Technical data Sheet

Collimating multilayer optic
FOX3D CU 12_INF

FOX3D CU 12_INF is a new generation collimating optic from Xenocs. This optic constitutes an improvement both in terms of total flux, beam divergence and beam uniformity compared to our previous FOX2D generation. It benefits from Xenocs' exclusive high precision paraboloidal substrate with low slope error and a state of- the-art multilayer.

FOX3D CU 12_INF can be efficiently coupled to small focus sources (smaller than 200 microns) to generate a highly parallel X-ray beam with high intensity due to its unique single reflection design. In particular for SAXS and High Resolution X-ray Diffraction applications FOX3D CU 12_INF provides increased useful flux enabling to achieve higher resolution or better data quality measurements.

With the Xenobox, the FOX3D optic can be adapted on all X-ray sources available on the market and is also available in our GeniX source. Due to its very low divergence, it can also be used on synchrotron beam lines either to refocus an incoming parallel beam or to collimate a beam collected from a small spot.

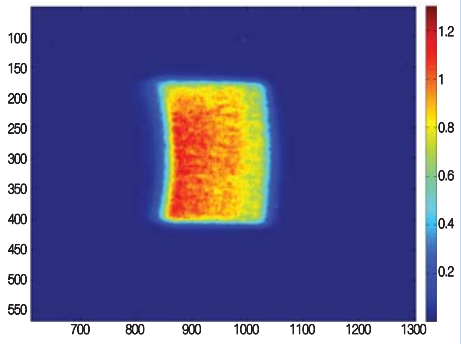

Fig. 1: Typical beam profile after a Ge CC [004] symmetric crystal (FWHM of 35µrad).

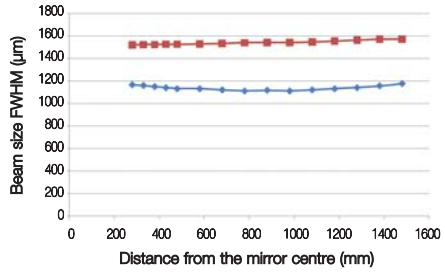

Fig. 2: Experimental propagation curve of the beam shaped by the FOX3D CU 12_INF optic on a 50µm source.

Technical Data

PRELIMINARY - Subject to technical changes without notice

Beam features	
• Wavelength	1.54 Å / 8 keV (Cu Kα)
• Integrated flux (on 70µm source 40kV, 30mA in vacuum)	> 2 x 10^9 photons/sec
• Total divergence (on a 70µm source)	< 0.8 x 0.8 $mrad^2$ FWHM
• Kα spectral purity	Typically > 97%
• Kβ contamination	Typically > 0.3%
• Beam size at mirror exit	1.1 x 1.5 mm^2
Optical & Mechanical features	
• Nominal distance from source to optic centre	120 mm
• Nominal mirror length	60 mm
• Substrate with optimized shape	Paraboloid of revolution
• Mechanical dimensions (L x H x W)	202 x 104 x 40 mm^3
Optional Alignment Box	
• Primary vacuum housing	Optic protection and reduced absorption
• Kapton® windows	Loss per window : 0.75%
• Dry vacuum pump	Working pressure : 3 mbar Pumping speed : 0.6 m^3/h Voltage 220 or 110V

Principal Features
- *single Bragg reflection optic*
- *high efficiency mutilayer coating*
- *high angular collection efficiency*
- *aspheric substrate (paraboloid)*
- *high collection angle*

Benefits
- *enhanced X-ray beam intensity*
- *very high flux density*
- *excellent beam collimation*
- *low cost of ownership (under vacuum)*
- *easy to align*
- *adaptable to all rotating anode generators & micro focused sealed tubes*

Applications
- *Small Angle X-ray scattering (SAXS)*
- *High Resolution diffraction*
- *X-ray diffraction*
- *X-ray reflectometry*

Optional Accessories
- *alignment camera*
- *collimator*
- *pindiode detector*
- *vacuum pump*
- *alignment stage*

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Xenocs - A spin off company from Institut Laue Langevin