

In-situ XRD Investigations of Solid State Reactions

XRK 900

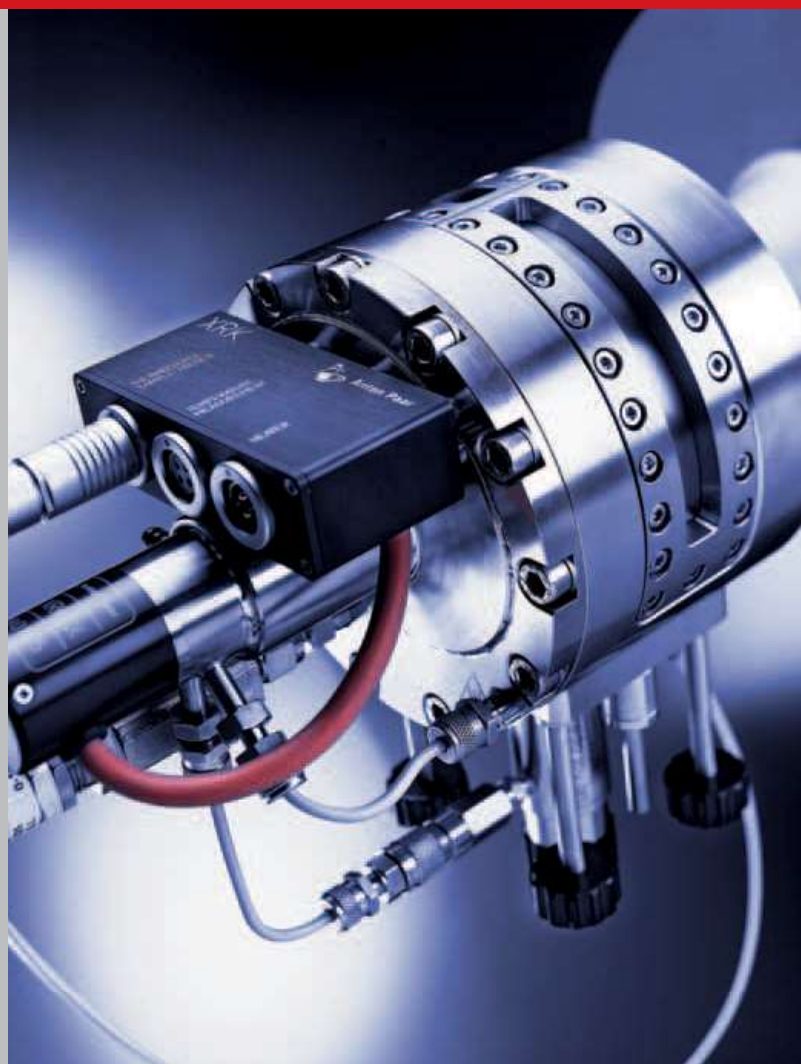
The XRK 900 is a well-proven reactor chamber for X-ray diffraction experiments up to 900 °C and 10 bar. Its robust and sophisticated design allows to perform studies of solid state and solid state/gas reactions at high temperatures and pressures.

The special arrangement of the electrical heater inside the furnace guarantees the absence of temperature gradients in the sample. Two thermocouples reliably measure and control the sample temperature.

For solid state/gas reactions, defined atmospheric conditions are an important precondition. The design permits homogeneous flushing with reaction gas as well as gas flow through the sample. The housing can be heated up to 150 °C to prevent condensation of reaction products.

The sample spinning option provides highly random grain orientation, necessary for good diffraction data quality and subsequent profile fitting routines. Different sample holders made of stainless steel or ceramics are available.

The XRK 900 is a unique tool for in-situ XRD investigations of solid state reactions - unmatched in robustness and performance.



Typical applications

- ▶ Dynamic structure changes
- ▶ Studies of solid state reactions
- ▶ Simultaneous investigation of structural and catalytic parameters of catalysts
- ▶ Analysis of materials which are unstable under ambient conditions
- ▶ Kinetic investigations of solid state reaction processes



Technical data

Temperature range:	25 to 900 °C
Pressure range:	1 mbar to 10 bar
Atmospheres:	air, inert gas, reactive gases, vacuum (1 mbar)
X-ray geometry:	reflection