



SINGLE-CRYSTAL X-RAY DIFFRACTION

High Temperature Device (HTD)

Integrated Sample Heater for the D8 VENTURE

Introduction

A thorough comprehension of the correlation between structure and properties is essential for the rational design of materials with tailored attributes for specific applications. Among analytical methods, single crystal X-ray diffraction is recognized as an especially powerful technique for acquiring such structural insights.

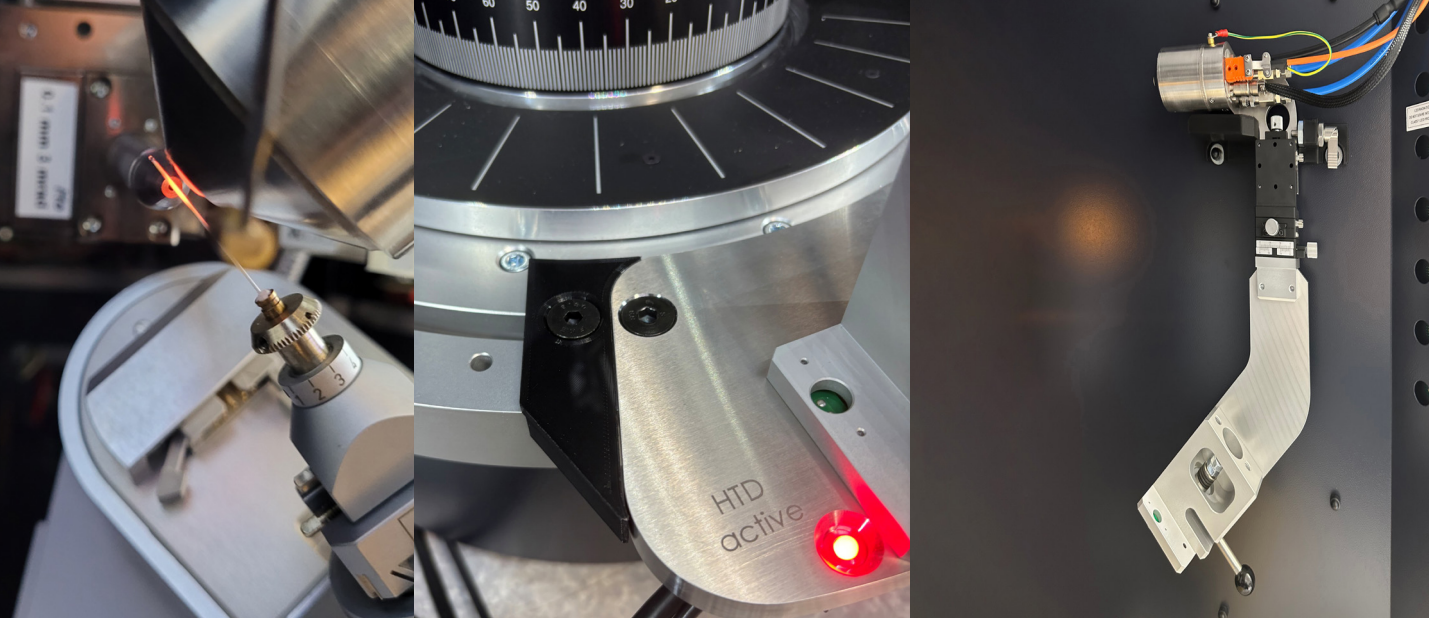
The new HTD enables convenient and precise measurement of single crystal X-ray diffraction data on your D8 VENTURE at temperatures up to 1250 K, significantly extending your experimental flexibility:

- High-temperature phase studies of minerals
- Investigation of ion movement in the solid state, e. g. in battery research
- High-temperature PXRD measurements

Technical Features

The HTD is a state-of-the-art piece of equipment that directs a precisely controlled stream of heated gas onto the sample.

- Automatic recognition of hardware limits and shadowed areas
- Full detector protection as strategy calculation takes the hot gas stream into account
- Conveniently controlled via APEX software
- Multi-temperature measurements without user intervention
- Easy bayonet mount installation and removal on the D8 goniometer
- LED safety indicator when system is active
- Heating capability is deactivated when HTD is unmounted to minimize risk of unintended operation
- Dedicated parking-bay provides safe storage when HTD is not in use
- Compatible with single and dual wavelength solutions
- Retention of KAPPA and FIXED-CHI versatility
- Existing D8 VENTURE systems can be upgraded



Figures

D8 VENTURE with integrated HTD: goniometer mount retains axial ranges (left), LED safety indicator (middle), HTD in parking bay (right)

Summary

The HTD enables precise SC-XRD measurements at temperatures up to 1250 K with full integration into the D8 VENTURE, ensuring safety, ease of use, and compatibility with advanced workflows.

Specification	Benefit
Temperature Range [K]: 290 to 1250	Easy access to high temperature data
Hot stream diameter [mm]: 5	Ideal size for precise sample heating
Mounting: Bayonet mount on goniometer base mount	Fast and reproducible installation of the HTD
Red LED-lights on when heater of empowered	Assists safe operation
2theta-range [degrees (@Dx=68mm)/(@Dx=130mm)] neg. unlimited, pos: 50/58	Minimized restrictions for maximum data
Minimum detector distance [mm @2θ=0]: 52	
Alignment: XYZ-stage	Precise positioning of the hot gas stream
Cooling: water cooled	Minimal stray heat, fast cool down
Connectivity: Ethernet	Fast and reliable
Temperature setting and ramp rate configurable via APEX software	Workflow identical to other non-ambient devices (e.g. low temperature devices)
Integration in path planning software (static and dynamic)	Eliminates risk of instrument/detector damage by hot gar stream
In-cabinet parking bay	Convenient storage place when HTD is not used
Integrated into instruments emergency switches	Machinery safety guideline compliant

Bruker AXS is continually improving its products and reserves the right to change specifications without notice.
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