



中外技术合作企业 Sino-Foreign Technical Cooperation Enterprise
权威注册 Authoritative Registration: CE / API / TSG
国家级高新技术企业 National High-Tech Enterprise

P-037

装配式热电阻
Fabricated thermal resistance

WZ 系列
WZ Series

WZ 系列
装配式热电阻

WZ Series
Fabricated thermal resistance



概述

工业用热电阻作为测量温度的传感器，通常和显示仪表、记录仪表和电子调节器配套使用。它可以直接测量各种生产过程中从 -200℃ 至 420℃ 范围内的液体、蒸汽和气体介质以及固体表面温度。

根据国家规定，我厂生产符合 IEC 国际标准分度号的 Pt100 铂热电阻和符合专业标准分度号的 Cu50 铜热电阻两大类装配式、统一设计型热电阻，应符合 JB / T8622-1 997 及 JB / T8623-1 997 标准。

Overview

Industrial use thermal resistance is the measuring temperature sensor, usually works with display instrument, recording instrument and electronic regulator. It can be directly measured various production process from a -200 °C to 420 °C within the scope of the liquid, steam and gas medium and solid surface temperature.

We produce PT100 and Cu50 thermal resistance based on national regulations, in accordance with IEC international standard graduation, JB/T8622-1997 and JB/T8623-1997.

主要技术指标 Main tech data

热电阻类别 Type	测温范围℃ Range	分度号 Graduation	允许偏差△t℃ Allowed deviation
WZP 型铂电阻 Platinum resistor	-200~420	Pt100	B 级允差± (0.30 + 0.005 t)
			A 级允差± (0.15+0.002 t)
WZC 型铜电阻 Cooper resistance	-150~100	Cu50	-50~1.00℃允差 ± (0.30+6.0 × 10 ⁻³ t)

注：式中“t”为感温元件的实测温度绝对值。
Note: “t” in the table is absolute temperature value.

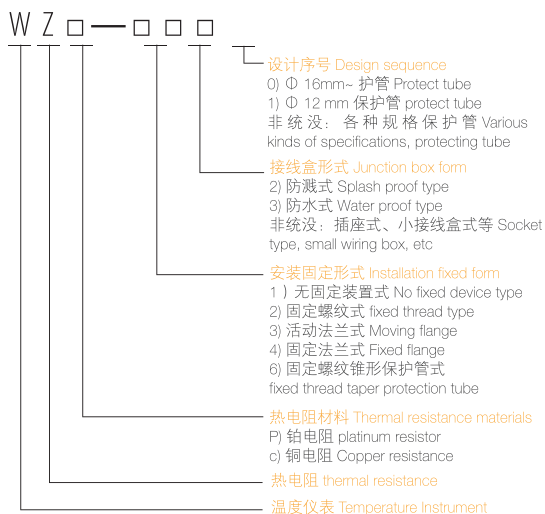
装配式热电阻

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型号表示 Type



热电阻感温元件 100°C 时的电阻值 (R_{100}) 和它在 0°C 时的电阻值 R_0 的比值 (R_{100}/R_0)

分度号 Pt00: A 级 $R_0=1.00 \pm 0.06 \Omega$

B 级 $R_0=100 \pm 0.12 \Omega$

分度号 Cu50: $R_0=50 \pm 0.05 \Omega$

Ratio between resistance at 100°C (R_{100}) and resistance at 0°C (R_0) (R_{100}/R_0)

Graduation Pt00: A $R_0=1.00 \pm 0.06 \Omega$

B $R_0=100 \pm 0.12 \Omega$

Graduation Cu50: $R_0=50 \pm 0.05 \Omega$

热响应时间 thermal response time

在温度出现阶跃变化时, 热电阻的输出变化值相当于该阶跃变化的 50% 所需要的时间称为热响应时间用 $\tau_{0.5}$ 表示。

When temperature appear step changes, the thermall resistance output change is equal to 50% of this step change, time needed is thermal response time, called as $\tau_{0.5}$

热电阻公称压力 Thermal resistance nominal pressure

一般指在该工作温度下保护管所能承受的外压 (静压) 而不破裂。允许公称压力不仅与保护管材料、直径、壁厚有关, 还与其结构形式、安装方法、置入深度以及被测介质的流速和种类有关。

Usually, it refers to the static pressure the protection tube can withstand under normal temperature. Actually, the allowance working pressure is not only related to the material, diameter, and wall thickness of the protection tube, but it's also related to structure, install method, put into depth and the flow velocity and type of media to be tested.

热电阻最小置入深度 Minimum thermal resistance into depth

$l_{\min}=l_{\text{元}}+15D$

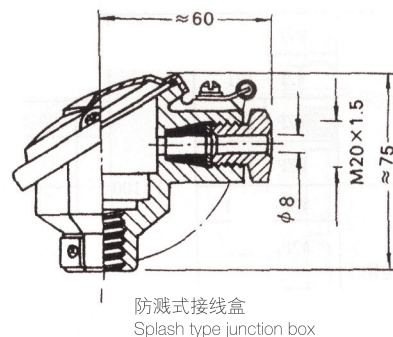
$l_{\min}$ - 最小可用置入深度 Minimum insertion depth

$l_{\text{元}}$ - 感温元件长度 Temperature elements length

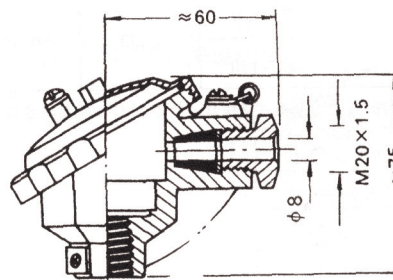
D - 保护管外径 Protection tube diameter

热电阻接线盒结构 Thermal resistance junction box structure

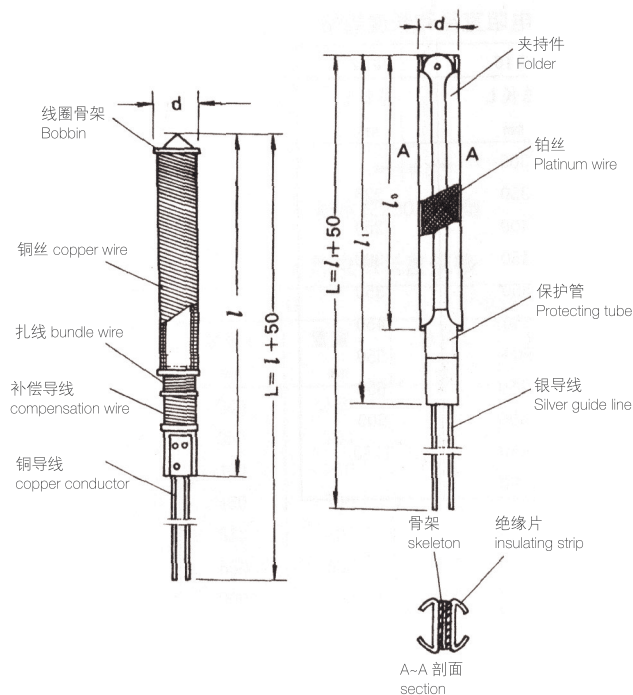
(统一设计型 Unified design type)



防溅式接线盒
Splash type junction box



防水式接线盒
Waterproof type junction box



铜电阻感温元件
Copper resistance temperature elements

铂电阻感温元件
Platinum resistance temperature elements



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自热影响

通过热电阻中的测量电流为 5mA 时，测得的电阻增量换算成温度值应不大于 0.30℃。

Since heat affected

When the measuring current through the thermal resistance is 5mA,the incremental resistance measured should not be greater than 0.3℃ when conversed to temperature.

绝缘电阻

常温绝缘电阻的试验电压可取直流 10~100V 任意值，环境温度在 1 5~35℃ 范围内，相对湿度应不大于 80%。常温绝缘电阻值应不小于 100M Ω。

insulation resistance

Normal temperature insulation resistance test voltage can be DC 10~100V, environmental temperature in 1 5~35 ℃ scope, relative humidity should be no more than 80%. Normal temperature insulation resistance value should be no less than the 100 M.

工作原理

工业用热电阻分铂热电阻和铜热电阻两大类。热电阻是利用物质在温度变化时自身电阻也随着发生变化的特性来测量温度的。热电阻的受热部分（感温元件）是用细金属丝均匀地双绕在绝缘材料制成的骨架上。当被测介质中有温度梯度存在时，所测得的温度是感温元件所在范围内介质层中的平均温度。

The working principle

Industrial use thermal resistance has platinic resistance and copper thermal resistance two kinds. Thermal resistance measures temperature based on that resistance temperature changes along with the material temperature change. Thermal resistance of heated part (temperature elements) is to use thin metal wire evenly double wrapping the skeletons made of insulation materials.When temperature gradient exists in the tested medium,the temperature measured is the average temperature of the dielectric layer within the scope where the temperature sensing element is in.

装配式热电阻主要由接线盒、保护管、接线端子、绝缘套管和感温元件组成基本结构，并配以各种安装固定装置组成。

Fabricated thermal resistance mainly by the junction box, protection tube, terminals, insulated casing and temperature components basic structure, and matches by the various installation fixed device component.

WZP 型铂电阻的感温工件是一个铂丝绕组，双支铂电阻主要用于需要用二套显示、记录或调节仪同时检测同一地点温度的场合。WZC 型铜电阻的感温元件是一个铜丝绕组。

WZP type of platinum resistance temperature workpiece is a platinum wire windings, double platinum resistance is applicable to occasions where requires secondary displayer, recorder and regulator at the same time. WZC type copper resistance temperature element is a copper wire windings.

型号规格 Type specification

统一设计型热电阻 Unified design type heat resistance

无固定装置式热电阻 No fixed device type heat resistance

热电阻类别 Type	产品型号 Model	分度号 Graduation	测温范围 ℃ Range	保护管材料 P.T.Material	直径 d mm	响应时间 T _{0.5} s T.P. time
单支铂热电阻 Single platinum heat resistance	WZP-120	Pt 100	-200~420	不锈钢 1Cr18Ni9Ti	Φ 16	≤ 90
	WZP-121				Φ 12	≤ 30
	WZP-130				Φ 16	≤ 90
	WZP-131				Φ 12	≤ 30
双支铂热电阻 Double platinum heat resistance	WZP ₂ -120			不锈钢 0Cr18Ni 12Mn2Ti	Φ 16	≤ 90
	WZP ₂ -121				Φ 12	≤ 45
	WZP ₂ -130				Φ 16	≤ 90
	WZP ₂ -131				Φ 12	≤ 45
铜热电阻 Copper heat resistance	WZC-120	CU50	-50~100	黄铜 H62 不锈钢 1Cr18Ni9Ti	Φ 12	≤ 120
	WZC-130					

注：型号 120、121 为防溅式接线盒，型号 130、131 为防水式接线盒。

Note：Splash type junction box. Model 130, 131 for waterproof type junction box .

装配式热电阻

Fabricated thermal resistance

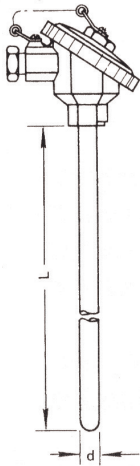


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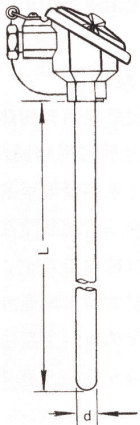
P-040

热电阻直径和长度规格 Thermal resistance length specifications

Φ 16	Φ 12
总长 L mm overall length	总长 L mm overall length
300	
350	225
400	250
450	300
550	350
650	450
900	550
1150	650
1400	900
1650	1150
2150	



防水型 130、131 型
Waterproof type 130、131



防溅型 120、121 型
Splash proof 120、121

固定螺纹式热电阻 Fixed thread type type heat resistance

热电阻类别 Type	产品型号 Model	分度号 Graduation	测温范围 °C Range	保护管材料 P.T.Material	直径 d mm	响应时间 T _{0.5} S T.P. time
单支铂热电阻 Single platinum heat resistance	WZP-220	Pt 100	-200~420	不锈钢 1Cr18Ni9Ti	Φ 16	≤ 90
	WZP-221				Φ 12	≤ 30
	WZP-230				Φ 16	≤ 90
	WZP-231				Φ 12	≤ 30
双支铂热电阻 Double platinum heat resistance	WZP ₂ -220			不锈钢 0Cr18Ni 12Mo2Ti	Φ 16	≤ 90
	WZP ₂ -221				Φ 12	≤ 45
	WZP ₂ -230				Φ 16	≤ 90
	WZP ₂ -231				Φ 12	≤ 45
单支铂热电阻 Single platinum heat resistance	WZP-221A			不锈钢 1Cr18Ni9Ti	Φ 16	≤ 90
单支铂热电阻 Single platinum heat resistance	WZP ₂ -221A					≤ 90
铜热电阻 Copper heat resistance	WZC-220	Cu 50	-50~100	黄铜 H62 不锈钢 1Cr18Ni9Ti	Φ 12	≤ 120
	WZC-230					
	WZC-220A					

注： 1) 公称压力：10MPa。
2) 型号 220、221 为防溅式接线盒，型号 230、231 为防水式接线盒。

Note: 1) Nominal pressure: 10MPa。
2) model220and 221 are splash type junction box. Model 230 and 231 are waterproof type junction box .

温度仪表系列 Temperature Instruments series



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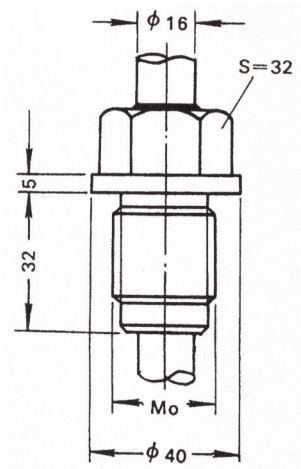
装配式热电阻
Fabricated thermal resistance

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固定螺纹型号规格对照表
specifications and models of fixed thread type

公称压力 Nominal pressure: 10MPa

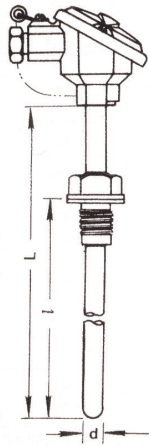
产品型号 Model	固定螺纹规格 Fixed thread specification
	M ₀
WZP-220	M27X2
WZP-221	M27X2
WZP-230	M27X2
WZP-231	M27X2
WZP ₂ -220	M27X2
WZP ₂ -221	M27X2
WZP ₂ -230	M27X2
WZP ₂ -231	M27X2
WZP-220A	G3/4"
WZP ₂ -220A	G3/4"
WZC-220	M27X2
WZC-230	M27X2
WZC-220A	G3/4"



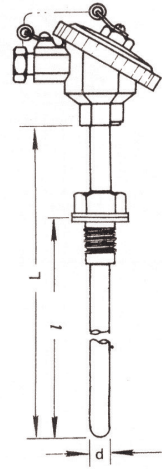
固定螺纹 Fixed thread

热电阻长度规格 Thermal resistance length specifications

Φ 16		Φ 12	
总长 overall length L mm	置深 insertion length l mm	总长 overall length L mm	置深 insertion length l mm
300	150		
350	200	225	75
400	250	250	100
450	300	300	150
550	400	350	200
650	500	450	300
900	750	550	400
1150	1000	650	500
1400	1250	900	750
1650	1500	1150	1000
2150	2000		



防溅式 220、221、220A 型
splash proof type 220、221、220A



防水式 230、231 型
Water proof

装配式热电阻

Fabricated thermal resistance



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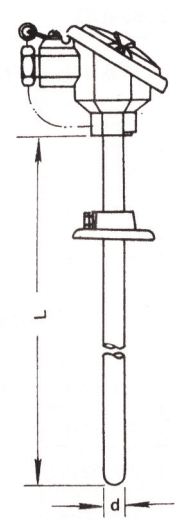
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活动法兰式热电阻 movable flange heat resistance

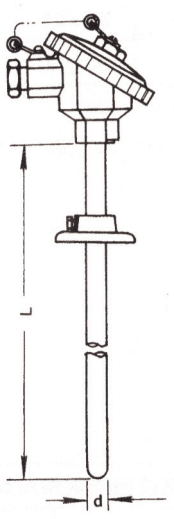
热电阻类别 Type	产品型号 Model	分度号 Graduation	测温范围 °C Range	保护管材料 P.T.Material	直径 d mm	响应时间 T _{0.5} s T.P. time
单支铂热电阻 Single platinum heat resistance	WZP-320	Pt 100	-200~420	不锈钢 1Cr18Ni9Ti	Φ 16	≤ 90
	WZP-321				Φ 12	≤ 30
	WZP-330				Φ 16	≤ 90
	WZP-331				Φ 12	≤ 30
双支铂热电阻 Double platinum heat resistance	WZP ₂ -320			不锈钢 0Cr18Ni 12Mo2Ti	Φ 16	≤ 90
	WZP ₂ -321				Φ 12	≤ 45
	WZP ₂ -330				Φ 16	≤ 90
	WZP ₂ -331				Φ 12	≤ 45
铜热电阻	WZC-320	Cu 50	-50~100	黄铜 H62 不锈钢 1Cr18Ni9Ti	Φ 12	≤ 120
	WZC-330					

注：型号 320、321 为防溅式接线盒，型号 330、331 为防水式接线盒。

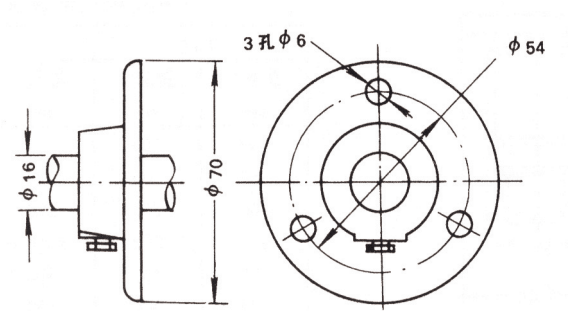
Note: 2)model 320 and 321 are splash type junction box. Model 230 and 231 are waterproof type junction box .



防溅型 320、321 型
Splash proof 320、321



防水式 330、331 型
Splash proof 330、331



热电阻直径和长度规格 Thermal resistance length specifications

Φ 16	Φ 12
总长 overall length L mm	总长 overall length L mm
300	225
350	250
400	300
450	350
550	450
650	550
900	650
1150	900
1400	1150
1650	
2150	



装配式热电阻

Fabricated thermal resistance

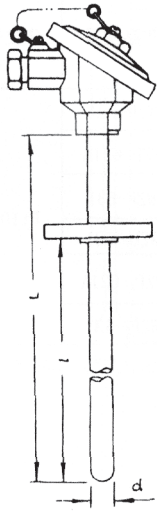
WZ 系列
WZ Series

固定法兰式热电阻 Fixed Flange thermal resistance

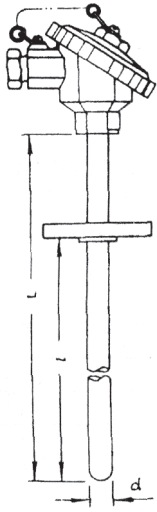
热电阻类别 Thermal resistance	产品型号 Product Model	分度号 Graduation No	测温范围 Measuring Range (°C)	保护管材料 Protecting Tube Material	直径 d Diameter (mm)	热响应时间 Thermal Response Time ($\tau_{0.5}$)
单支铂热电阻 single piece PT thermal resistance	WZP — 420	Pt100	-200~420	不锈钢 Stainless Steel 1Cr18Ni9Ti	Φ 16	< 90
	WZP — 421				Φ 12	< 30
	WZP — 430				Φ 16	< 90
	WZP — 431				Φ 12	< 30
双支铂热电阻 Double piece PT thermal resistance	WZP ₂ — 420			不锈钢 Stainless Steel 0Cr18Ni12Mo ₂ Ti	Φ 16	< 90
	WZP ₂ — 421				Φ 12	< 45
	WZP ₂ — 430				Φ 16	< 90
	WZP ₂ — 431				Φ 12	< 90
单支铂热电阻 single piece PT thermal resistance	WZP — 420A			不锈钢 Stainless Steel 1Cr18Ni9Ti	Φ 16	< 90
双支铂热电阻 Double piece PT thermal resistance	WZP ₂ — 420A					< 90
铜热电阻 Copper thermal resistance	WZC — 420	Cu50	-50~100	不锈钢 Stainless Steel 1Cr18Ni9Ti	Φ 12	<120
	WZC — 430					

注：1) 公称压力：2.5Mpa
2) 固定法兰安装盘增加三种化工部标准规格，详见装配式热电偶附表及表二。
3) 型号 420、421 为防溅式接线盒，型号 430、431 为防水式接线盒。

Note: 1) Nominal Pressure: 2.5Mpa
2) fixed flange has three more standards, refer to addendum and table 2.
3) Model 420、421 is splash proof junction box , Model 430 , 431 is the water proof junction box .



防溅式 420、421、420A 型
Splashproof type



防水式 430、431 型
Waterproof type

装配式热电阻

Fabricated thermal resistance



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其它固定法兰盘

为了适应不同行业对固定法兰盘的焊接结构、尺寸不同需要，本厂除继续生产全国统一设计，符合专业标准的固定法兰盘外，决定增加三种不同焊接方式，不同形式密封的固定法兰盘，新增加的固定法兰安装盘请看装配式热电偶附表及表二。

Other Fixed flanged Plate

In order to meet up with different requirements of the welding structure and sizes, we add three more different welding structures and fixed flange besides the standard fixed flange, refer to addendum for details.

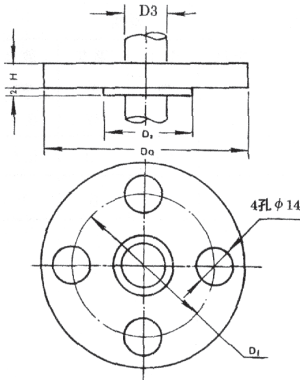
固定法兰型号规格对照表
Fixed flanged model regulation comparison table

产品型号 Product Model	固定法兰盘规格 (专业标准) Fixed flanged Plate Regulation (Professional Standard)			
	D ₀	D ₁	D ₂	D ₃
WZP — 420	Φ 95	Φ 65	Φ 45	Φ 16
WZP — 421	Φ 95	Φ 65	Φ 45	Φ 12
WZP — 430	Φ 95	Φ 65	Φ 45	Φ 16
WZP — 431	Φ 95	Φ 65	Φ 45	Φ 12
WZP ₂ — 420	Φ 95	Φ 65	Φ 45	Φ 16
WZP ₂ — 421	Φ 95	Φ 65	Φ 45	Φ 12
WZP ₂ — 430	Φ 95	Φ 65	Φ 45	Φ 16
WZP ₂ — 431	Φ 95	Φ 65	Φ 45	Φ 12
WZP — 420A	Φ 95	Φ 70	Φ 36	Φ 16
WZP ₂ — 420A	Φ 95	Φ 70	Φ 36	Φ 16
WZC — 420	Φ 95	Φ 65	Φ 45	Φ 12
WZC — 430	Φ 95	Φ 65	Φ 45	Φ 12

公称压力：2.5Mpa
Nominal Pressure：2.5Mpa

热电阻直径和长度规格表
Thermal Resistance Diameter and Length Regulation Table

Φ 16		Φ 12	
总长 L Total Length (mm)	置深 l Inserted Length (mm)	总长 L Total Length (mm)	置深 l Inserted Length (mm)
300	150		
350	200	225	75
400	250	250	100
450	300	300	150
550	400	350	200
650	500	450	300
900	750	550	400
1150	1000	650	500
1400	1250	900	750
1650	1500	1150	1000
2150	2000		



固定法兰盘
Fixed Flanged Plate





装配式热电阻

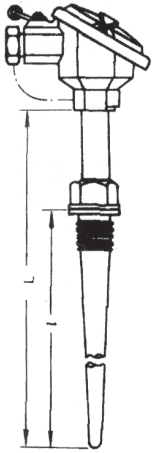
Fabricated thermal resistance

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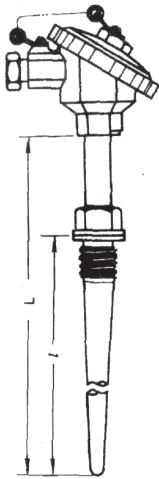
固定螺纹锥形保护管式 Fixed thread taper protecting pipe

热电阻类别 Thermal resistance type	产品型号 Product Model	分度号 Graduation No	测温范围 Measuring Range (°C)	保护管材料 Protecting Tube Material	规格 Regulation		热响应时间 Thermal response time (τ _{0.5} S)
					总长 L Total Length (mm)	置深 l Inserted Length (mm)	
单支铂热电阻 single piece PT thermal resistance	WZP — 621	Pt100	-200~400	不锈钢 Stainless Steel 1Cr18Ni9Ti			≤90
	WZP — 621A				300	150	
	WZP — 631				350	200	
双支铂热电阻 Double piece PT thermal resistance	WZP ₂ — 621				450	300	
	WZP ₂ — 621A				550	400	
	WZP ₂ — 631						

注：公称压力：30MPa，流速：≤80 米 / 秒
Note: Nominal Pressure: 30Mpa, Flow speed≤80 m/s



防溅式 621、621A 型
Splashproof type

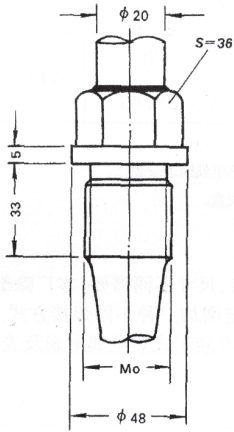


防水式 631 型
Water proof type

固定螺纹锥形保护管型号规格对照表

Model&Regulation Comparison Table for Fixed thread taper protecting pipe

产品型号 Product Model	固定螺纹规格 Fixed thread Regulation
	M ₆
WZP — 621	M33 × 2
WZP — 631	M33 × 2
WZP ₂ — 621	M33 × 2
WZP ₂ — 631	M33 × 2
WZP — 621A	G1"
WZP ₂ — 621A	G1"



固定螺纹锥形保护管
Fixed thread taper protecting pipe

装配式热电阻

Fabricated thermal resistance



WZ 系列
WZ Series

P-046

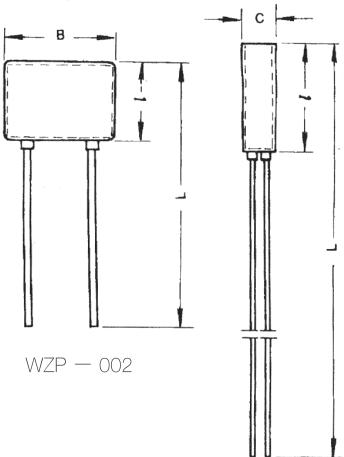
热电阻感温元件 Thermal resistance temperature-sensing element

薄片型铂热电阻感温元件 Slice type PT thermal resistance temperature-sensing element

热电阻类别 Thermal resistance type	产品型号 Product Model	分度号 Graduation No	测温范围 Measuring range (℃)	规格 Regulation				热响应时间 Thermal response time (τ _{0.5} S)
				总长 L (mm)	长 l (mm)	宽 B (mm)	厚 C (mm)	
铂热电阻感温元件 (薄片型) PT thermal resistance temperature-sensing element (Slice type)	WZP — 002	Pt100	0~420	28	17	32	0.5	<15
	WZP — 003	Pt100		82	32	10	0.5	
	WZP — 003A		0~200	55	22	6	1	<10

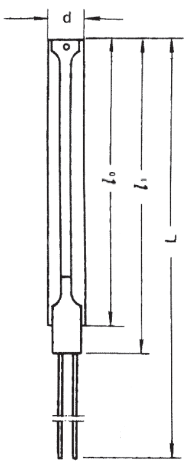
注：①外保护层为 1Cr18Ni9n 不锈钢薄片
②工作电流 <5mA

Note: ① Outside protecting layer is 1Cr18Ni9n stainless steel slice
② working current

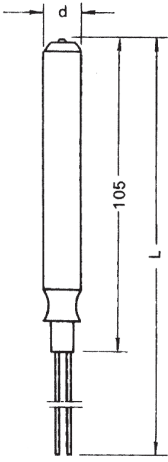


WZP — 002

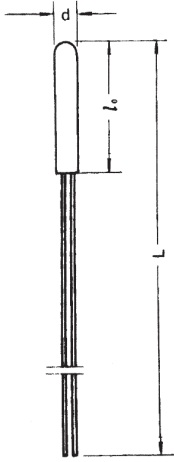
WZP — 003
WZP — 003A



WZP — 010 / WZP — 011



WZP — 010A



WZP — 035S / WZC — 001

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P-047

装配式热电阻
Fabricated thermal resistance

WZ 系列
WZ Series

感温元件 Temperature-sensing element

热电阻类别 Thermal resistance type	产品型号 Product Model	分度号 Graduation No	测温范围 Measuring range (°C)	保护管材料 Protecting Tube Material	规格 Regulation				热响应时间 Thermal response time (τ _{0.5} S)
					直径 d (mm)	总长 L (mm)	φ ₀ (mm)	L ₁ (mm)	
单支铂热电阻 感温元件 Single-piece PT thermal resistance temperature-sensing element	WZP — 010	Pt100	-200~420	外保护层为 1Cr18Ni9Ti 不锈钢薄片 outside protecting cover is 1Cr18Ni9n SS slic	Φ 12	300 350 450 550 650 900 1150 1400 1650 2150	85	105	<60
双支铂热电阻 感温元件 Doulbe-piece PT Thermal Resistance Temperature-sensing Element	WZP ₂ — 010								
单支铂热电阻 感温元件 Single-piece PT thermal resistance temperature-sensing element	WZP — 011				Φ 8	300 350	65	80	<30
双支铂热电阻 感温元件 Doulbe-piece PT Thermal Resistance Temperature-sensing Element	WZP ₂ — 011					450 550			
铜热电阻感温元件 Copper Thermalresistance temperature-sensing element	WZC — 010A	Cu50	-50~100	紫铜管 Red copper pipe	Φ 8	300 350 450 550 650 900 1150 1400 1650 2150			<90
铂热电阻 感温元件 PT Thermal resistance temperature-sensing element	WZP — 035S	Pt100	-50~150	不锈钢套管 SS sleeve	Φ 6	535	35		<5
铜热电阻 感温元件 Copper Thermal resistance temperature-sensing element	WZC — 001	Cu50	-50~100	不锈钢套管 SS sleeve	Φ 4	300	25		<30

注：WZP — 035S 采用引进元件 WZP — 014S，精度等级：B 级
Note: WZP — 035S is adopted with advanced element WZP — 014S , accuracy degree : Degree B

装配式热电阻

Fabricated thermal resistance



WZ 系列
WZ Series

P-048

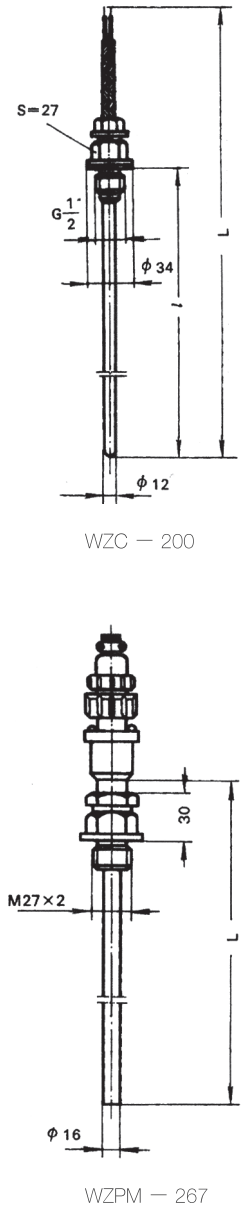
普通型热电阻 Ordinary Thermal Resistance

固定螺纹式热电阻 Fixed Thread Thermal Resistance

热电阻类别 Thermal resistance type	产品型号 Product Model	分度号 Graduation No	测量范围 Measuring range (℃)	保护管材料 Protecting Tube Material	规格 Regulation		热响应 时间 Thermal esponse time (τ _{0.5} S)							
					总长 Length (mm)	置深 l Inserted Length (mm)								
铜热电阻 (双股引出线) Copper thermal resistance (double extension line)	WZC — 200	Gu50	-50~100	黄铜 H62 Yellow Copper	500	100	<240							
				不锈钢 Stainless Steel 1Cr18Ni9Ti	550	150								
					600	200								
					700	300								
					900	400								
单支铂热电阻 Single-piece PT thermal resistance	WZP — 260	Pt100	0~100	不锈钢 Stainless Steel 1Cr18Ni9Ti		75	<30							
双支铂热电阻 Double-pieces PT Thermal Resistance	WZP ₂ — 260					100								
						150	<45							
						170								
						180								
						200								
						220								
						270								
						300								
						400								
						410								
						420								
						表面铂热电阻 Surface PT Thermal Resistance		WZPM — 267	Pt100	-50~150	不锈钢 Stainless Steel 1Cr18Ni9Ti		100	<30
													150	
													200	
													250	
300														
					350									

注：1) WZC — 200 双股引出电缆作导线
2) WZPM — 267 采用引进元件 WZPM — 018，精度等级为：B 级

Note: 1) WZC — 200 Double extension line as wire
2) WZPM — 267 is adopted with the advanced element WZPM — 018，accuracy degree : B



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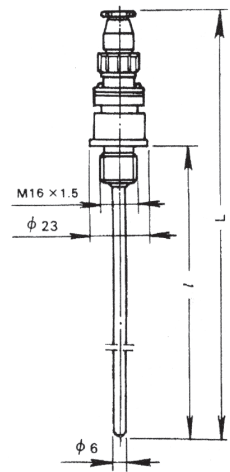


装配式热电阻
Fabricated thermal resistance

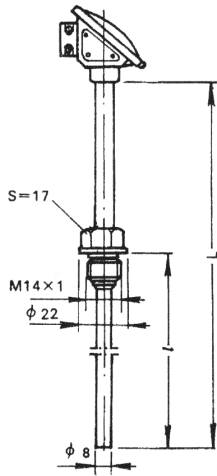
WZ 系列
WZ Series

固定螺纹式热电阻 Fixed Thread Thermal Resistance

热电阻类别 Thermal resistance type	产品型号 Product Model	分度号 Graduation No	测量范围 Measuring range (℃)	保护管材料 Protecting Tube Material	规格 Regulation		热响应 时间 thermal response time (τ _{0.5} S)
					总长 Length (mm)	置深 / Inserted Length (mm)	
单支铂热电阻 Single-piece PT thermal resistance	WZP — 269	Pt100	-200~300	不锈钢 Stainless Steel 1Cr18Ni9Ti	160	75	<30
双支铂热电阻 Double-pieces PT resistance	WZP ₂ — 269				185	100	<45
					235	150	
铜热电阻 Copper thermal resistance	WZC — 269	Gu50	-50~100	不锈钢 Stainless Steel 1Cr18Ni9Ti	285	200	<120
					335	250	
铂热电阻 Pt thermal resistance	WZP — 270	Pt100	-200~420	不锈钢 Stainless Steel 1Cr18Ni9Ti	95	40	<15
铜热电阻 Copper thermal resistance	WZC — 270	Gu50	-50~150		105	50	<45
					130	75	
					155	100	
				205	150		
铂热电阻 Pt thermal resistance	WZC — 280	Pt100	-200~300	不锈钢 Stainless Steel 1Cr18Ni9Ti	175	75	<30
					200	100	
					250	150	
					300	200	
					350	250	



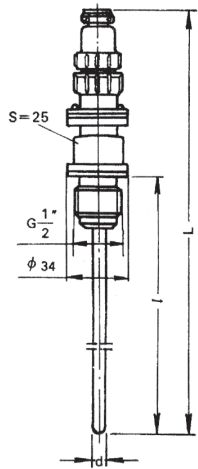
WZP — 270 / WZC — 270



WZP — 280

260、269 型直径型号对照表 260/269 type diameter model comparison table

产品型号 Product Model	直径 d diameter (mm)
WZP — 260	Φ 10
WZP ₂ — 260	Φ 10
WZP — 269	Φ 12
WZP ₂ — 269	Φ 12
WZC — 269	Φ 12



WZP — 260 / WZP₂ — 260 / WZP — 269 / WZC — 269

装配式热电阻

Fabricated thermal resistance



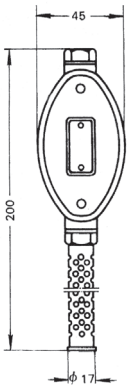
WZ 系列
WZ Series

P-050

特殊用途热电阻 Special usage thermal resistance

室内感温元件 Indoor temperature-sensing element

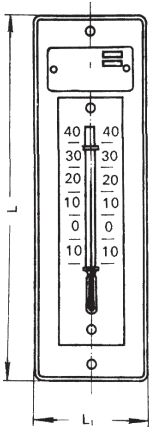
产品名称 Product name	产品型号 Product Model	分度号 Graduation No	测温范围 Measuring Range (°C)	保护管材料 Protecting Pipe Material	高 H Height (mm)	热响应时间 Thermal response time (τ _{0.5} S)
室内用铜热电阻 Indoor Copper Thermal Resistance	WZC — 190	Cu50	-50~100	黄铜 Yellow copper H62	40	<240



190 型

室内感温元件 Indoor temperature-sensing element

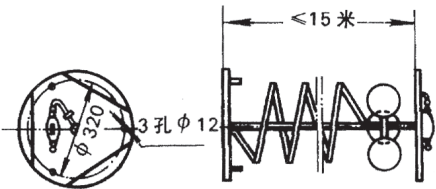
产品名称 Product name	产品型号 Product Model	分度号 Graduation No	测温范围 Measuring range (°C)	材料 Material	规格 Regulation			热响应时间 Thermal response time (τ _{0.5} S)
					长 L (mm)	宽 W (mm)	高 H (mm)	
室内用单支铂热电阻 Indoor single-piece PT thermal resistance	WZP — 892	Pt100	-10~40	塑料	135	42	30	<60
室内用双支铂热电阻 Indoor double-pieces PT thermal resistance	WZP ₂ — 892							



892 型

油灌温度计 Oil tank thermometer

产品名称 Product name	产品型号 Product Model	分度号 Graduation No	测温范围 Measuring Range (°C)	材料 Material	热响应时间 Thermal response time (τ _{0.5} S)	附注
平均温度铜热电阻 Average temperature copper thermal resistance	WZC — 890J	Cu50	-50~50	铝铸件 Aluminium casting	<300	适用：①油的比重在 0.75~0.95 之间 ②油罐高 <15m Suitable: ① The gravity of Oil is between 0.75 and 0.95 ② The height of Oil tank <15m



890J 型

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装配式热电阻

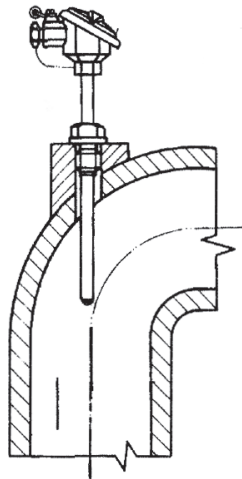
Fabricated thermal resistance

WZ 系列
WZ Series

热电阻安装方法 Thermal resistance installation method

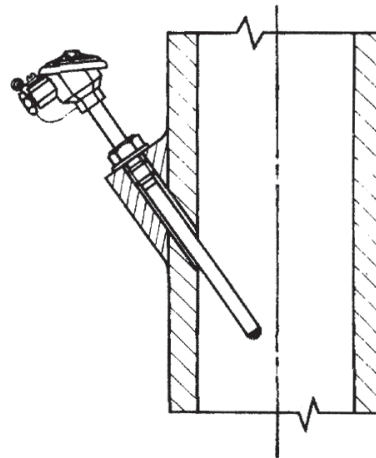
在弯曲管道上的安装方法

Installation method on the winding pipe



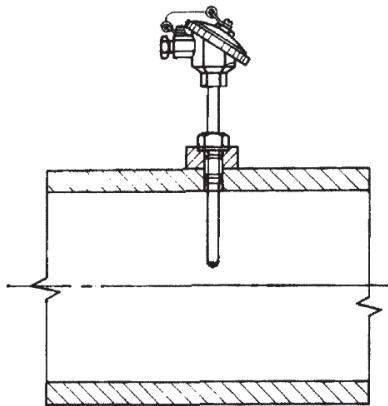
倾斜管通轴线的安装方法

Installation on sloping tube



垂直管道轴线的安装方法

Installation on vertical pipe



锅炉烟道中的密封安装方法

Sealing installation on boiler flue

