

bendAO

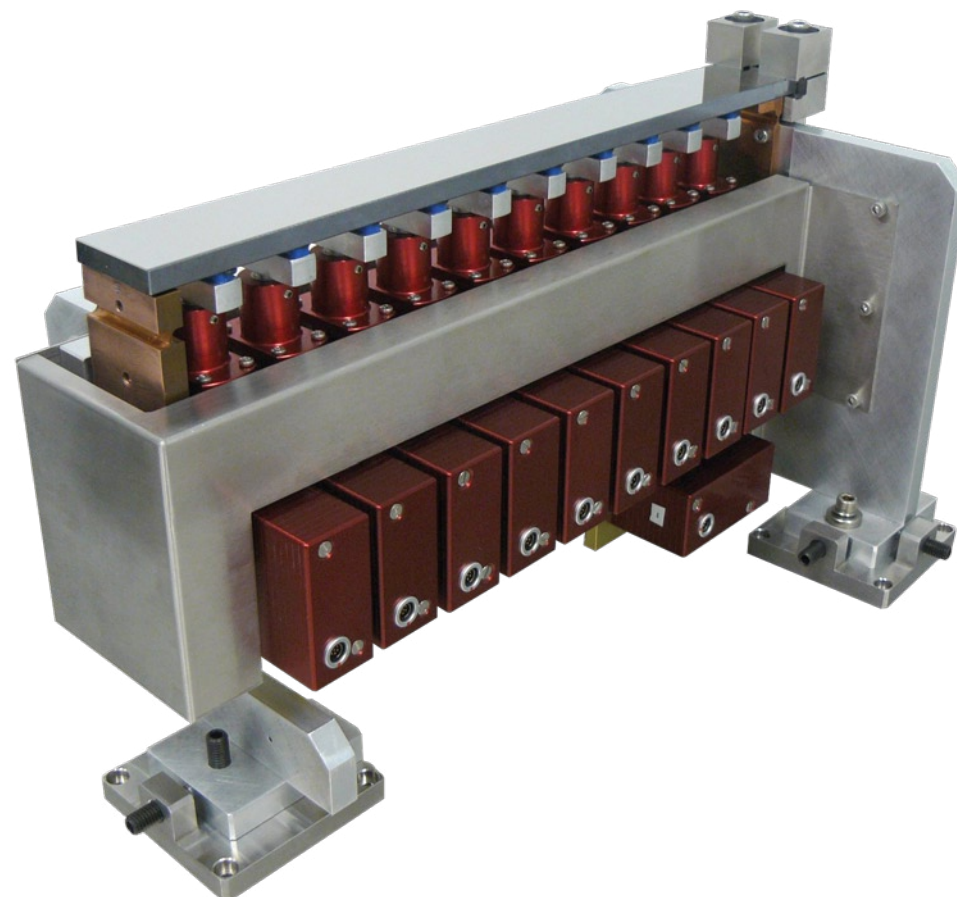
bendAO™ is a unique product that incorporates a high-elliptical curvature bender mirror with micro-actuator powered adaptive optics to provide you with powerful, all-in-one X-ray micro/nanofocusing and aberration correction.



Imagine Optic™

bendAO

- Bender mirror of excellent optical quality capable of assuming a wide range of elliptical shapes with a radius of curvature ranging from several tens of meters to infinity
- Available with useful lengths ranging from 0.1 to 1 meter
- In-line mechanical actuator array corrects for optical aberrations
- Virtually no hysteresis and near-perfect linearity
- No print-through effect when compared to piezo-actuator mirrors
- Final mirror shape assumed rapidly without drifting (a few second compared to several minutes with piezoelectric bimorph mirrors)
- Highly-resistant to electromagnetic perturbations during experiments



Jointly developed by Imagine Optic and ISP System, bendAO™ is a revolution in X-ray micro and nano-focusing. For the first time, you can simultaneously benefit from the focusing ability of a bender and the corrective ability of adaptive optics to achieve a new degree of precision in X-ray applications.

The first key to bendAO's unique abilities is its patented mirror design. Its unique shape and excellent optical quality allow it to perform precision focusing over a wide radius of curvature with an elliptical shape error of less than 0.2 μrad RMS. Once focusing has been achieved, bendAO's adaptive optics technology steps in to correct for optical aberrations caused by defects in the optical system or polishing errors.

bendAO's innovative actuator configuration means that their astatic floating heads ensure a ball-joint connection to the bender mirror whereas soft mirror pads eliminate the print-through effect that is often observed with piezo actuators. Even more, their in-line configuration enables you to correct for aberrations along the entire radius of curvature.

Each actuator is piloted by its own integrated microcontroller and power supply, and interactor communication is ensured by a unique algorithm that calculates their mathematical grading. Open-loop operation is fast and easy. Once bendAO's shape has been defined, the unit's mechanical design enables you to lock the shape and cut power. This makes the unit completely insensitive to electromagnetic perturbations that can affect experiments.

bendAO is completely customizable to your needs. For more information, please call +33 (0)1 64 86 15 60 or visit imagine-optic.com.

Available with useful lengths ranging from 0.1 to 1 m, bendAO is completely customizable to your unique needs

The following specifications for a bendAO 300 are provided as an example.

Working length	300 mm
Number of mechanical actuators	11
Range of radius of curvature	50 m to ∞
Minimum optical quality	<0.2 μrad (RMS)
Typical optical quality	<0.5 μrad (RMS)
Long term stability	<0.1 μrad (RMS)
Roughness (typical)	3 Å (RMS)
Maximum hysteresis	<0.1%
Linearity	>99%
Vacuum compatibility	10 ⁻⁶ mbar
Coatings	All standard coatings available
Dimension / weight	400 x 250 x 240 mm / 11kg

Imagine OpticTM



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