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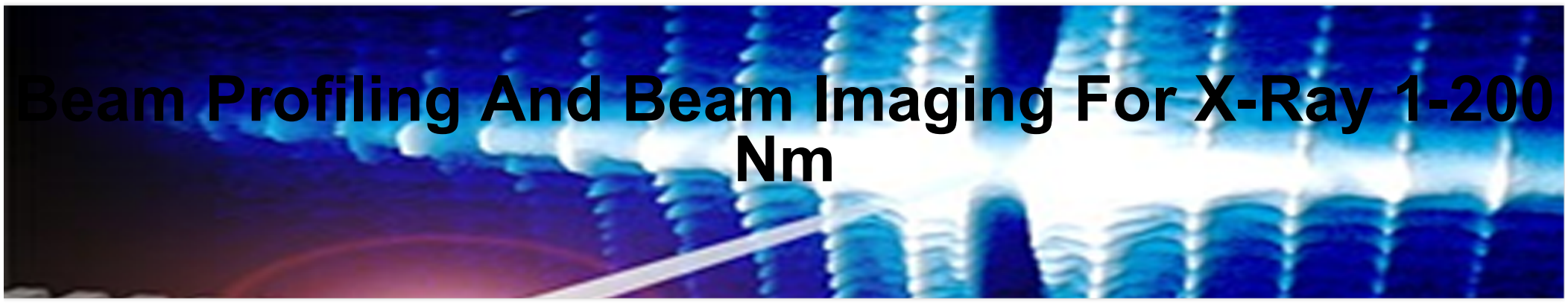


Beam Profiling And Beam Imaging For X-Ray 1-200 Nm

The goal of visualizing and measuring beams in the X-ray has taken on new importance. Star Tech Instruments has developed new systems to analyze these beams for Power/ Energy, Uniformity, High resolution Beam Profile and Image analysis.

Features

NIST Traceable (5nm to 200 nm)
High Transmission
No Microphonics
Low Noise
Minimal Long-term Drift
Polarization Insensitive
High Damage Threshold to 500 mJ/cm2
Full Range of Input Apertures
Wide Wavelength Range 1 nm to 200 nm*
Extremely Linear
Wide Field of View
Wide Field input apertures

Beam Profile/ Image
High Resolution to 0.6 µm
Wide Field of View
High Damage Threshold to 500 mJ/cm2
1 Billion+ pulses without damage
Polarization Insensitive
Full Range of Input Apertures
Wide Wavelength Range 1 nm to 200 nm*
Extremely Linear
Vacuum compatible to 10-10 Torr
Range of input apertures

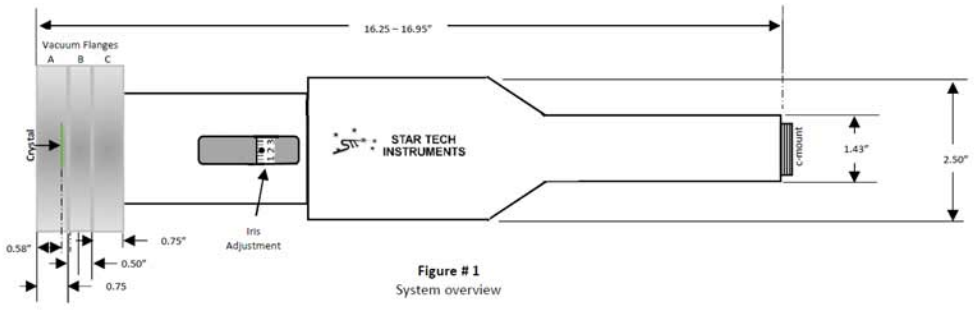


Figure # 1
System overview

Model µBIP10x is a vacuum compatible (1x10-10 Torr) Beam profiler and Beam Imaging system designed for high resolution at 1-10 nm. The system is useful to 200 nm. The 10x mag. field of 1.5 mm has a resolution of 0.6 µm and is sensitive to very low energy levels. The system has been designed for use with a 1.3 x 1.3” sensor but can be modified for other camera formats. Different magnifications and cameras are available upon request.

The µBIP series is STI’s latest imaging system designed specifically for use with soft x-rays [1-2 nm]; it should not be used for longer wavelengths such as 193 nm or 248 nm from excimer lasers which would cause severe internal damage. Most importantly, the system is designed for use with high vacuum chambers using our custom vacuum flange assembly for attaching the optical system to the vacuum chamber. The flanges are rated at >10-8 Torr.

Features:

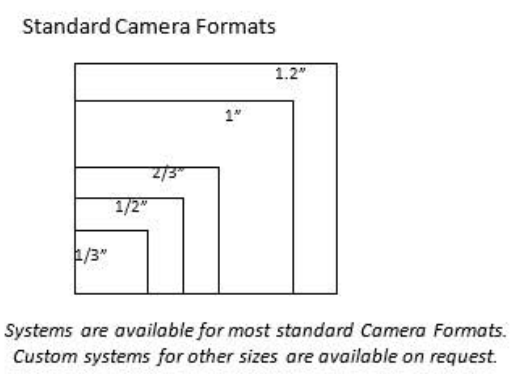
Focus: Adjustable ± 0.35”

Image Rotation:
Rotational adjustment about the optical axis for alignment to the camera sensor

Iris Diaphragm:
Adjustable from fully closed to wide open.

Camera mount: Standard c-mount

Vacuum Flanges: Conflat® copper vacuum flange, 2.75”, 304, SS. To <10-10 Torr. 2.5 x 1.0” XUV-18



Specifications:

Field of View:
1.5mm2 with 10x Microscope Objective

Wavelength:
1.0 - 20 nm other wavelengths and designs available to 405 nm

Resolution: 0.6 µm

Magnification: 7.5x and 10x

Vacuum Flanges: Conflat® copper vacuum flange, 2.75", 304, SS. To <10-10 Torr. 2.5 x 1.0" XUV-18

OAL: 16.25-16.95"

Vacuum Flange:

2.75" diam. With a 2.312" hole pattern

Values calculated using1" sensor. Actual values will be determined by the pixel size and overall size of the camera sensor.Measurements taken with sensor-2048 x 2048, 11.3 x 11.3 mm, 5.5 µm pixel, 4.2 Mega pixel camera.

Resolution:

The resolution of the final system is a function of the quality of the optics and the resolution of the camera (pixel size). STI uses diffraction limited optics in our system. The final resolution of the system will be primarily defined by the pixel size of the camera.

Products:

Energy Measurements (energy-power-probes.html)
Power Measurements (energy-power-probes.html)
Laser Beam Profiling (laser-beam.html)
Beam Imaging (laser-beam.html)
Beam Imaging in Extreme UV and X-ray (x-ray-beam-imager.html)
Accessories (accessories.html)

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