

# Flexible Design, Unyielding Performance

flex-Beam™ is a unique, compact X-ray generator that combines a low-powered X-ray source and a precisely-aligned polycapillary optic to deliver a bright X-ray beam for advanced material analysis. flex-Beam is available in several standard focused or collimated beam configurations and can also be customized for specific applications.

## Industry-Leading Performance

- flex-Beam's intensity is up to 10,000 times greater than conventional pinhole collimators
- Focal spot as small as 6µm
- 50 watt performance exceeds conventional kilowatt-powered X-ray tubes
- Integrated safety shutter & 8-position filter wheel

## Uncomplicated Integration

- The fully integrated solution is compact and easily integrates into any instrument or system

## Easy Serviceability & Field-Alignment

- Innovative design allows for the ability to interchange different optics, as well as service the X-ray source in the field

# flex-Beam™



# Custom Solutions

fleX-Beam™ can be used in different applications where a compact X-ray source with high photon flux is required. Various configurations are available to be used in  $\mu$ -XRF, diffraction, in-line process monitoring or in-situ analysis, and medical imaging applications. XOS provides custom fleX-Beam optics based on customer requirements.

## Standard fleX-Beam Models

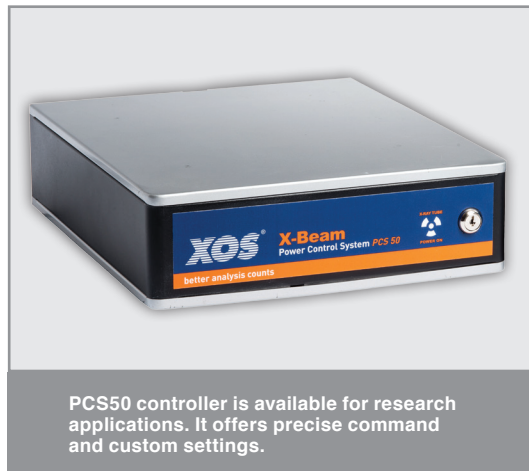
Highly-Focusing Optics							<b>Typical Applications: Micro XRF</b> <ul style="list-style-type: none"> <li>- Small Feature Analysis</li> <li>- Film &amp; Plating Thickness</li> <li>- High-Resolution Elemental Mapping</li> </ul> <p><i>* Note: For Mo Ka radiation using a 100<math>\mu</math>m, Mo-anode x-ray source at 50 kV/1mA</i></p>
Working distance (mm)	2	4	9	20	50	100	
Focal spot size* ( $\mu$ m, FWHM)	8	15	25	45	100	180	
Output beam intensity* (photons/s)	$3.5 \times 10^7$	$7.0 \times 10^7$	$1.5 \times 10^8$	$2.0 \times 10^8$	$3.0 \times 10^8$	$4.0 \times 10^8$	

Slightly-Focusing Optics					<b>Typical Applications: XRD</b> <ul style="list-style-type: none"> <li>- Residual Stress Analysis</li> <li>- Laue Diffraction</li> <li>- Powder Diffraction</li> </ul> <p><i>* Note: For Cu Ka radiation using a 100<math>\mu</math>m, Cu-anode x-ray source at 50 kV/1mA. Working distance is 140mm and focal spot size is 0.5mm</i></p>
Output convergent angle (degree)	0.25	0.5	1	2	
Output beam intensity	$8.5 \times 10^8$	$1.6 \times 10^9$	$5.0 \times 10^9$	$1.6 \times 10^{10}$	

Highly-Collimating Optics									<b>Typical Applications: XRD &amp; WDS</b> <ul style="list-style-type: none"> <li>- Powder Diffraction</li> <li>- Texture &amp; Strain Measurement</li> <li>- Wavelength-Dispersive Spectrometer</li> </ul> <p><i>* Note: For Cu Ka radiation using a 100<math>\mu</math>m, Cu-anode x-ray source at 50 kV/1mA. Output beam divergent angle is 0.2°</i></p>
Output beam diameter (mm)	0.5	1	2	3	4	6	10	20	
Output beam intensity (photon/s)*	$3.0 \times 10^8$	$1.2 \times 10^9$	$3.5 \times 10^9$	$6.5 \times 10^9$	$1.0 \times 10^{10}$	$1.3 \times 10^{10}$	$1.8 \times 10^{10}$	$2.5 \times 10^{10}$	



### Technical Specifications

Available Targets*	Cr, Cu, Mo, Rh, W
Nominal Output Power	50W, cables customized
Nominal Source Current	1 mA
Stability	< 0.5% RSD over 8 hours, temperature independent
Ambient Operating Temperature	5°-60° C
Cooling Mode	Integrated forced air

\*Other target materials may be available upon request.



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