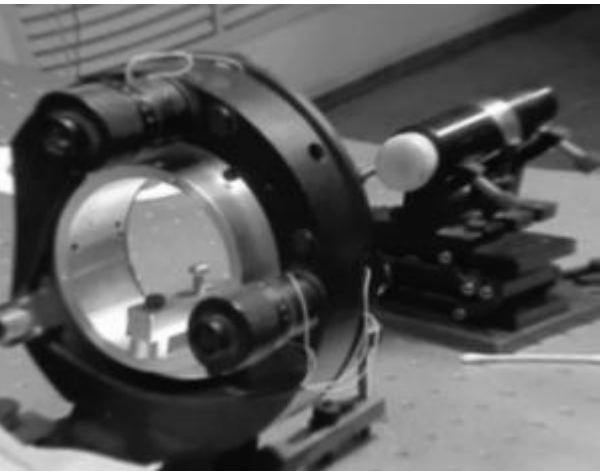

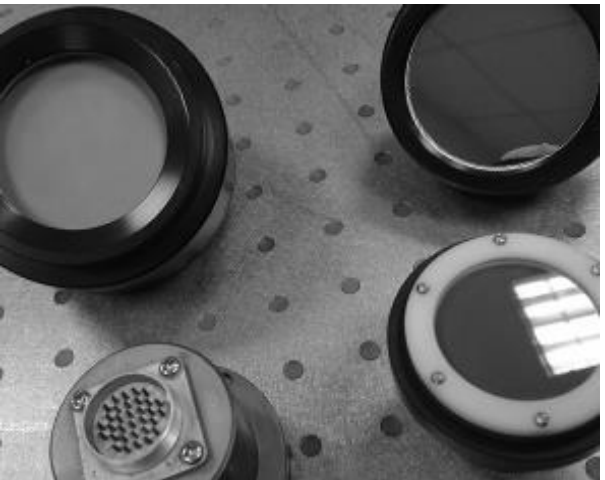

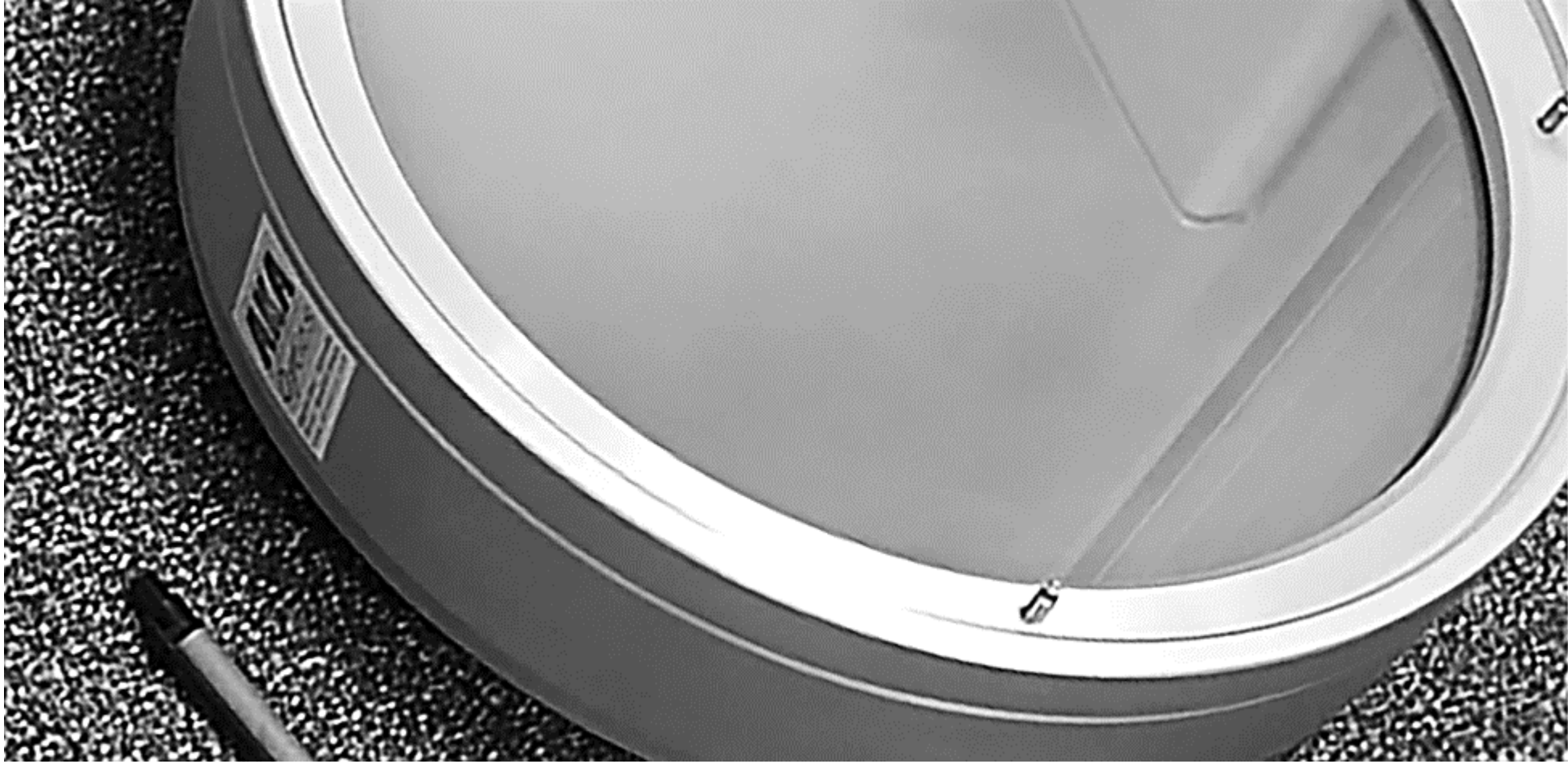

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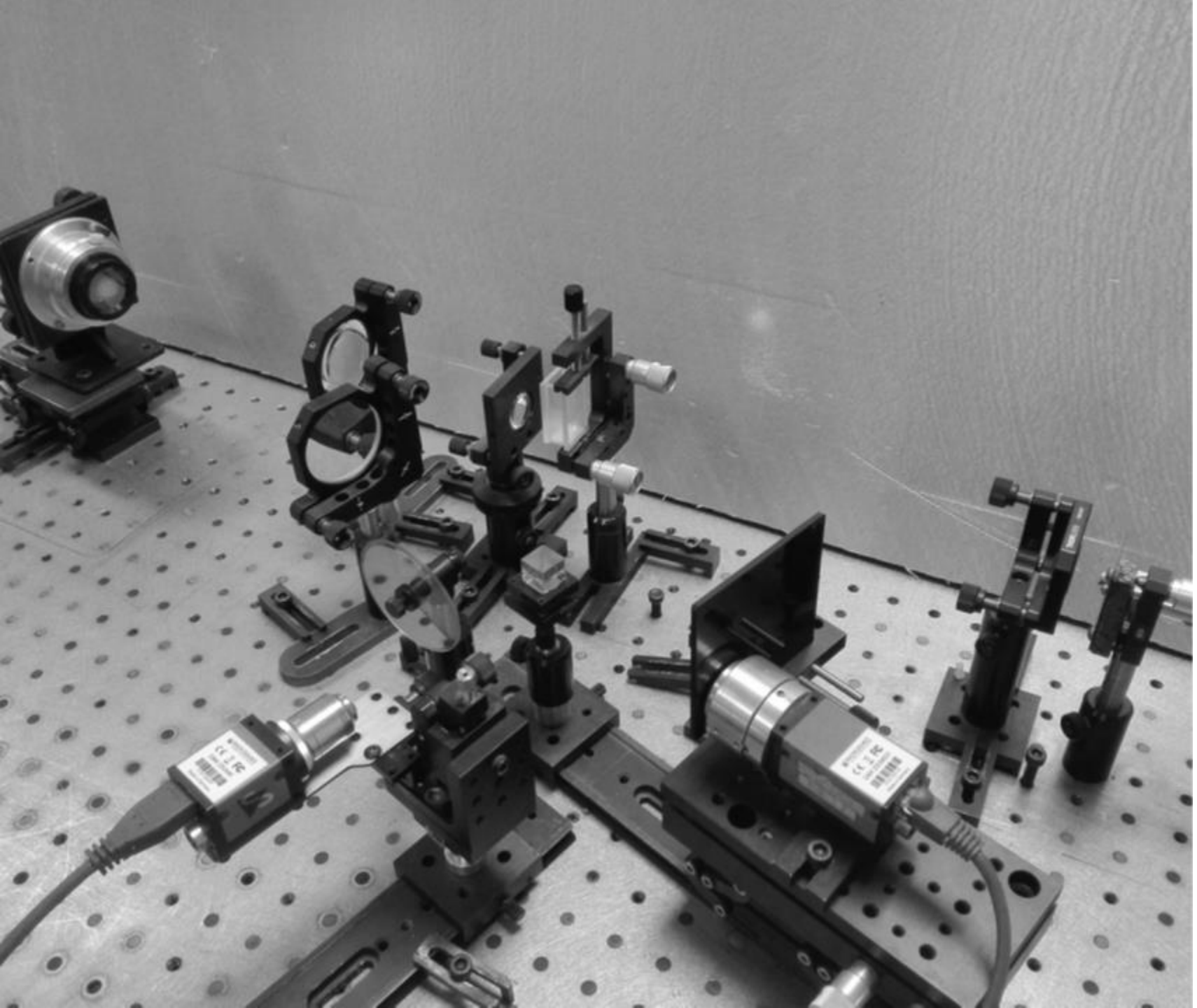
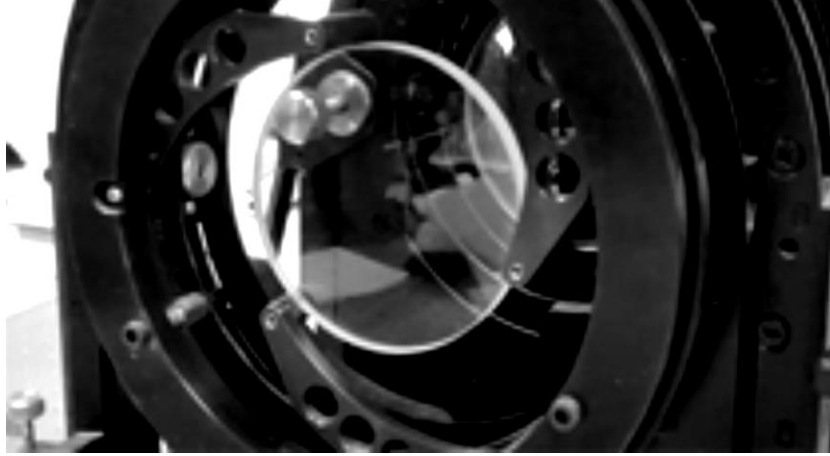
PRODUCT BROCHURE





CLOSED-LOOP ADAPTIVE SYSTEMS

FOR LASER BEAM CONTROL

MORE THAN 200 OF OUR CLOSED-LOOP SYSTEMS ARE OPERATING WORLDWIDE

THE MOST CHALLENGING APPLICATIONS:

- HIGH-POWER LASERS
- LASER BEAM SHAPING
- TELESCOPES FOR ASTRONOMY
- VISION THROUGH THE ATMOSPHERE
- MICROSCOPES AND FUNDUS-CAMERAS FOR LIFE SCIENCE

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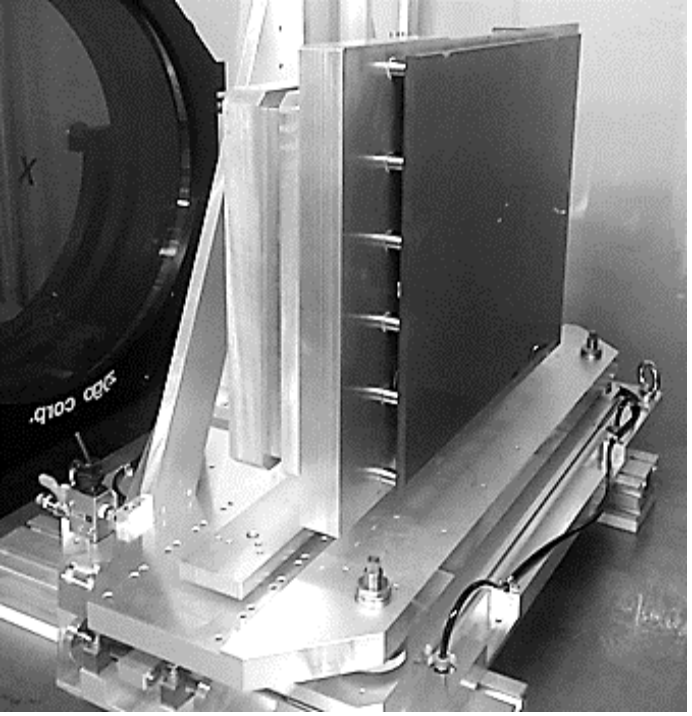
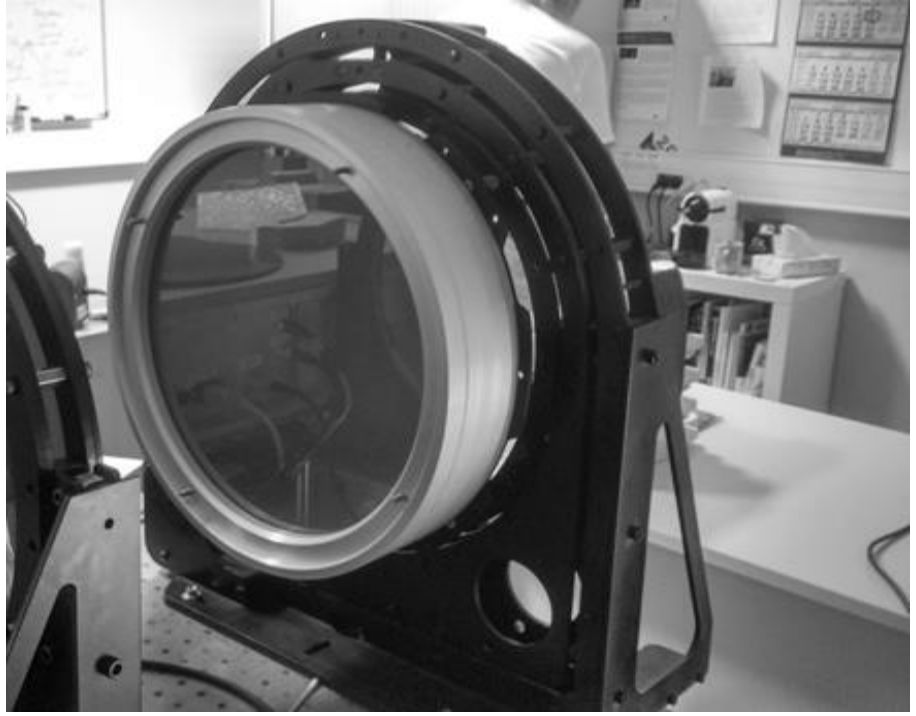




LARGE DEFORMABLE MIRRORS

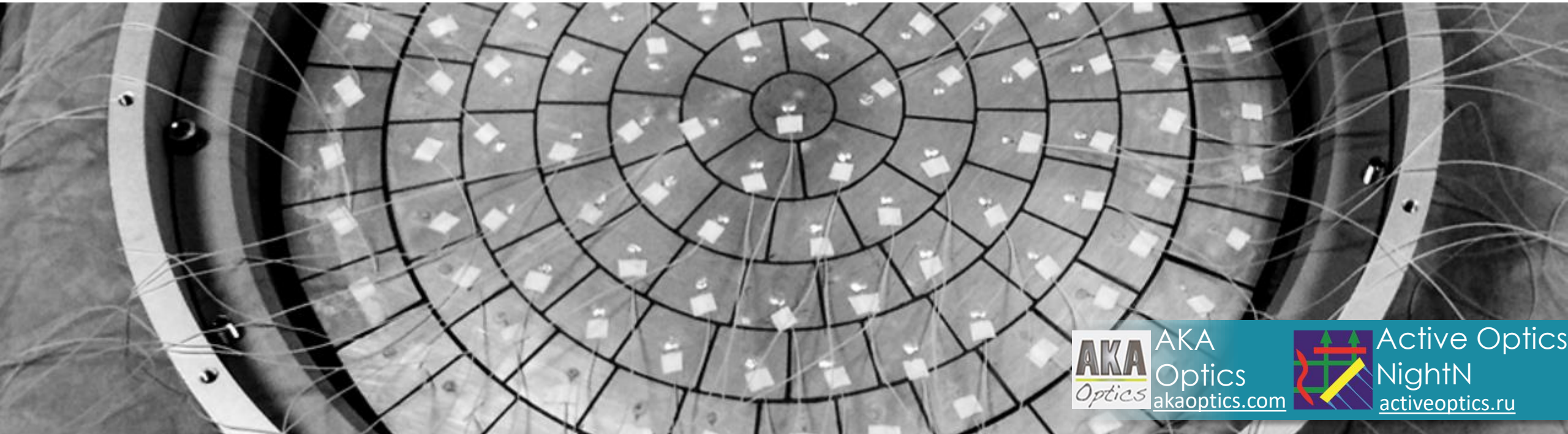
FOR HIGH-POWER LASERS

WE ARE MANUFACTURING AND DELIVERING VERY LARGE DEFORMABLE MIRRORS USING:

- BIMORPH TECHNOLOGY
- STACKED-ACTUATORS TECHNOLOGY

SPECIFICATIONS

- CLEAR APERTURE: 450 mm AND LARGER
- VOLTAGE RANGE: -500 ... +600 *V*
- NUMBER OF CONTROL CHANNELS: UP TO 127



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BIMORPH DEFORMABLE MIRRORS

FOR LASER BEAM CONTROL

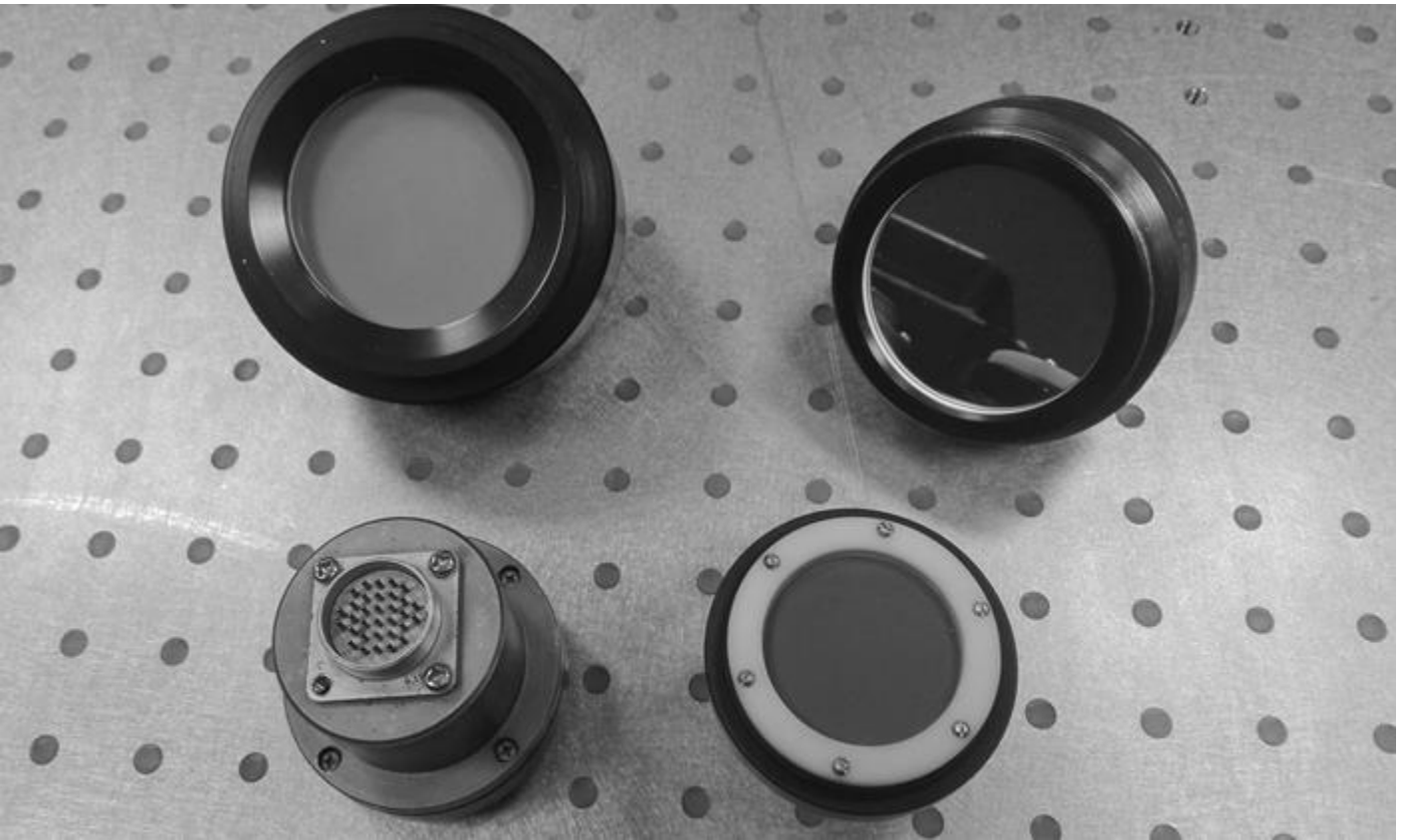
ONE OF OUR UNIQUE FEATURES — **WATER COOLED** BIMORPH MIRRORS FOR HIGH POWER LASERS, TO ELIMINATE THE RISK OF THERMAL DAMAGE UP TO 50 KW/CM2.

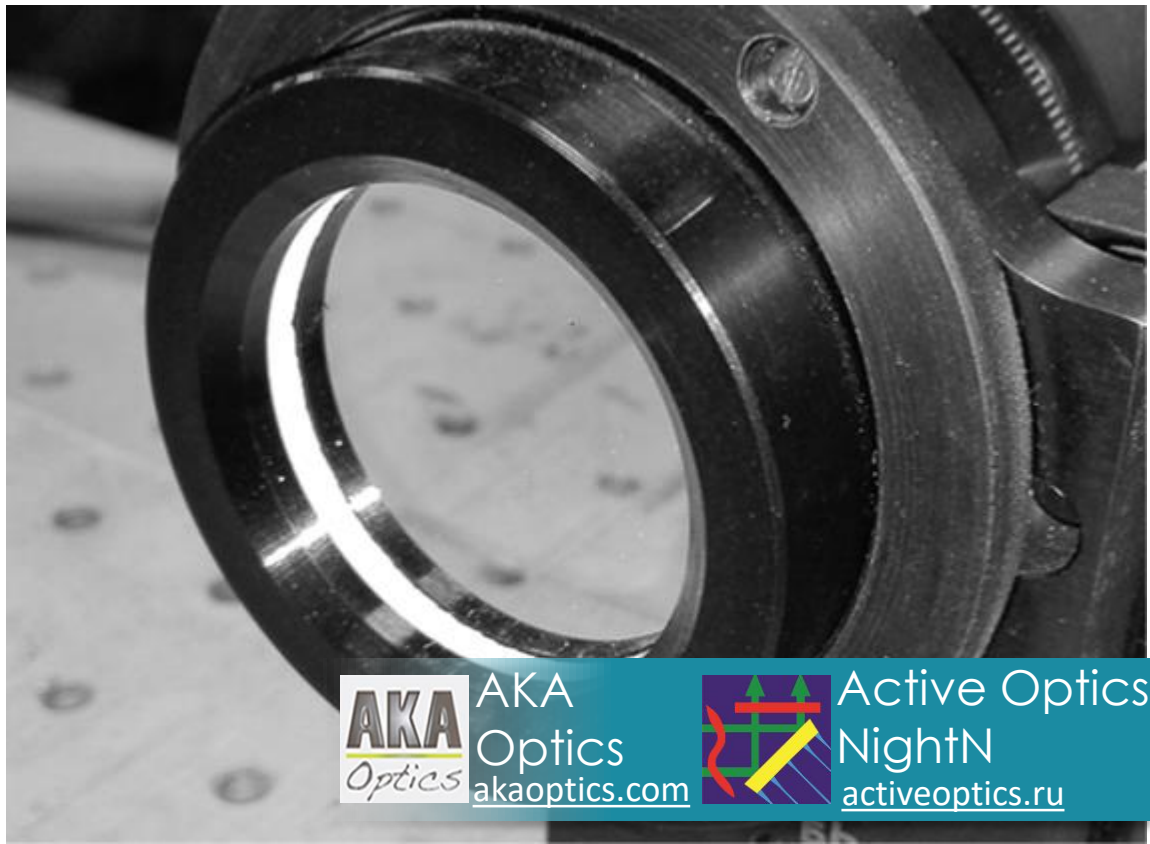
SPECIFICATIONS

- CLEAR APERTURE: 20 ... 1000 *mm*
- VOLTAGE RANGE: -400 ... +600 *V*
- NUMBER OF CONTROL CHANNELS: 14 ... 256
- REFLECTING COATING: >99.9%, SILVER, COPPER, DIELECTRIC.

APPLICATIONS

- HIGH-POWER LASERS
- LASER BEAM SHAPING
- TURBIDITY CORRECTION
- TURBULENCE COMPENSATION





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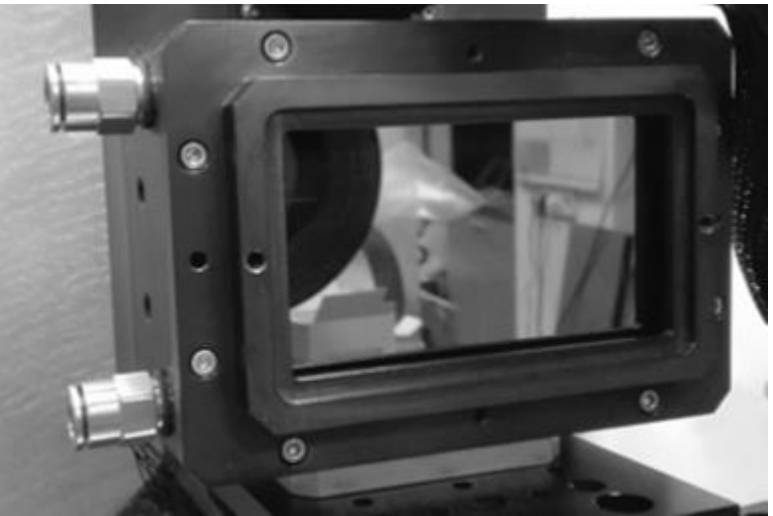
STACKED-ACTUATORS MIRRORS

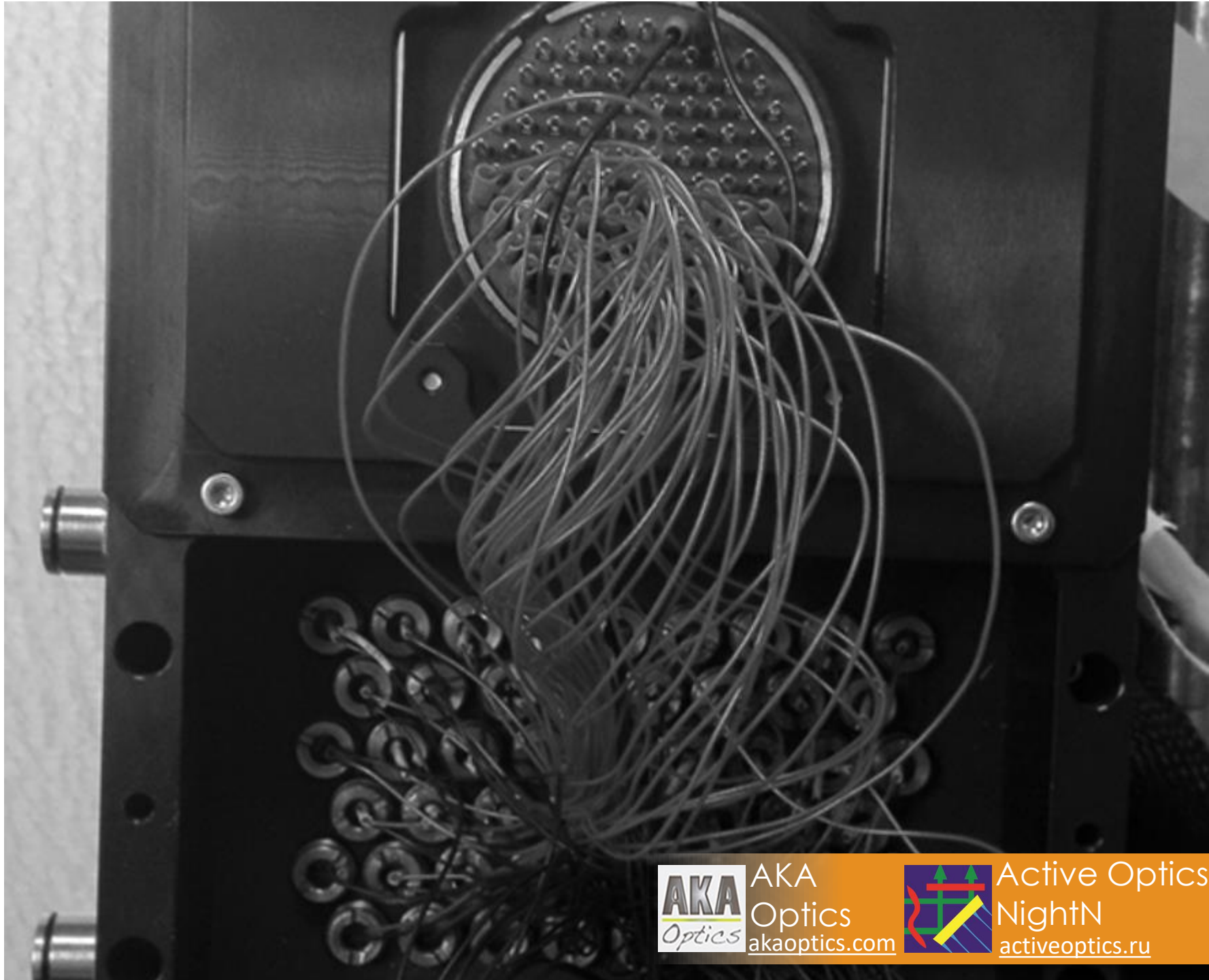
FOR ATMOSPHERIC TURBULENCE CORRECTION

STACKED-ACTUATORS DEFORMABLE MIRRORS ARE VERY FAST AND HAVE A HIGH DENSITY OF ACTUATORS WITH A SMALL INTER-ACTUATOR SPACE, WHICH IS GOOD FOR HIGH-ORDER ABERRATIONS CORRECTIONS (ZERNIKE >> 24).

SPECIFICATIONS

- CLEAR APERTURE: UP TO 200 *mm*
- VOLGATES RANGE: -30 ... 130 *V*
- ACTUATORS AMOUNT: UP TO 512
- LARGEST STROKE (STANDARD — 30 *μm*)
- LARGEST INTER-ACTUATOR STROKE (STANDARD — 8 *μm)*





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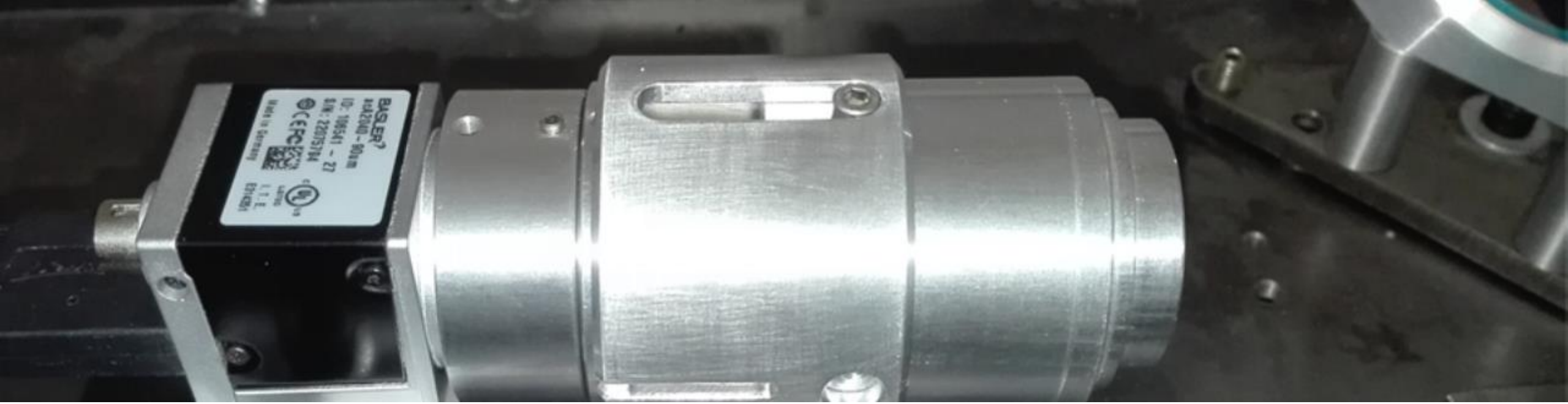
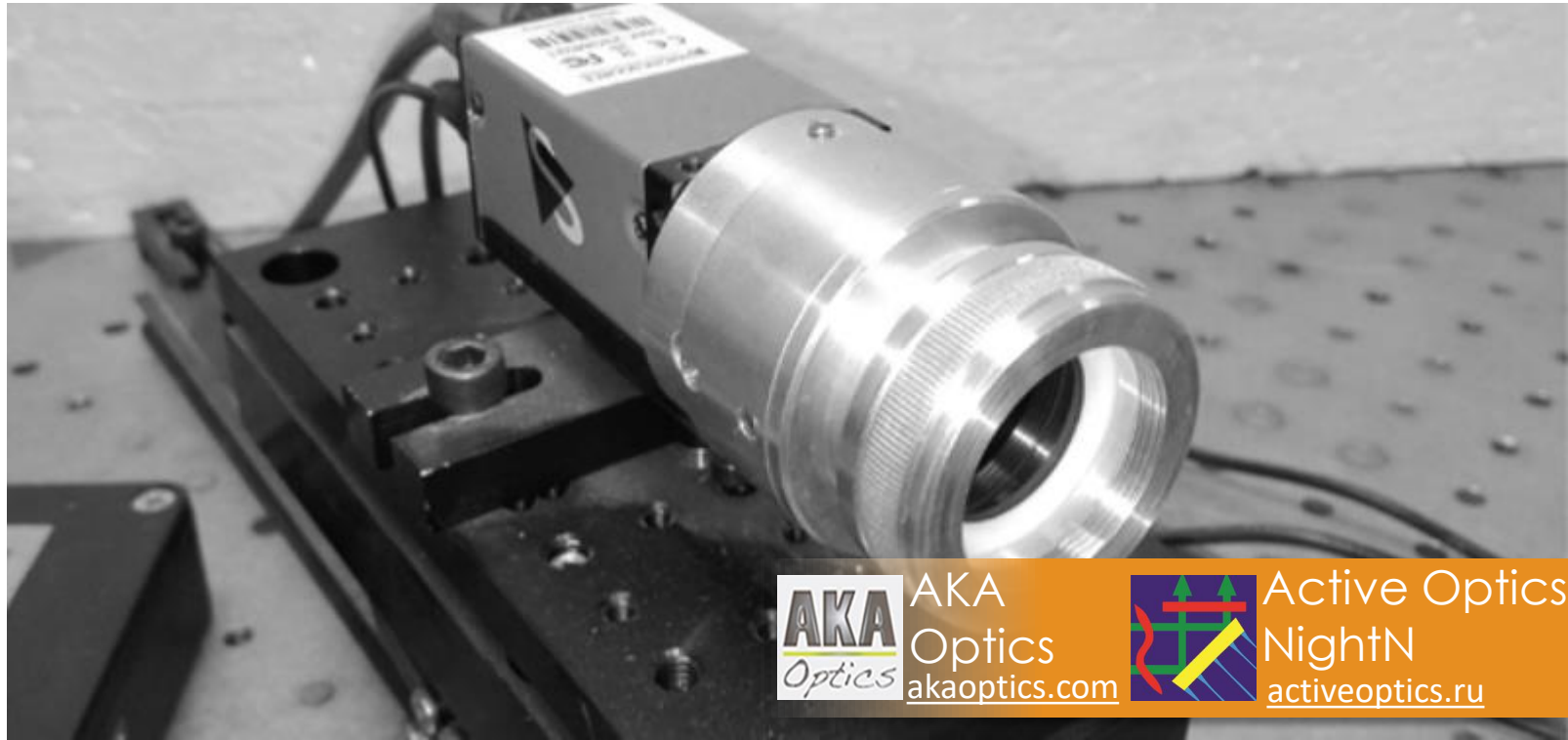


SHACK-HARTMANN WAVEFRONT SENSORS
FOR LASER BEAM ANALYSIS

OUR MODERN SOFTWARE ALLOWS TO ANALYZE THE WAVEFRONT AND CALCULATE ITS ABERRATIONS WITH HIGH PRECISION.

SPECIFICATIONS

- SPECTRAL RANGE: **122 nm — 10.6 *μm***
- APERTURE DIAMETER: **4 — 600 *mm***
- LENSLET PITCH: **DOWN TO 70 *μm***
- LENSLET FOCUS: **FROM 2.8 *mm***
- DYNAMIC RANGE: **UP TO 170 *λ***
- RESOLUTION: **UP TO 2048x2048 *pix***
- FREQUENCY: **UP TO 5 *kHz***



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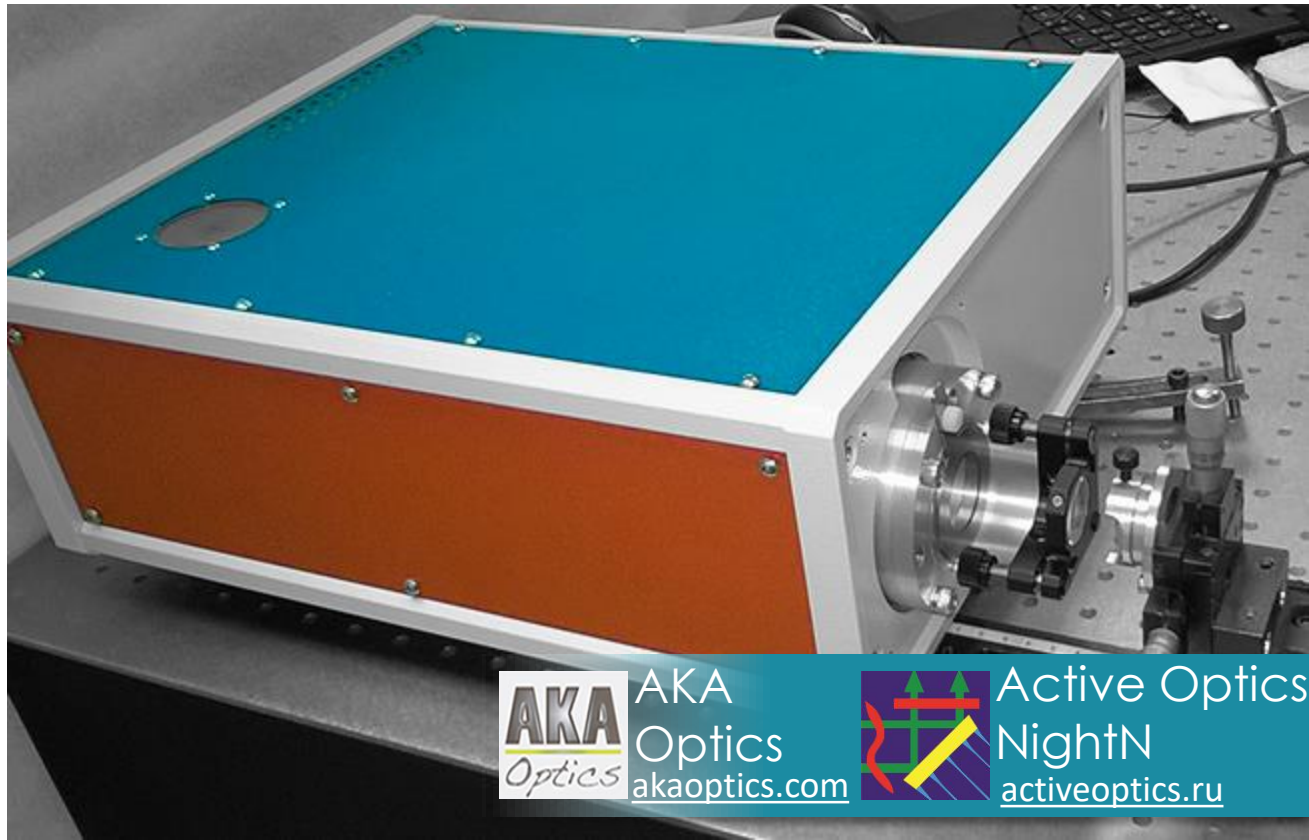
HARTMANNOMETERS

FOR OPTICAL CONTROL

A HARTMANNOMETER IS A METROLOGY INSTRUMENT USED TO MEASURE THE FLATNESS AND THE CURVATURE OF AN OPTICAL SURFACE WITH A HIGH ACCURACY.

ADVANTAGES:

- WIDE DYNAMIC RANGE OF MEASURED ABERRATIONS
- COST-EFFECTIVE TECHNOLOGY
- INSENSITIVITY TO VIBRATIONS
- LIVE MEASUREMENTS
- STATE-OF-THE-ART AND FEATURE-RICH SOFTWARE FOR WAVEFRONT ANALYSIS



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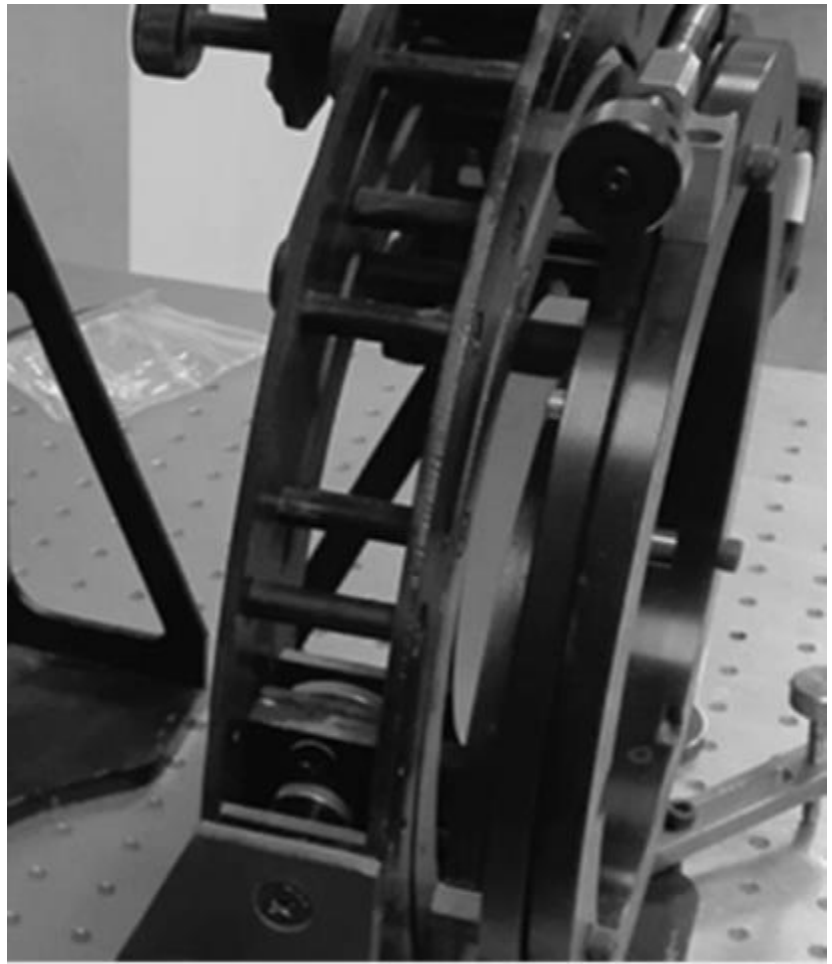
MOUNTINGS

FOR WIDE-APERTURE OPTICAL ELEMENTS HOLDING

OUR SPECIALISTS DEVELOP AND MANUFACTURE CUSTOM MOUNTINGS FOR A WIDE RANGE OF OPTICAL ELEMENTS

SPECIFICATIONS

- MATERIAL: MATTE BLACK ANODIZED METAL (ALUMINUM, STEEL, TITANIUM)
- APERTURE: UP TO 600 *mm*
- PRECISE TIP-TILT ORIENTATION OF OPTICAL ELEMENTS



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CONTROL UNITS

FOR DEFORMABLE MIRROR CONTROL

HIGHLY-RELIABLE CONTROL UNITS WITH MILLITARY-GRADE Y2M AND RS SOCKETS

SPECIFICATIONS

- PC INTERFACE: USB 2.0, ETHERNET
- VOLTAGE RANGE: -500 ... +600 *V*
- FREQUENCY OF THE SIGNALS APPLIED: 4 *KHz*
- HIGH-VOLTAGE INDICATOR
- CONVENIENT HANDLES

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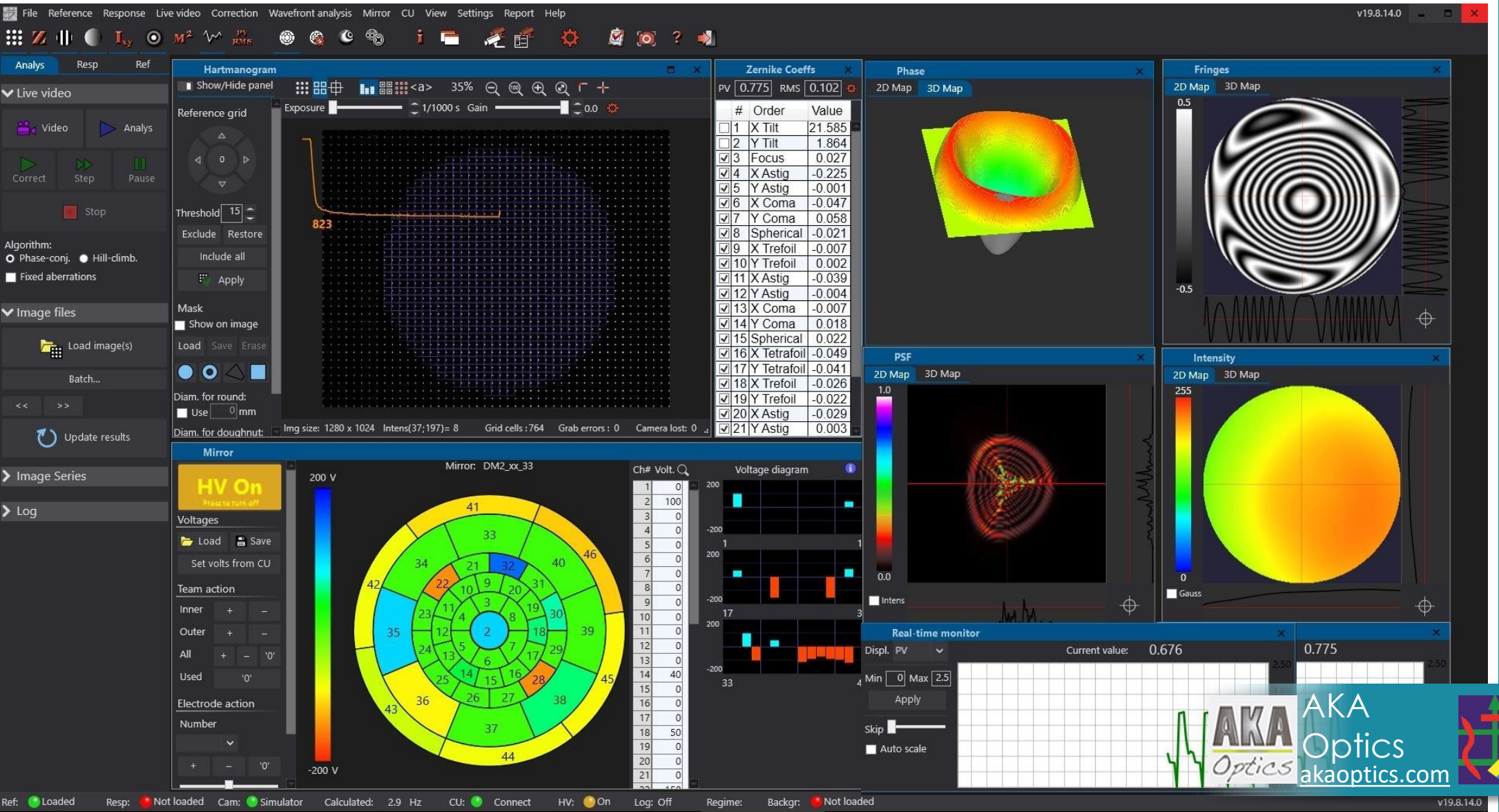
SOFTWARE FOR LASER BEAM CONTROL AND WAVEFRONT MEASUREMENTS

- ZERNIKE AND SEIDEL POLYNOMIALS
- 2D&3D MAPS OF FRINGES, PHASE, PSF AND INTENSITY
- WAVEFRONT PEAK-TO-VALLEY AND RMS ERROR
- PHASE-CONJUGATION ALGORITHM
- HILL-CLIMBING ALGORITHM
- GENETIC ALGORITHM



- USER-FRIENDLY INTERACTIVE MAP OF MIRROR ELECTRODES
- REAL-TIME PARAMETERS MONITORING
- LIVE DISPLAY OF HARTMANNOGRAM
- SUPPORT DIFFERENT CAMERAS' VENDORS

- EXPORT RESULTS TO: *TXT, CSV, BMP, JPEG*
- REPORT CREATING FUNCTIONALITY

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