

Beam delivery system GeniX CU High Convergence



Fig. 1: Control unit

Applications

- Rapid X-ray Reflectometry (full beam)
- Scanning X-ray Reflectometry (with slit)
- Small Spot diffraction for in-line metrology

Benefits

- high X-ray beam intensity
- high angular flux density
- customizable asymmetric convergence
- small spot capability
- excellent beam focusing
- extremely stable beam
- compact system - easy to integrate
- low power & low maintenance system
- smart source power management
- customizable asymmetric convergence
- intuitive user interface

Options

- adjustable slit system
- configurable collimator system
- software utility for remote operation

Accessories

- alignment camera
- pin diode detector
- dry vacuum pump
- water to air chiller
- beam alignment system (3 points)

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The GeniX Cu High Convergence X-ray beam delivery system combines a high brilliance micro focus X-ray source with the latest FOX3D optic technology to deliver an intense, monochromatic X-ray beam with excellent focusing characteristics.

The system is configured with an aspheric focusing optic of high angular collection efficiency that generates a beam with enhanced flux density and high convergence in the sagittal direction. The optimal coupling of the high convergence precision optic and the micro focus source of the GeniX Cu High Convergence produces a well defined, small spot at focus. Optional slits can be mounted to limit the system's convergence in one plane and thus optimize measurement resolution while maintaining an intense beam at the sample.

The excellent beam properties are matched by an unprecedented stability and high reliability to provide a powerful, cost-effective, and low maintenance beam delivery system, ideal for applications that require a small spot, with very high beam intensity and convergence that can be optionally adjusted to match the measurement requirements.

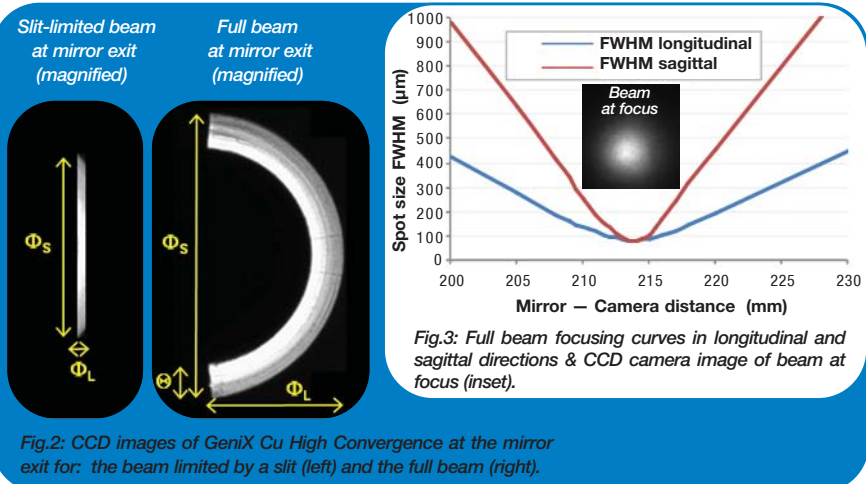


Fig.2: CCD images of GeniX Cu High Convergence at the mirror exit for: the beam limited by a slit (left) and the full beam (right).

Fig.3: Full beam focusing curves in longitudinal and sagittal directions & CCD camera image of beam at focus (inset).

Preliminary Technical Data

Subject to technical changes without notice

Beam features

• Wavelength	1.54 Å / 8 keV (Cu Kα)	
• Spot size at focus (FWHM, 50µm source)	80 x 80 µm ² FWHM	
• Nominal Distance from optic centre to focus	210 mm	
• Beam configuration	Full beam	Slit-limited Beam
• Typical flux (in vacuum, 50W/50Kv-1mA source)	> 440 x 10 ⁶ photons/s	> 26 x 10 ⁶ photons/s
• Beam Convergence (Φ _L , Φ _S and Θ are defined in Fig.2)	Φ _S ≥ 4 degrees Φ _L ≥ 2 degrees Θ = 0.54 degrees	Φ _S = 2.6 degrees Φ _L = 0.05 degrees

Electronic

• Dimensions	3U — 19" - 600 mm in depth
• Total weight	13.6 Kg
• Power	110/220 V (AC) or 24 V (DC)

Head

• Dimensions (L x W x H)	20 x 33 x 35 cm ³
• Total weight	Maximum 14.5 Kg

Integration

• System power consumption	150 Watts
• Remote control features	Ethernet port & software utility
• System shutters	Safety & measurement shutters
• Cooling flow rate (closed loop)	>1.2 l/min (set point 25°C)
• Dry vacuum pump	Working pressure : 3 mbar Pumping speed : 0.6 m ³ /h