

电站测温用热电偶、热电阻

TC and TRD for temperature measurement in power plant

普通结构的热电偶、热电阻，已不能适应电站工作环境中高温、高压、高速蒸汽流的特殊要求。因此，有专供电站用特殊型热电偶、热电阻，由用户根据不同的温度、压力及蒸汽流速来选用。

The TC and TRD of ordinary structrue has not met the special requirments of high temperature, high pressue and high-speed steam flow of the power plant. Therefore, there are TCs and RTDs especally special for power plant. Users can select them in accordance with different temperature, pressure and steam flow speed.



主要技术指标Major technical index

热电偶、热电阻类别、测量范围与允差Class, measuring range and tolerance of TC and RTD

类型Model	分度号 Graduation mark	代号 Code	测量范围（℃） Measuring range	精度等级 Accuracy class	允许仪式差△t℃ Tolerance
热电偶 Thermocouple	K	WRNT	0~800	1	*±1.5℃ or ±0.004t
				2	*±2.5℃ or ±0.0075t
热电偶 Thermocouple	E	WRET	0~600	1	*±1.5℃ or ±0.004t
				2	*±2.5℃ or ±0.0075t
热电偶 Thermocouple	T	WRTT	-40~+350	1	*±1.5℃ or ±0.004t
				2	*±2.5℃ or ±0.0075t
铂热电阻 Platinum Thermocouple	Pt100	WZPT	-200~+850	A	-200~+650 ±(0.15+0.002 t)
				B	-200~+850 ±(0.30+0.005 t)

注：（1）式中“| t |”为感温元件的实测温度。（2）“*”表示允许偏差两者中取其大者。

Note: (1) “| t |” is the measured temperature of temperature-snesing element. (2) “*” means to select the bigger between the two tolerances.

热套型热电偶、热电阻Heat shielded thermocoupe and shrink thermal resistace

热套型的热套式、焊接式、螺栓式热电偶、热电阻主要用于测量蒸汽管道及锅炉温度。

The thermocouple and thermal resistance of heat-shielded type such as heat-shielded model, welding model and roll-bolt are used to measure the temperature of steam line and boiler.

热套式、焊接式、螺栓式热电偶、热电阻采用保护管与连接管能任意拆装、转向和内芯铠装元件可分离方式，它的优点是便于热电偶、热电阻的维修或更换，而无需停机。保护管安装时，可用焊接或机械方法固定在设备上，然后安装上热电偶、热电阻铠装元件就可工作。

产品参照美国EBASCO公司规范，可替代进口，能满足国产或进口的300MW、600MW、900MW发电机组配套需要。

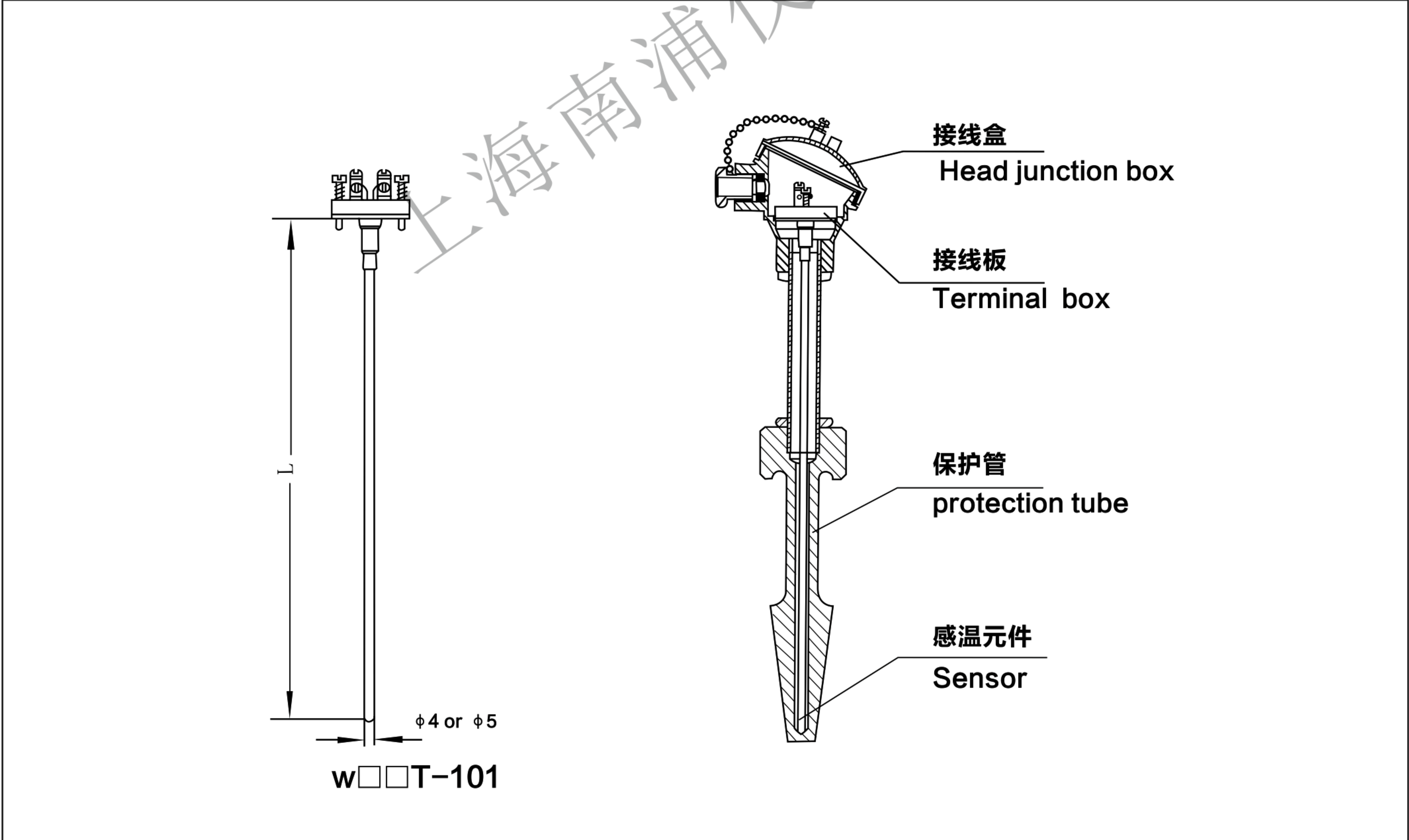
The thermocouple and thermal resistance of heat-shielded type, welding type roll-bolt type adopt a way which can dismount or mount and turn the protection tube and connecting tube at will and share the inner sheathed elements. In this way, they are easy to maintain and change without shutting down the machine. To install the protection tube can use welding or mechanical methods to fix it on the equipment, and then fit on the sheathed elements of thermocouple and thermal resistance. When such steps finish, it can work.

Ther products, referring to US EBASCO company standard, can substitute imported products, meeting the matching needs of the home-made or imported generating set of 300MW、600MW、900MW.

内芯均采用弹簧压紧式铠装元件，与一般铠装内芯有所不同，它借助弹簧压力使其端部始终与保护管内端面接触，这样既有较小的热惰性，又能消除因振动而引起对使用寿命的影响。

The inner cores, with spring-pressing sheathed elements, resort to spring pressure to make the end contact with the end face in the protection tube, by which, a bit of thermal inertia can be brought into while the influence on the use and life arose from the vibration can be eliminated.

热套式热电偶、铂热电阻基本结构
Heat-shielded TC and TRD structural representation



弹性压紧式热电偶、铂热电阻Spring Compression Type Of TC And Pt-RTD

型号Type	分度号Graduation mark	测量范围Measuring range (℃)	L (mm)				
WRNT-001 WRNT ₂ -001	K	0~800	250	375	555	925	
WRET-001 WRET ₂ -001	E	0~600	255	380	575	1175	
WZPT-001 WZPT ₂ -001	Pt100	-200~+500	275	405	605	1405	
			280	425	655	1425	
			305	455	675	1525	
325			475	705	1675		
355			505	905	2175		

注：（1）本公司产品弹性压紧式热电偶、铂热电阻的内芯更换，其长度正确选用应为保护管的总长度“L”再增加30mm。

例：保护管总长度L=300mm，其内芯长度为330mm。

（2）保护管材料：1Cr18Ni9Ti。

Note: (1) The selected length of the spring compression type of TC and Pt-RTD for changing inner core shall be the overall length of the protection tube “L” plus 30mm.

For example: If the overall length of the protection tube L=300mm, then the length of the inner core is 330mm.

(2) Protection tube material: 1Cr18Ni9Ti.

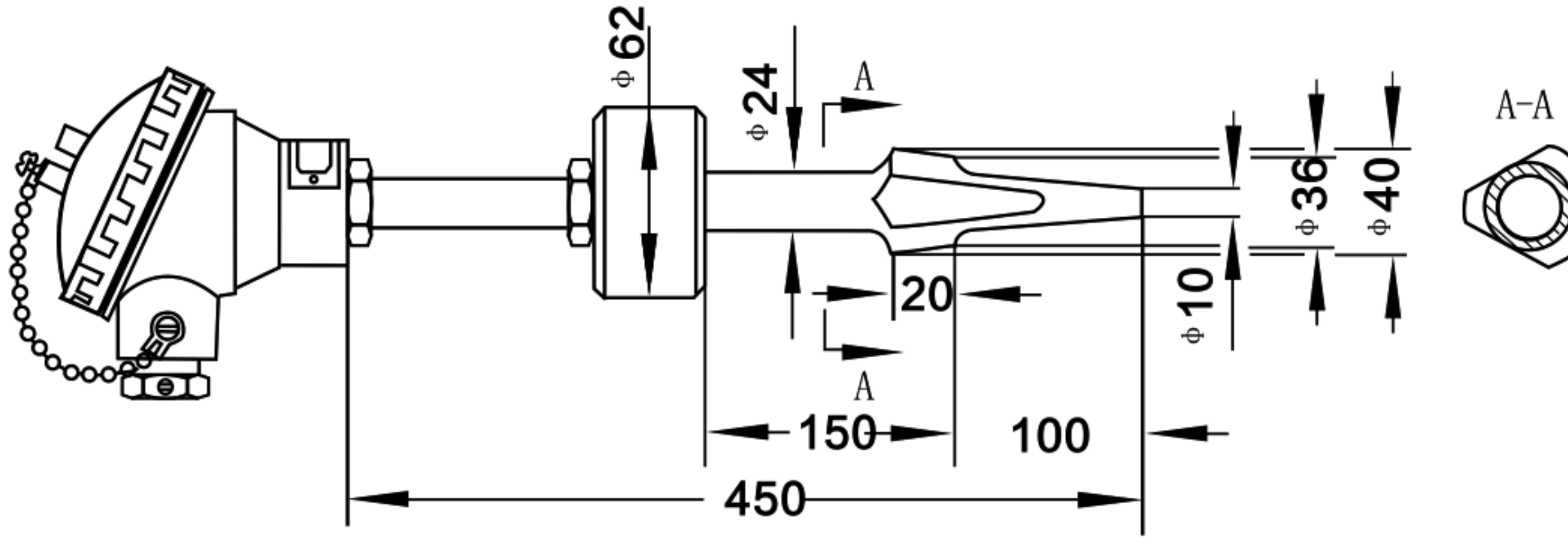
热套式热电偶、铂热电阻Heat-shielded thermocouple and platinum thermal resistance

型号Type	分度号Graduation mark	测量范围Measuring range (°C)	保护管材料 Protection tube material	防尘帽 Dustproof Cap
WRNR-01 WRNR ₂ -01	K	0~600	1Cr18Ni9Ti	
WRE-01 WRE ₂ -01	E			
WZPR-01 WZPR ₂ -01	Pt100	0~500		

注：（1）公称压力：30MPa。流速≤80m/s.热响应时间τ 0.5: ≤60s。

Note: (1) Nominla pressure: 30Mpa. Flow rate≤80m/s. Thermal response time τ 0.5: ≤60s.

热套式热电偶Heat-shielded thermocoupe

型号Type	分度号 Graduation mark	测量范围 Measuring range (°C)	热响应时间t 0.5 (s) Thermal Response Time t 0.5 (s)	保护管材料 Protection tube material	
WRN-634 WRN ₂ -634	K	0~600	≤20	1Cr18Ni9Ti	
WRN-635 WRN ₂ -635			≤30		
WRE-634 WRE ₂ -634	E		≤20		
WRE-635 WRE ₂ -635			≤30		

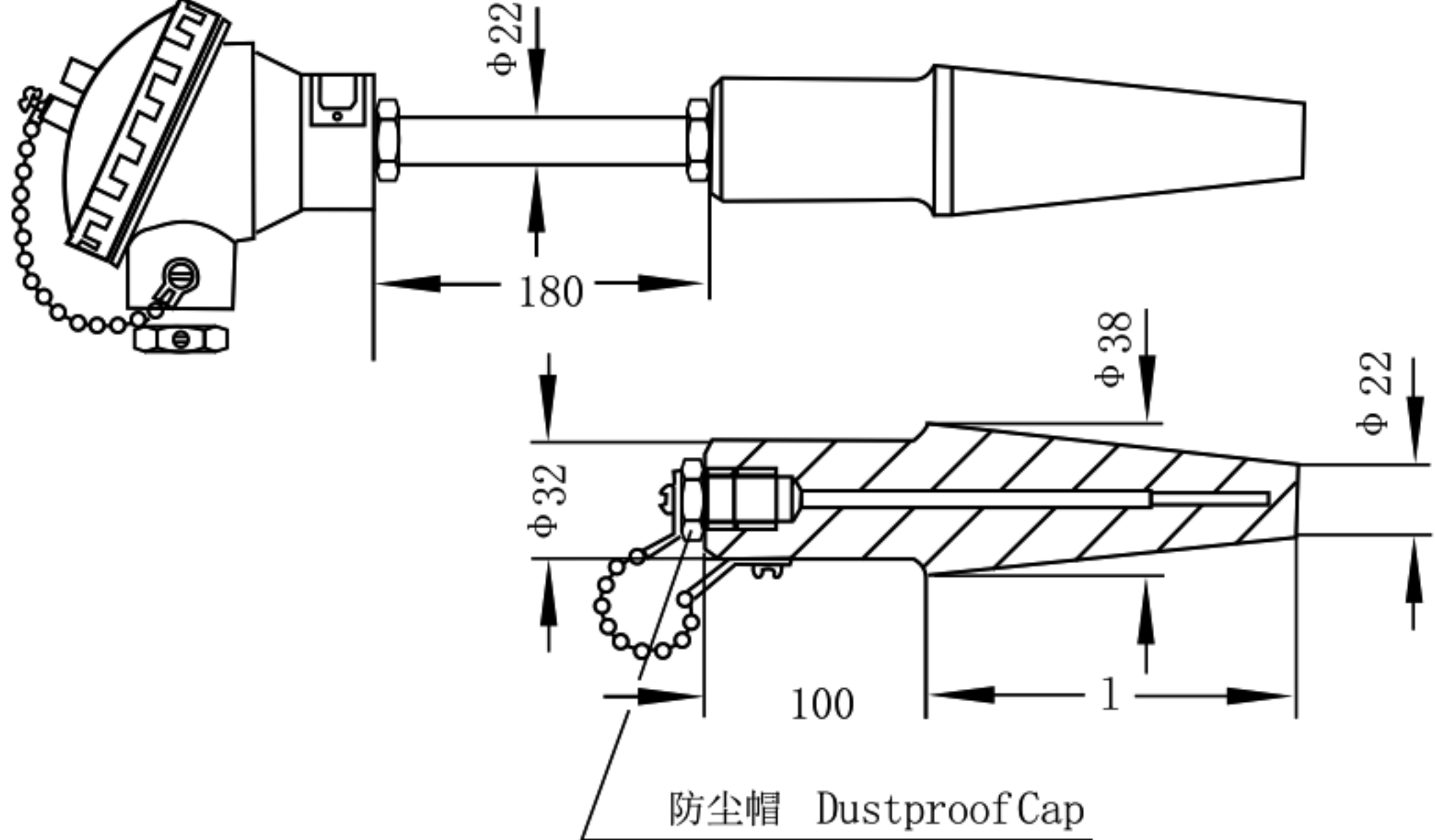
注：（1）公称压力：30MPa。流速≤80m/s。

（2）WR□-634型的铠装内芯测量端型式为接壳式，WR□-635型为绝缘式。

Note: (1) Nominla pressure: 30Mpa. Flow rate≤80m/s.

(2) The measuring form of the sheathed inner core of WR□-634 type is shell-connecting type, and the WR□-635 type is insulation type.

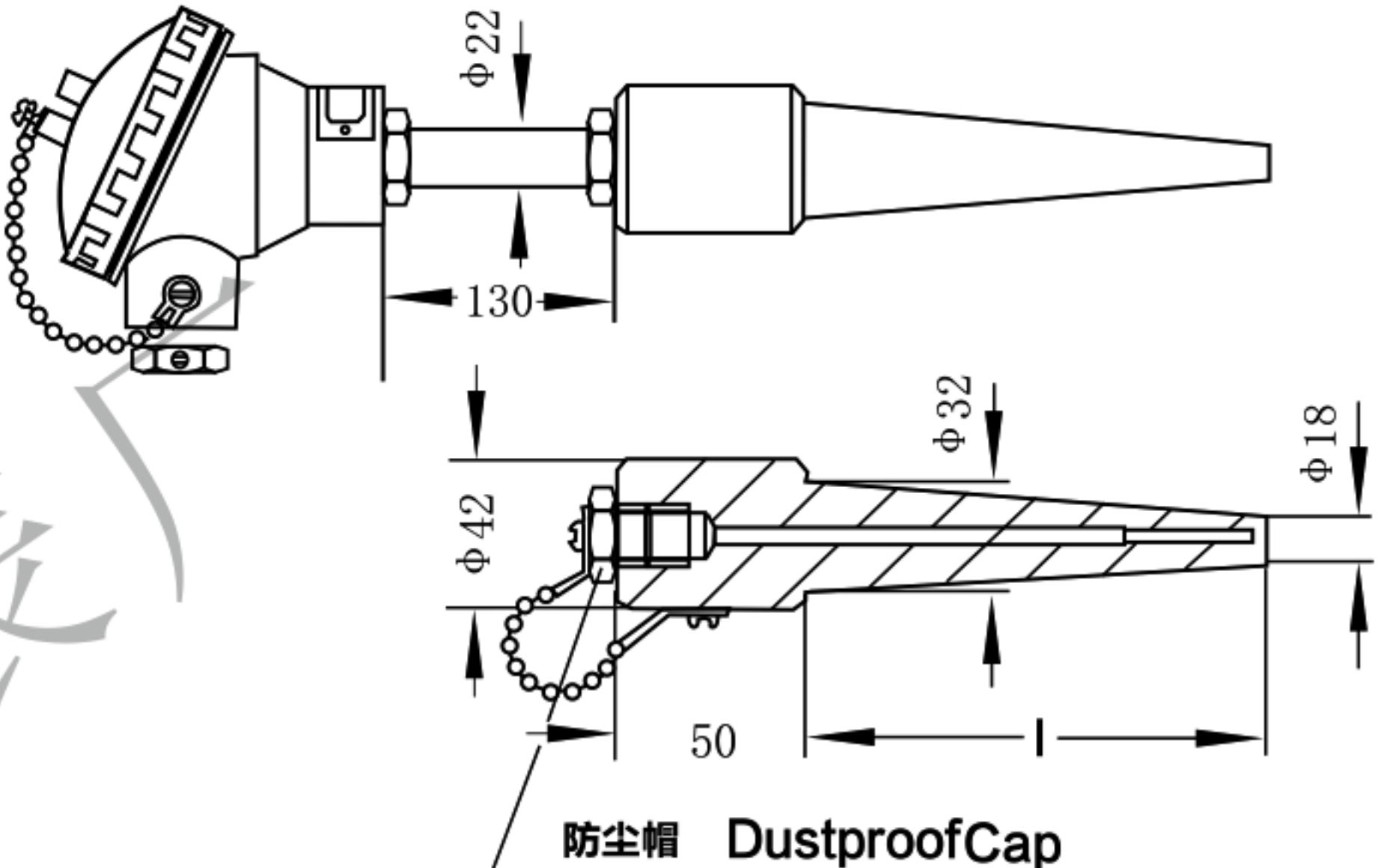
焊接式热电偶、铂热电阻Welding thermocouple and platinum thermal resistance

型号 Type	分度号 Graduation mark	测量范围 Measuring range (℃)	保护管材料 Protection tube material	l (mm)	
WRNR-13 WRNR ₂ -13	K	0~800	1Cr18Ni9Ti	50	
WRER-13 WRER ₂ -13	E	0~600		75	
WZPR-13 WZPR ₂ -13	Pt100	0~500		100 150	

注：（1）公称压力：30MPa。流速≤80m/s。热响应时间 τ 0.5: ≤75s。

Note: (1) Nominla pressure: 30Mpa. Flow rate≤80m/s. Thermal response time τ 0.5: ≤75s.

焊接式热电偶、铂热电阻Welding thermocouple and platinum thermal resistance

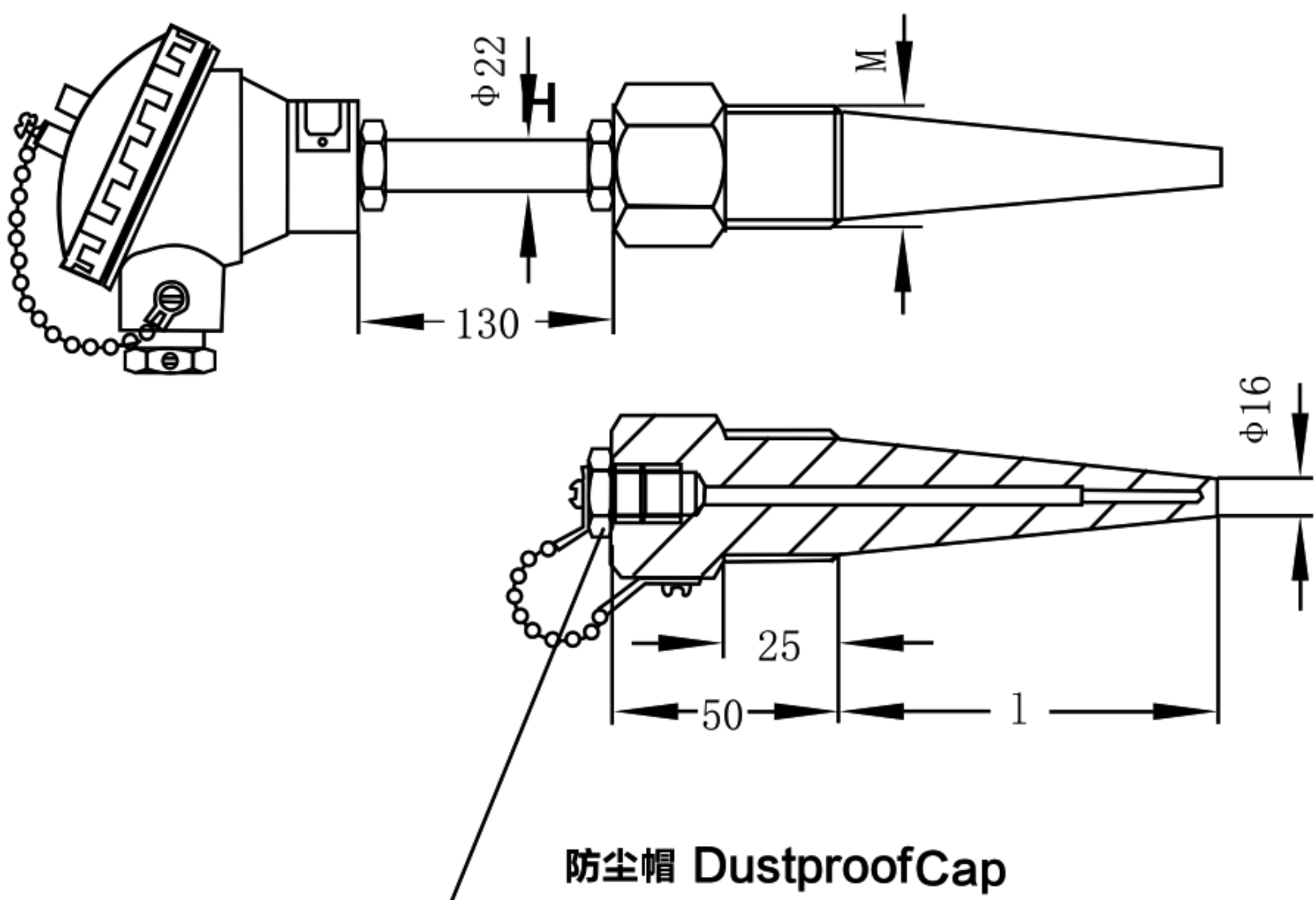
型号 Type	分度号 Graduation mark	测量范围 Measuring range (℃)	保护管材料 Protection tube material	l (mm)	
WRNR-14 WRNR ₂ -14	K	0~600	1Cr18Ni9Ti	50	
WRER-14 WRER ₂ -14	E			75 100 150 200 250 300	
WZPR-14 WZPR ₂ -14	Pt100	0~500			

注：（1）公称压力：30MPa。流速≤80m/s.热响应时间 τ 0.5: ≤60s。

Note: (1) Nominla pressure: 30Mpa. Flow rate≤80m/s. Thermal response time τ 0.5: ≤60s.

固定螺栓锥形保护管式热电偶、铂热电阻

Fixed bolt taper protection tube thermocouple and platinum thermal resistance

型号Type	分度号Graduation mark	测量范围Measuring range (℃)	保护管材料 Protection tube material	l (mm)	
WRNR-15 WRNR ₂ -15	K	0~600	1Cr18Ni9Ti	50 75 100 150 200 250 300 350 400 450 500	
WRNR-15A WRNR ₂ -15A					
WRNR-15B WRNR ₂ -15B					
WRER-15 WRER ₂ -15	E				
WRER-15A WRER ₂ -15A					
WRER-15B WRER ₂ -15B					
WZPR-15 WZPR ₂ -15	Pt100	0~500			
WZPR-15A WZPR ₂ -15A					
WZPR-15B WZPR ₂ -15B					

(4) The dust caps are options

型号Model	分度号 Graduation mark	测量范围(℃) Measuring range	L (mm)	M	d(mm)
WRNT-31 WRNT ₂ -31	K	0~200	100 150 200 250 300 350 400 450 500	M16×1.5 M18×1.5 M20×1.5 M27×2 G1/2" G3/4"	φ 3 φ 4 φ 5 φ 6 φ 8
WRET-31 WRET ₂ -31	E				
WRTT-31 WRTT ₂ -31	T				
WZPT-31 WZPT ₂ -31	Pt100				

型号Model	分度号 Graduation mark	测量范围(℃) Measuring range	L (mm)	M	d(mm)
WRNT-393P A WRNT ₂ -393P A	K	0~200	100	M16×1.5 M18×1.5 M20×1.5 M27×2 G1/2" G3/4"	φ 3 φ 4 φ 5 φ 6 φ 8
WRET-393P A WRET ₂ -393P A	E		150		
			200		
			250		
WRTT-393 A WRTT ₂ -393 A	T		300		
			350		
			400		
			450		
WZPT-393P A WZPT ₂ -393P A	Pt100		500		

- Note:** (1) Refer for the thermal response time of sheathed thermocouple.
(2) Refer for the thermal response time of sheathed platinum thermal resistance.
(3) The extension wire type is always attached to 500mm, if the addition is needed, please note the length.

型号Model	分度号 Graduation mark	测量范围(℃) Measuring range	热响应时间 Thermal response time t0.5(s)	规格 Specification (mm)	
				d	l ₁
WZPT-41	Pt100	-50~+200	Cu	$\phi 3.2$ $\phi 4$ $\phi 5$	15
WZPT ₂ -41				$\phi 4$ $\phi 5$	20 25

阻油段 Part of seep-proof

63

l_2

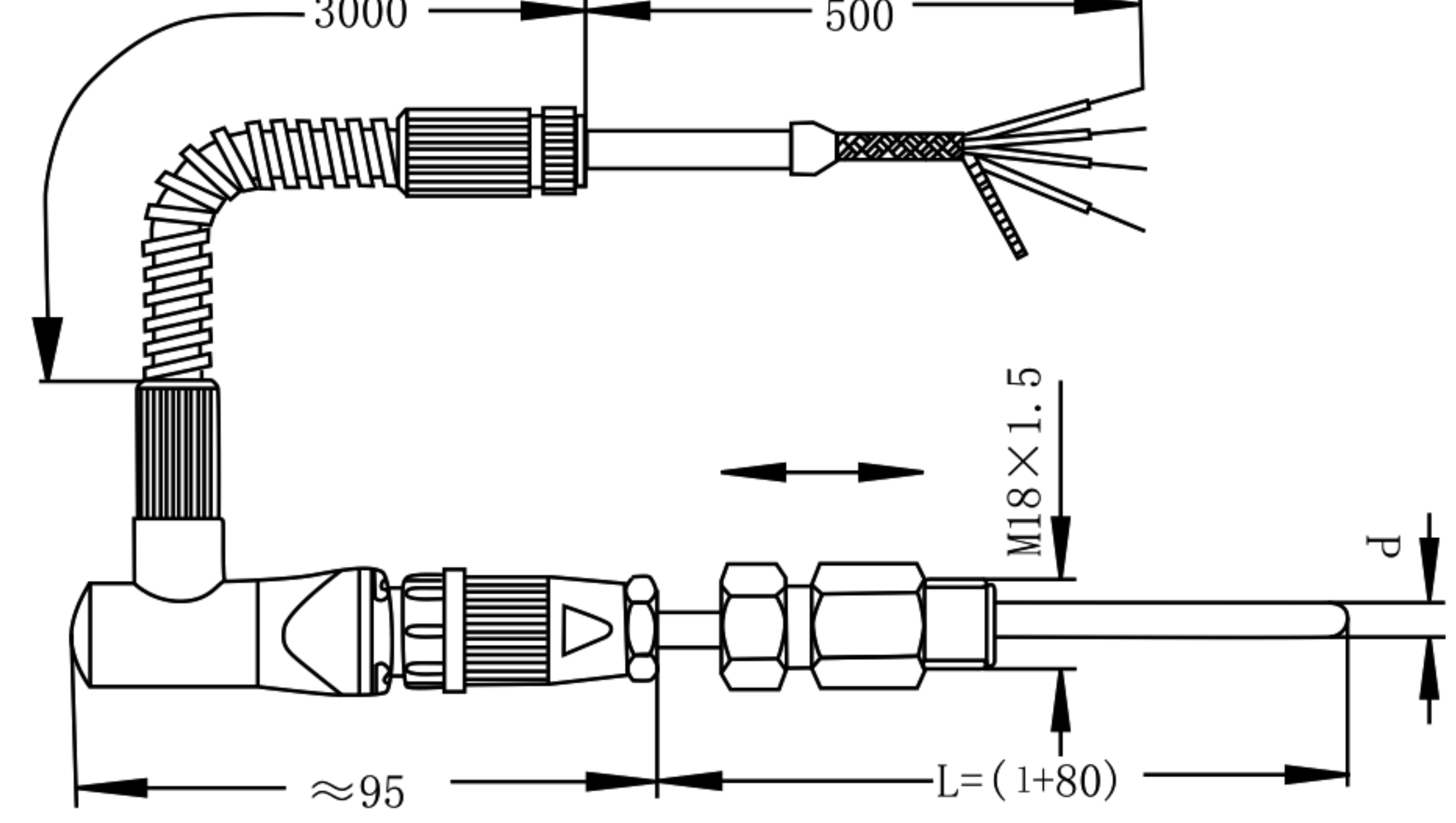
l_1

L

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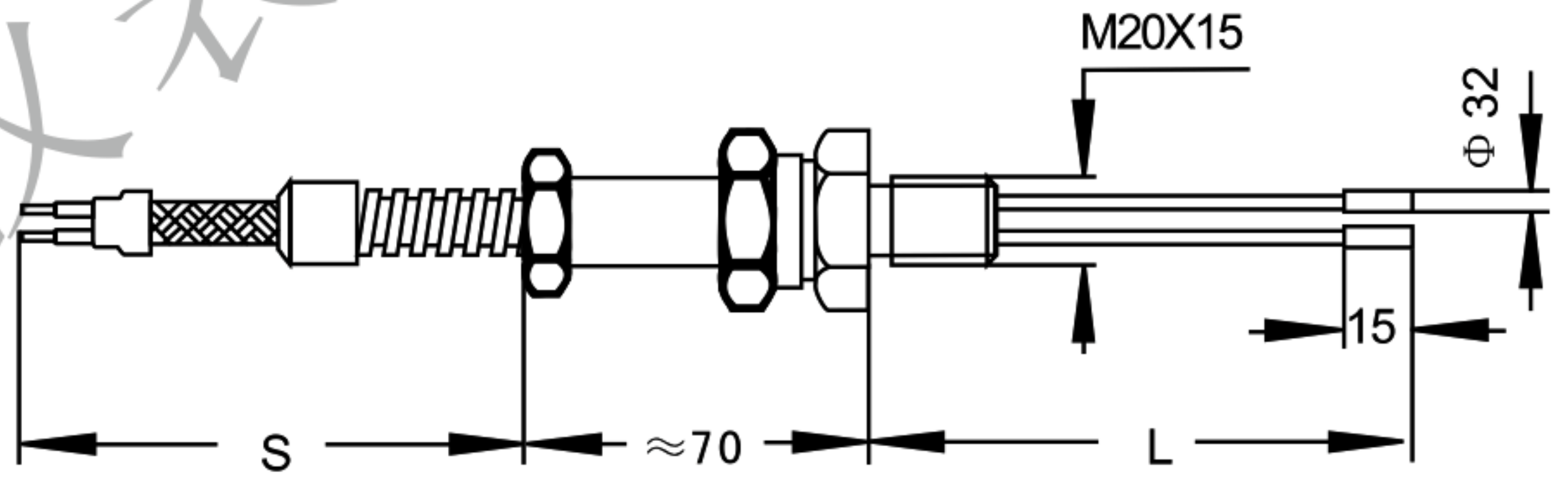
- Note:** (1) The overall length “L” and the forepart length “ l_2 ” can be determined by the users when they place the order.
(2) The thermal response time $\tau_{0.5}$: $\leq 5s$.

轴承用阻漏铂热电阻 Damping leakage platinum thermal resistance for bearing

型号Model	分度号 Graduation mark	测量范围(℃) Measuring range	热响应时间 Thermal response time t0.5(s)	保护管材料 Protection tube material	d (mm)	
WZPT-83	Pt100	-50~+200	≤3	1Cr18Ni9Ti	φ 3.2	
WZPT-84 WZPT ₂ -84			≤5		φ 4	
WZPT-85 WZPT ₂ -85			≤8		φ 5	
WZPT-86 WZPT ₂ -86			≤12		φ 6	

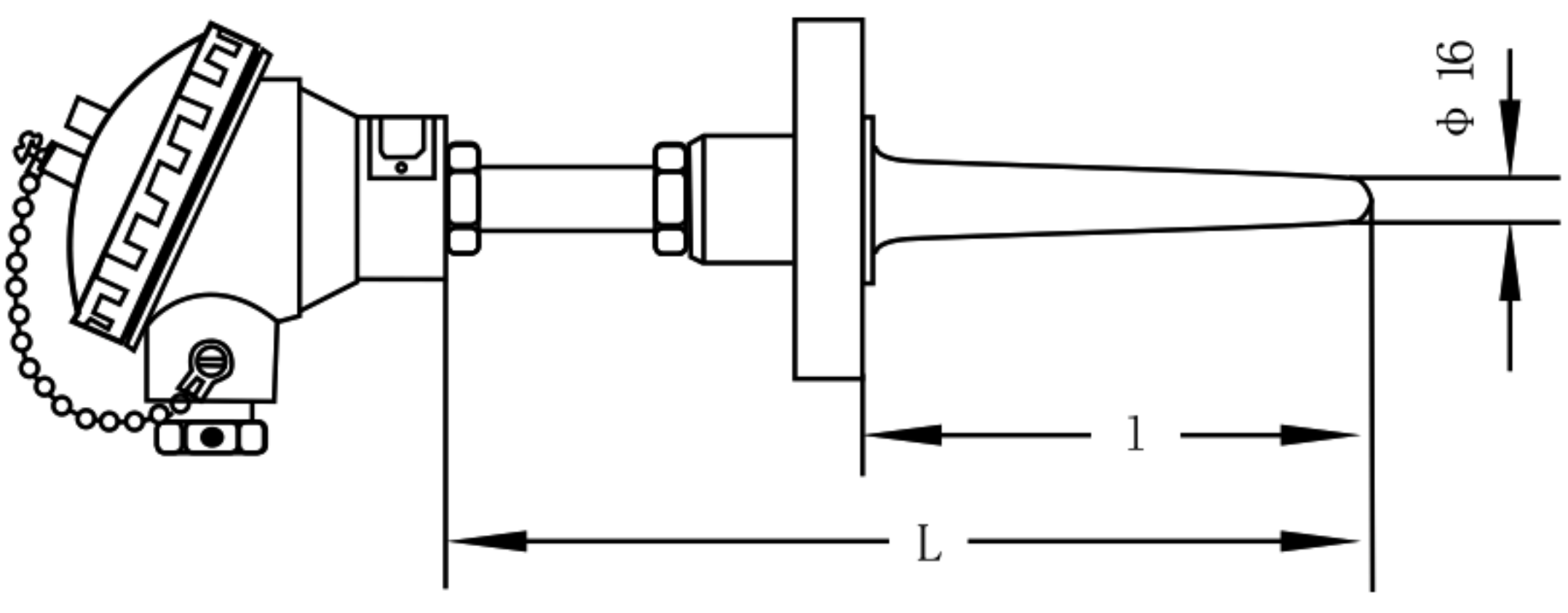
注：φ 3.2仅提供单支元件，φ 4、φ 5、φ 6可提供双支元件。
Note: φ 3.2 only supply sigle element. φ 4、φ 5、φ 6 can provide double element.

轴承用双测点阻漏铂热电阻 Bearing dual-purpose station damping leakage pt thermal resistance

型号Model	分度号 Graduation mark	测量范围(℃) Measuring range	热响应时间 Thermal response time t0.5(s)	保护管材料 Protection tube material	规格 Specification (mm)		
					L	S	
WZPM ₂ Y-271	Pt100	-50~+200	≤3	Cu	1500 2000	1500 2000 3000	

固定法兰锥形保护管式热电偶、铂热电阻

Fixed flange taper protection tube thermocouple and platinum thermal resistance

型号Model	分度号 Graduation mark	测量范围(℃) Measuring range	热响应时间 Thermal response time t0.5(s)	保护管材料 Protection tube material	规格 Specification (mm)	
					L X l	
WRNR-46 WRNR ₂ -46	K	0~800	≤60	1Cr18Ni9Ti	250×100 300×150 350×200 400×250 450×300 500×350 550×400 600×450 650×500	
WRER-46 WRER ₂ -46	E	0~600				
WZPR-46 WZPR ₂ -46	Pt100	0~500				

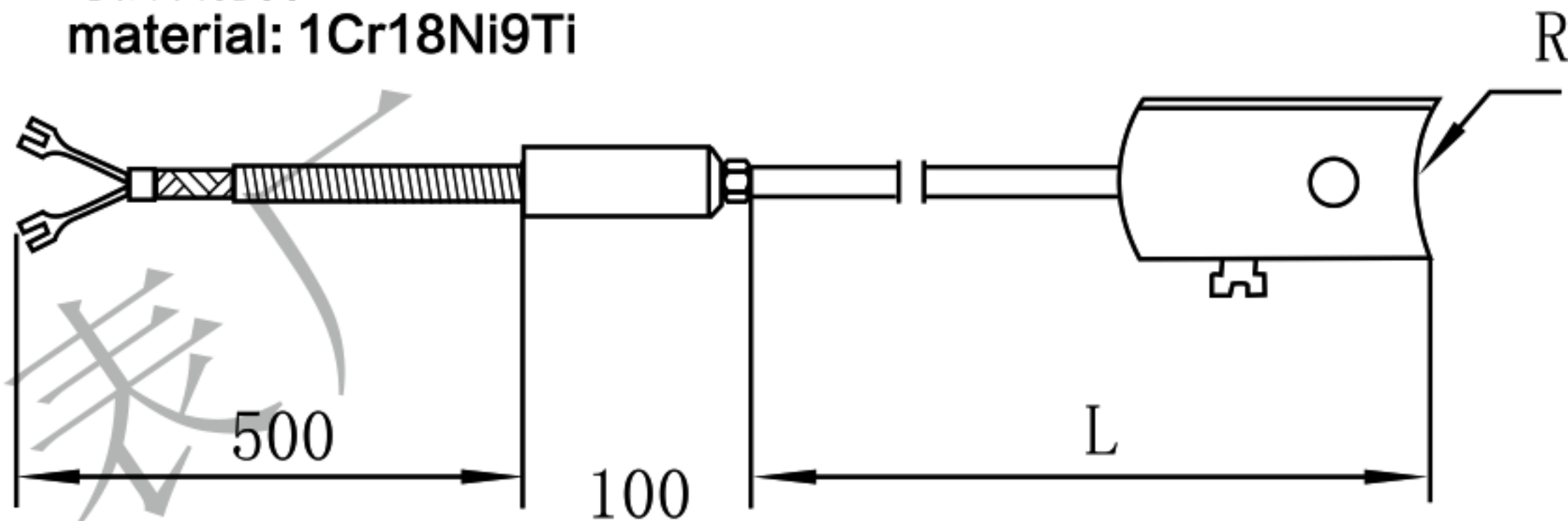
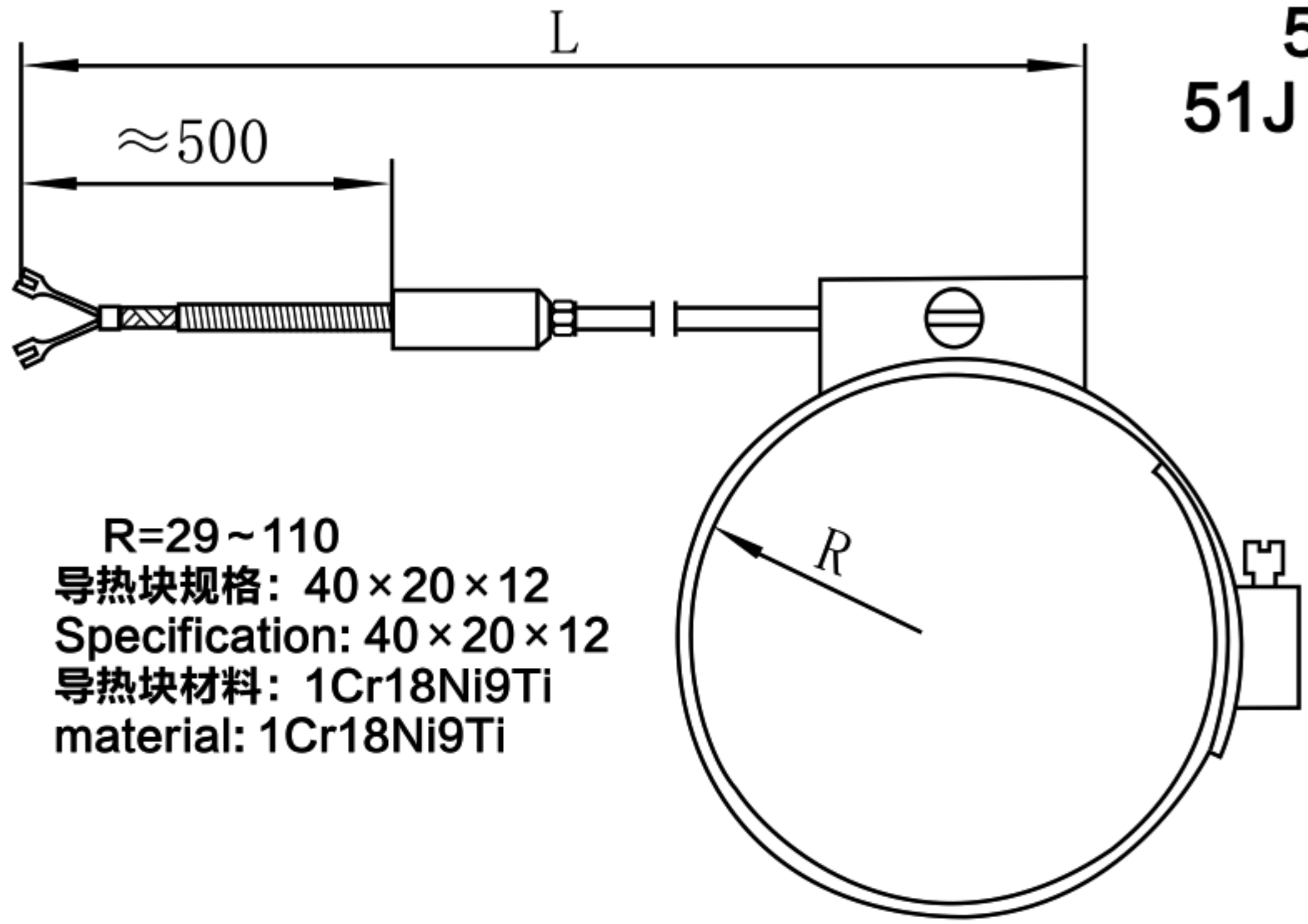
注：（1）公称压力：10MPa。
（2）型号后加A，为ANSI标准法兰。例：WRNR -46A，选用JB/T标准法兰。
Note: (1) Nominla pressure: 10Mpa
(2) The type with A attached to is the ANSI standard flange, for example WRNR -46A. Refer select JB/T standard flange.

锅炉炉壁、管壁热电偶、热电阻Boiler furnace wall and tube wall thermal resistance and thermocou

锅炉炉壁、管道用热电偶、铂热电阻是采用φ4或φ5直径的铠装元件作探头，用铠装电缆引出或用测温补偿导线引出，测量端导热板带有与管道或炉壁相吻合的曲面，用螺钉、焊接或卡箍的方法将导板固定在管（炉）壁上，通过导热板的传导，可测得炉壁或管道等表面温度。

The furnace wall of boiler, thermocouple of shell of pipe and platinum thermal resistance adopt the sheathed elements with the φ5 diameter as probe, leaded out by armored cable or thermometric extension wire, whose heat conduction shield of measuring terminal is equipped with camber suitable for pipes or furnace wall and fixed to the tube(furnace) wall by bolts, welding or holding down clip. The surface temperature of the furnace wall or tubes can be measured by the conduction of the heat conduction shield.

集热铠装热电偶、热电阻(带集热块)
Heat collecting sheathed thermocouple and thermal resistance (with collecting plate)

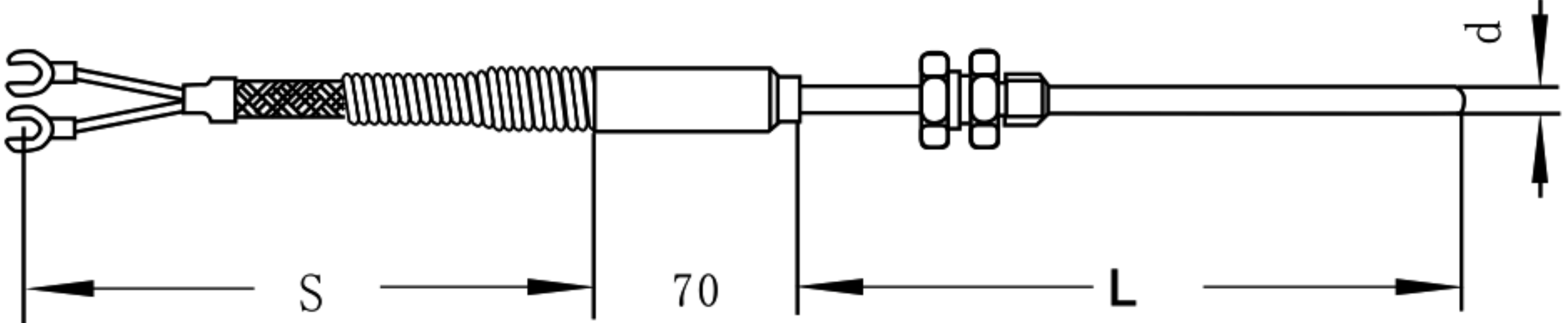
型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	插入方向 Placed Direction	固定型式 Fixed Type	L (毫米) L (mm)					
WRNT-11Z WRNT ₂ -11Z	K	0~800	沿管道轴向 Along axial direction of pipeline	焊接固 定导热 板式 Welding fixed heat conduction shield	500 600 1000 2000 3000 4000 5000 6000 8000 10000	11Z型 11Z Type R=29~110 导热块规格: 40×20×12 Specification=40×20×12 导热块材料: 1Cr18Ni9Ti material: 1Cr18Ni9Ti 				
WRET-11Z WRET ₂ -11Z	E	0~600								
WZPT-11Z WZPT ₂ -11Z	Pt100	-70~400								
WRNT-11J WRNT ₂ -11J	K	0~800	沿管道径向 Along radical direction of pipeline				焊接固 定导热 板式 Welding fixed heat conduction shield	4000 5000 6000 8000 10000	51J型 51J Type R=29~110 导热块规格: 40×20×12 Specification: 40×20×12 导热块材料: 1Cr18Ni9Ti material: 1Cr18Ni9Ti 	
WRET-11J WRET ₂ -11J	E	0~600								
WZPT-11J WZPT ₂ -11J	Pt100	-70~400								
WRNT-51Z WRNT ₂ -51Z	K	0~800	沿管道轴向 Along axial direction of pipeline	焊接固 定导热 板式 Welding fixed heat conduction shield	4000 5000 6000 8000 10000					
WRET-51Z WRET ₂ -51Z	E	0~600								
WZPT-51Z WZPT ₂ -51Z	Pt100	-70~400								
WRNT-51J WRNT ₂ -51J	K	0~800	沿管道径向 Along radical direction of pipeline							
WRET-51J WRET ₂ -51J	E	0~600								
WZPT-51J WZPT ₂ -51J	Pt100	-70~400								

注：（1）集热板曲率半径“R”可根据管道直径供货，并由用户四点焊接或用螺钉固定在被测物体表面。集热板的具体安装尺寸及规格参见安装图。（2）导线延长式，尾线长度“S”常规附带500mm，若需要增加，请注明尾线长度。（3）热响应时间t0.5(s)热电偶≤2.5或≤4；热电阻≤5或≤8。

(1) The radius of curvature of the collecting plate “R” shall be provided according to the tube diameter, which shall be fixed on the surface of the measured object through four points welding or screw by customers.for the detailed installation dimension and specification of collecting plate. (2) 500mm buttcock line is usually attached to the extension wire type “S” , if need to add, please indicate the length. (3) The thermal response time is 0.5(s), thermocouple ≤2.5 or ≤4; the thermal resistance ≤5 or ≤8.

铠装热电偶、铂热电阻（带固定卡套螺栓）

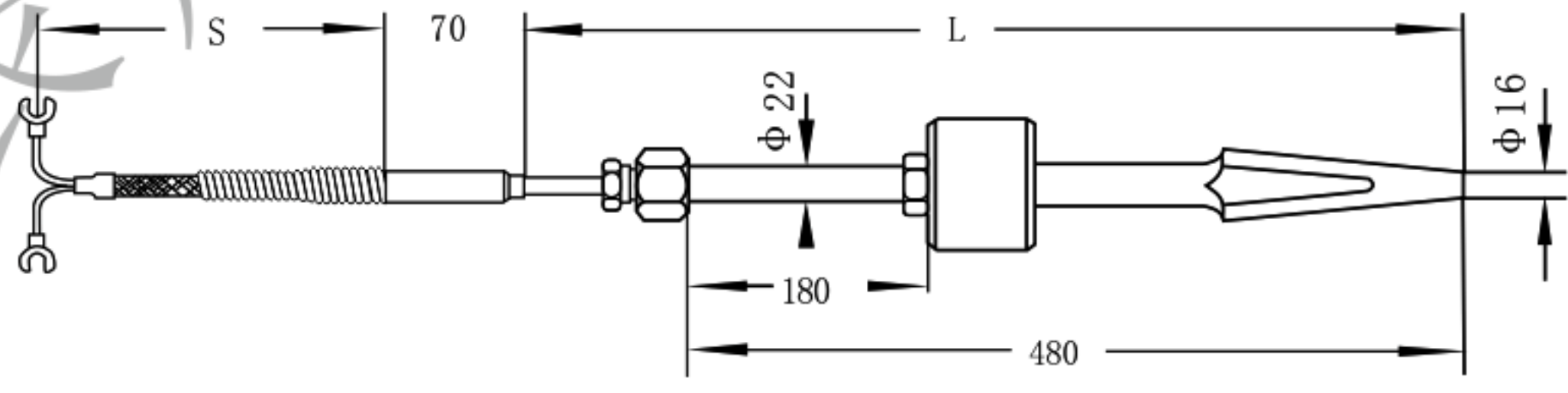
Sheathed thermocouple and platinum thermal resistance（with fixed ferrule bolt）

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	热响应时间t0.5(s) Thermal Response Time τ 0.5(s)	d(mm)	L(mm)	
WRNT-21 WRNT ₂ -21	K	0~800	≤2.5 or ≤4	φ3 φ4 φ5 φ6 φ8	500 1000 5000 8000 10000 15000 20000 25000	
WRET-21 WRET ₂ -21	E	0~600				
WRTT-21 WRTT ₂ -21	T	-40~+350				
WZPT-21 WZPT ₂ -21	Pt100	-200~+500			300~5000	
			≤5 or ≤8	φ3 φ4 φ5 φ6 φ8		

注：（1）导线延长式，线长度“S”常规附带500mm，若需增加，请注明长度。（2）卡套螺栓规格参见安装图。

Note: (1) 500mm is usually attached to the wire extension type “S” , if need to add, please indicate the length. (2) See the specification

热套式热电偶铠装元件延长型Heat shielded thermocouple and sheathed elements extension type

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	公称压力(Mpa) Nominal pressure (Mpa)	流速 (m/s) Flow rate (m/s)	
WRNR-0131 WRNR ₂ -0131	K	0~800	≤30	≤80	
WRER-0131 WRER ₂ -0131	E	0~600			

注：（1）铠装元件引出长度“L”由用户自定。

（2）保护管材料1Cr18Ni9Ti。

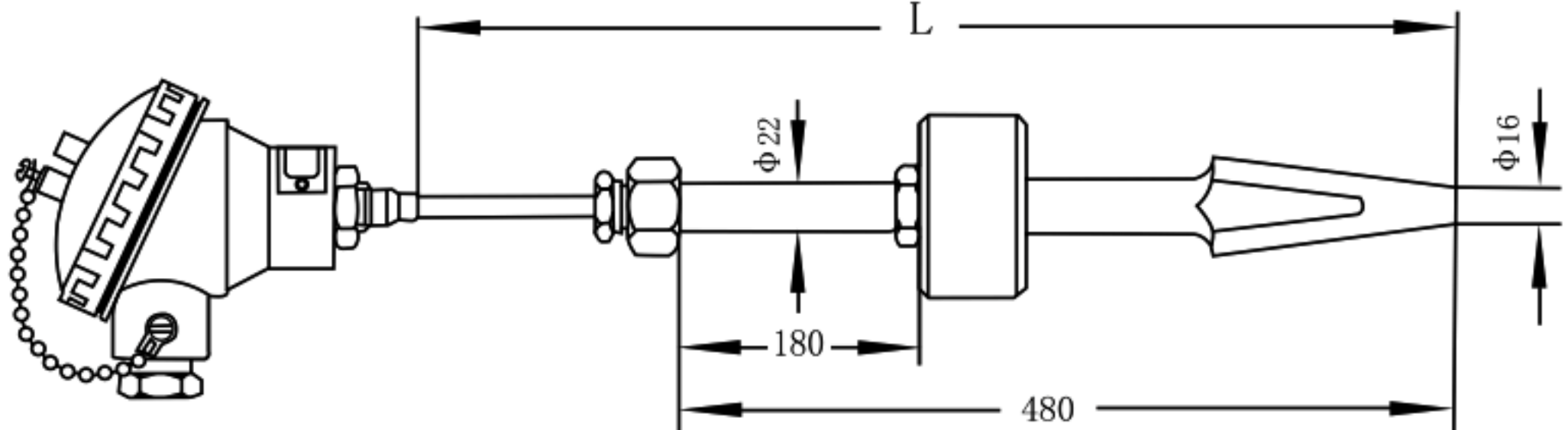
（3）补偿导线型式、线长度“S”常规附带500mm，如需增加注明线长度。

Note: (1) The length “L” leaded out of sheathed elements shall be determined by customers.

(2) Protection tube material 1Cr18Ni9Ti.

(3) 500mm lead wire is usually attached to the extension wiretype “S” , if need to add, please indicate the length.

热套式热电偶铠装元件延长型Heat shielded thermocouple and sheathed elements extension type

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	公称压力(Mpa) Nominal Pressure (Mpa)	流速 (m/s) Flow rate (m/s)	
WRNR-0133 WRNR ₂ -0133	K	0~800	≤30	≤80	
WRER-0133 WRER ₂ -0133	E	0~600			

注：（1）铠装元件引出长度“L”由用户自定。

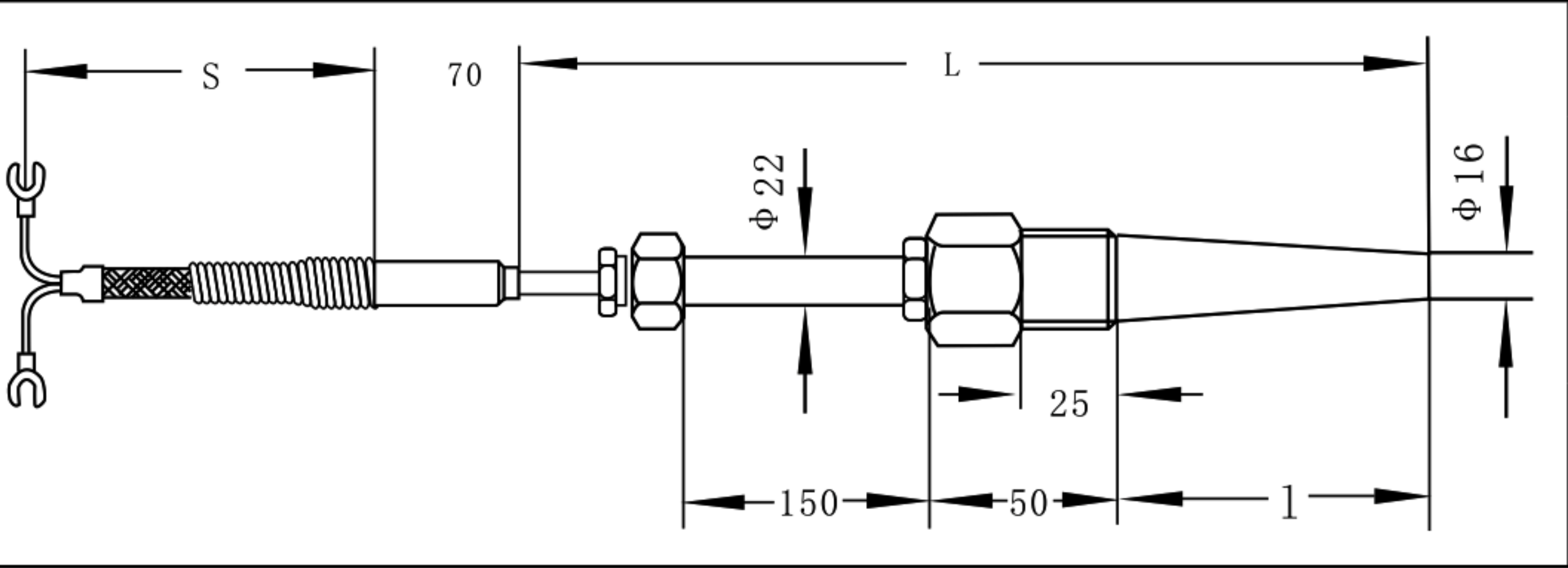
（2）保护管材1Cr18Ni9Ti。

Note: (1) The length “L” leaded out of sheathed elements shall be determined by customers.

(2) Protection tube material shall be 1Cr18Ni9Ti.

固定螺栓锥形保护管式热电偶铠装元件延长型

Fixed bolt taper tube sheathed thermocouple elements extension type

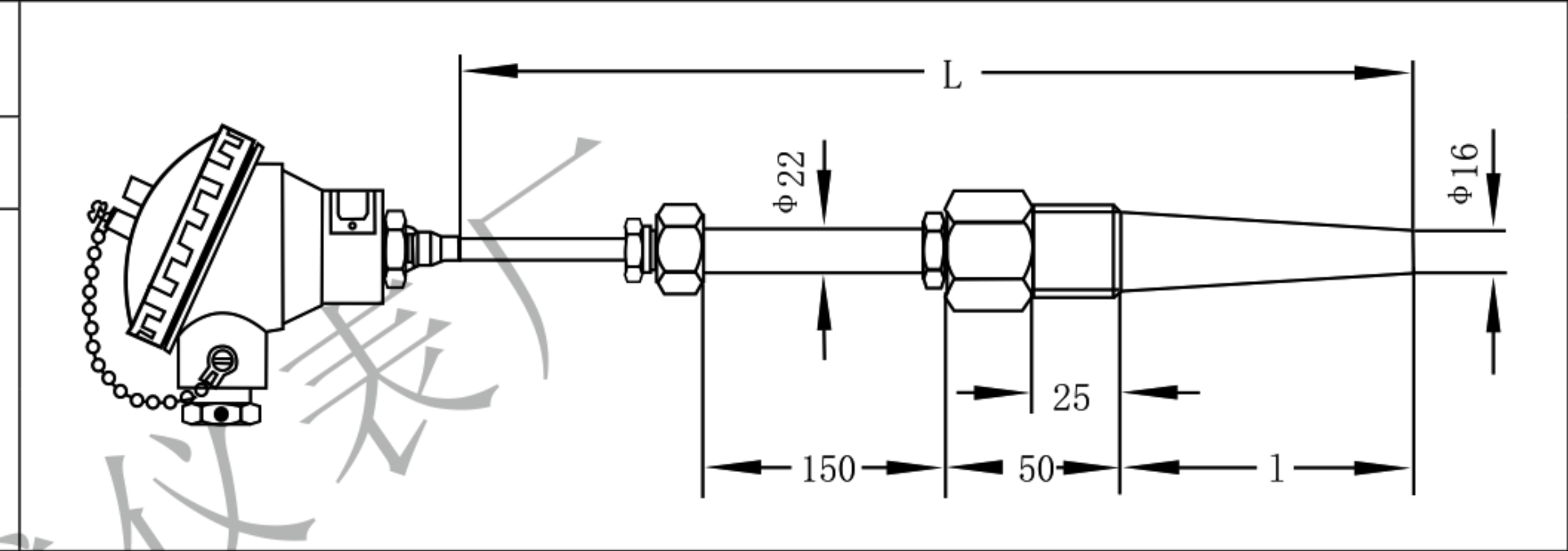
型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	公称压力 (MPa) Nominal pressure (MPa)	置入深度 Placed depth	
				L	
WRNR-1531 WRNR ₂ -1531	K	0~800	≤30	75 100 150 200 250 300 350 400 450 500	
WRER-1531 WRER ₂ -1531	E	0~600			

注：（1）WR□R-1531、WR□R1533不加尾注为M33×2螺栓；加A为NPT1螺栓；加B为M33×2螺栓带齿形垫片规格参见安装规范。
（2）铠装元件引出长度“L”由用户自定。（3）保护管材料1Cr18Ni9Ti。（4）补偿导线式，线长线长度“S”常规附带500mm，若须增加注明长度。

Note: (1) WR□R-1531 and WR□R1533 model without endnote are M33×2 bolt and with B is M33×2 bolt with serrated washer. See the specification on (2) The length “L” leaded out of sheathed elements shall be determined by customers. (3) Protection tube material 1Cr18Ni9Ti. (4) 500mm is usually attached to extension wire type “S”, if need to add, please indicate the length.

固定螺栓锥形保护管式热电偶铠装元件延长型

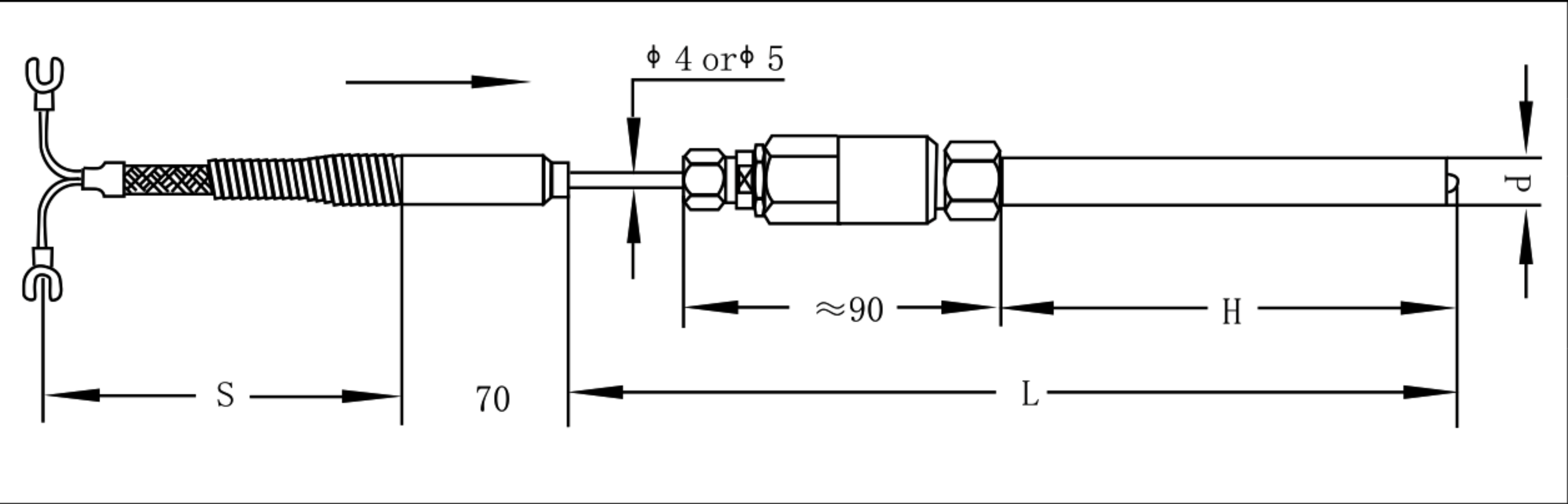
Fixed bolt taper tube sheathed thermocouple elements extension type

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	公称压力 (MPa) Nominal pressure (MPa)	置入深度 Placed depth	
				L	
WRNR-1533 WRNR ₂ -1533	K	0~800	≤30	75 100 150 200 250 300 350 400 450 500	
WRER-1533 WRER ₂ -1533	E	0~600			

注：（1）WR□R-1531、WR□R1533不加尾注为M33×2螺栓；加A为NPT1螺栓；加B为M33×2螺栓带齿形垫片规格参见安装图。
（2）铠装元件引出长度“L”由用户自定。
（3）保护管材料1Cr18Ni9Ti。

Note: (1) WR□R-1531 and WR□R1533 model without endnote are M33×2 bolt and with B is M33×2 bolt with serrated washer. See the specification on .
(2) The length “L” leaded out of sheathed elements shall be determined by customers.
(3) Protection tube material 1Cr18Ni9Ti.

铠装热电偶（带防震引出管）Sheathed thermocouple (with anti-vibration extraction tube)

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	引出管 (mm) Extraction tube (mm)		
			d	H	
WRNK-91FZ WRNK ₂ -91FZ	K	0~800	φ 12 φ 16 φ 20 φ 22	200 300 400 500 600 700 800	
WREK-91FZ WREK ₂ -91FZ	E	0~600			

注：（1）主要用于测量管道金属表面的温度，引出管带有防震紧顶结构。能使元件的测量端部与被测面始终保持紧密的接触。
（2）引出管的高度“H”，铠装热电偶的长度“L”和延长导线“S”的尺寸由用户根据需要自定。

Note: (1) It is usually used measure the temperature of the metal surface of the pipelines. The extraction tube is equipped with anti-vibration tight-top structure to ensure the elements close contact with the measured face when measuring.
(2) The height “H” of the extraction tube, the length “L” of sheathed thermocouple and the dimension of the extension lead wire “S” shall be determined by users’ need.

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	引出管 (mm) Extraction tube (mm)	
			d	H
WRNK-93FZ WRNK ₂ -93FZ	K	0~800	$\phi 12$ $\phi 16$ $\phi 20$ $\phi 22$	200 300 400 500 600 700 800
WREK-93FZ WREK ₂ -93FZ	E	0~600		

Technical drawing of the thermocouple assembly. The drawing shows a side view of the thermocouple with a protective sheath. Key dimensions are labeled: L is the total length of the assembly, H is the length of the thermocouple element, and d is the diameter of the thermocouple element. A note indicates that the extraction tube diameter should be $\phi 4$ or $\phi 5$. The drawing also shows a detail of the thermocouple element with a length of approximately 90 mm.

Note: (1) It is usually used measure the temperature of the metal surface of the pipelines. The extraction tube is equipped with anti-vibration tight-top structure to ensure the elements close contact with the measured face when measuring. (2) The height “H” of the extraction tube and the length “L” of sheathed thermocouple shall be determined by users’ need.

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	规格 Specification		
			M	H(mm)	
WRNT-53T WRNT ₂ -53T	K	0~800	M20×1 M22×1 G1/2" G3/4"	130 150 180 200	
WZPT-53T WZPT ₂ -53T	Pt100	-70~500			

Note: (1) Mounting bolt “M” shall be applicable to all kinds of protecting jacket with internal thread and available in all direction.
(2) It adopts the sheathed elements to ensure the measuring terminal actively close contact with the internal end face of the protecting jacket.

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	规格 Specification	
			d	H
WRNT-33HJT WRNT ₂ -33HJT	K	0~800	M16×1 M20×1 M22×1 G1/2" G3/4"	130
WZPT-33HJT WZPT ₂ -33HJT	Pt100	-70~500		150 180 200

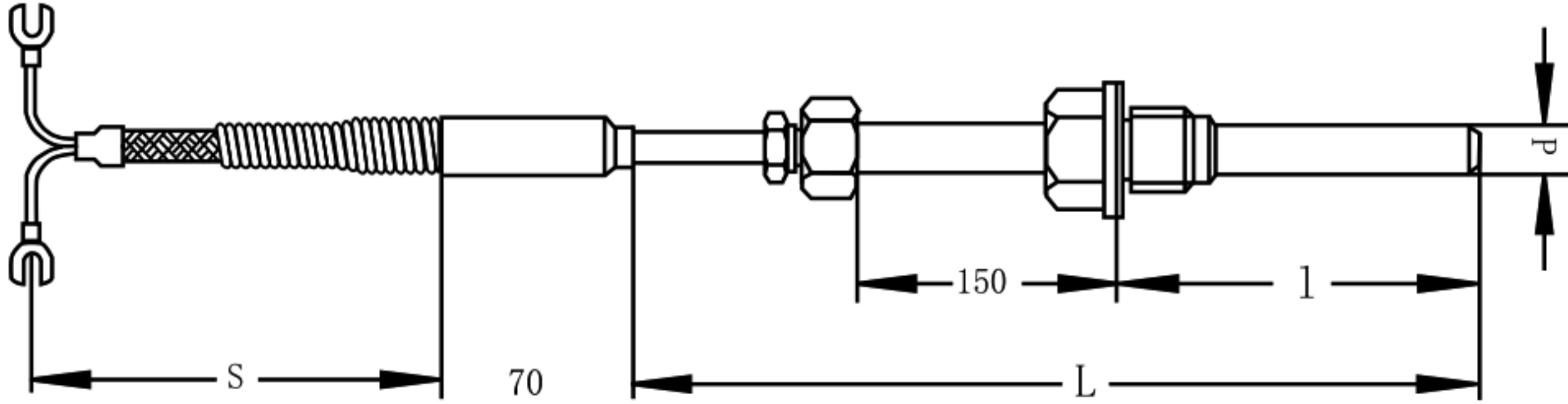
The technical drawing illustrates the physical dimensions of the Pt100 sensor. The side view shows a cylindrical body with a threaded section of length H, a total length L, and a mounting bracket of height M. The top view shows the circular base with a diameter d. The sensor is shown with a protective sheath and a mounting bracket.

Note: (1) Mounting bolt “M” shall be applicable to all kinds of protecting jacket with internal thread and available in all direction.
(2) The height “H” of the extraction tube and the length “L” of sheathed thermocouple shall be determined by users’ need.

固定螺栓直形保护管式热电偶、铂热电阻、铠装元件延长型

Fixed Screw In Type TC And RTD With Straight Protection Tube And Extensible MITC And MIRTD Element

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	规格 Specification	
			d	l
WRNR-231631 WRNR ₂ -231631	K	0~800	φ 16	100 450
WRER-231631 WRER ₂ -231631	E	0~600		150 500
WZPR-231631 WZPR ₂ -231631	Pt100	-200~+500		200 750
WZPR-231231 WZPR ₂ -231231				250 1000
			φ 12	300 1250
				350 1500
				400 2000



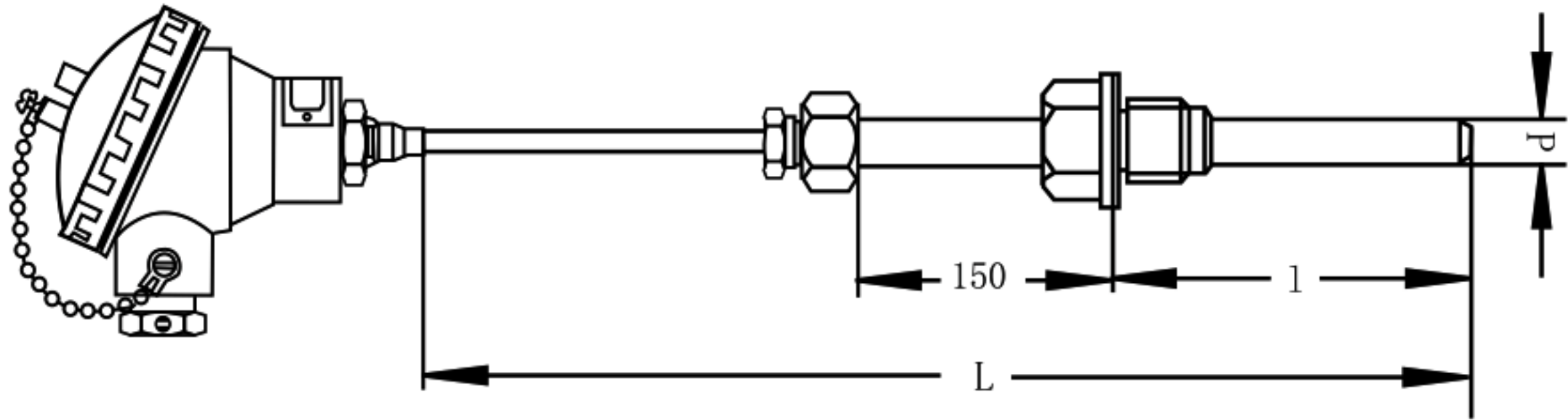
- 注：（1）公称压力：10Mpa。
（2）保护管材料：1Cr18Ni9Ti。
（3）导线延长式，尾线长度“S”常规附带500mm，若需增加请注明尾线长度。
（4）铠装元件引出长度“L”由用户自定。
（5）直形保护管固定螺栓规格参阅安装图。

- Note: (1) Normal Pressure:10MPa.
(2) Protection Tube Material:1Cr18Ni9Ti.
(3) Extension cable regularly comes with 500mm end cable “S” . Please specify the length of end cable, if different.
(4) User specifies the extension length of MITC and MIRTD element.
(5) Refer to page 91, Fig 147 for specification of fixed screw-in straight protection tube.

固定螺栓直形保护管式热电偶、铂热电阻、铠装元件延长型

Fixed Screw-In Type TC And RTD With Straight Protection Tube And Extensible MITC And MIRTD Element

型号 Model	分度号 Graduation Mark	测量范围(℃) Measuring Range(℃)	规格 Specification	
			d	l
WRNR-231633 WRNR ₂ -231633	K	0~800	φ 16	100 450
WRER-231633 WRER ₂ -231633	E	0~600		150 500
WZPR-231633 WZPR ₂ -231633	Pt100	-200~+500		200 750
WZPR-231233 WZPR ₂ -231233				250 1000
			300 1250	
			φ 12	350 1500
				400 2000



- 注：（1）公称压力：10Mpa。
（2）保护管材料：1Cr18Ni9Ti。
（3）铠装元件引出长度“L”由用户自定。
（4）直形保护管固定螺栓规格参阅安装图。
- Note: (1) Normal Pressure:10MPa.
(2) Protection Tube Material:1Cr18Ni9Ti.
(3) User specifies the extension length of MITC and MIRTD element.
(4) Refer to for specification of fixed screw-in straight protection tube.

INSTALLATION FIGURE OF TC AND RTD USED IN POWER STATION

Installation Figure Of Thermo-Sheated Type 01 TC And RTD

