

Collimating multilayer optic FOX1D CU 12_INF



Fig.1: FOX1D CU 12_INF with alignment box

The FOX1D CU 12_INF is a graded multilayer optic having a parabolic shape in one dimension for 1D beam shaping. FOX1D CU 12_INF benefits from the expertise of XENOCS in graded multilayer optics : it provides a high intensity monochromatic beam with excellent beam properties. It can be used as a collecting optic or analyzer.

When used as collecting optic, FOX1D CU 12_INF is typically coupled to a x-ray line source to collect divergent beam and provide a collimated beam for high resolution applications. In particular, it can be used as a beam conditioning optic placed upstream a crystal monochromator in High Resolution X-ray Diffraction or X-ray Reflectometry.

The compact mechanical design assures the easy and rapid alignment of the vacuum housing, which fits to all X-ray generators (X-ray rotating anodes or sealed tubes).

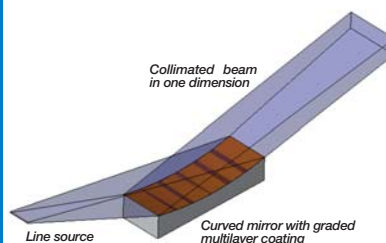


Fig.2: Optical design

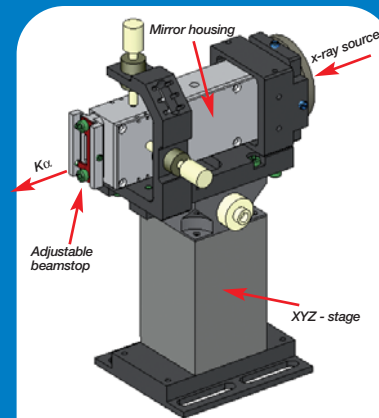


Fig.3: Alignment box

Benefits

- 1D beam definition
- low divergence and high flux
- enhanced lifetime and lower cost of ownership (under vacuum)
- compact mechanical design
- reduced background
- fits all X-ray generators (rotating anode generators or sealed tube)

Applications

- Reflectometry
- Powder Diffraction
- SAXS (Small Angle X-ray Scattering)
- XRD (High Resolution Diffraction) coupled with a monochromator

Optional Accessories

- crystal monochromator
- alignment camera
- vacuum pump

19 Rue François Blumet
38360 Sassenage - France

Phone: +33 4 76 26 95 40

Fax: +33 4 76 26 95 49

www.xenocs.com

sales@xenocs.com

Technical Data

Subject to technical changes without notice

Beam features

| | |
|---|---|
| • Wavelength | 1.54Å / 8keV (Cu K α) |
| • Beam size (at the mirror exit) | 1.2 x 8 mm ² (typical) |
| • Typical flux (with 1.2KW Fine Focus source) | ~8 x 10 ⁹ photons/s (at mirror exit , under vacuum) |
| • % of flux after Ge004 asym CC | ~5% (under vacuum) |
| • Beam uniformity | ± 13% [(I _{Max} - I _{Min}) / (I _{Max} + I _{Min})] |
| • Collected angle | 11.4 mrad (0.65°) in one plane |
| • K α spectral purity | > 97% |
| • K β contamination | Typically <0.3% |

Optical & Mechanical features

| | |
|---|--|
| • Divergence | 0.4 mrad with 40 microns source |
| • Distance from source to optic centre | 12 cm |
| • Substrate with optimized shape | Parabolic |
| • Overall FOX 1D system length | 140 mm |
| • Mirror length | 60 mm |
| • Reversible mechanical housing | 6° take off angle ± 2 x Bragg angle |
| • Tilt XYZ micrometric screws for a simple and sensitive adjustment | Bragg (tilt Z): 10° total range Tilt (tilt Y): 10° total range Chi (tilt X): 10° total range |
| • XYZ adjustment table (optional) | 14x14x5 mm ³ stroke |

Optional Alignment Box

| | |
|--------------------------|--|
| • Primary vacuum housing | Longer lifetime and lower cost of ownership |
| • Kapton® windows | Loss per window : 0.75% |
| • Dry vacuum pump | Working pressure : 3 mbar Pumping speed : 0.6 m ³ /h Voltage 20V or 110V AC |