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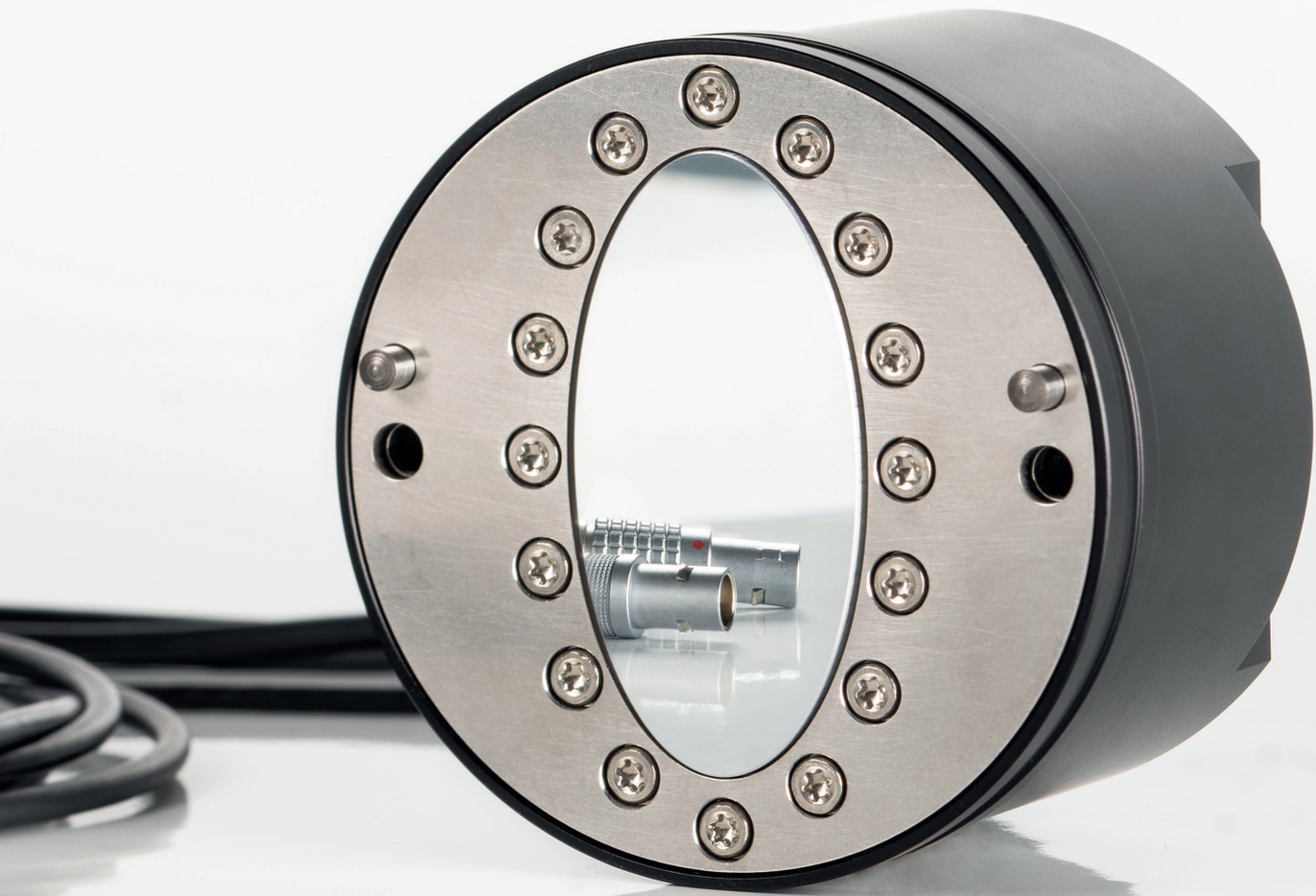


High-power focus mirror for dynamic beam shifting

High-power focus mirror for dynamic beam shifting

Cover: High power focus mirror.

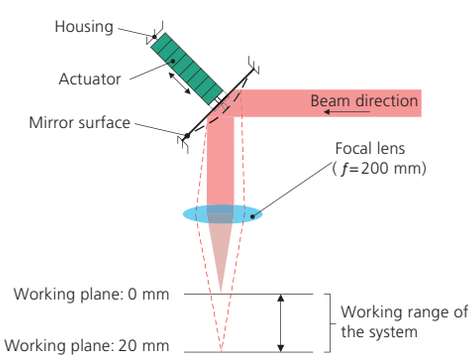
Top: Active unimorph focus mirror.

Ambition

High-power focus mirrors are suitable for highly dynamic beam guidance. Thus, the Z-component can be added to the conventional X-Y beam oscillation. The easy integration into existing laser material processing heads paired with an enlargement of the process window and simultaneously reduced process duration shows the great potential of this technology.

Working principle

A parallel beam hits the high-power focus mirror, is deflected and focused into the working plane with a focus lens. Depending on the actuator deflection the shape of the mirror surface changes. The resulting change of beam collimation leads to a displacement of the focal point and thus to a displacement of the working plane.



Working principle of focus shifting.

Specifications

Optical:

- HR-coating
- Beam aperture: up to 20 mm
- Laser power: up to 5 kW

Mechanical:

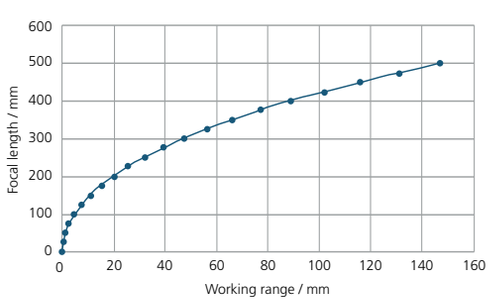
- Number of actuators: 1
- Actuator stroke: up to 28 µm
- Working frequency: up to 8 kHz
- Control voltage: up to 1000 V
- Step response time: 0.1 ms
- Air cooling

Monitoring:

- Temperature
- Mirror deflection

Applications

- Laser welding
- Laser cutting
- Laser structuring



Working range depending on lens focal length.

Contact

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