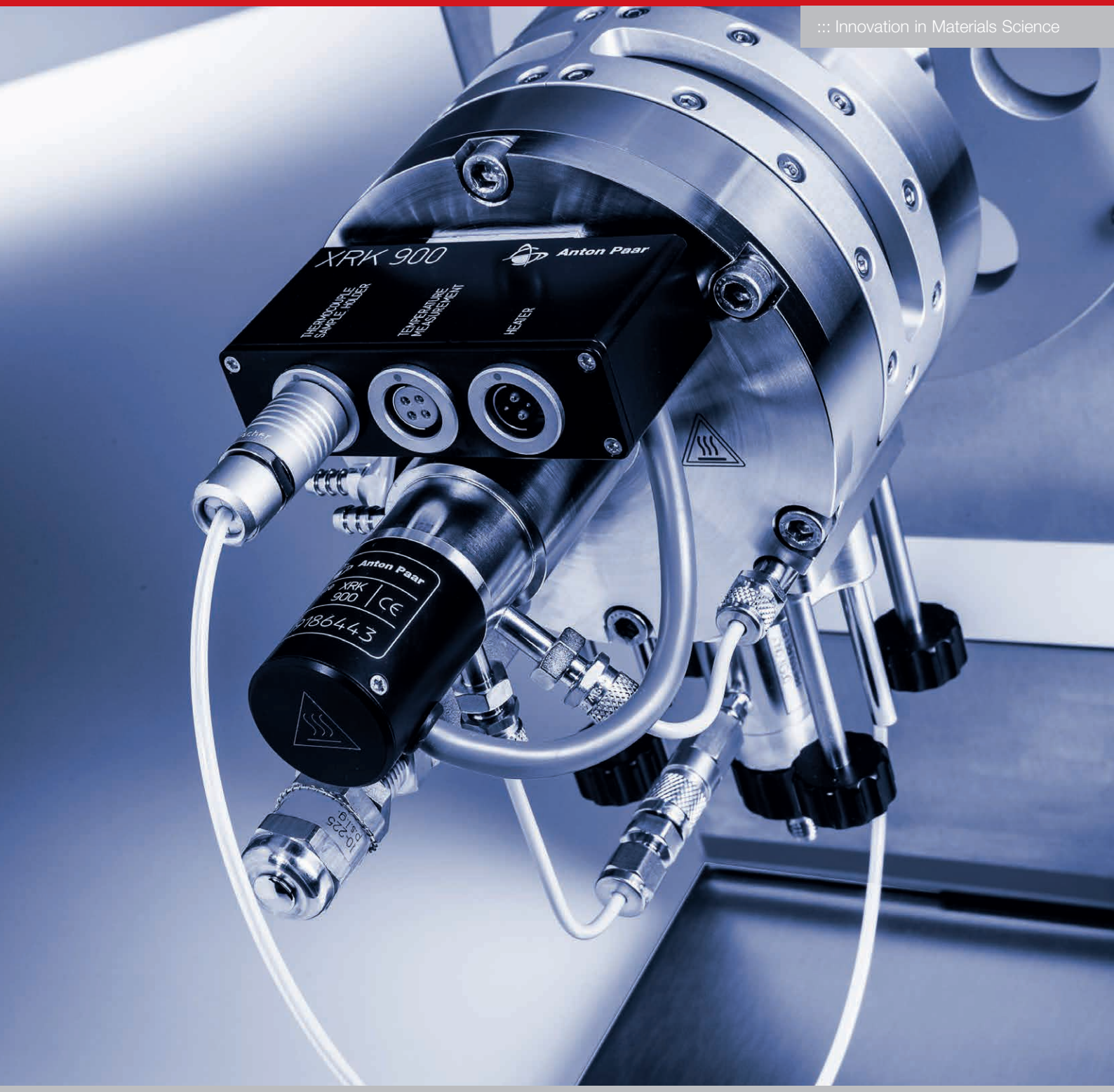
Anton Paar

::: Innovation in Materials Science



XRK 900 Reactor Chamber

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

Unmatched robustness and reliability for long-term use!

The optimal setup for solid state-gas reactions

XRK 900 allows for experiments in reducing, inert or oxidizing atmospheres at up to 900 °C and at pressures from 1 mbar to 10 bar. The special design of the furnace guarantees excellent temperature uniformity and the absence of temperature gradients in the sample. Two thermocouples, positioned inside the furnace and on the sample holder, reliably measure and control the sample temperature.

Homogeneous gas filling without dead volumes

Well-defined atmospheric conditions are essential for studies of solid state-gas reactions. The elaborate design of the sample chamber without any dead volumes ensures homogeneous filling with reaction gas. The housing can be heated up to 150 °C to prevent condensation of reaction products.

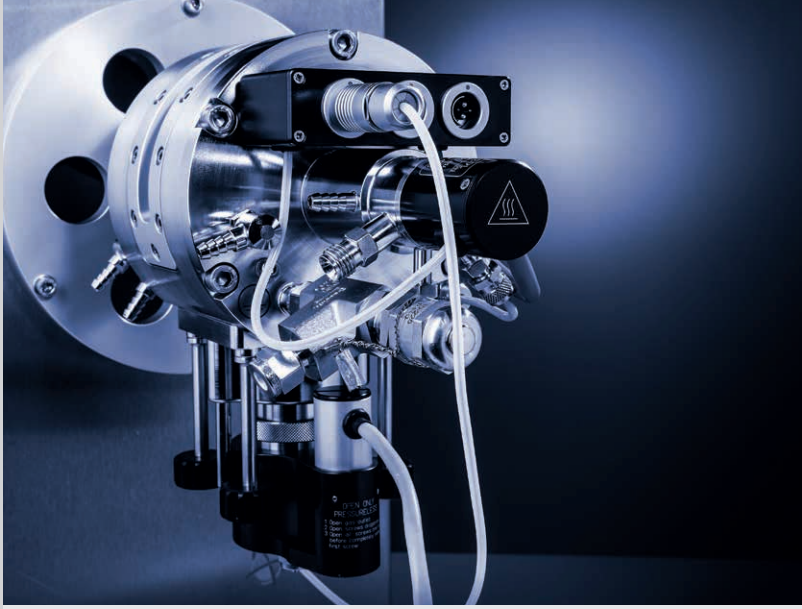
Sample holders made of ceramics, stainless steel and Inconel are available in closed and open versions. The open sample holders allow gas flow through the sample and extraction of the gas for simultaneous analysis of samples' structure and chemical activity.

Unmatched in robustness and performance

With its compact design, the XRK 900 reactor chamber can be mounted on all common powder diffractometers. The use of highly chemically resistant components ensures the chamber's long working life. The sample spinning option provides highly random grain orientation, a necessity for good diffraction data quality and subsequent profile fitting routines.

Applications

- Investigation of reaction-driven structure changes
- Simultaneous investigation of structural and catalytic parameters of catalysts
- Monitoring of crystallite growth and recrystallization processes
- Kinetic studies of solid state and solid-gas reactions
- Formation and analysis of materials which are unstable under ambient conditions
- Simultaneous measurement of crystallographical and electrical properties



Features and benefits

- Furnace heater for excellent sample temperature uniformity
- Reliable measurement and control of the sample temperature
- Homogeneous gas filling without dead volumes
- Heatable housing to avoid condensation of reaction products
- Sample spinning for good diffraction data quality
- Special sample holders for gas extraction through the sample
- Easy exchange of samples
- High quality materials for a long working life
- Mountable on all common powder diffractometers

Technical specifications	
Temperature range	25 °C to 900 °C (upper limit depending on sample holder and gas)
Pressure range	1 mbar to 10 bar
Atmospheres	O_2, N_2, inert gases, other non-hazardous and non-corrosive gases
Sample holders	Ceramics, stainless steel or Inconel
Housing temperature	max. 150 °C
X-ray scan range	0 °2θ to 165 °2θ, reflection geometry

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www.anton-paar.com