



# Laser processing



## Beam steering, 2.5 & 3D focus control

Focus tunable lenses and fast & fine-steering mirrors are ideal for achieving large z-range in laser marking, fast autofocus in inspection applications, large scanning angles, or fine alignment & 2D steering in high-power lasers with an option to program the scanning pattern. Compact, robust, and reliable tuning solutions for over a billion cycles. Highly accurate and repeatable.



## Liquid lenses

Compared to motorized lenses or piezos for Z-axis control, liquid lenses offer:

- 100x faster focus
- Large z-range
- Constant & small spot size
- Compact size, low weight
- Coaxial visual inspection
- Easy integration

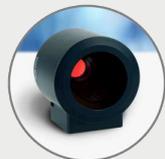
## Laser applications

- Marking, engraving
- Inline inspection
- High & low power
- Cleaning, welding, drilling
- Beam focusing
- Medical lasers

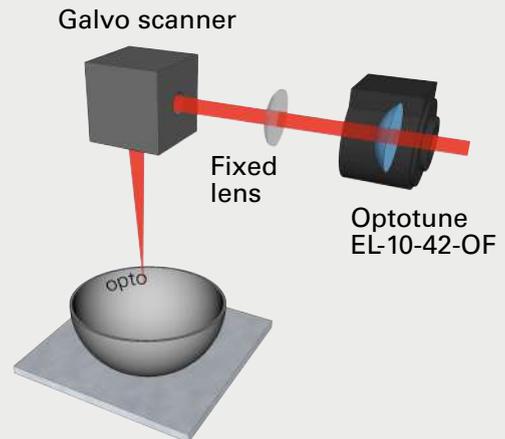
## 3D laser processing

Using the EL-10-42-OF lens resolves particularly challenging problem of maintaining high processing speed, z-range, and spot uniformity in the whole volume at once.

- Speed of 6 m/s
- Up to 1 x 1 m scan area
- No f-theta lens needed
- Z-range 100 mm



EL-10-42-OF



## Fast-steering mirrors

Most compact, shock & vibration resistant scanning solution with a wide field of view, single optical surface, and accurate closed-loop control. Integrating our mirror enables versatile:

- Laser cleaning
- Affordable laser marking
- Laser templating
- Mirror diameter 15 mm
- Mechanical tilt (both axes) 25°
- Full scale bandwidth 20 Hz



MR-15-30

## Fine-steering mirrors

Integration of compact fine-steering mirror is easy and enables 2D programmable patterns of the laser beam with high precision and long lifetime in:

- Laser welding & soldering
- Laser cavity alignment
- Mirror size 20 x 20 mm
- Mechanical tilt (both axes)  $\pm 0.2^\circ$
- Resolution 4  $\mu$ rad



FMR-20



Let's talk about your application