

X-Ray Diffractometer System



Make: Rigaku Corporation, Japan

Model: SmartLab 3kW

Key Specifications:

X-Ray Generator

Max Power: 3kW; **Voltage:** 20-50kV, 1kV step; **Current:** 2-60mA, 1 mA steps

Goniometer

Higher resolution Theta/Theta, holds the sample in horizontal direction and stationary position

Scanning method : θ_d/θ_s (coupled or independent)

Measurable angular range: -10° to 160° (-90° for positioning of Goniometer in vertical transmission geometry)

Scanning Step Width : Minimum step width (θ_s/θ_d) : 0.0001deg

Angular reproducibility: $\pm 0.0001^\circ$

Goniometer radius: 300 mm

X-Ray Tube

Target: Cu Anode with 1 line and 1 point focus.

Focus: X-Ray Tube has 1 line and 1 point focus which can be rotated 90° to change the focus.

Insulation: Sealed X-ray tube is having Ceramic Insulation

Sample stage

Thin film sample stage with motorized Z- direction movement of -10 to +2 mm with minimum step width is 0.0002mm

Zero background sample holders with groove

Reflection and Transmission Stage with sample holder

Optics

Cross Beam Optics - Permanently fixed and permanently aligned multi-layer, multi graded mirror to switchover from Bragg Brentano Geometry to Parallel Beam Geometry

X-ray detector

D/tex Ultra 250 solid state (semiconductor) detectors with high degree of linearity (i.e., 99% for Cu in the range of 2.5×10^8 CPS and having very less background noise).