



HASO

EUUV

Wavefront sensor **The Hartmann**

From EUV to soft X-Ray
Achromatic technology
Vacuum compatible



HASO EUV +

Imagine Optic's HASO EUV wavefront sensor was developed in collaboration with LOA laboratory and the SOLEIL synchrotron.

It is the only device of its kind that offers you the extreme precision and direct measurement functionality needed for today's most demanding laboratory and industrial applications.

APPLICATIONS

Designed and built in collaboration with our customers to meet their needs, the HASO EUV performs multiple functions.

With it you can :

- + Align and characterize Synchrotron, EUV-FEL and laser-driven secondary source
- + Do micro- and nano-focusing
- + Diagnose dense plasma
- + Align automatically EUV optical systems
- + Make EUV lithography
- + Analyze gas or solid high-harmonic generation

FEATURES

- + Compatible with coherent and non-coherent sources
- + Usable for closed- and open-loop adaptive optics
- + Patented rotated square technology offering high resolution and wide dynamic range
- + Suitable for mono- and polychromatic beams
- + Hydrocarbon free and compatible with 10^{-7} mbar



SPECIFICATIONS*

OPERATING SPECS

Aperture dimension
 Number of sub-apertures dedicated for analysis
 Minimum readout time
 Working photon energy (Wavelength range)
 Operating system

Standard EUV

13 x 13 mm²
 72 x 72
 ~ 600 ms (2MHz digitalization)
 30-300 eV (4-40 nm)
 Windows 10 & 11

High NA EUV

13.6 x 13.6 mm²
 80 x 80
 64 μ s to 2 s
 25-250 eV (5-50 nm)
 Windows 10 & 11

OPTICAL SPECS

Repeatability
 Wavefront measurement accuracy
 • In absolute mode
 • In relative mode
 Spatial sampling
 Tilt measurement sensitivity
 Focus dynamic range
 Numerical aperture

~ $\lambda/200$ RMS

~ $\lambda/50$ RMS @ 13.5 nm
 ~ $\lambda/100$ RMS @ 13.5 nm
 ~ 180 μ m
 0.05 μ rad RMS
 ± 0.5 m to $\pm \infty$
 0.013

~ $\lambda/200$ RMS

< $\lambda/20$ RMS @ 10 nm
 < $\lambda/40$
 ~ 170 μ m
 0.1 μ rad RMS
 ± 0.45 m to $\pm \infty$
 0.15

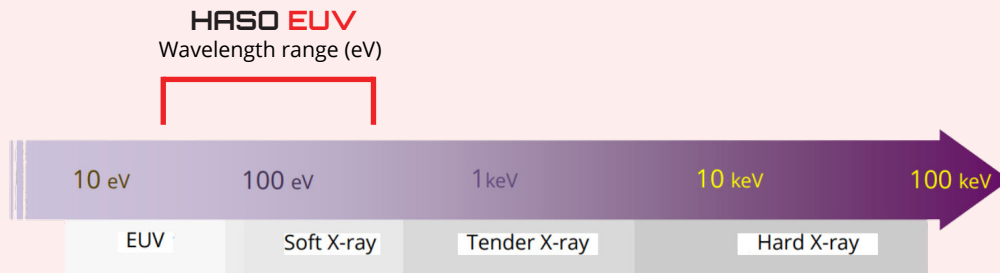
MISC

Dimensions (Height x Width x Length)
 Weight
 Sensor type
 Working temperature
 Compliant vacuum (hydrocarbon free)
 Interface
 Power consumption

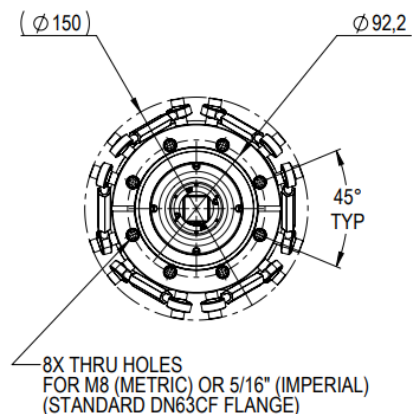
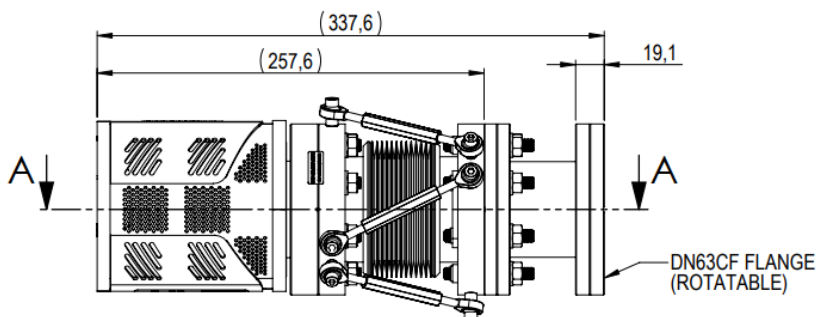
\varnothing 115 mm, L 270 mm
 8 Kg
 Vacuum interface
 15-30 °C
 10⁻⁷ mbar
 USB 2.0
 12 VDC

276 x 102 x 114 mm³
 3.3 Kg
 In vacuum
 15-30 °C
 5x10⁻⁷ mbar
 USB 3.0
 60 W @ 12 VDC

*Subject to changes without further notice



DIMENSIONS (mm)



SOFTWARE

WAVEVIEW™ Metrology Software

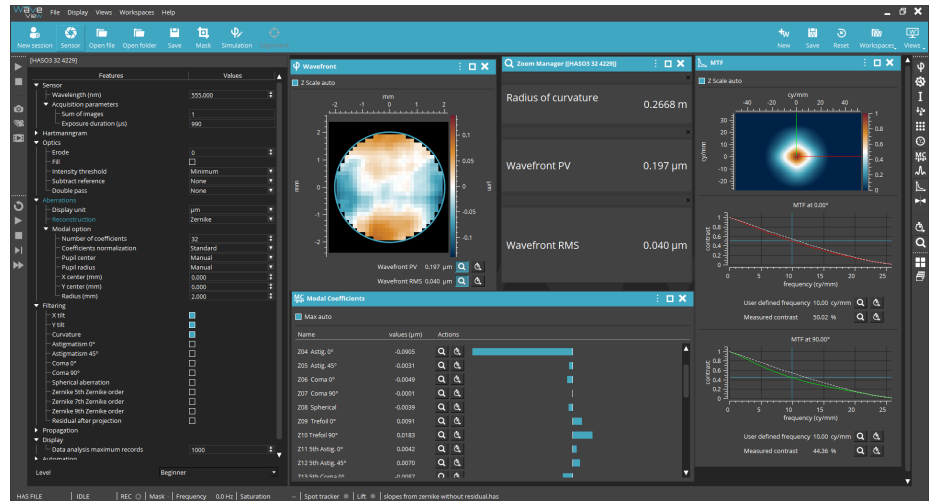
WAVEVIEW™ is the most advanced wavefront measurement and analysis software.

It offers more than 150 features and tools optimized for a wide range of highly demanding applications.

Options :

+ Extensions for PSF, MTF, M² and Strehl ratio

+ Optional SDK in C, LabVIEW and Python



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