

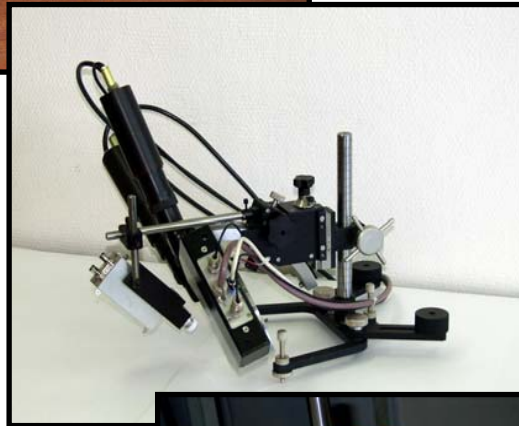
RIKOR - Portable X-ray Diffractometer with Kumakhov Polycapillary Half-Lenses for Residual Mechanic Stress Analysis



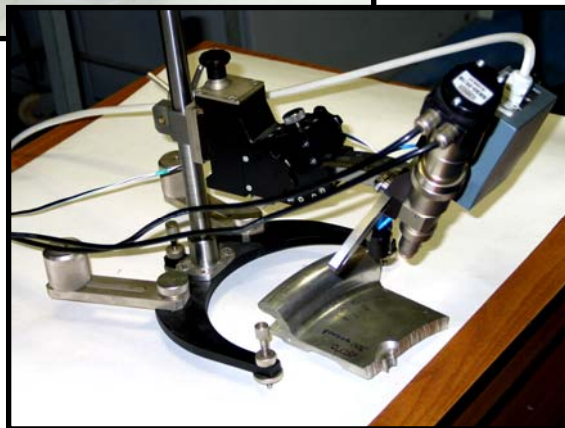
Goniometer, whereon the irradiator equipped with a half-lens and the detector are mounted



The instrument may be equipped (an option) with special arms making it possible to put the instrument of parts of any shape and size



The instrument can be fitted with a supplementary x-ray tube and energy-dispersion detector to enable elemental analysis



The range of inclination angles Ψ of the irradiators and the detector relative to the vertical axis is $0 \div 40^\circ$.

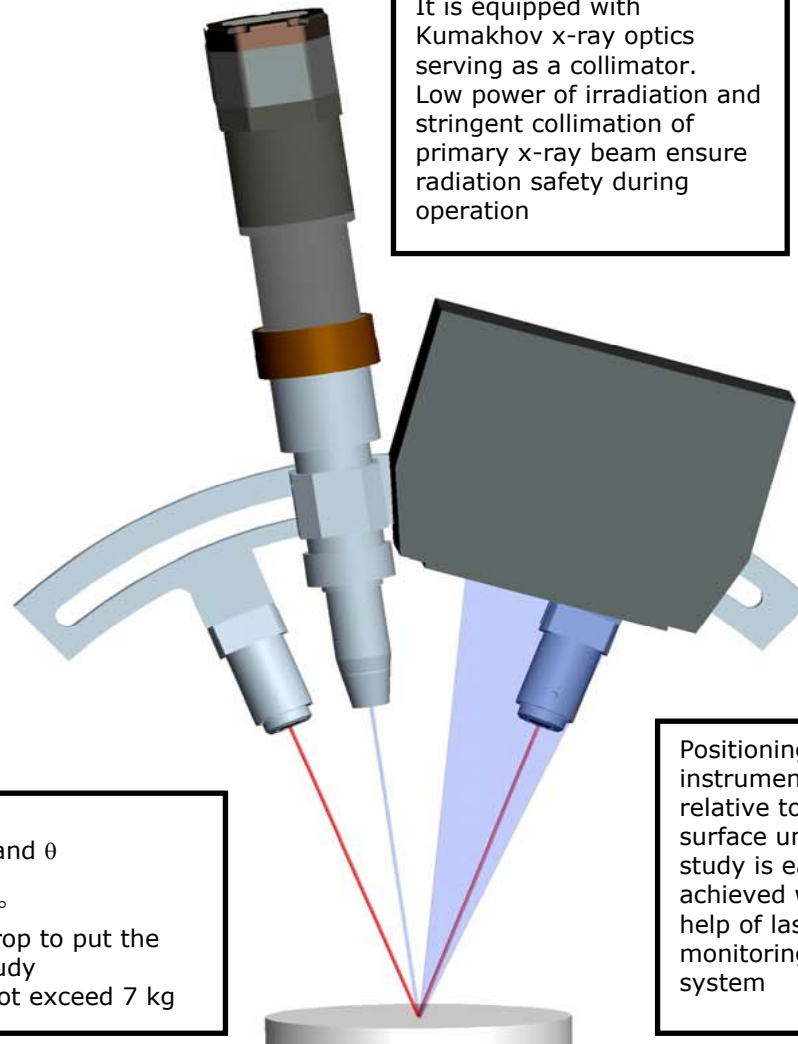


The goniometer weighs 8 kg only, hence, it is easy to deliver the instrument to and put it on the item under investigation

Portable Diffractometer for Nondestructive Mechanic Residual Stress Analysis

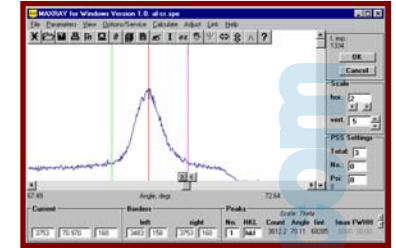
The instrument has been proven both in the field and in laboratory environment. It embodies over 15 years of our experience in residual stress measurements. We have designed it portable, light-weight, and simple in operation. Now it is easy and fast to determine residual stresses in parts and constructions of any shape and size. The range of objects that can be analyzed is easily broadened. Our diffractometer will help you in any industry where residual stress analysis is required.

Small-size goniometer
Fast manual setting of angles Ψ and θ
The range of angles Ψ is 0 to 40°
The range of angles θ is 53 to 82°
The scope of supply includes a prop to put the instrument on any item under study
Weight of the goniometer does not exceed 7 kg



Miniature x-ray tube. Fast replacement of tube with Cu, Cr, V, Fe anodes. It allows investigation of any materials. It is equipped with Kumakhov x-ray optics serving as a collimator. Low power of irradiation and stringent collimation of primary x-ray beam ensure radiation safety during operation

Original user-friendly software provides for immediate resultant stress value after measurement. It runs in Windows 98/2000/Me/XP environment.



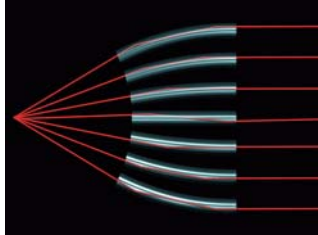
Patented position-sensitive detector
Excellent speed, stability and wide angular range of measurements.
Fast setting to the required angle for registration
Low level of degradation in the course of operation.
High radiation resistance
In contrast to gas-flow detector, does not require gas cylinder

Small-size electronic unit is fully ready for operation in field. Integrated electronic unit provides power supply, control and spectrum registration.

Positioning of the instrument relative to the surface under study is easily achieved with the help of laser monitoring system



Irradiator



The Kumakhov polycapillary half-lens used here allows creating spatially collimated x-ray beam with divergence of $\sim 10^{-3}$ radian, hence, significantly improving the accuracy of determining the diffraction maximum position.

Another feature is fast replacement of tube within 2-3 minutes.



*Power = 10 W power
Anode = Cu, Cr (Mo, Fe-options)
Focus Size = 0.2x2mm
Air Cooling*

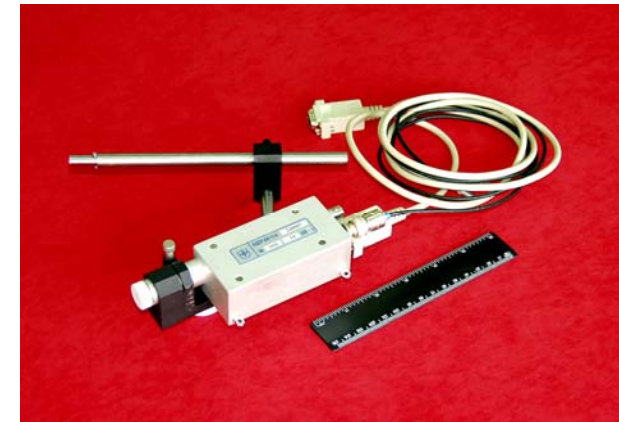
10 cm

Use of miniature transmission x-ray tubes that do not require special cooling and x-ray half-lenses allow creating a portable compact instrument

Detectors



Patented position-sensitive sealed detector with Be window of 50 mm in size
Precision – 0.05° based on 2θ
Angle of Simultaneous Registration - 10° based on θ
A K_{β} filter can be installed in front of the detector window



The instrument can be equipped with a spectrometry channel based on semiconductor detector for elemental analysis of the item under investigation
Sensitive Surface Area – 7mm²
Energy Resolution – 170eV

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