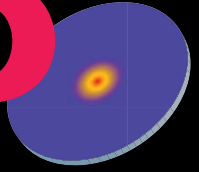


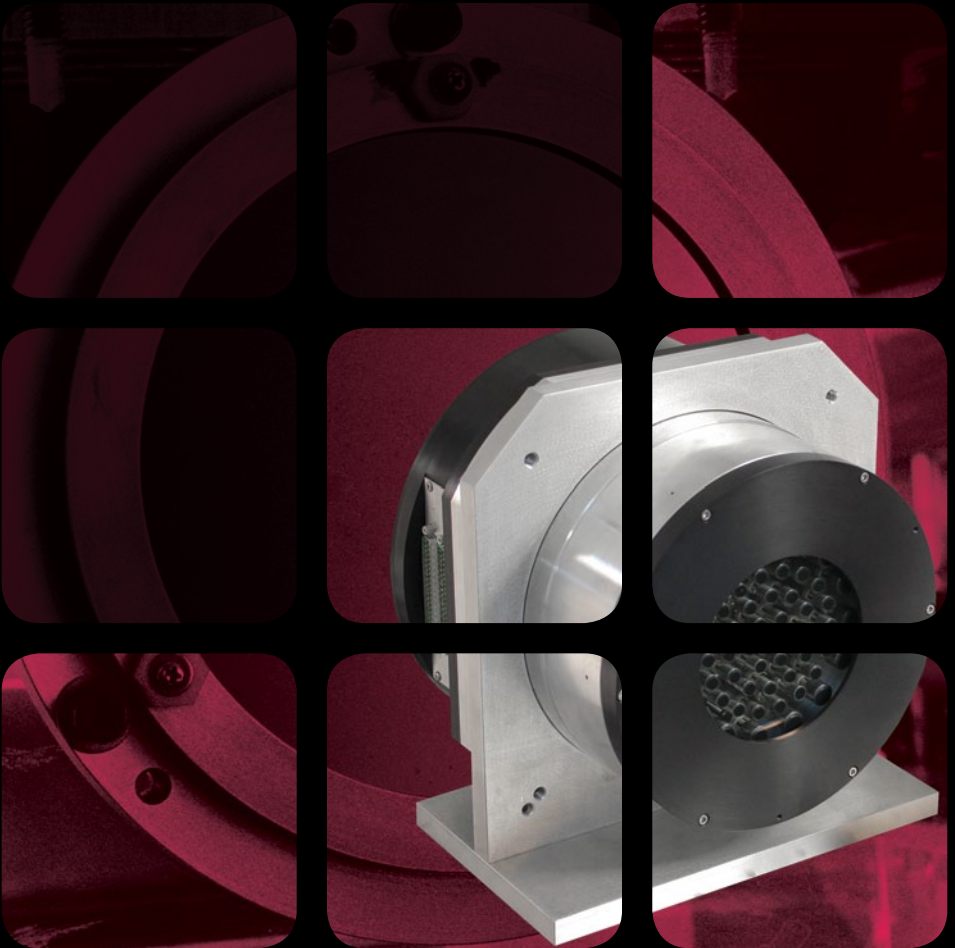
ILAO

Intense Laser Adaptive Optics



ILAO is a unique adaptive-optics solution designed to meet the stringent demands of intense laser users.

- Up to $\Phi 350$ mm
- Dielectric or metallic coatings available
- Replaceable reflective surface
- High optical quality and no print through (<10 nm) for typical laser correction
- 99% linearity, no hysteresis and excellent stability over time

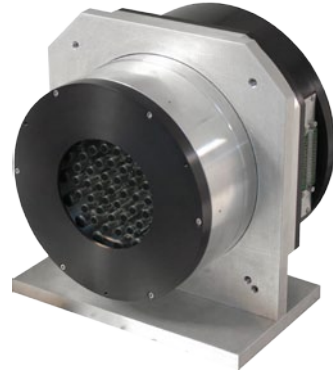




Intense Laser Adaptive Optics

A unique deformable mirror

ILAO™ (Intense Laser Adaptive Optics) is the most advanced deformable mirror available that is specifically designed for today's ultra-intense and ultra-fast lasers. Based on patented technology developed by ISP System, ILAO operates using mechanical actuators with astatic floating heads that perform wavefront shaping with nanometric precision. Depending on the type of laser, users can choose from replaceable dielectric or metallic reflective surfaces up to 350 mm in diameter.



What's more, once the optimal mirror shape has been achieved, power is no longer necessary to maintain ILAO's form. The fact that the mirror no longer dissipates any energy or heat from its interior ensures that its high optical quality surface (<10 nm rms) maintains a perfectly stable form over time and minimizes the risk of unwanted hotspots.



Number of actuators	37	52
Maximum stroke per actuator (PV)	± 5 to $\pm 20 \mu\text{m}$ (dep. actuator position*)	± 20 to $\pm 100 \mu\text{m}$ (dep. actuator position*)
Maximum generated wavefront (PV)	$>40 \mu\text{m}^*$	$>100 \mu\text{m}^*$
Surface quality (rms active flat)	$<10 \text{ nm rms}^*$	
Spatial frequency correction	Zernike orders up to 5*	Zernike orders up to 6*
Correction diameters	45 to 65 mm **	70 to 280 mm **
Pupil diameters	up to 80 mm**	up to 350 mm**
Linearity	99% for full actuator dynamic range*	
Hysteresis	no hysteresis*	
Coatings	dielectric or metallic	
Replaceable optical surface	yes	
Vacuum compatible	yes	

* Values obtained using Imagine Optic's HASO3 wavefront sensor and CASAO software.
** Larger diameter are available upon request.

A dedicated solution for ultra-intense and ultra-fast lasers

ILAO is the wavefront correction element of the full-featured adaptive-optics solutions that Imagine Optic provides for ultra-intense and ultra-fast lasers. When combined with a HASO3 wavefront sensor and our CASAO command & control software, you have a turnkey solution, where each element works together seamlessly via one ergonomic interface. For even more precision and intensity at the focal spot, the all-new PhaRAO corrects for aberrations at the end of the amplification chain.

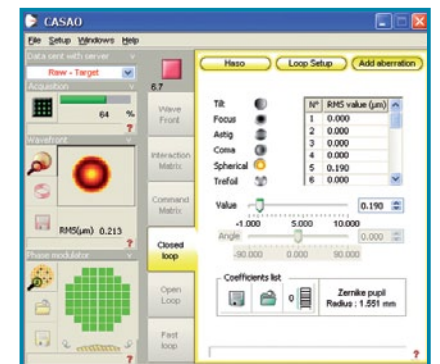
HASO™3



With their simultaneous, yet independent, measurement of both phase and intensity, HASO wavefront sensors provide up to $\lambda/100$ accuracy with resolutions ranging from 32×40 to 128×128 true absolute measurement points. With HASO3, users don't have to compromise dynamic range for accuracy thanks to HASO3's patented microlens technology. Even more, certain models connect via Giga-Ethernet, enabling them to be placed at large distances from the control room.

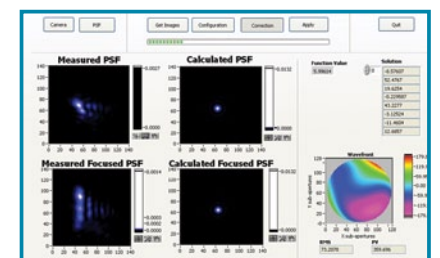
CASAO™

CASAO adaptive-optics command & control software provides a unique and ergonomic interface that allows you to acquire detailed wavefront measurements for analysis, precisely control your wavefront correction device, and perform instrument diagnostics. As an added benefit for intense lasers, CASAO has built in, user definable, security protocols that enable you to set your system to automatically shut down in the case of a suspicious, potentially damaging, situation.



PhaRAO™

PhaRAO is a wavefront-sensorless solution for correcting aberrations of focalization systems at the end of the amplification chain. It uses the diagnostic camera already in place and complex algorithms to measure aberrations at the focal spot then calculate the ideal form for your deformable mirror in order to optimize shape and intensity.



For more information, and to find the Imagine Optic office or distributor nearest you, visit imagine-optic.com/find.

Imagine OpticTM

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