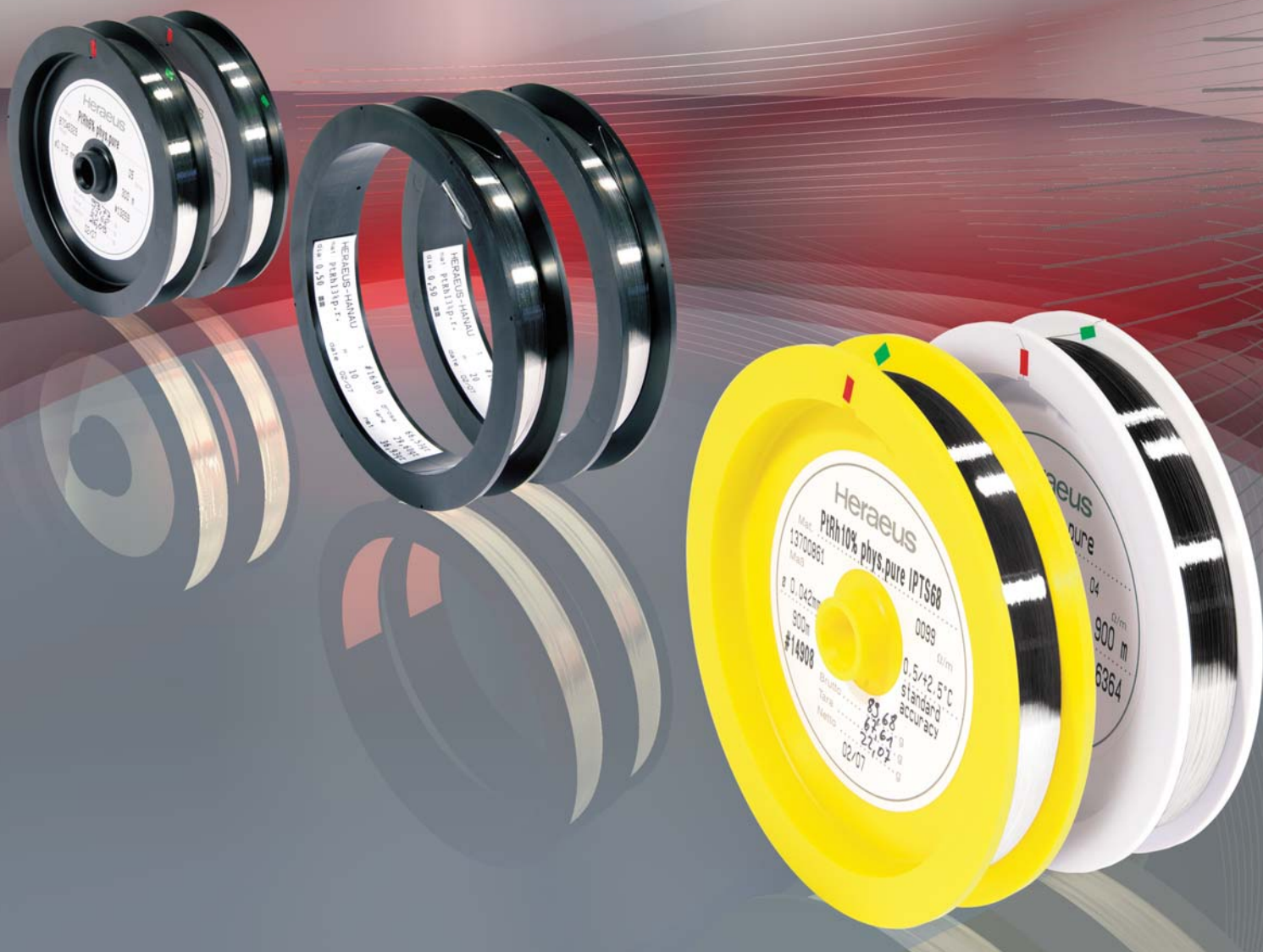


Heraeus



Thermocouple Wires

Thermocouple Wires



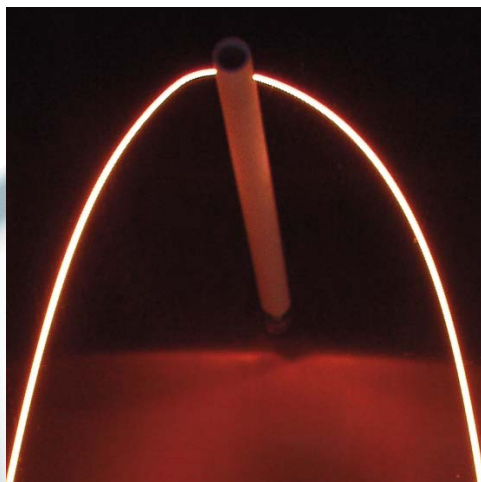
Highest precision under extreme conditions

In the manufacture of precious metal thermocouples for measurements up to 1800°C, precious metal wires of Pt and PtRh form the actual measurement sensor. In order to achieve the most exact measurement results possible, not only does the extreme purity of the precursor material play an important role, but also the excellent diameter tolerances.

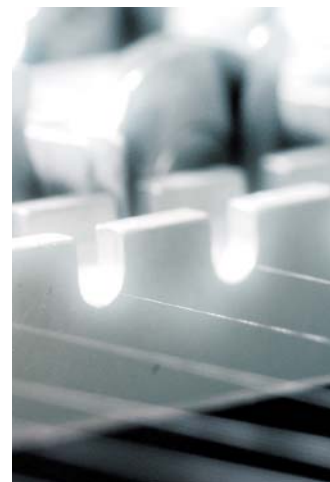
W. C. Heraeus thermocouple wires are manufactured from physically pure Pt and Rh. Special melting processes and production techniques guarantee the high purities

through to the final product. Thanks to exceptional material properties, these wires possess excellent long-term stability – even at very high temperatures (>1200 °C) and in corrosive media. The reproducibility and precision of the results are maintained even under the most extreme conditions.

W. C. Heraeus supplies high quality thermocouple wires, which exceed the normal standards, in a large range of dimensions and with various diameters – to match standards and to fulfil customers' special requirements.



Annealing a thermocouple wire before calibration



Our Calibration Service

We offer our customers a wide range of possibilities for the calibration of thermocouple wires. Each delivery is dispatched with a calibration record. If desired, we supply

detailed calibration reports for individual °C ranges or fixed points. All measurements are carried out in accordance with recognised standards.

Type of Industry	Applications
Steel industry	Metallurgical composition depending on the specific application for the optimization of heat control as e.g. in electrically heated steel furnaces and for the manufacture of high temperature sensors used in foundries and in steel making.
Glass and ceramics industry	Temperature measurement in siphons or feeders using rod sensors with three or five measurement points: Manufacture of roof and floor sensors for glass melting furnaces in direct melting or boosting processes.
Metal processing industry	Metallurgical composition depending on the specific application for the optimization of heat control as e. g. in electrically heated hardening furnaces: Manufacture of high temperature sensors in metal processing
Energy supply	Contact sensors in open flame: Manufacture of temperature sensors with K1 approval according to EDF technology for use in the primary circuits of nuclear power stations, temperature sensors in conventionally fired boilers
Automobiles, aerospace, railways (transport & conveyance)	Manufacture of vibration resistant mechanical temperature sensors in vehicles for use on land, water and in the air
Pharmaceutical and foodstuffs industry	For all production steps with special hygiene regulations: Manufacture of temperature regulators resistant to humidity and pressure
Electronics industry	Manufacture of "spikes" for the semiconductor industry, temperature measurement in the diffusion treatment of wafers
Laboratories	Calibration equipment such as furnaces, probes and triple-point cells
Chemical and petrochemical industries	For the measurement of temperatures in pressure vessels, pipelines, etc.: Manufacture of rod sensors in single, double or multiple point versions

Product Programme



Combinations

Typ S: Pt / Pt-10%Rh

The most commonly used precious metal thermocouple wire combination. Known for its high degree of accuracy over the entire temperature range with its excellent mechanical and chemical properties.

Typ R: Pt / Pt-13%Rh

Similar to type S, but with slightly higher initial thermoelectric values.

Typ B: Pt-6%Rh / Pt-30%Rh

In contrast to other combinations it displays lower deviations and material losses when used at higher temperatures.

Platinum thermocouple thimbles

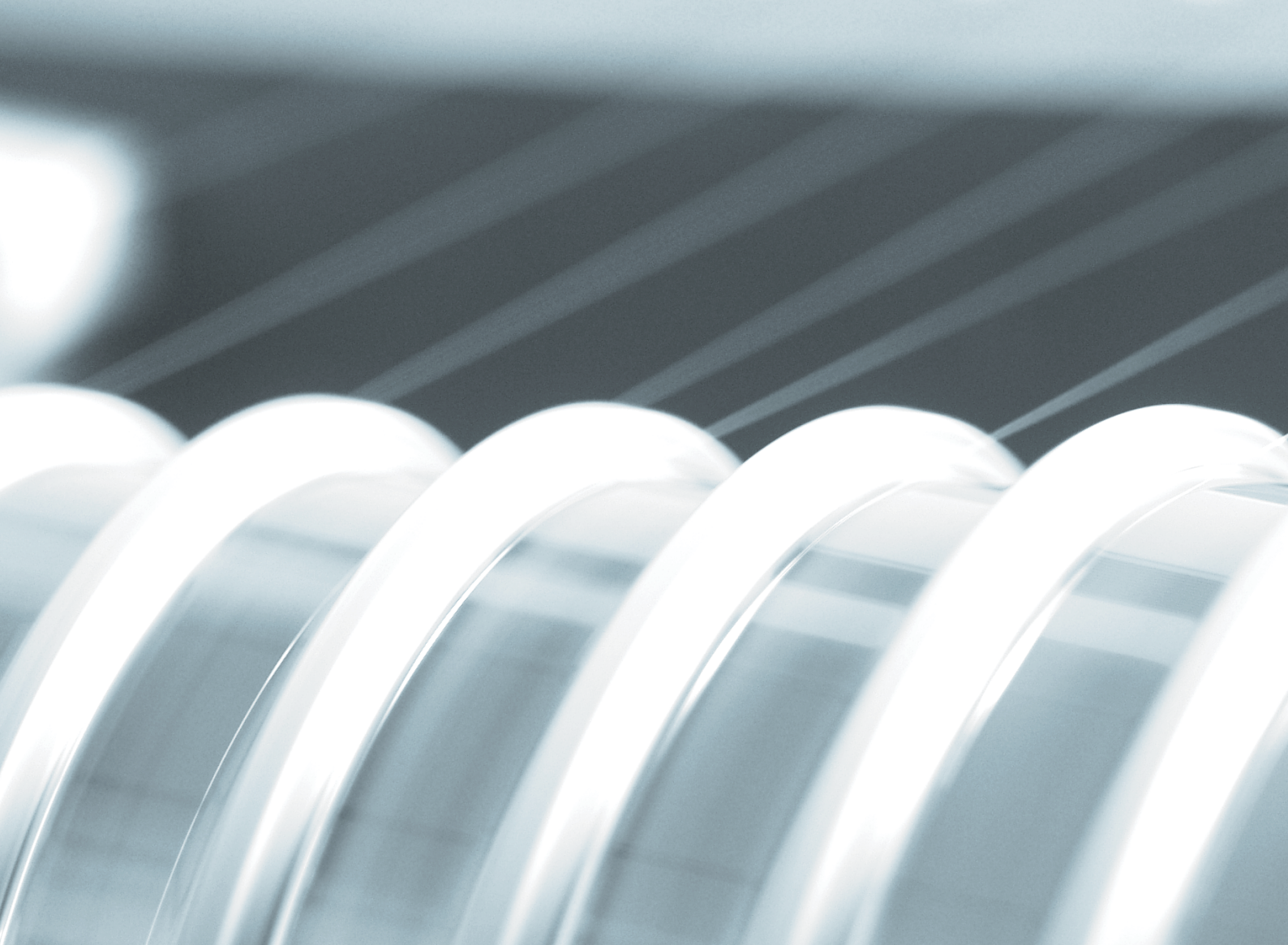
The appropriate platinum thermocouple thimbles complement the delivery programme.

Classes

Classes for tolerances of thermocouple wires according to EN 60584 (temperature of the point of comparison = 0°C)

Classes	1	2
Limiting deviation	± 1.0°C	± 1.5°C
(in each case higher value is applicable)	± [1 + (T-1,100) x 0.003]°C	± (0.0025 x T)°C
Type R, S	0°C bis +1,600°C	0°C bis +1,600°C
Type B	–	+600°C bis 1,700°C

All types are available from 30 µm diameter.



Worldwide competence in precious metals and special metals

When the pharmacist and chemist Wilhelm Carl Heraeus first melted platinum on a scale which was interesting for industry, he laid the foundation stone for the present W. C. Heraeus GmbH. From this time, Heraeus has again and again produced innovations, transforming unusual technologies into viable industrial processes, thus developing into a competent partner for technical applications of precious and special metals.

Engineered Materials Division

The Engineered Materials Division concerns itself with the manufacture, machining and processing of high purity metallic materials for technical applications.

The technological competence of the Engineered Materials Division lies in the processing of precious and refractory metals to components, semi-finished products and layer systems, and their further processing for applications in electrical packaging technology.

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