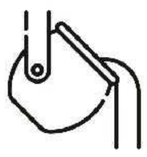
TK800 Thermosheathed Type Thermocouple

Product Certification

CE

Application Scenarios

Petrochemical industry



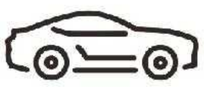
Metallurgy

Machinery manufacturing

Food Hygiene

Electric power nuclear power

Semiconductor photovoltaics



New Energy

Medical equipment

Product Features

Range	Graduation	Temperature measurement scenario	Rich product range
-200...1600℃	R、S、B、K、N、E、J、T etc.	Measurement of various fluids such as liquids and gases Surface measurement of various structures	Customization is supported for product accuracy levels, dimensions, specifications, joints, installation methods, etc

Product Description

Thermosheathed thermocouples have a wide range of specifications and varieties, making them suitable for various occasions.

The selection of thermocouple materials should be based on the temperature range, tolerance range, and measurement environment, and the correct selection of the diameter and sleeve material of thermosheathed thermocouples

The importance of improving service life and measurement accuracy. There are three types of measurement terminals for thermosheathed thermocouples: exposed end type, shell type, and insulated type.

Insulation type is generally chosen, and exposed end type is only used when high-speed response is required or in non corrosive gases. Good flexibility and easy installation.
Thermosheathed thermocouples can be wound 5 times on a cylinder with an outer diameter of 10 times, and can be bent in multiple positions. Good mechanical strength and pressure resistance, with a long service life.

Thermosheathed thermocouples are safe to use in scenarios of strong vibration, low temperature, high temperature, and corrosion, and can withstand high pressure. Thermosheathed thermocouples have good airtightness and density, high, long lifespan.
Thermocouples also have multiple point structures to choose from, and customized multi-point thermocouple products can be provided according to specific needs.

Technical Parameter

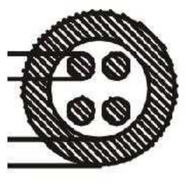
Tolerance table for standardized thermocouples:

Name		PtRh 10 -Pt PtRh 13 -Pt	PtRh 30- PtRh 6	NiCr-NiSi	NiCr-CuNi	Fe-CuNi	Cu-CuNi	NiCrSi -NiSi
Grade		S、R	B	K	E	J	T	N
Tolerance	Ⅰ	0 ~ 1100℃ ±1℃ 1100 ~ 1600℃ ±[1 + (t - 1100) × 0.3%]℃	—	- 40 ~ 1000℃ ±1.5℃ or ±0.4%t	- 40 ~ 800℃ ±1.5℃ or ±0.4%t	- 40 ~ 750℃ ±1.5℃ or ±0.4%t	- 40 ~ 350℃ ±0.5℃ or ±0.4%t	- 40 ~ 1000℃ ±1.5℃ or ±0.4%t
	Ⅱ	0 ~ 600℃ ±1.5℃ 600 ~ 1600℃ ±0.25%t	600 ~ 1700℃ ±0.25%t	- 40 ~ 1200℃ ±2.5℃ or ±0.75%t	- 40 ~ 900℃ ±2.5℃ or ±0.75%t	- 40 ~ 750℃ ±2.5℃ or ±0.75%t	- 40 ~ 350℃ ±1℃ or ±0.75%t	- 40 ~ 1200℃ ±2.5℃ or ±0.75%t
	Ⅲ	—	600 ~ 800℃ ±4℃ 800 ~ 1700℃ ±0.5%t	- 200 ~ 40℃ ±2.5℃ or ±1.5%t		—	- 200 ~ 40℃ ±1℃ or ±1.5%t	- 200 ~ 40℃ ±2.5℃ or ±1.5%t

Number of temperature sensing elements:

Single

Double



High temperature and corrosion resistance of armored sheath materials:

Sheath material Inconel600:

Inconel 600 is a nickel chromium iron based solid solution reinforced alloy with excellent high-temperature corrosion resistance and oxidation resistance, as well as excellent creep fracture strength,

Recommended for use in working environments above 700 ℃, with a maximum temperature of 1200 ℃ in the air;

The high-purity water used in the primary and secondary cycles of a nuclear reactor has excellent corrosion resistance, especially its outstanding performance in resisting dry and hydrogen chloride, corrosion, application temperature up to 650 ℃.

Widely used in the nuclear power industry, semiconductor photovoltaic equipment, fiber optic equipment, combustion furnaces, aviation industry, petrochemical and other fields.

Sheath material 316 stainless steel:

Due to the addition of 2% to 3% Mo element in 316, it endows the steel with good resistance to reducing media and pitting corrosion, which can be applied in various organic and inorganic acids

Suitable corrosion resistance is found in alkali, salt, seawater, and corrosive industrial gases, and its corrosion resistance is much better than 304 in reducing acidic media; Under continuous use in the air, the maximum temperature resistance can reach 850 ℃;

Widely used in fields such as nuclear power industry, petrochemical industry, metallurgy, food hygiene and medical treatment, ocean, and various corrosive industrial gases.

Sheath material 304 stainless steel:

Has excellent corrosion resistance and superior resistance to steam and various combustion gases;
Under continuous use in the air, the maximum temperature resistance can reach 800 ℃;

Widely used in traditional industrial equipment manufacturing, petrochemicals, electricity, food hygiene and medical fields.

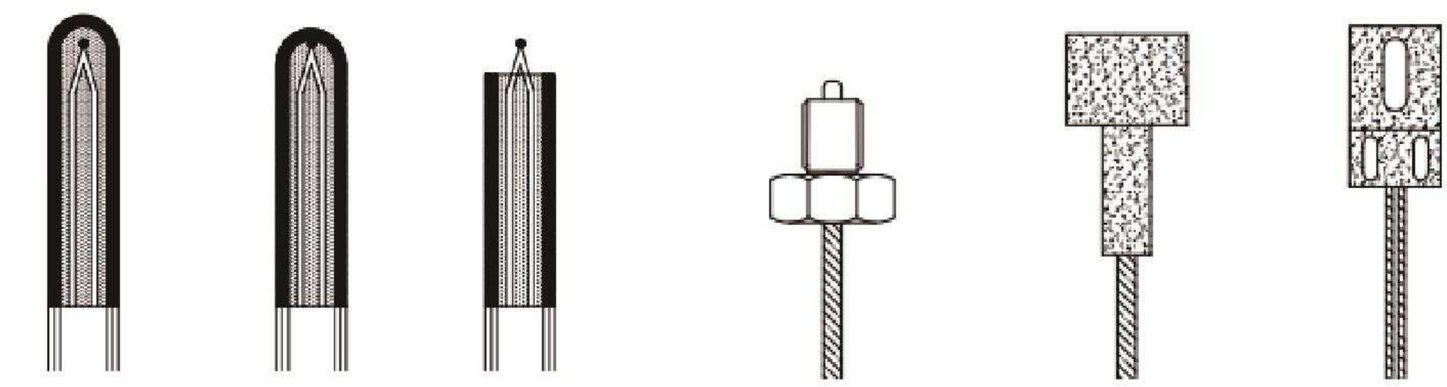
Temperature limit for thermocouple use:

Grade	Thermoelectric electrode diameter /mm	Common temperature limits /℃	Temperature limit for overheating use /℃
B	0.50	1500	1700
R S	0.50	1400	1600
K	0.65	650	850
	1.00	750	950
	1.60	850	1050
	2.30	900	1100
	3.20	1000	1200
N	0.65	850	900
	1.00	950	1000
	1.60	1050	1100
	2.30	1100	1150
	3.20	1200	1250
E	0.65	450	500
	1.00	500	550
	1.60	550	650
	2.30	600	750
	3.20	700	800
J	0.65	400	500
	1.00	450	550
	1.60	500	650
	2.30	550	750
	3.20	600	750
T	0.32	200	250
	0.65	200	250
	1.00	250	300
	1.60	300	350

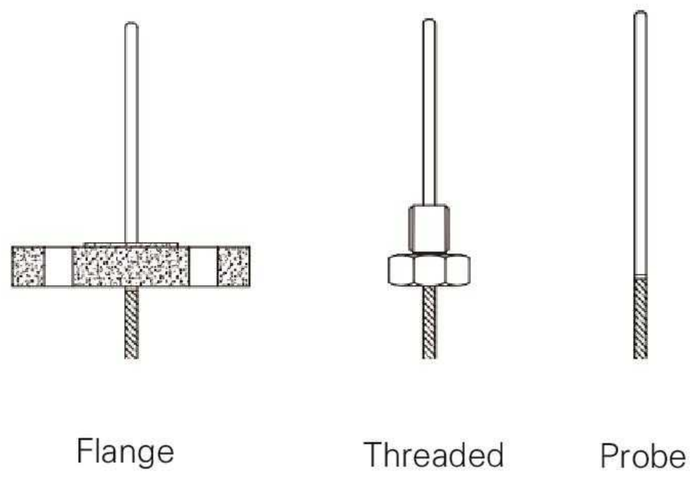
Temperature resistance table for each material:

Material	Max temperature resistance	Waterproof
PVC	105	Yes
PFA	260	Yes
Glass fibre	480	No
High silica 800	800	No

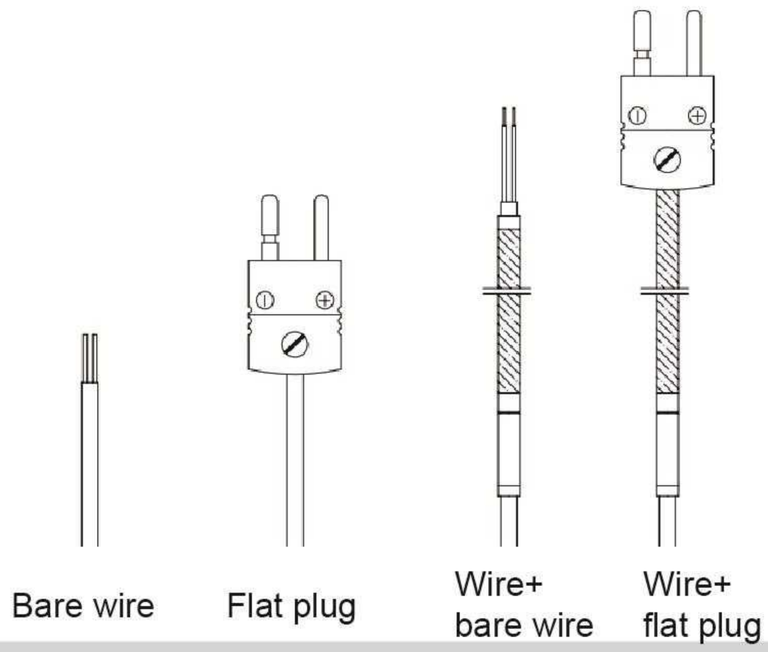
Measurement end form:



Installation and fixing form:



Terminal structure:



Grade

B

S

R

K

E

J

T

N

C

Tolerance level

1

2

3

Y – Other

Number of temperature sensing elements

A Single

B Double

Y Other

Measurement end form

E Exposed end

S Insulated

C Shell

M Magnetic suction

P Chip

B Screw

Y–Customized

Installation and fixing form

A Probe

B Fixed sleeve thread

C Movable sleeve thread

D Fixed sleeve flange

E Movable sleeve flange

Y Customized

Probe length

_____mm

Y–Other

Probe outer diameter

0.25–Ø0.25mm

0.5–Ø0.5mm

1.0–Ø1.0mm

1.5–Ø1.5mm

2.0–Ø2.0mm

2.5–Ø2.5mm

3.0–Ø3.0mm

4.0–Ø4.0mm

5.0–Ø5.0mm

6.0–Ø6.0mm

Y–Other

Probe material

L–304

S–316

N–Inconel

P–PFA coating

C– Ceramics

Y– Special materials

Terminal structure

B–Bare wire type

F–Flat plug type

_____WB–Wire length+bare wire joints

_____WF–Wire length+flat plug type

Y–Customized

Special requirements

XX–Customized

10 20 30 40 50 60 70 80 90 100

TK800 Thermosheathed thermocouple

Selection rules:

Requirement: K-type, Class I, probe type, probe length of 2 meters, diameter of 1.5mm, flat plug type, temperature measurement range: 600~1000 ℃.

Model selection: TK800-K1ASA-2000 * 1.5N-FXX