



## Product Sheet XRD 42

### TC-DOME – Modular Dome-type Temperature Stage

The TC-DOME is designed for measurements on thin films, powder and solid samples. The stages mounts directly to a Eulerian cradle or Universal Motion Control (UMC) stage, and naturally goes with 2-D detectors e.g. for non-ambient stress and texture measurements.

The temperature stage features an X-ray transparent, hemispherical beryllium dome that offers a large field-of-view. The sturdy dome allows also operation in high vacuum.

The TC-DOME can be configured with different heating technologies. Powder samples are directly put on a metallic strip heater and can achieve temperatures up to +1400°C.

Solids or thin film samples are clamped between the heating strip and two corundum rods. Heater and sample are pressed against these rods by a spring, which is loaded with a flat ceramic plate. This design provides optimum thermal contact up to +1100°C, and ensures accurate positioning of the sample surface.

The low temperature sample holder is cooled by a liquid nitrogen flow, transferred by flexible vacuum-isolated hoses. Together with the additional strip heater, this allows operation in a temperature range from -180°C to +400°C.

Thanks to the modular design, the TC-DOME can be easily reconfigured by simply exchanging the heater and sample holder unit. As you may expect of an integrated solution, setting up a measurement to the final data evaluation is fully supported by our DIFFRAC.SUITE software.



TC-DOME mounted on a Eulerian cradle

- Modular design accommodating different heating technologies
- Powder sample: RT to +1400°
- Thin film samples: RT to +1100°C
- Low temperature operation: -180°C to +400°C
- Hemispherical, X-ray transparent beryllium dome for high vacuum operation

## Modular Design - Different Configurations



TC-DOME configured for powder samples



TC-DOME configured for thin film samples



TC-DOME configured for low temperature operation

### TC-DOME - Technical Data\*

<b>Temperature Range</b>	Powder samples: RT to +1400°C Bulk or thin film samples: RT to +1100°C Low temperature operation: -180°C to +400°C
<b>Atmosphere</b>	Above RT: vacuum, inert gas, air Below RT: vacuum
<b>Heater Material</b>	PtRh AlCr (low temperature operation)
<b>Sample Holder Material</b>	PtRh Ni-plated copper block (low temperature operation)
<b>Thermocouple</b>	Type S, welded on the back of the heating strip Type K, in touch with the sample (low temperature operation)
<b>X-Ray Window Opening</b>	Half sphere
<b>X-Ray Window Material</b>	Beryllium (X-ray transmission approx. 70% for Cu radiation)

### Required Accessories

Temperature controller: Control Unit TCPU1

### Options

Vacuum pump unit

Different heating technologies

Valves and stainless steel tubes for inert gas operation

\*Depending on the TC-DOME configuration and diffractometer set-up limitations may apply to the chi- and phi- movements of the Eulerian cradle or UMC-stage.

## ● Bruker AXS GmbH

Karlsruhe · Germany  
Phone +49 721 50997-0  
Fax +49 721 50997-5654  
info.baxs@bruker.com

[www.bruker.com](http://www.bruker.com)