



Giving every grain a purpose

Thermocouple Wires

SAFINA

Thermocouple Wires

Safina is a renowned and traditional manufacturer of Precious Metals thermocouples (i.e. Platinum, Rhodium and Palladium alloys). It has been dealing with their manufacturing for almost half a century. An extraordinary emphasis is placed on accuracy and reliability of thermocouples during manufacturing process. Each manufactured batch is tested in our modern accredited laboratory and is provided with a quality certificate.

Type	Leg composition	Temperature range of application (°C)		Tolerance
		Long-term	Short-term	
S	Pt (-) Pt – 10% Rh (+)	0–1 300	0–1 600	EN 60584-1 Class 1 ASTM E230/230M Special tolerances
R	Pt (-) Pt – 13% Rh (+)	0–1 300	0–1 600	EN 60584-1 Class 1 ASTM E230/230M Special tolerances
B	Pt – 6% Rh (-) Pt – 30% Rh (+)	0–1 600	0–1 800	EN 60584-1 Class 2 ASTM E230/230M



Safina offers thermocouples in form of individual thermocouple legs (wires) as well as in form of couples produced by connection of both legs. Additionally thermocouples clad in protective ceramic capillary can be supplied on request.

Accuracy of thermocouples

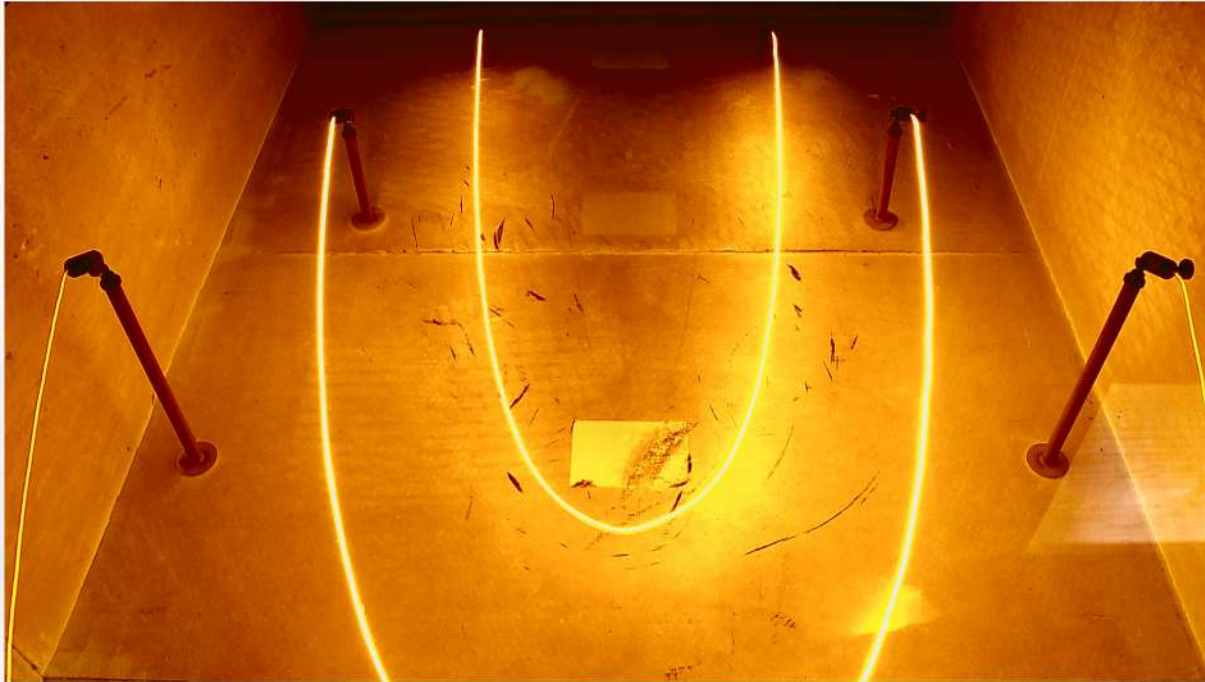
All thermocouples supplied by Safina are in compliance with the standard EN 60584-1 based on the international temperature range ITS-90.

Selection Of Suitable Type And Diameter Of Thermocouple

Selection of an optimal type of thermocouple depends on application temperature, atmosphere and required length of operating life, accuracy and sensitivity of the couple.

Long-Term Usage

Subject to compliance with all aforementioned measures, gradual decrease of the thermoelectric voltage value occurs in thermocouples (type S and R) exposed to high temperatures on a long-term basis. It is caused by diffusion of rhodium into the Pt leg. Unfortunately, this phenomenon cannot be prevented and therefore thermocouples must be regularly checked and exchanged.



Contamination By Chemical Substances Vapours

Vapours of metal and non-metal substances can condensate on the surface of thermocouple in case of measurement with a unprotected couple. The substances diffuse under high temperatures.

Reduction Atmosphere

Platinum atomisation occurs in the reduction atmosphere, which decreases the operating life of thermocouple and its accuracy.

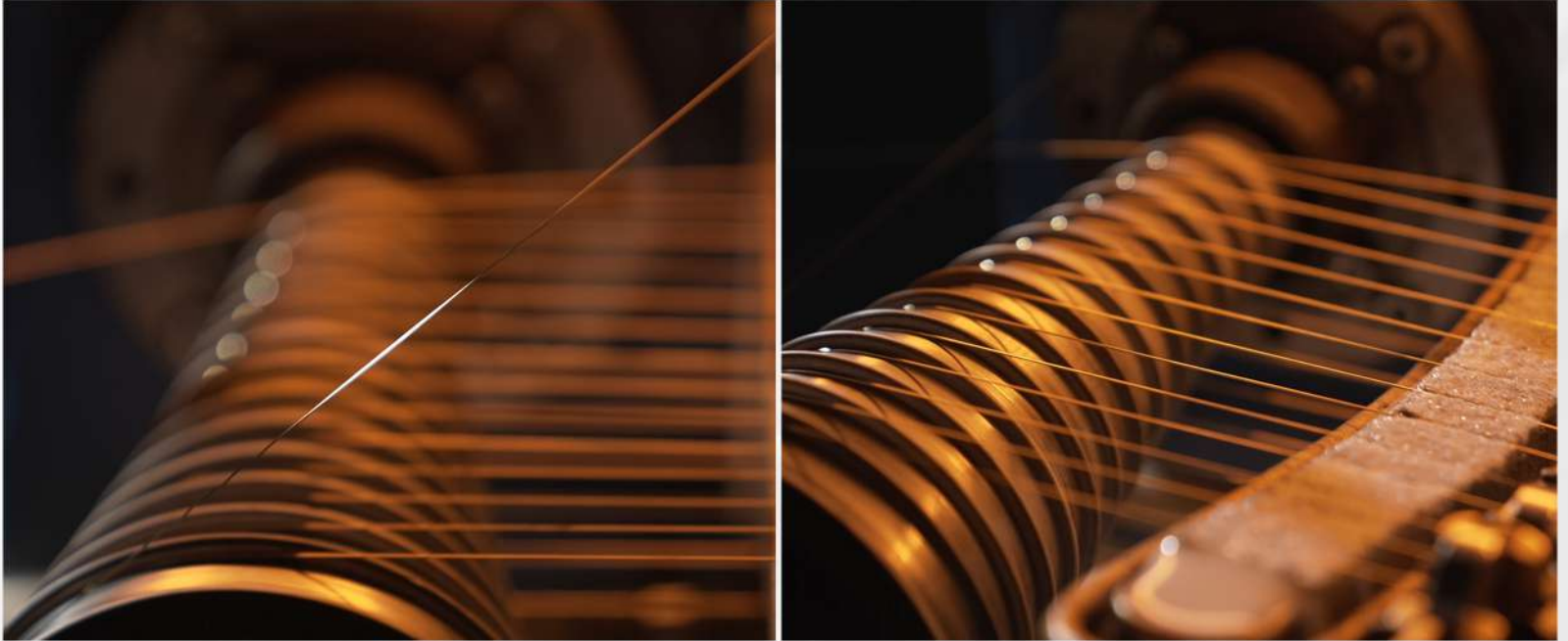
Contamination With Lubricants And Organic Substances

Organic substances are decomposed by heat and create reduction atmosphere acting in the above mentioned way.

Materials of extreme purity are used for manufacturing of thermoelectric couples. Any contamination with dirt or inconsiderate manipulation has a significant impact on the accuracy of measurement with thermoelectric couple. Following factors, which cause its deterioration at the application, must be taken into account for ensuring of thermocouple accuracy.

Wiring

According to order, customer can specify if product will be prepared by keeping the length or keeping the weight. In case, that there is no specification from customer side, TC will be delivered by keeping the length.



Packaging

Wire coiled on Safina customer spool is protected and fixed against movement with foam strip. For TC up to 0,1 mm, this strip is fixed with textile rubber. Coil is inserted in a paper box.

In case of spools DIN K100 and DIN K125 the coiled wire is protected and fixed against movement with stretch foil. Spool is inserted intransparent plastic box (dose + cover). Wire diameters higher, than 1,1 mm are packed to bigger plastic foil with description on this cover.

Welded thermocouples are placed in plastic foil, which is inserted to paper bag, on which additional product information's are placed.



Safina has maintained a quality management system according to ISO 9001 since 1997
and an environmental management system according to ISO 14 001 since 2005.



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