BASF
We create chemistry

Epitaxial thermocouples

Temperature measurement solutions for the semiconductor industry

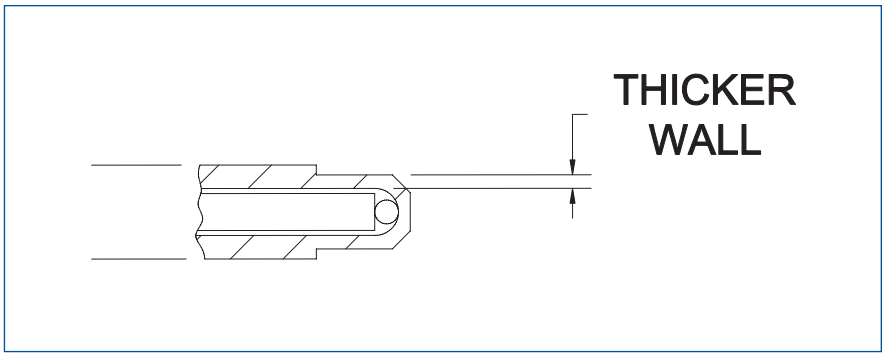
Epitaxial thermocouples

BASF has long been a leading supplier of thermocouples for use in epitaxial reactors. We offer a variety of epitaxial thermocouple product lines to help our customers to be more successful. The X product family of epitaxial thermocouples has been successfully used by many customers. The X3 product series is the next generation of epitaxial thermocouple technology, engineered for longevity. It is being used by OEM as well as IC suppliers.

X3 epitaxial thermocouples

Next generation X3 epitaxial thermocouples are designed to have a significantly longer lifespan than conventional products. Longer life can lead to lower costs by reducing the need to take the system down due to premature thermocouple failure. The X3 thermocouples have been proven in commercial semiconductor manufacturing operations in the U.S., Europe and Asia. Customers around the world have reported lifespan increases of 35 - 80% or more, depending on the application, over conventional epitaxial thermocouples. It can also increase throughput, since the thermocouple is designed to be more stable.

X3 thermocouples achieve their longevity through use of proprietary Fibro® wire designed by BASF to prevent grain growth open junctions – one of the major failure mechanisms of thermocouples – and minimize slippage. In addition, Fibro wire retains the chemical and thermo-electric properties of reference-grade platinum wire.



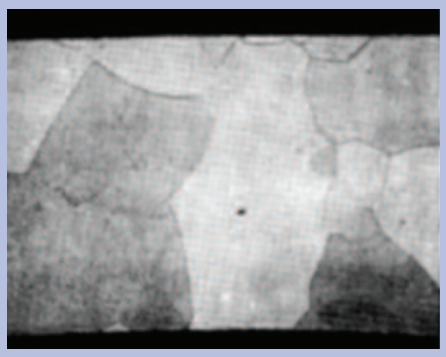
X3 epitaxial thermocouple

X3 thermocouples are completely backward compatible with atmospheric (ATM) and reduced-pressure (RP) tools and available in 150mm, 200mm and 300mm. They require no offset adjustments; customers can just plug-in the X3 thermocouples and run their process.

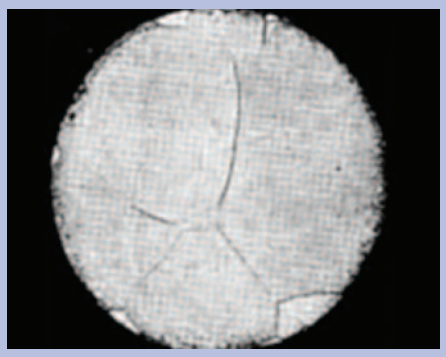
Product features and benefits

- Designed for longer life
- Engineered to increase throughput
- No offset adjustment required
- Compatible with ATM and RP tools
- 150mm, 200mm and 300mm versions

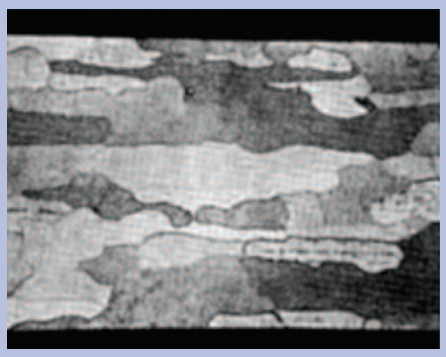
Photo micrograph of .032 dia. Fibro Pt wire and C.P. Pt wire after being heated to 1400° for 10 hours. Longitudinal and cross section. Note the reduced grain growth of Fibro Pt wire (100x reduced 50%).



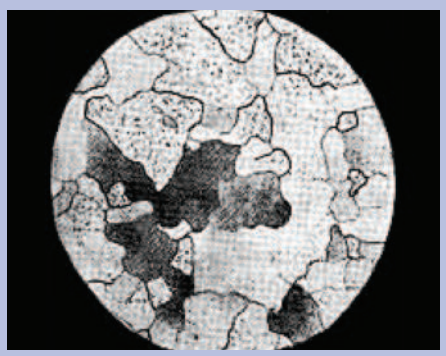
C.P. Pt – longitudinal



Pt – cross section



Fibro Pt wire - longitudinal



Fibro Pt wire – cross section

Custom engineering

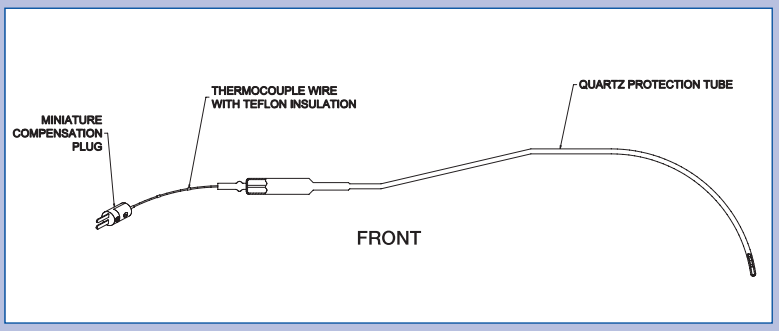
The BASF team of highly trained professionals offers technical assistance to address any specific temperature measurement problem and provides guidance on the most cost-effective route to a solution. BASF is committed to providing innovative designs, exceptional quality, rapid deliveries and competitive pricing. Contact a technical specialist today for recommendations about your unique needs, including made-to-order, custom-designed thermocouple assemblies.

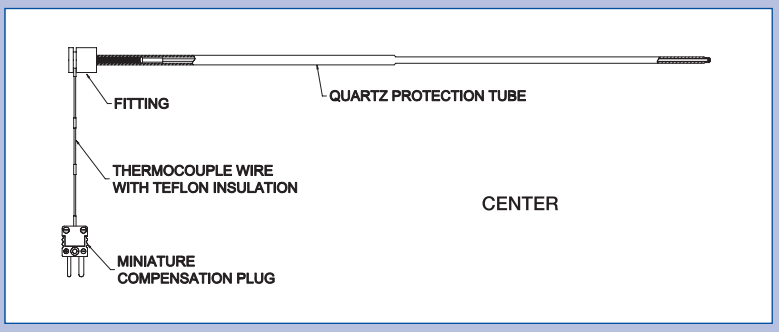
Quality

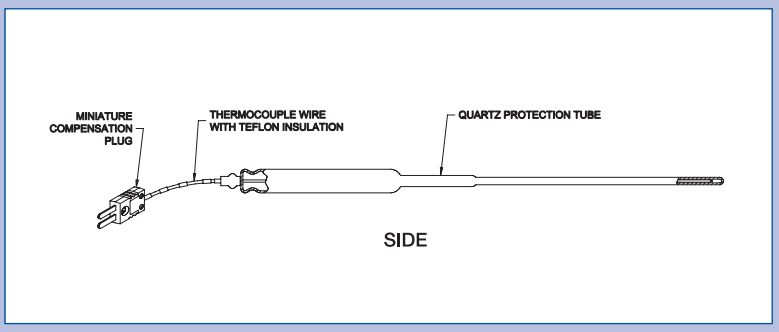
In our state-of-the-art production facilities, extraordinary care is taken to ensure every instrument is manufactured with the highest degree of quality. Instruments are tested against exacting standards before they leave our ISO 9001:2000-certified facilities in Fremont, California or Rome, Italy.

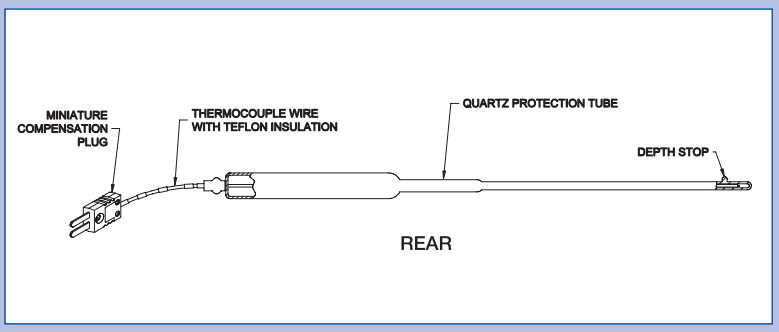
Thermocouple recycling services

Precious metal thermocouples always have value – even when they are no longer usable. The metal content of thermocouples can be recycled into new replacements or monetary credit can be given for the user with book credit for use at a later date. All reclamations are made on a weight basis. For the most accurate and beneficial credit, spent thermocouples should be returned intact for disassembly at the plant so that proper material and alloy separation can be performed. Contact the customer service office for specific details on how to return spent thermocouples.









Precious metals expertise

Metals – particularly those in the platinum group – are critical components of many products made by BASF such as contact thermocouples. Ensuring that those raw materials are where they need to be, when they need to be there, in the form they need to be and at the lowest possible cost is what BASF's Materials Services group is all about. Given our unique understanding of market fundamentals, such as current and future supply, technology changes and market risks, we help ensure that BASF and our customers have a cost-effective, reliable supply of the raw materials they need.

A fundamental understanding of precious metal and precious metal technologies is also critical. The experience of our research and development group in precious metal and precious metal technologies is unmatched. We have led the industry with breakthrough innovations. No one knows more about precious metals. We are the precious metal experts.

About Us

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success.

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