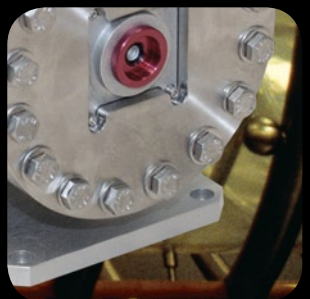
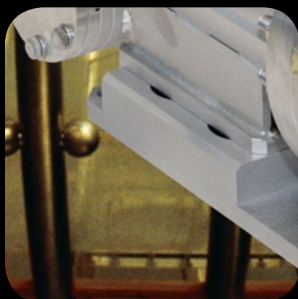


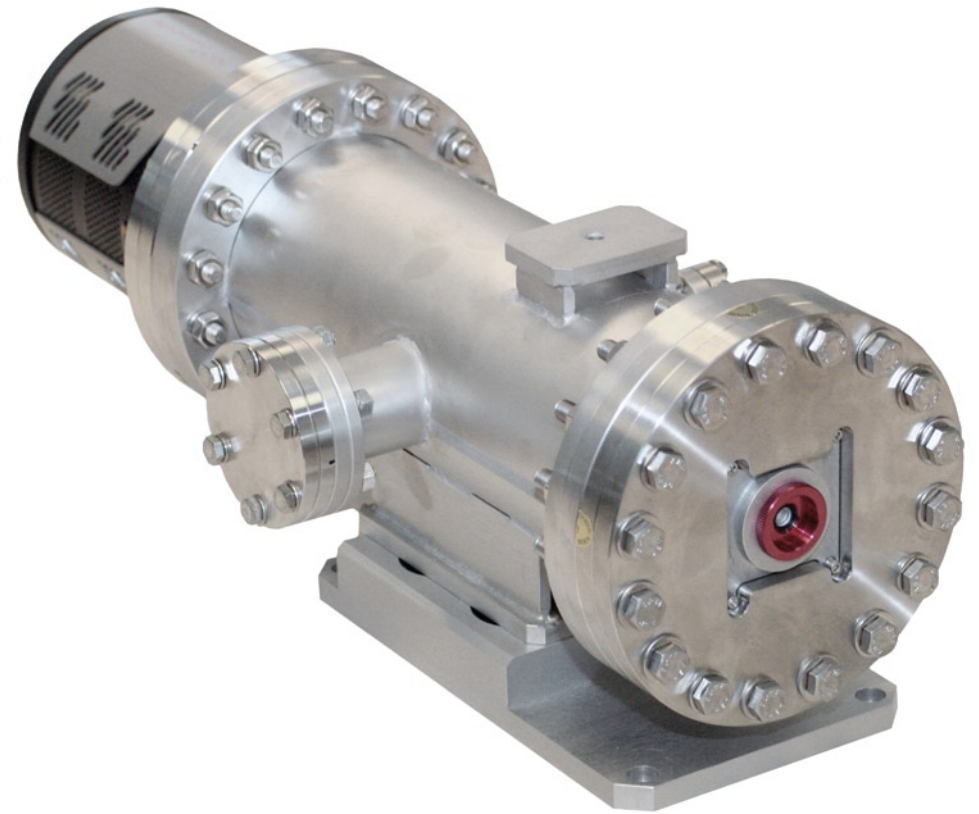
# HASO™ X-EUV

- Ultra short wavelength beam characterization, adjustment and alignment
- Adaptive optics and automatic beam alignment
- EUV lithography



*Imagine Optic™*

# HASO™ X-EUV



Imagine Optic's HASO X-EUV wavefront sensor, developed in conjunction with LOA and the SOLEIL synchrotron, is the only device of its kind available that offers you the extreme precision and direct measurement functionality needed for today's demanding laboratory and industrial applications.

- Synchrotron and X-fel beam alignment and characterization
- Micro and nano-beam focusing, automatic beam alignment, and high Strehl ratio for adaptive optics
- Perfectly adapted for laboratory applications
- Independent phase and intensity measurement

Designed and built in collaboration with our customers and with their needs as the top priority, the HASO X-EUV incorporates our patented rotated square technology to offer high spatial resolution and wide dynamic range, making it the ideal choice for EUV lithography, synchrotron and X-fel beam analysis. When used for adaptive optics, the X-EUV becomes a powerful tool for that provides you with micro and nano-beam focusing, a high Strehl ratio and precise control of the focal spot shape.

When combined with our powerful and easy-to-use software packages, you can easily conduct wavefront acquisition and reconstruction. Additional add-on modules offer features including extended wavefront reconstruction, PSF and MTF measurement, as well as a dynamic library that enables you to build your own software applications using this remarkable device.

If you would like more information, please call +33 (0)1 64 86 15 60 or visit [imagine-optic.com](http://imagine-optic.com).

	$\lambda_{\text{EUV}}$	$\lambda_{\text{X}}$	X
Aperture dimension	19.7 x 19.7 mm <sup>2</sup>	10.1 x 10.1 mm <sup>2</sup>	0.7 x 1.0 mm <sup>2</sup>
Number of sub-apertures dedicated for analysis	51 x 51	75 x 75	36 x 48
Curvature dynamic range	$\pm 0.5 \text{ m to } \pm \infty$	0.4 to 4 m – divergent beam	$\pm 40 \text{ mm to } \pm \infty$
Repeatability (rms)	$\sim \lambda/100$	$\sim \lambda/10$	0.03 nm
Wavefront measurement accuracy in absolute mode (rms)	$\sim \lambda/50$	$\sim \lambda/4$	0.1 nm
Wavefront measurement accuracy in relative mode (rms)	$\sim \lambda/75$	$\sim \lambda/5$	0.1 $\mu\text{rad}$
Tilt measurement sensitivity (rms)	0.05 $\mu\text{rad}$		-
Focus measurement sensitivity (rms)	$< 1.10^{-4} \text{ m}^{-1}$		$< 2.10^{-4} \text{ m}^{-1}$
Spatial beam sampling step	$\sim 390 \mu\text{m}$	$\sim 130 \mu\text{m}$	20 $\mu\text{m}$
Minimum readout time	$\sim 2 \text{ sec ( @1 MHz digitization )}$	$\sim 0.6 \text{ sec ( @2 MHz digitization )}$	17 ms
Working photon energy (wavelength) <sup>1</sup>	50 eV - 200 eV (7 nm - 25 nm)	1 keV – 4 keV (1 nm – 0.3 nm)	8 keV – 15 keV
Storage temperature / Operating environment	$< 55^{\circ}\text{C} / 5^{\circ}\text{C} - 30^{\circ}\text{C}$		
Compliant vacuum (hydrocarbon free compatible with clean vacuum)	$10^{-6} \text{ mbar}$		not vacuum compliant
Power supply	Via controller (100-110-220 or 240V AC)		Via Firewire (12V)
Interface	PCI board		Firewire

1) HASO X-EUV wavefront sensors can be optimized for other wavelength ranges. Contact Imagine Optic for more details.

**Imagine Optic**<sup>TM</sup>



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