the rest of the material is ordered according to the agreement.

固定螺纹式热电阻 Fixed screw type thermal resistance



型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	热响应时间 Thermal response time	规格 Specification	
				d	L
WZP-220 WZP ₂ -220	Pt100	A级 -30-300 B级 -50-500	<90s	φ16	300 350 400 450 500 550 650 900 1150 1650 2150
WZP-220G WZP ₂ -220G			<24s		
WZP-221 WZP ₂ -221			<90s	φ12	
WZP-221G WZP ₂ -221G			<24s		
WZP-230 WZP ₂ -230			<90s	φ16	
WZP-230G WZP ₂ -230G			<24s		
WZP-231 WZP ₂ -231			<90s	φ12	
WZP-231G WZP ₂ -231G			<24s		
WZC-220	Cu50 Cu100	-50~100	<120s	φ16	
WZC-220G			<40s		
WZC-230			<120s		
WZC-230G			<40s		
WZC-221			<120s	φ12	
WZC-221G			<40s		
WZC-231			<120s		
WZC-231G			<40s		

1) 型号220、221为防喷式，防护等级IP65;型号230、231为防水式，防护等级IP55;

2) 保护管材质为1Cr18Ni9Ti,其余材质根据协议订货;

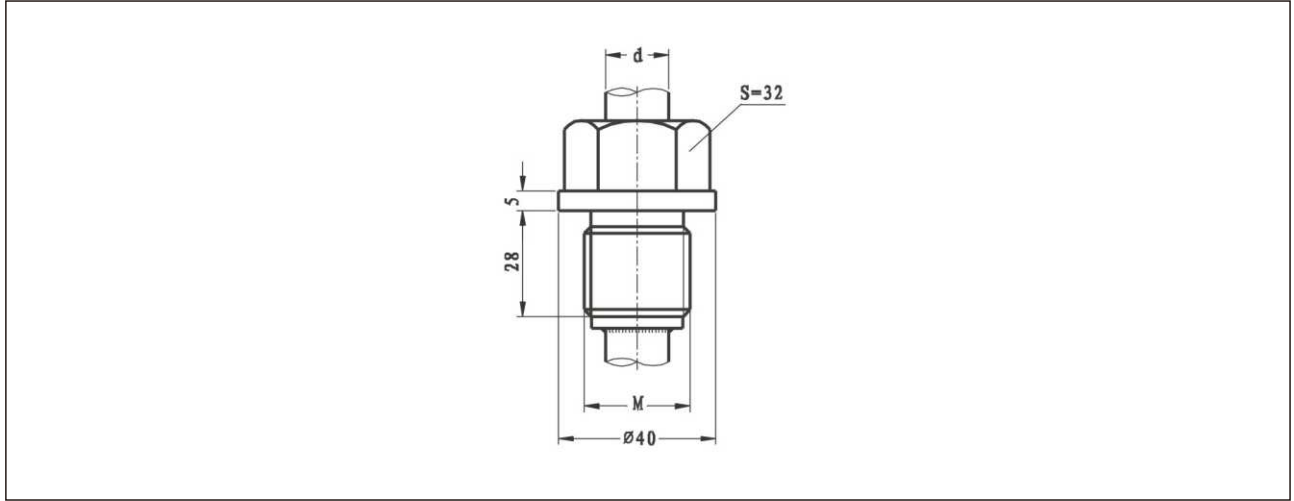
3) 公称压力≤4.0MPa。

1) Model 220 and 221 are anti-spraying type with the waterproof grade being IP65. model 230 and 231 are waterproof type with the protective grade being IP55.

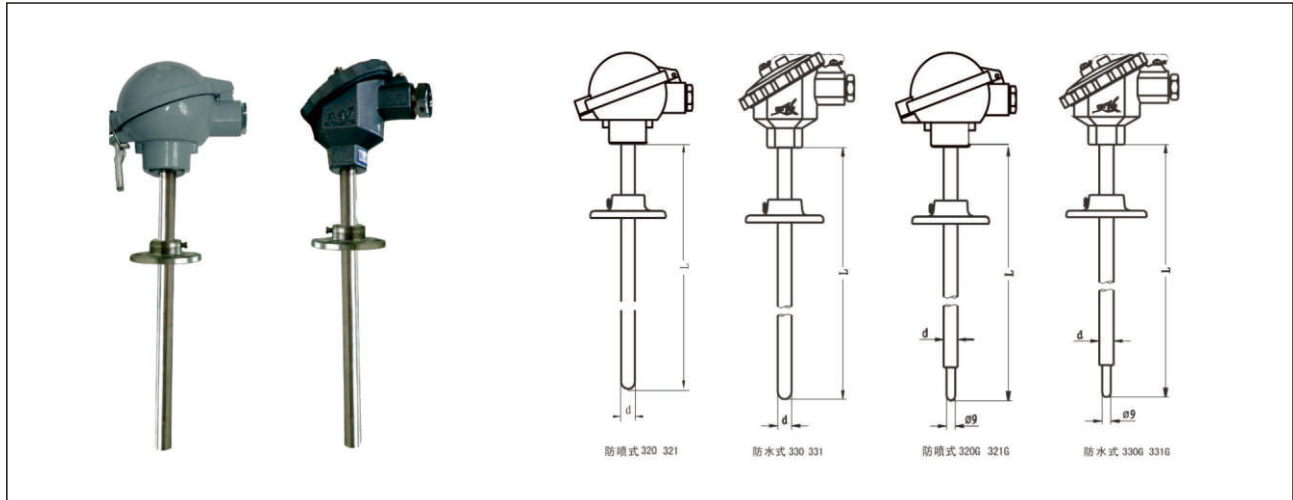
2) Protective tube material is 1Cr18Ni9Ti and the rest of the material is ordered according to the agreement.

3) Nominal pressure is ≤4.0MPa.

型号示例 Model examples	螺纹规格 Thread specification		d
	代号 Code	M	
WZP-220		M27×2	Φ16
WZP-220A	A	G3/4	
WZP-221G		M27×2	Φ12
WZP-221GA	A	G3/4	



活动法兰式热电阻 Active-flange type thermal resistance



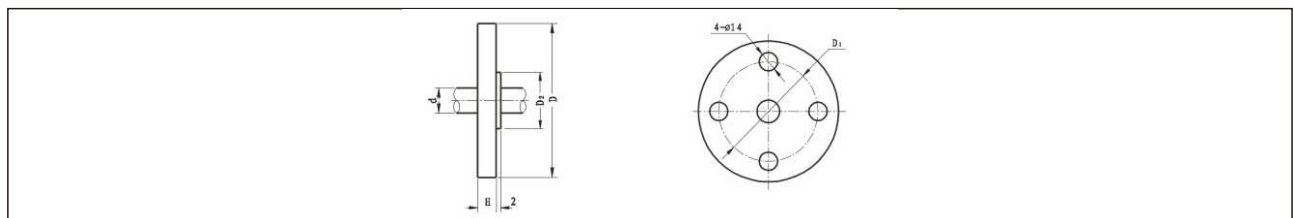
型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	热响应时间 Thermal response time	规格 Specification	
				d	L
WZP-320 WZP ₂ -320	Pt100	A级 -30-300 B级 -50-500	<90s	φ 16	300 350 400 450 500 550 650 900 1150 1650 2150
WZP-320G WZP ₂ -320G			<24s		
WZP-321 WZP ₂ -321			<90s	φ 12	
WZP-321G WZP ₂ -321G			<24s		
WZP-330 WZP ₂ -330			<90s	φ 16	
WZP-330G WZP ₂ -330G			<24s		
WZP-331 WZP ₂ -331			<90s	φ 12	
WZP-331G WZP ₂ -331G			<24s		
WZC-320	Cu50 Cu100	-50~100	<120s	φ 16	
WZC-320G			<40s		
WZC-320			<120s		
WZC-330G			<40s		
WZC-321			<120s	φ 12	
WZC-321G			<40s		
WZC-331			<120s		
WZC-331G			<40s		

1) 型号320、321为防喷式，防护等级IP65;型号330、331为防水式，防护等级IP55;

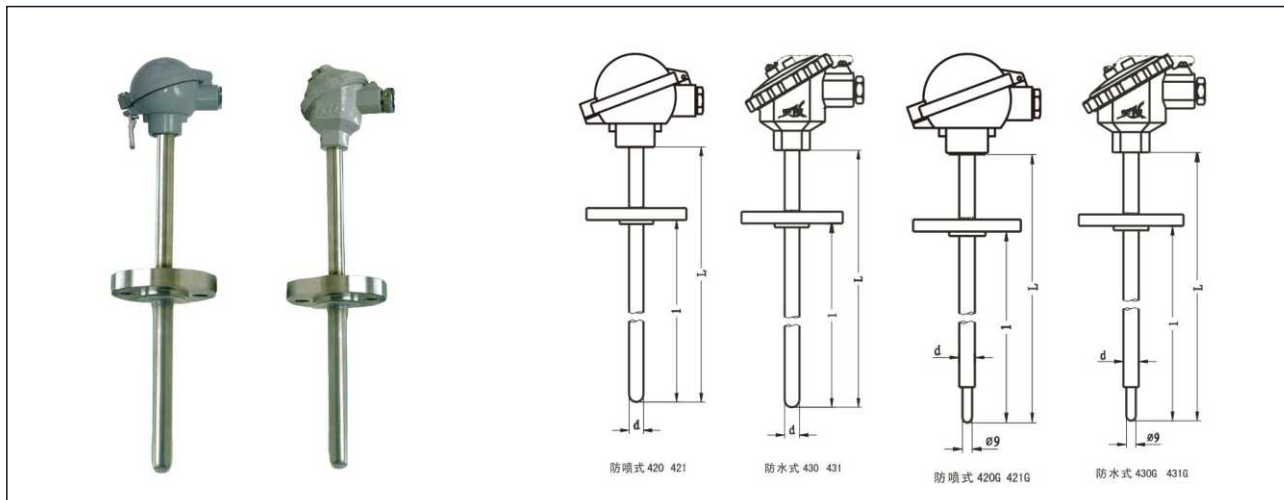
2) 保护管材质为1Cr18Ni9Ti,其余材质根据协议订货。

1) Model 320 and 321 are anti-spraying type with the waterproof grade being IP65; model 330 and 331 are waterproof type with the protective grade being IP55.

2) Protective tube material is 1Cr18Ni9Ti and the rest of the material is ordered according to the agreement.



固定法兰式热电阻 Fixed-flange type thermal resistance



型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	热响应时间 Thermal response time	规格 Specification	
				d	L
WZP-420 WZP ₂ -420	Pt100	A级 -30-300 B级 -50-500	<90s	φ16	300×150 350×200 400×250 450×300 500×350 550×400 650×500 900×750 1150×1000 1650×1500 2150×2000
WZP-420G WZP ₂ -420G			<24s		
WZP-421 WZP ₂ -421			<90s	φ12	
WZP-421G WZP ₂ -421G			<24s		
WZP-430 WZP ₂ -430			<90s	φ16	
WZP-430G WZP ₂ -430G			<24s		
WZP-431 WZP ₂ -431			<90s	φ12	
WZP-431G WZP ₂ -431G			<24s		
WZC-420G	Cu50 Cu100	-50~100	<120s	φ16	
WZC-420			<40s		
WZC-430			<120s		
WZC-430G			<40s		
WZC-421			<120s	φ12	
WZC-421G			<40s		
WZC-431			<120s		
WZC-431G			<40s		

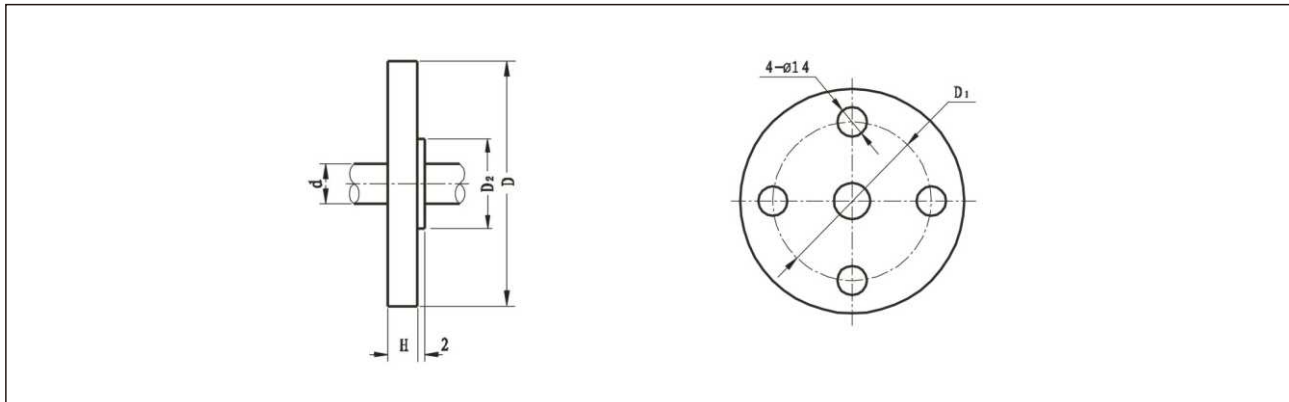
- 1) 型号420、421为防喷式，防护等级IP65;型号430、431为防水式，防护等级IP55;
- 2) 保护管材质为1Cr18Ni9Ti,其余材质根据协议订货;
- 3) 公称压力≤4.0MPa.

- 1) Model 420 and 421 are anti-spraying type with the waterproof grade being IP65.model 430 and 431 are waterproof type with the protective grade being IP55;
- 2) Protective tube material is 1Cr18Ni9Ti and the rest of the material is ordered according to the agreement.
- 3) Nominal pressure is ≤4.0MPa.

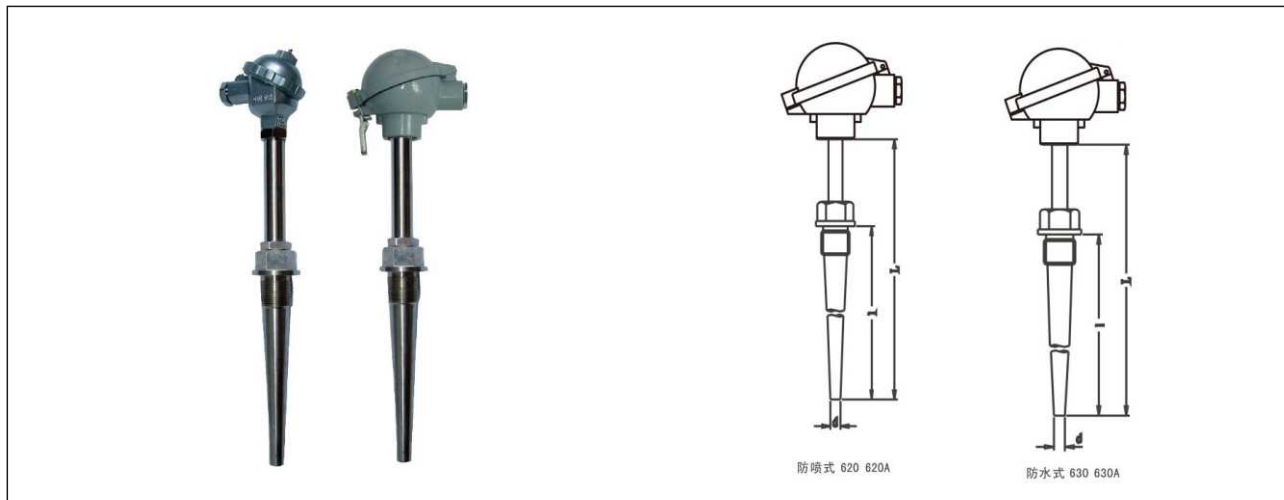
型号示例 Examples of model	法兰规格 Flange specification				
	D	D ₁	D ₂	H	d
WZP-420	Φ95	Φ65	Φ46	14	12、Φ16
WZP-420G	Φ95	Φ65	Φ46		
WZP-421	Φ95	Φ65	Φ46	14	12、Φ16
WZP-421G	Φ95	Φ65	Φ46		

可按用户约定要求提供法兰;详见 P 86

The flange can be provided according to the requirements of users: for the specific information, please refer to P86.



固定螺纹锥形热电阻 Taper heat resistance of fixed-thread type

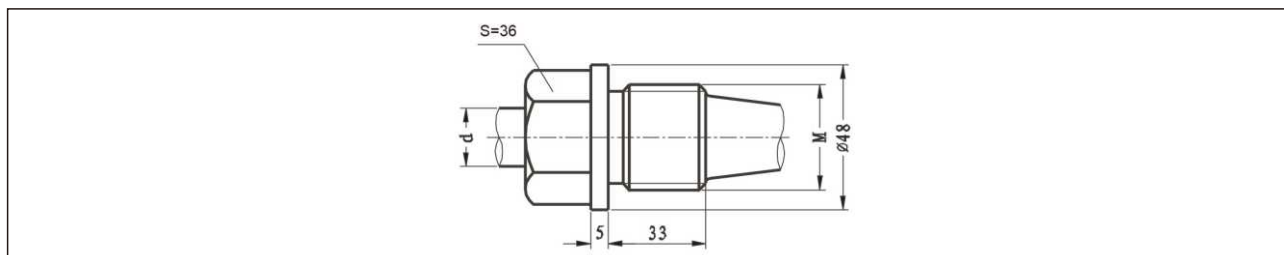


型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	热响应时间 Thermal response time	规格 Specification	
				d	L
WZP-620 WZP ₂ -620	Pt100	A级 -30-300 B级 -50-500	<90s	φ 15	300×150 350×200 400×250 450×300 500×350 550×400 650×500
WZP-620A WZP ₂ -620A					
WZP-630 WZP ₂ -630					
WZP-630A WZP ₂ -630A					
WZC-620 WZC-620A	Cu50 Cu100	-50~100			
WZC-630 WZC-630A					

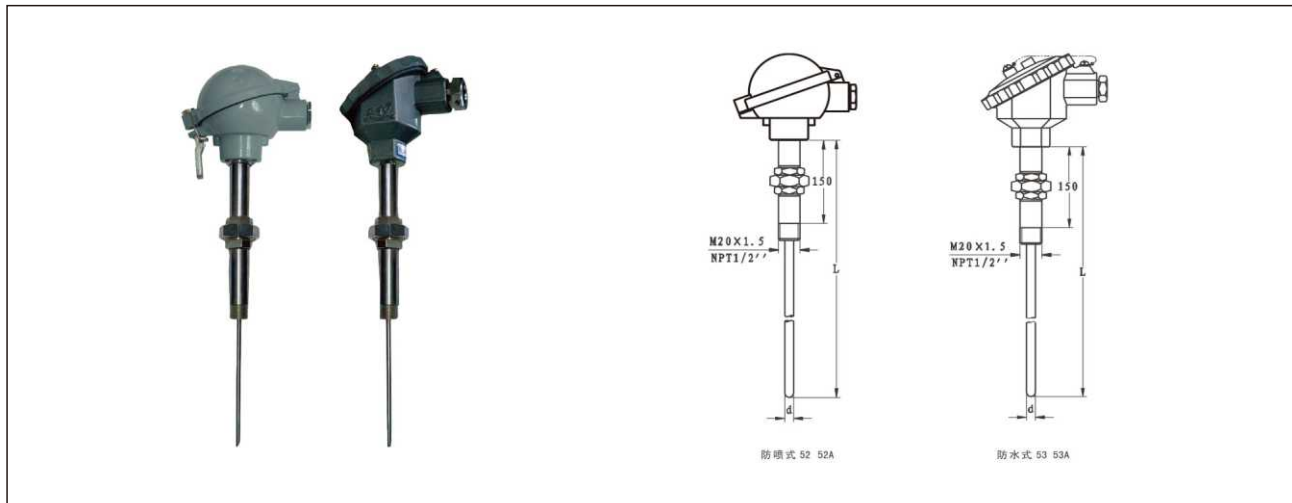
- 1) 型号620、621为防喷式，防护等级IP65；型号630、631为防水式，防护等级IP55；
- 2) 保护管材质为1Cr18Ni9Ti，其余材质根据协议订货；
- 3) 公称压力≤15MPa。

- 1) Model 620 and 621 are anti-spraying type with the waterproof grade being IP65, model 630 and 631 are waterproof type with the protective grade being IP55.
- 2) Protective tube material is 1Cr18Ni9Ti and the rest of the material is ordered according to the agreement.
- 3) Nominal pressure is ≤15MPa.

型号示例 Model examples	螺纹规格 Thread specification	
	代号 Code	M
WZP-620	-	M33×2
WZP-620A	A	NPT1
WZP-630	-	M33×2
WZP-630A	A	NPT1



活络管接头式热电阻 Joint type thermal resistance of adjustable pipe

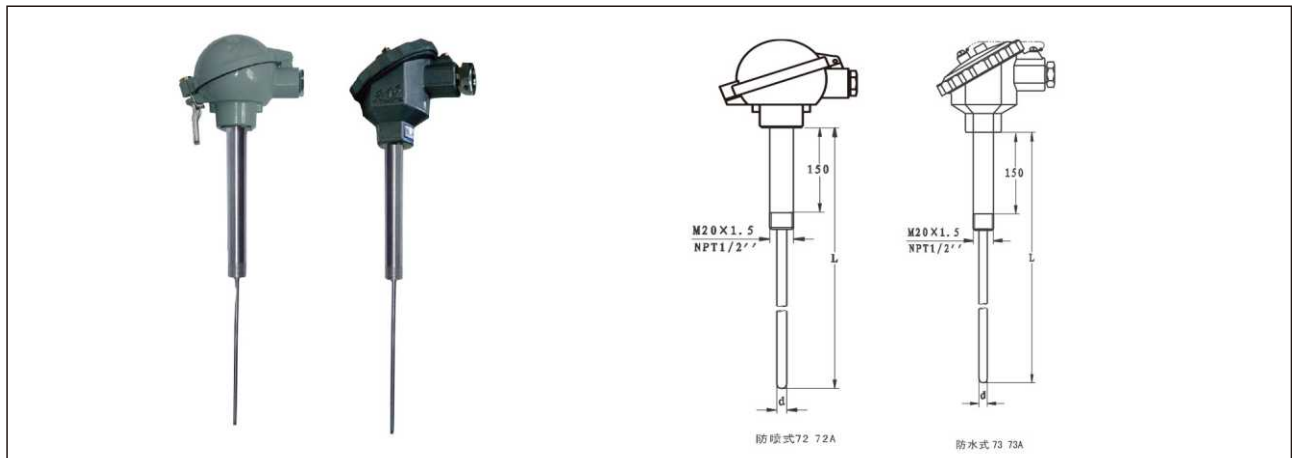


型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	热响应时间 Thermal response time	规格 Specification	
				d	L
WZP-52 WZP ₂ -52	Pt100	A级 -30-300 B级 -50-500	M20×1.5	Φ3 Φ4 Φ5 Φ6 Φ8	250 300 350 400 450 550 650 750 900 1150
WZP-52A WZP ₂ -52A			NPT1/2		
WZP-53 WZP ₂ -53			M20×1.5		
WZP-53A WZP ₂ -53A			NPT1/2		
WZP-52A WZP-52A	Cu50 Cu100	-50~100	M20×1.5	Φ5 Φ6 Φ8	
WZP-53			NPT1/2		
WZP-53A			M20×1.5		
			NPT1/2		

- 1) 型号53、53A为防水式，防护等级IP55；型号52、52A为防喷式，防护等级IP65；
- 2) 如无特殊之约定，L仅为参考尺寸，热电阻插入深度应为热安装套管U尺寸；
- 3) 热安装套管形式详见P119。

- 1) Model 53 and 53A are waterproof type with the protective grade being IP55, model 52 and 52A are anti-spraying type with the waterproof grade being IP65.
- 2) If there is no special agreement, L is only the reference size. The insertion depth of thermocouple should be the size of thermal installation sleeve U.
- 3) The form of casing for thermal installation is shown in P119.

直形管接头式热电阻 Joint type thermal resistance of straight pipe

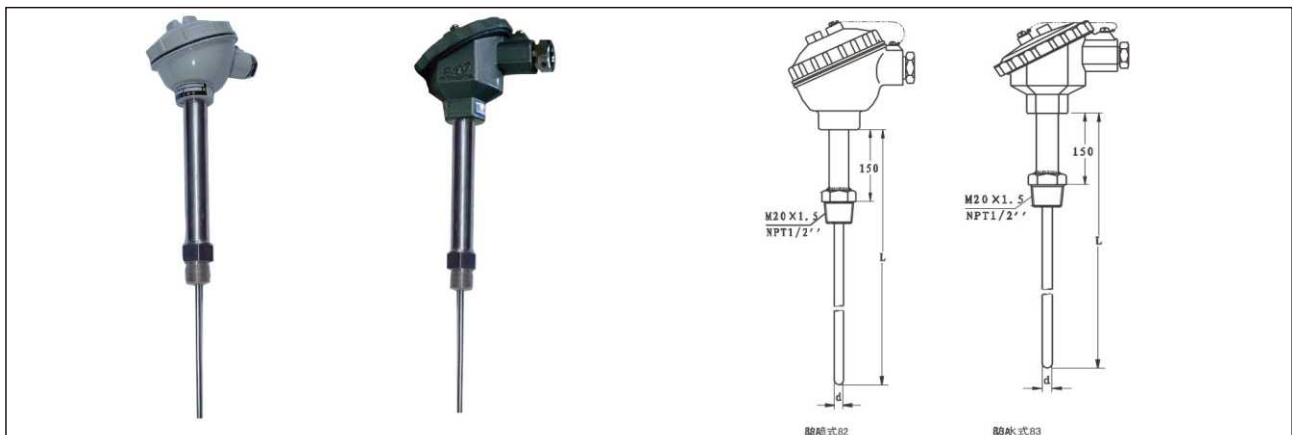


型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	热响应时间 Thermal response time	规格 Specification	
				d	L
WZP-72 WZP ₂ -72	Pt100	A级 -30-300 B级 -50-500	M20×1.5	Φ3 Φ4 Φ5 Φ6 Φ8	250 300 350 400 450 550 650 750
WZP-72A WZP ₂ -72A			NPT1/2		
WZP-73 WZP ₂ -73			M20×1.5		
WZP-73A WZP ₂ -73A			NPT1/2		
WZP-72A WZP ₂ -72A	Cu50 Cu100	-50~100	M20×1.5	Φ5 Φ6 Φ8	900 1150
WZP-72A WZP ₂ -72A			NPT1/2		
WZP-73 WZP ₂ -73			M20×1.5		
WZP-73A WZP ₂ -73A			NPT1/2		

- 1) 型号73、73A为防水式，防护等级IP55；型号72、72A为防喷式，防护等级IP65；
- 2) 如无特殊之约定，L仅为参考尺寸，热电阻插入深度应为热安装套管U尺寸；
- 3) 热安装套管形式详见P119。

- 1) Model 73 and 73A are waterproof type with the protective grade being IP55, model 72 and 72A are anti-spraying type with the waterproof grade being IP65.
- 2) If there is no special agreement, L is only the reference size. The insertion depth of thermocouple should be the size of thermal installation sleeve U.
- 3) The form of casing for thermal installation is shown in P119.

固定螺纹管接头式热电阻 Joint type thermal resistance of fixed screw pipe



型号 Model	分度号 Graduation	测温范围 °C Range of temperature measurement °C	热响应时间 Thermal response time	规格 Specification	
				d	L
WZP-82 WZP ₂ -82	Pt100	A级 -30-300 B级 -50-500	M20×1.5	Φ3 Φ4 Φ5 Φ6 Φ8	250 300 350 400 450 550 650 750
WZP-82A WZP ₂ -82A			NPT1/2		
WZP-83 WZP ₂ -83			M20×1.5		
WZP-83A WZP ₂ -83A			NPT1/2		
WZP-82A WZP ₂ -82A	Cu50 Cu100	-50~100	M20×1.5	Φ5 Φ6 Φ8	900 1150
WZP-82A WZP ₂ -82A			NPT1/2		
WZP-83 WZP ₂ -83			M20×1.5		
WZP-83A WZP ₂ -83A			NPT1/2		

- 1) 型号83、83A为防水式，防护等级IP55；型号82、82A为防喷式，防护等级IP65；
- 2) 如无特殊之约定，L仅为参考尺寸，热电阻插入深度应为热安装套管U尺寸；
- 3) 热安装套管形式详见P119。

- 1) Model 83 and 83A are waterproof type with the protective grade being IP55, model 82 and 82A are anti-spraying type with the waterproof grade being IP65.
- 2) If there is no special agreement, L is only the reference size. The insertion depth of thermocouple should be the size of thermal installation sleeve U;
- 3) The form of casing for thermal installation is shown in P119.