

TOP LASER PRODUCTS



Altechna

Ultrafast Optics

Low GDD Ultrafast Mirrors



- Designed for femtosecond applications
- GDD values ranges from -10 fs^2 to 10 fs^2 at design bandwidth
- Laser induced damage threshold $>100 \text{ mJ/cm}^2$ for 50 fs pulses @ 800 nm
- Reflectivity up to $>99.5 \%$

Gires-Tournois Interferometer Mirrors



- Reflectivity up to 99.9 %
- Central wavelength tolerance up to 1 %
- GDD values ranges from 100 to 1500 fs^2 for Yb:KGW, Yb:YAG laser type coatings according to customer specifications

Ti:Sapphire Crystals



- Broad lasing range: 660-1050 nm band
- High optical quality and bulk damage threshold
- Size up to 50 mm diameter
- Brewster or right-angle cut configuration

Yb:KGW and Yb:KYW Crystals



- High absorption coefficient @ 980 nm
- High stimulated emission cross section
- Low lasing threshold
- Extremely low quantum defect
- Broad output at 1020-1060 nm
- High Yb-doping concentration

Laser Output Coupler Crystals



- Suitable for use in high intensity intracavities
- Rear surface AR coated
- Curved mirrors with various values of ROC are available

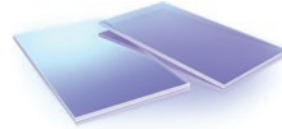
Polarizing Optics

Zero Order Air Spaced Waveplates



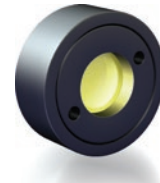
- Zero order waveplates with an air space
- Laser induced damage threshold $>20 \text{ J/cm}^2 @ 1064\text{nm}$
- Retardation tolerance better than $\lambda/100$
- Broad band AR coatings

High Contrast Thin Film Polarizers



- Efficiently separates the s- and p- polarization components
- Optimized for conventional laser wavelengths
- Typical polarization ratio above 1000:1 (T_p/T_s)
- Made using advanced IBS coating technology

Mid-IR Waveplates



- Zero order waveplates for mid-IR applications (2.8-9.0 μm)
- Clear aperture up to 18 mm
- Retardation tolerance better than $\lambda/100 @ 20^\circ \text{C}$

S-waveplate (Radial Polarization Converter)



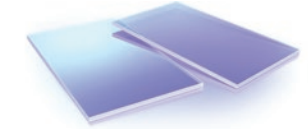
- Converts linear polarization to radial or azimuthal
- Can be used to create an optical vortex
- High damage threshold
- Nearly 100 % efficiency in polarization conversion for dedicated wavelengths

Achromatic (Broadband) Waveplates



- Operates over broad wavelength range
- Retardation tolerance better than $\lambda/100 @ 20^\circ \text{C}$
- All waveplates are AR coated and mounted

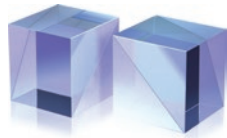
Broadband (Ultrafast) Thin Film Polarizers



- Efficiently separates the s and p polarization components
- Extinction ratio up to $T_p/T_s > 20:1$ and $R_s/R_p > 60:1$
- Available in dimensions up to 160x50 mm
- Optimized for conventional laser wavelengths

High Energy Optics

Polarizing Cubes for High Energy Applications



- Optically contacted
- Damage threshold $> 20 \text{ J/cm}^2$ at 1064 nm 10 ns
- Extinction ratio better than 35 dB

High Energy Waveplates



- High damage threshold
- High extinction ratio
- Wide acceptance angle
- Wide temperature bandwidth
- Wide spectral bandwidth
- Extremely useful in UV applications

Low Loss HR Mirrors



- Resistant to environmental conditions
- Various dimensions are available on request
- High repeatability
- Reflectivity higher than 99.9 %
- Available for wavelengths in range from 343 to 1550 nm

Plano-Convex Axicons (Conical lenses)



- Produces non diffracting Bessel beam in the near field and ring shaped image in the far field
- Available diameter up to 50 mm
- Plano convex, plano concave and double convex available
- Apex angle tolerance available down to $\pm 0.02^\circ$

HR Laser Line Mirrors (HR)



- Provide an optimised performance at certain wavelength and certain angle of incidence (AOI)
- Various dimensions are available on request
- Reflectivity up to 99.9%
- Custom coatings are available for any wavelength in range 0.19 - 20 μm

Laser Accessories

Watt Pilot Motorized Attenuator



- User-friendly software interface
- High rotation step resolution (0,4 mrad/step)
- Negligible beam deviation
- Stand-alone USB powered controller
- Easy to integrate

PowerXP Compact Motorized Attenuator



- User-friendly software interface
- Divides laser beam into two parallel beams of adjustable intensity ratio
- High optical damage threshold
- Low dispersion for femtosecond and high energy laser pulses
- Stand-alone USB powered controller
- Ideal for integration in other systems

Variable Beam Expanders



- Easy tuning design
- Standard models for conventional laser wavelengths
- High laser induced damage threshold
- Magnification up to 11.5x

MOTEX - Motorized Variable Beam Expander

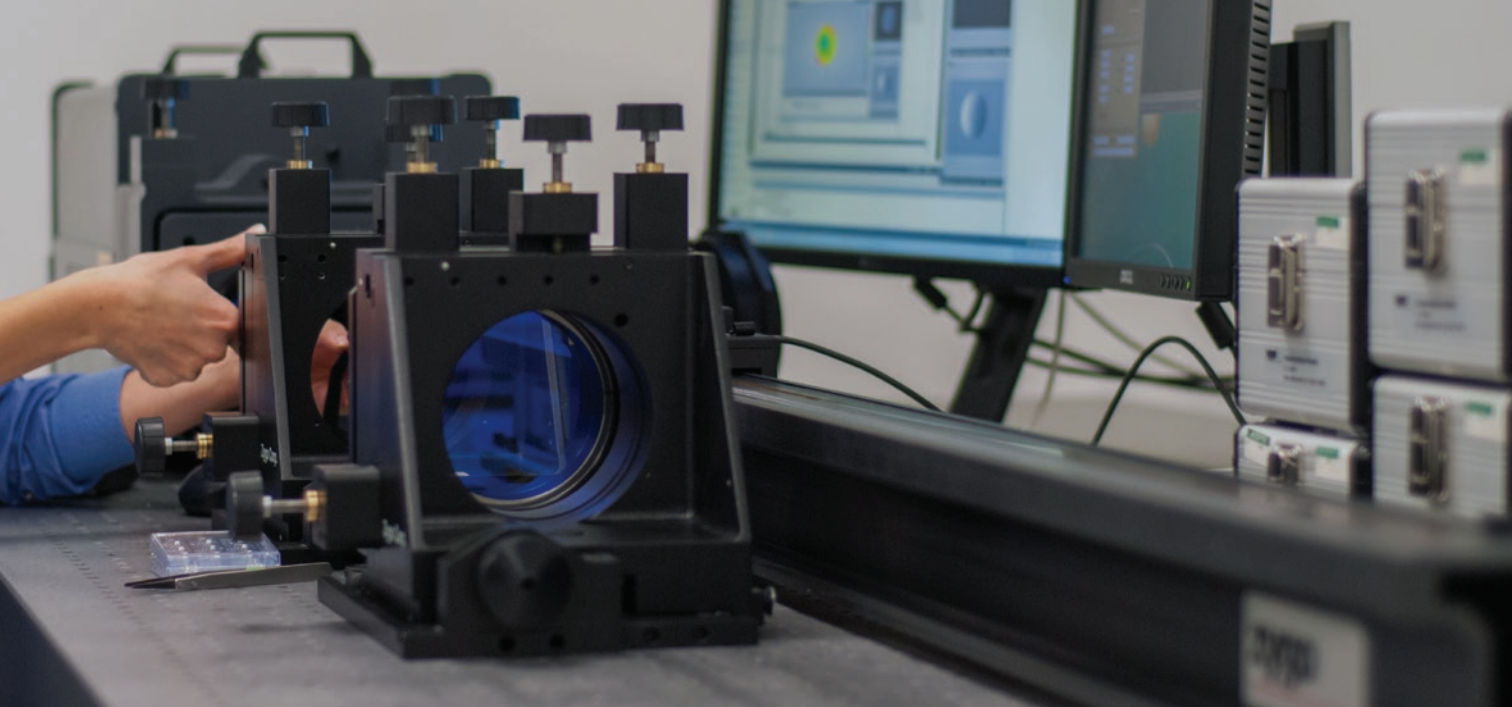


- Aberration minimized design (special aberration compensation layout)
- Plug & play solution (controller included)
- Suitable for ultrafast picosecond and femtosecond lasers
- Direct control from microcontrollers and embedded systems
- Individual calibration capability
- Reduced setup time by automatic magnification adjustment
- Manual magnification control

LaserEye Beam Visualizers



- High mechanical durability
- High sensitivity to laser radiation
- Universal and convenient
- Low cost



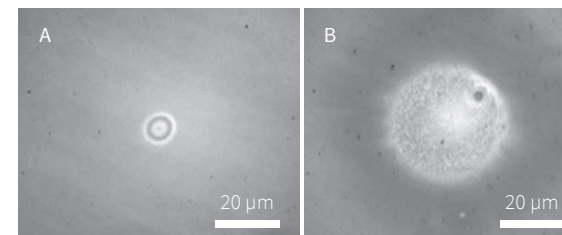
Metrology

Altechna is concerned about your success in experiments and final product performance. Therefore, our qualified metrology laboratory in cooperation with Vilnius University and other Lithuanian science institutes, is offering a variety of laser optics quality tests:

- Optical surface quality measurements;
- Group delay dispersion (GDD) measurement in 500 - 1650 nm range;
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- Transmittance and reflectance measurements in 190 - 20000 nm range;
- Surface flatness, wavefront distortion measurements of flat and spherical optics;
- Angle measurements for prisms, wedges and other optics;
- Non-contact ROC, Focal length measurements;
- Laser Induced Damage Threshold (LIDT) tests for wide range of laser wavelengths;
- Optical absorption tests ISO 11551 standard;
- Total scattering measurements;
- Environmental temperature and humidity tests;
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- Custom made tests.

Laser-Induced Damage Threshold Testing Solutions

Altechna together with research partners from Vilnius University offers optical coating testing for LIDT performance. All measurements for "1 on 1" and "S on 1" procedures are performed according to ISO standards: ISO 11254-1 and ISO 11254-2 respectively.



Following options are available:

- 1064 nm, 532 nm, 355 nm, 266 nm, 213 nm; with 3,5 ns and 10 ns, 1-50 Hz;
- 1030 nm, 515 nm, 343 nm, 258 nm; with 300-1000 fs, 1 kHz – 200 kHz;
- 800 nm, 400 nm; with 50-200 fs, up to 1 kHz.

Durable Fluoride Coatings for UV Range

Spectral Range:

- 193 nm to 400 nm.

Substrate Cleaning:

- Automated ultrasonic aqueous system.

Coating Technology:

- Physical vapour deposition by electron beam;
- Ion assisted deposition is also available for high temperature stability and humidity resistant coatings.

Laser Damage Threshold:

- > 3 J/cm² in 10 ns pulses at 266 nm;
- > 1 J/cm² in 10 ns pulses at 193 nm.

Coating Materials:

- Fluoride.

The best solution for DUV coatings.

Tel. +370 5 27 25 738
Fax +370 5 27 23 707
sales@altechna.com

Mokslininkų st. 6A
08412 Vilnius, Lithuania

www.altechna.com