Based on a common patent, a powder optics was developed together with Fraunhofer ILT that allows variable track widths with constant Tool-Center-Point (TCP).

The motorized zoom-optics with a coaxial powder feed nozzle is equipped with a compact housing. The highlight of this optics is a well-designed motorized moving lens packet which can vary the beam diameter on the workpiece during a process, without modification of the working distance and any complex adjustments. Additionally, using a direct linear drive allows high speed moving of the lens packet and rapid changes of the track width during processing.

This optics can be delivered with a stand-alone motor control, which enables an easy connection to any handling system.

**Advantages**

- Compact and robust
- Developed for toughest process conditions in industrial use
- Zoom system with motorized moving lens packet
- High dynamic during processing and for fast adaptation of the track width
- Design available as coaxial nozzle and 3-jet nozzle
- Compatible with different handling systems (robots, gantry kinematics etc.)
- Direct and optimum connection to the robot control is possible
Technology: **Motorized powder zoom-optics**

Laser cladding with in-process variation of track widths

**Technical data**

- **Weight:** ~10 kg
- **Dimension:** ~400 mm x 250 mm x 180 mm
- **Focal length:** 185 mm
- **Input aperture:** maximum 30 mm
- **Laser power:** maximum 4 kW
- **Wavelength of laser beam:** 900 nm – 1,080 nm
- **Varyably adjustable spot diameter:** 0.5 mm – 4.5 mm
  
  (The real variation range depends on the used laser and fiber diameter)

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**Coaxial nozzle**

Continuous-feed powder injection  
Cladding with the highest precision (the powder focus ≥ 0.4 mm)

**3-jet nozzle**

Three-jet powder injection  
Cladding of broad tracks

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Simulated tip with variable track widths  
(Fraunhofer Institute of Laser Technology ILT)

No hot cracks, no defects, minimum of pores

For further information please contact us at

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