



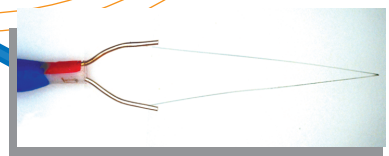
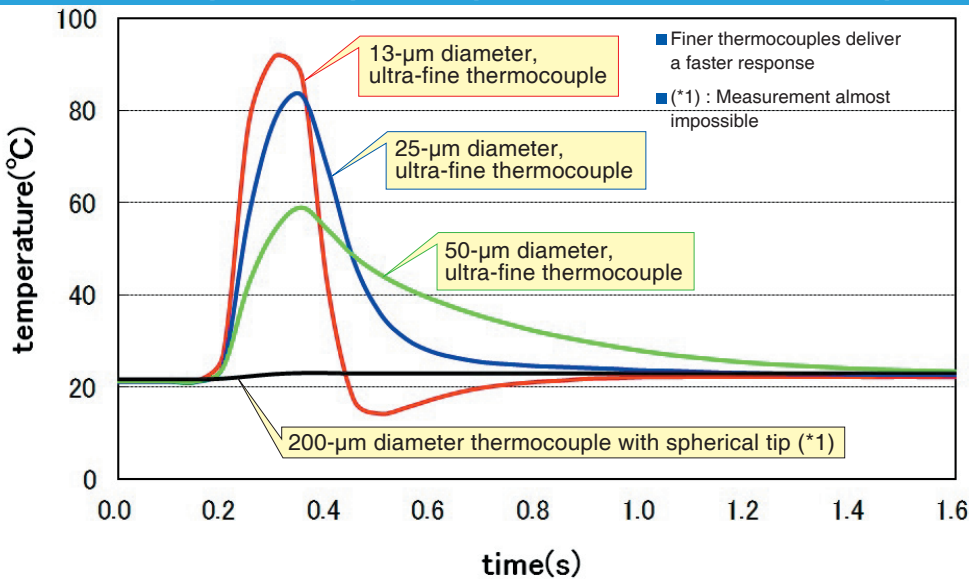
Contributing to society through the delivery of unrivaled innovative technology.

"Two-time recipient of the Japan Society of Mechanical Engineers Excellent Product Award"

Helping you measure your need-to-know temperatures with our fast response thermocouple.

Anbe SMT thermocouples do not all have a spherical tip
Find out what fast response really means!

Adiabatic compression response comparison between various thermocouples



Ultra-fine thermocouple



Ultra-thin thermocouple

Ships in approximately two business days, minimum, after order placement. Custom orders are welcome, including for single products. We also offer mounting services for mounting the thermocouple to the measured object.



ANBE SMT Co.

E-MAIL: anbe@anbesmt.co.jp
URL: <http://www.anbesmt.co.jp/>

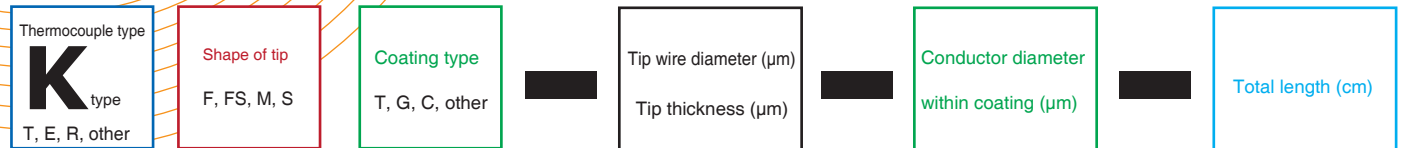
TEL:045-937-6023 FAX:045-937-6024



Ultra High-Speed Response Thermocouple

~ A fineness and thinness that are top-level in the industry ~

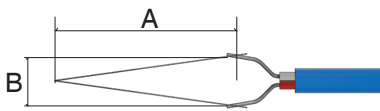
Selecting a model number



* Custom thermocouples are also available. Feel free to contact us.

F (Fine)

Ultra-fine thermocouple



e.g. K-type thermocouple, Tip wire diameter: 25 μm , Conductor diameter within coating: 200 μm , Glass coating, Total length: Approx. 2 m
KFG-25-200-200

Small thermocouple heat capacity, delivering excellent responsiveness and high-precision measurement

This thermocouple is ideal for measuring the temperature of fine parts as well as gas. With our unique ultra-fine wire structure at the tip, the instrument is easy to use.

Responsiveness: ◎ , Strength: △

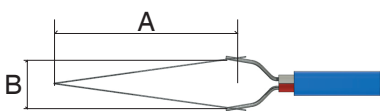
A Tip length Standard dimension: Approx. 10 mm

B Tip width Standard dimension: Approx. 3 mm

C Tip wire diameter : 13 μm
(Standard dimension) : 25 μm
: 50 μm

FS (Fine-Sheet)

Ultra-fine-thin thermocouple



e.g. K-type thermocouple, Tip thickness: Approx. 10 μm , Conductor diameter within coating: 200 μm , Glass coating, Total length: Approx. 2 m
KFSG-10-200-200

Suitable for measuring the surface temperature of fine parts

This thermocouple delivers excellent responsiveness and high-precision measurement.

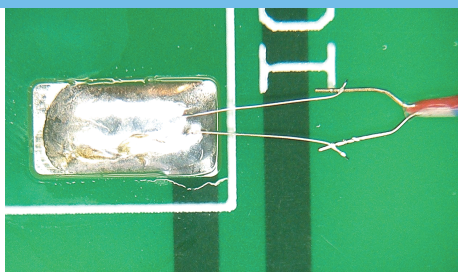
Responsiveness: ◎ , Strength: △

A Tip length Standard dimension: Approx. 10 mm

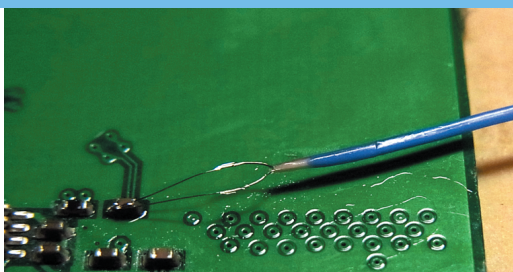
B Tip width Standard dimension: Approx. 3 mm

C Tip wire diameter : Approx. 10 μm
(Standard dimension) : Approx. 20 μm

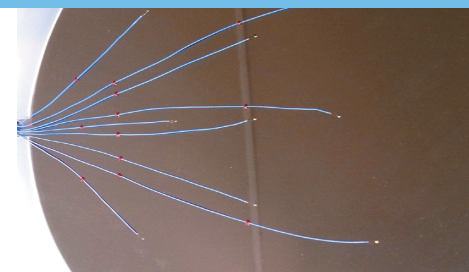
Thermocouple mounting examples



Mounting to base



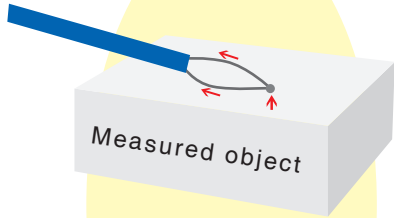
Mounting to base



Mounting to wafer

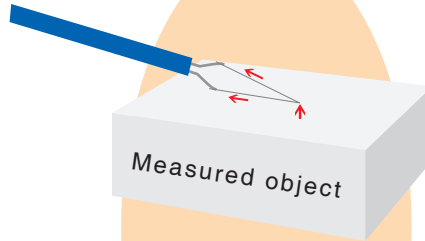
Why? Is an ultra-fine, ultra-thin thermocouple better?

General thermocouple with ball tip



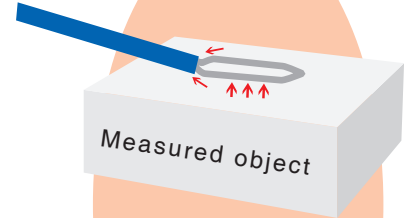
This thermocouple has low heat input due to the point contact between the measured object and the temperature sensing part. Further, the element wire diameter is not fine, resulting in significant heat escape and slow responsiveness.

Ultra-fine thermocouple



With its fine tip diameter, this thermocouple heats quickly. With little heat escape during heat transmission to the element wire, fast responsiveness is achieved.

Ultra-thin thermocouple



With a sheet-like, thin tip, this thermocouple has widely contacts the object measured, heating quickly. With little heat escape relative to heat input, the thermocouple achieves fast responsiveness.

M (Multi-Purpose) General-purpose thermocouple

e.g. K-type thermocouple, Tip wire diameter: 100 μm , Conductor diameter within coating: 100 μm , Teflon coating, Total length: Approx. 1 m
KMT-100-100-100

Our most robust thermocouple of all

With a non-spherical connection area, this thermocouple offers better responsiveness than the typical thermocouple.

Responsiveness: Δ , Strength: \odot

A Tip length Standard dimension: Approx. 10 mm

B Tip width Standard dimension: Approx. 3 mm

C Tip wire diameter : 100 μm : 150 μm
(Standard dimension) : 200 μm : 320 μm

S (Sheet) Ultra-thin thermocouple

e.g. K-type thermocouple, Tip wire thickness: Approx. 40 μm , Conductor diameter within coating: 200 μm , Teflon coating, Total length: Approx. 3 m
KST-40-200-300

Suitable for measuring the surface temperature of flat and curved surfaces such as metal plates

This thermocouple delivers fast responsiveness and durability with its integrated structure.

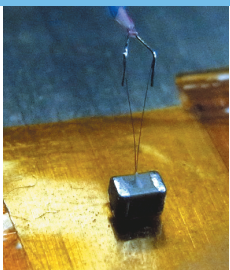
Responsiveness: \circ , Strength: \circ

A Tip length Standard dimension: Approx. 10 mm

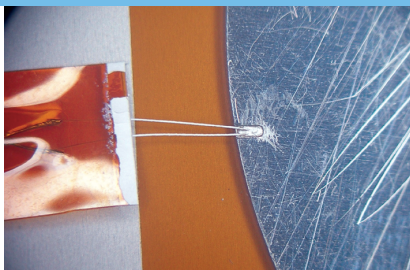
B Tip width Standard dimension: Approx. 3 mm

*The number in () indicates the conductor diameter within the coating

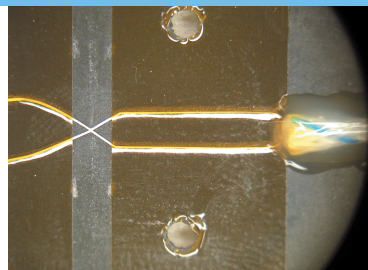
C Tip wire diameter : Approx. 20 μm (100 μm)
(Standard dimension) : Approx. 40 μm (100 μm /150 μm /200 μm)
: Approx. 60 μm (320 μm)



Mounting to ceramic capacitor



Mounting to stainless disk product



Mounting to glass epoxy plate



Mounting to engine product

OPTION

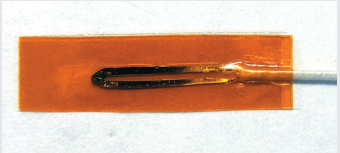
Options

Tip options



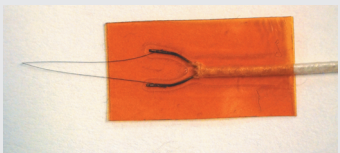
Tip soldered coating (S)

With soldering between the thermocouple tip and measured object



Kapton tape cover (KC)

Places importance on tip strength



Kapton tape reinforcement (R)

Improves the strength of the tip while maintaining responsiveness



Insulation coating (IC)

Prevents shorts at the temperature measurement location



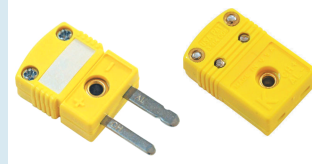
Baking process

(F1/F2)

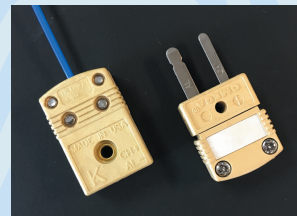
Pre-baking suppresses smoke emission during use

End options

Omega mini connector mounting



SMPW (Heat resistance: 180°C)



HMPW (Heat resistance: 260°C)



SHX (Heat resistance: 650°C)



Simple copper Y terminal (YY)

Y terminal (M3, M4)

Mounting of round terminal, etc.

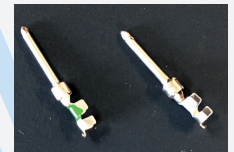
Feel free to contact us



K-type pure Y terminal (Y)

Mounting of Y terminal (M4) made of thermocouple material

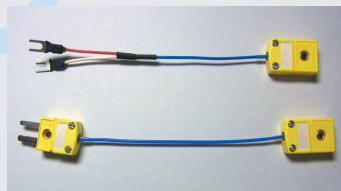
Can be cut on one side, allowing placement on an M3 terminal block



Multi-pin (MP)

Mounting of Omega SMTTC series, etc., made of thermocouple material

Other options



Compensating lead wire

When extending the total length with a thermocouple wire is desired



Insulation with polyimide tube

Wire diameters:

200 μm, 150 μm, 127 μm

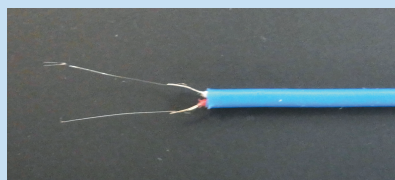


Plastic board packaging (PP)

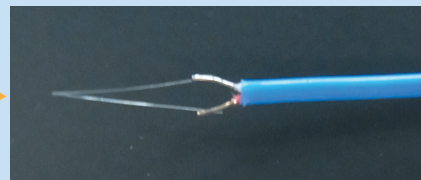
Can be brought into a clean room

Tip repair

When tip breakage occurs



Before repair



After repair



Thermocouple coating type and features

Features of various thermocouple wires

- Glass:** Inexpensive and easy to handle. Can be used under non-condensing conditions.
- Teflon:** Water resistant, chemical resistant, and suitable for use in clean rooms, etc.
T (SF) delivers the highest flexibility, and T (TW) delivers a noise prevention effect.
- Ceramic:** Most heat-resistant.
- Shield:** Delivers a noise prevention effect.

Coating type	Element wire diameter (µm)	Estimated coating outer diameter (mm)	Flexibility	Operating temperature (°C) range	Coating code
Glass	100	0.8×1.2	○	Room temperature to 250	G
	150	0.5×0.7	◎		
	200	0.9×1.3	○		
	320	1.4×2.3	×		
Teflon	100	0.8×1.2	○	-200 to 260	T
	200	0.9×1.4	△		
	320	1.0×1.6	×		
Teflon super fine	100	0.42×0.68	◎	-200 to 260	T(SF)
Teflon twisted wire	100	0.4×0.8	◎	-200 to 260	T(TW)
	200	0.5×1.0	○		
	320	0.6×1.2	△		
Ceramic	200	1.4×2.3	○	Room temperature to 400	C
	320	1.6×2.4	△		
Glass outer shield	200	1.5×1.9	×	Room temperature to 250	G(OS)
Teflon outer shield	200	1.5×2.0	×	-200 to 260	T(OS)

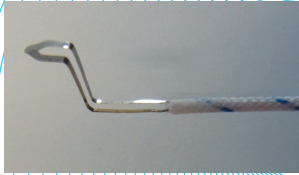
Other Products Available

Type	Overview
Silver paste 5 g	5 g of conductive adhesive silver paste.
Kapton tape	One roll or 50 cm of tape.
Data logger	GL900-4 and NR-500 are available. Thermocouple services.
Other	Various thermocouple wires and connectors.

Custom orders are welcome, including for single products.

We also offer mounting services for mounting the thermocouple to the measured object.

Special Processing



Tip bending

Bending the tip for temperature measurement of local areas



Tip rounding

Rounding the tip for securing with a screw or bolt

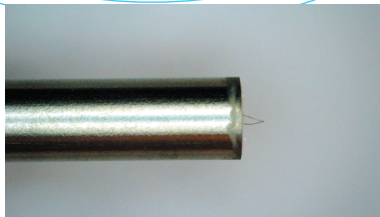


Screw sample



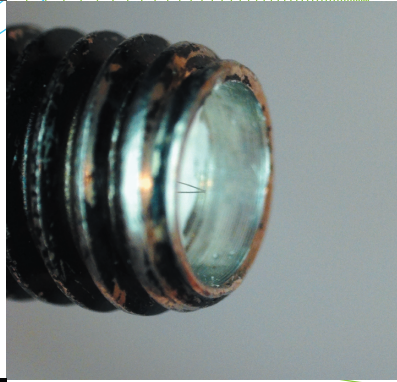
Ultra-thin thermocouple

SUS tube sealing
Tip bending



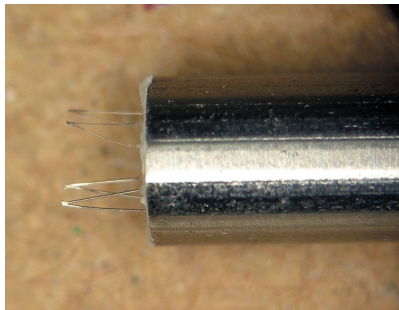
SUS tube insertion

For measuring internal temperatures of engines, etc.



Insertion into and sealing within screw

For measuring internal temperatures of engines, etc.



2-wire type, 4-wire type

Thermocouples with different wire diameters sealed in tube



Ultra-thin thermocouple with long tip



ANBE SMT Co.

149-18 Nishihasakucho, Midori-ku, Yokohama, Japan(226-0024)

TEL:045-937-6023 FAX:045-937-6024

E-MAIL: anbe@anbesmt.co.jp URL: <http://www.anbesmt.co.jp>