

Product Sheet XRD 43

TC-REFLECTOMETRY – In-situ XRR and GID

The TC-REFLECTOMETRY is specifically designed for in-situ X-Ray Reflectometry (XRR) and grazing incidence diffraction (GID) on thin films at high and low temperatures.

The TC-REFLECTOMETRY features a motorized and software-controlled Knife Edge Collimator (KEC) to properly define and dynamically optimize the irradiated area on the sample. Also the sample tilt and sample height are motorized and software-controlled, which facilitates sample alignment at different temperatures.

The sample is mounted on a stable Inconel carrier and surrounded by an AlCr radiation heater to achieve a very uniform sample temperature up to +800°C in air, inert gas or vacuum. The temperature is measured with a thermocouple attached to the sample holder.

- Radiation heater with stable sample support
- RT to +800°C
- Optionally -180°C to +450°C
- Software-controlled sample and KEC alignment

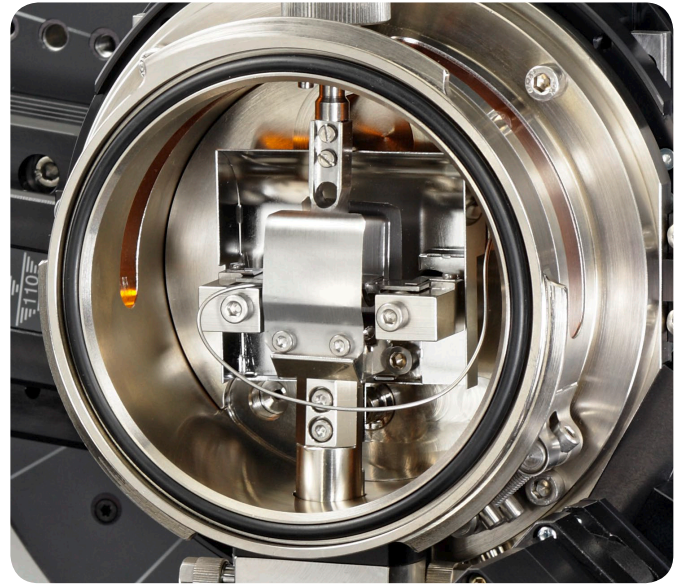


TC-REFLECTOMETRY

For low temperature operation, a Ni-plated copper sample holder is fixed on a cooling block, which is flushed with a liquid nitrogen flow. The unit is then heated with an AlCr heating strip to the pre-set sample temperature. This setup enables low temperature XRR measurement down to -180°C. Vacuum is required below room temperature in order to avoid icing.

The TC-REFLECTOMETRY is an integral part of the DAVINCI design. The stage is mounted to the D8 goniometer through a bayonet interface, which allows fast and reproducible exchange with other sample stages.

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-REFLECTOMETRY with radiation heater around the sample

TC-REFLECTOMETRY - Technical Data	
Temperature Range	RT to +450°C Optionally -180°C to +450°C
Atmosphere	Above RT: vacuum, inert gas, air Below RT: vacuum
Heater Material	AlCr
Sample Holder Material	Inconel Ni-plated copper (low temperature operation)
Thermocouple	Type K, attached to the sample holder
X-Ray Window Opening	12 mm wide, -10° to 190° 2Theta
X-Ray Window Material	Kapton
Required Accessories	
	Temperature controller: Control Unit TCPU1
Options	
	Vacuum pump unit
	Low temperature attachment
	Valves and stainless steel tubes for inert gas operation

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