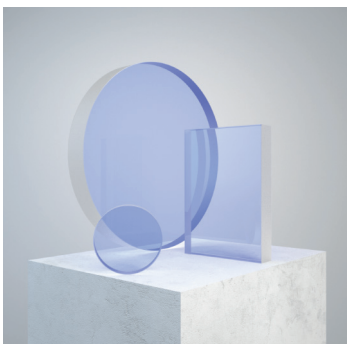


# PRECISION OPTICS FOR HIGH-POWER & ULTRAFAST BEAM DELIVERY

Designed for systems where power density, thermal load, and alignment stability matter

Eksma Optics manufactures **high-damage-threshold optical components and integration-ready modules** for beam delivery systems operating at high peak power, high average power, and ultrashort pulse durations. **Optimized for stability, low loss, and long service lifetime in production environments.**



## Femtoline AR-Coated Lenses & Windows

For low loss transmission and minimal pulse distortion.

**Use:** focusing optics, protective windows, scan heads, beam delivery tubes.

- Broadband & single-wavelength AR coatings (UV-IR)
- Very low reflectance per surface
- High laser-induced damage threshold (high LIDT)
- Low GOD / low dispersion options for femtosecond pulses
- High surface quality & transmitted wavefront accuracy
- Materials: fused silica, UVFS, CaF<sub>2</sub>, others



## High-Power Laser Mirrors

IBS-coated mirrors for demanding beam delivery paths.

**Use:** beam steering, beam delivery chains, laser cavities, harmonic stages, high-power optical layouts.

- Laser line and broadband dielectric mirrors
- IBS coatings for high stability and durability
- High laser-induced damage threshold
- Low absorption for high average power operation
- Optimised for common industrial laser wavelengths
- High surface quality and wavefront preservation

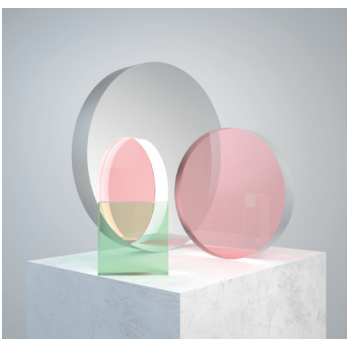


## Laser Beam Expanders

Precise beam diameter control and collimation.

**Use:** scanner inputs, long beam paths, divergence reduction, mode matching.

- Fixed and variable magnification designs
- Low wavefront distortion
- Diffraction-limited performance
- High power handling coatings
- Compact, mechanically stable housings
- Custom apertures & magnification ratios



## Laser Harmonic Separators

Efficient wavelength separation in nonlinear systems.

**Use:** SHG/THG beam routing, harmonic extraction, nonlinear stages.

- High reflection at harmonic wavelengths
- High transmission at fundamental
- Steep spectral transitions
- Low absorption coatings
- Designed for high average power operation



## Nonlinear Crystals & Crystal Ovens

Stable frequency conversion modules.

**Use:** frequency conversion, pulse energy scaling, wavelength tuning.

- BBO, LBO, KTP, DKDP and related materials
- SHG, THG, OPO, OPA, SFG applications
- Precision cut & coated crystals
- Temperature-stabilized ovens with uniform heating
- Mechanical mounts for repeatable alignment



## Optical Sub-Assemblies

Integration-ready opto-mechanical units.

**Use:** reduced integration time, improved stability, simplified assembly.

- Pre-aligned optical stacks
- Beam conditioning modules
- Sealed or rugged housings
- OEM customization
- Drop-in replacement designs

## Typical Applications

- Laser cutting
- Surface treatment
- Additive manufacturing
- Industrial & research
- Welding
- Micromachining
- Ultrafast processing
- Laser platforms

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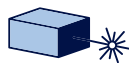
Eksma Optics supports complete **beam delivery chains**, from laser source to processing head. Our components are selected to meet the key engineering requirements of high-power systems:

## Engineering Benefits



### for Laser System Integrators

- Reliable operation at high average power
- Reduced downtime
- Long component lifetime
- Scalable from prototype to volume production



### for Beam Delivery Designers

- Predictable beam propagation
- Precise collimation & shaping
- Efficient harmonic management
- Modular, compact layouts



### for Optical & Mechanical Engineers

- Tight tolerances
- Robust mounts & housings
- Thermal stability
- Custom dimensions & coatings available



### Manufacturing Capabilities

- Precision polishing & finishing
- IBS & high-durability coatings
- In-house crystal growth & processing
- Cleanroom assembly
- Custom design & OEM production
- Prototype to series manufacturing



### Performance Focus

- High laser damage threshold
- Low optical losses
- Minimal thermal lensing
- Preserved beam quality ( $M^2$  stability)
- Low wavefront distortion
- Stable long-term alignment



TAKE A VIRTUAL TOUR



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Request technical specifications, drawings, or custom designs.