Company presentation

February 2020

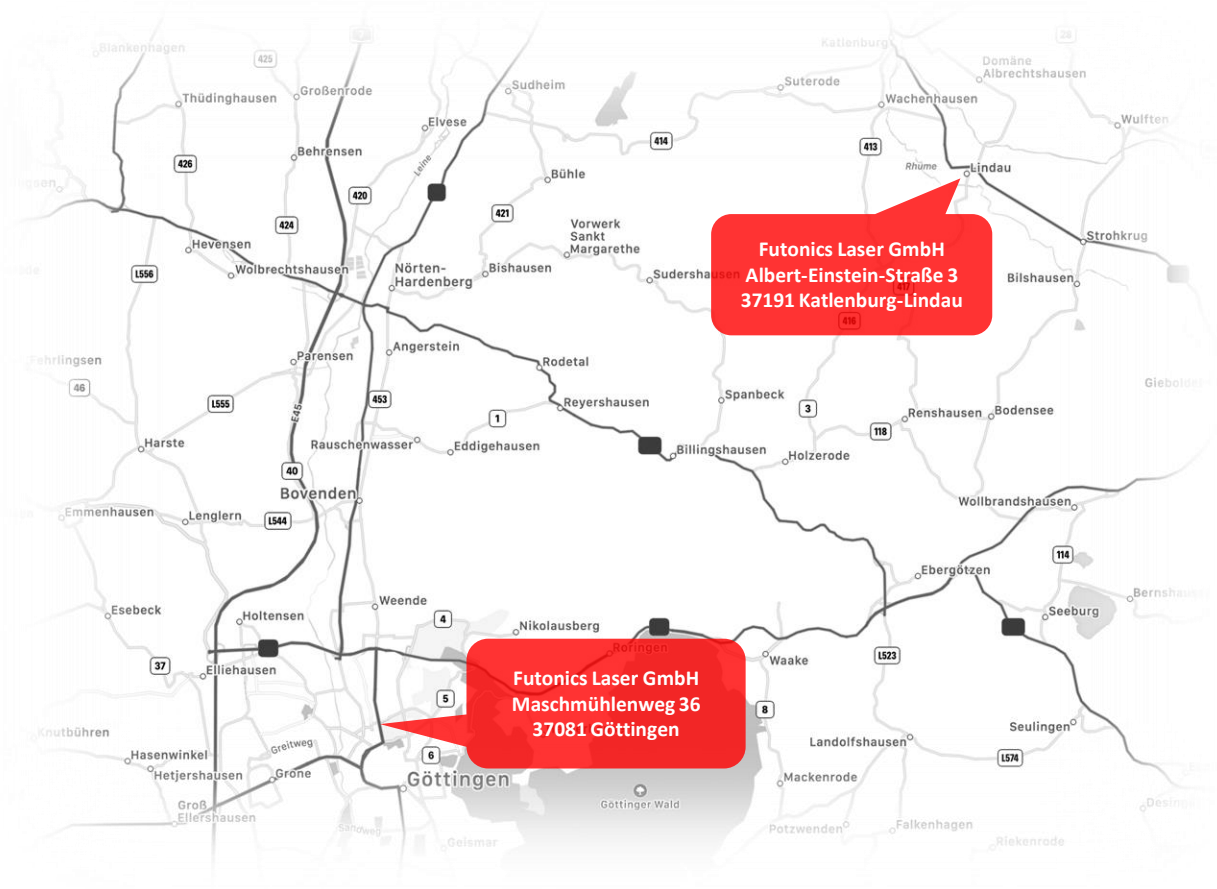
FUTONICS

LASERNET
(주)레이저넷

About Futonics

Locations

- Head office in **Katlenburg-Lindau**
- RD & manufacturing in **Göttingen**



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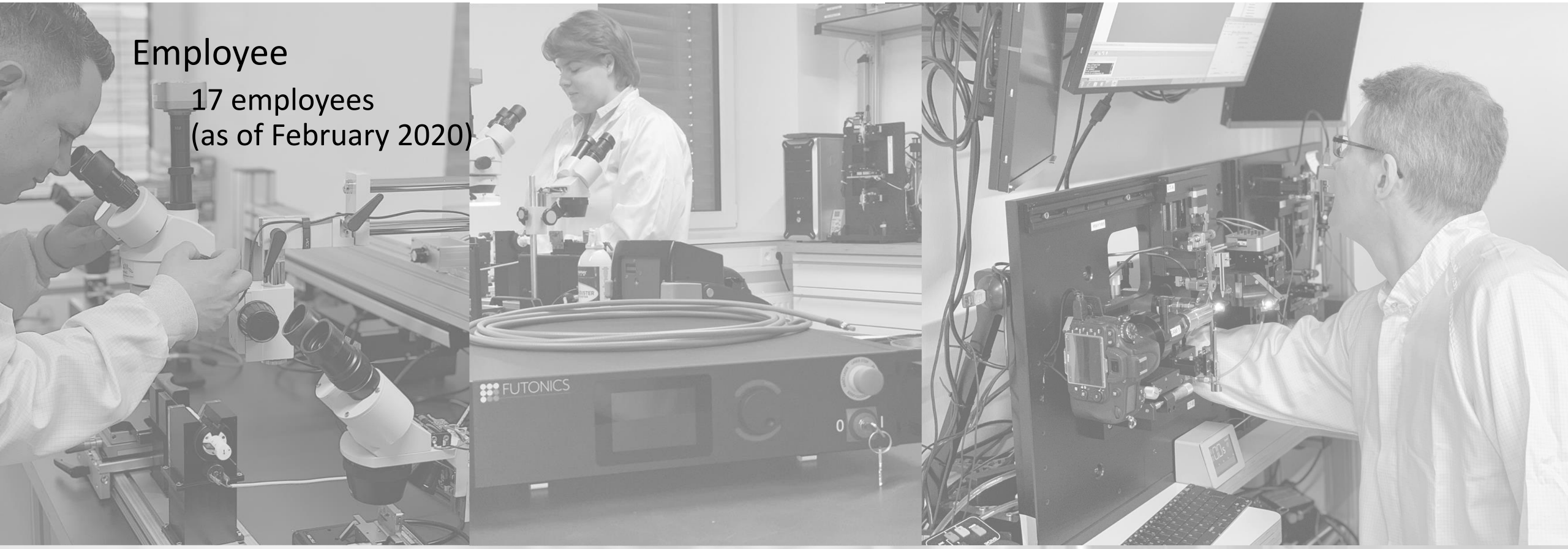

Employee

17 employees
(as of February 2020)

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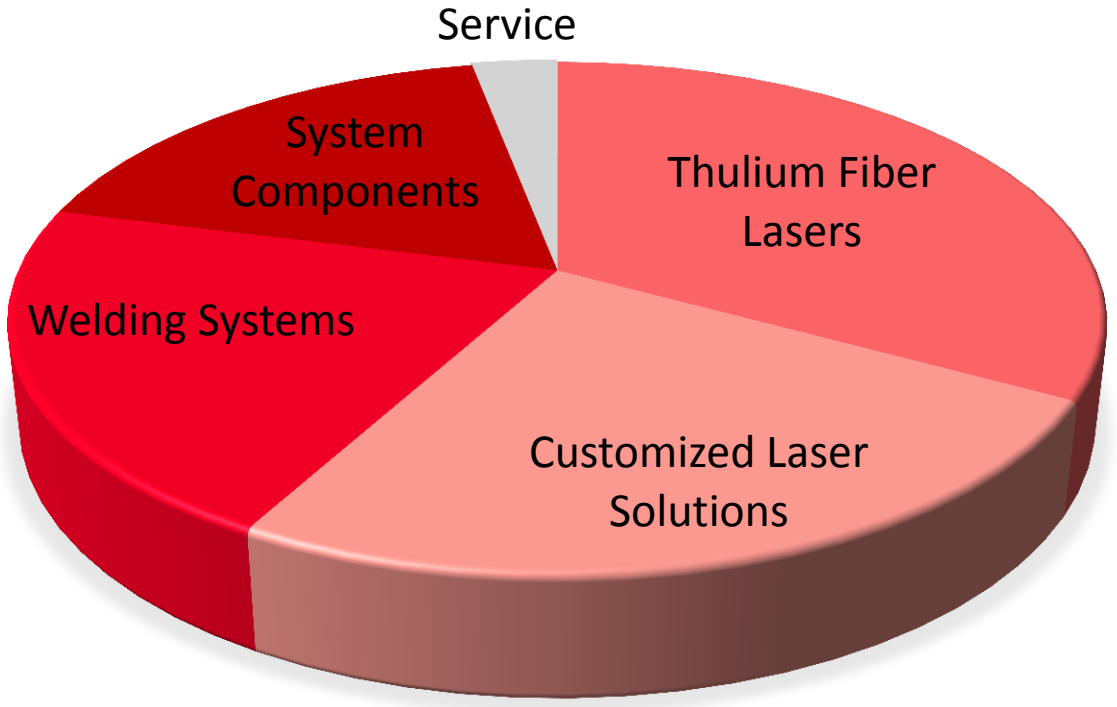
Business Segments



Welding Plastics

Industrial application

Transparent polymers can be welded by intrinsically absorbing the laser light emitted by Futonics laser systems. This patented technology offers high precision and control of the process. Various thermoplastic materials can be used in this process without the addition of additives, which leads to a more efficient overall process.

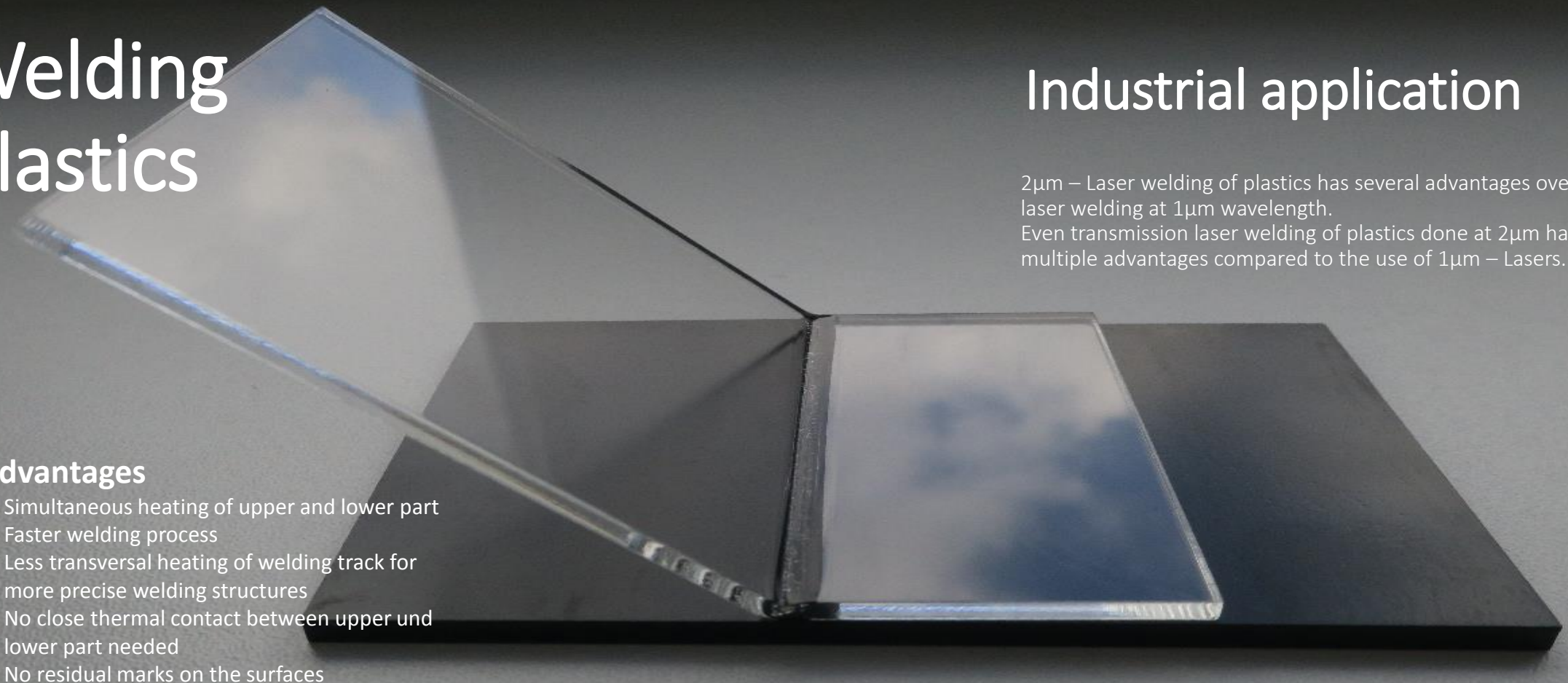
Materials transparent and colored

- Polycarbonate (PC)
- Polypropylene (PP)
- Polyvinyl butyral (PVB)
- Ethylene vinyl acetates (EVA)
- Polyethylene (HDPE/ LDPE)
- Polyethylene terephthalate (PET)
- Polymethylmethacrylate (PMMA)
- Thermoplastic urethane
- Nylon
- ABS
- Cyclo Olefin Polymer (COP)

Welding Plastics

Industrial application

2µm – Laser welding of plastics has several advantages over laser welding at 1µm wavelength.
Even transmission laser welding of plastics done at 2µm has multiple advantages compared to the use of 1µm – Lasers.



Advantages

- Simultaneous heating of upper and lower part
- Faster welding process
- Less transversal heating of welding track for more precise welding structures
- No close thermal contact between upper und lower part needed
- No residual marks on the surfaces
- Butt joints can be realized
- Low energy consumption
- Relatively Eye-safe compared to 1µm – Laser - assisted welding processes

Cutting Plastics

Industrial application

Because of their high beam quality, high power and compact design, Futonics fiber lasers are ideal for cutting surfaces of a large number of commercially used plastics.

Advantages

- High-precision cutting with single mode laser
- Fife times more precise than a CO_2-Laser
- Cutting of transparent material without additives
- Cutting of glass fiber reinforced plastic materials
- Relatively Eye-safe process compared to 1µm – Laser - cutting

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Cutting Laminated Glass

Industrial application

Futonics lasers can cut the plastic film between layers of glass. In combination with glass cutting tools, laminated glass can be cut precisely and automatically in both straight and contoured lines, which offers a variety of options for cutting laminated glass.

BREAKTHROUGH

- Cut contoured laminated safety glass
- No infrared heating
- Precise cuts
- The world's first contoured glass cutting machine was developed in a collaboration between Futonics Laser GmbH and HEGLA GmbH & Co. KG. It was shown at the international Glasstec trade fair in 2016 and 2018

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Marking & Engraving

Industrial application

Due to their high beam quality, high power and compact design, Futonics fiber lasers are ideal for marking and engraving surfaces for not only a large number of commercially used plastics, but also various metals and biological materials.

Materials

- Plastics
- Metals
- Food

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Science

Scientific applications

Futonics 2 µm fiber lasers are ideal for researchers and professional engineers when developing their own lasers and optical devices for the generation of long-wave radiation, ultra-fast lasers or Q-switched lasers

MEDIUM INFRARED LASER PUMPS

Optical pumping of infrared lasers is possible through the use of 2 µm fiber lasers such as Cr: ZnSe to produce mid-IR lasers.

HOLMIUM LASER & RAMAN LASER

Thanks to adapted wavelengths, Futonics laser systems are ideal for pumping holmium-doped amplification media, e.g. Ho:YAG, Ho:YLF or Holmium doped Tungstates. Futonics lasers can also be used for Raman shifting with Raman crystals and Raman fibers.

Laser Products

THULIUM FIBER LASER 200W - 250W

THULIUM FIBER LASER 10W – 50W

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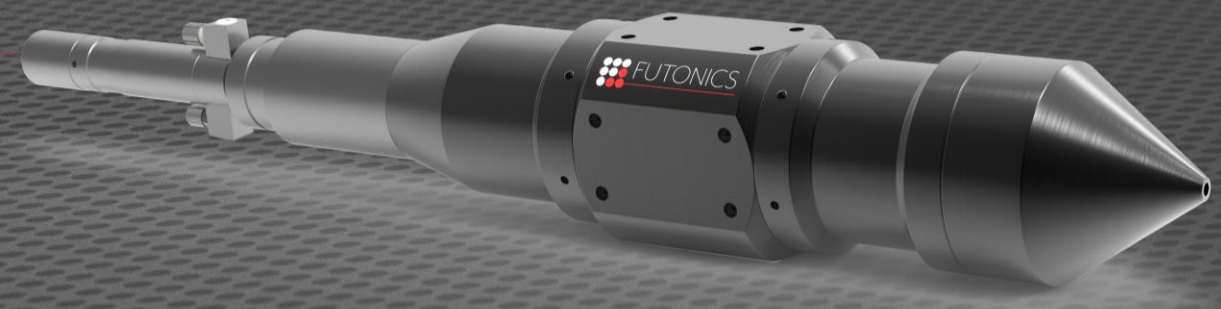
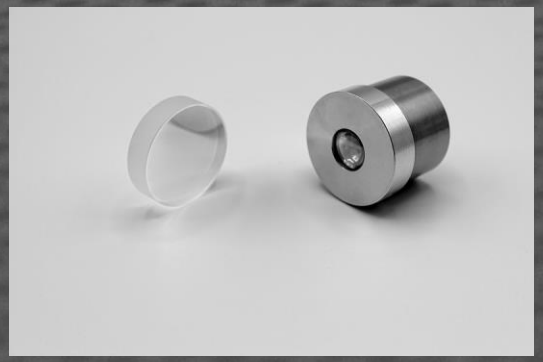
Accessories, 2µm-Laser Components





In addition to the industrial fiber laser systems, Futonics offers various components and accessories for 2 µm lasers that can be purchased separately.

- Collimators
- F-Theta lenses
- Mid-IR optics
- Pyrometers above 3µm
- Mid-IR optics with high-damage-threshold coating
- Processing heads
- Fiber coupling units
- Fibers
- Fiber connections
- Scanning systems
- Clamping units
- External power supplies
- Water cooler

Thank you

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