

ModeStrip Fiber Assemblies with SMA Connector and D80 Connector

Light transmission in optical fibers is physically based on the principle of total reflection. Theoretically, the light is reflected several times without loss at the interface between fiber core and cladding. Practically, there are limitations in the fiber cable; some power can end up in the fiber cladding (cladding modes). This poses a challenge in the transmission of high optical laser power: Just 2 – 3% can be enough to destroy the fiber cable.

The ModeStrip connector we developed in house contains a mode stripper. This specifically removes the cladding modes from the optical fiber and dissipates the heat generated in a controlled manner via cooling element. Our ModeStrip assemblies thus prevent thermal destruction of the fiber connector.



Application Examples

Optical fiber cables with ModeStrip connectors are mainly used in the field of high-performance transmission, for example in laser material processing or for the optical pumping of fiber lasers via laser diodes. They are also used when a high optical beam quality without cladding modes is required or thermal hotspots in the fiber cladding must be prevented.



Quality Standards

We manufacture reproducible quality under cleanroom conditions; our quality management system is certified according to EN ISO 13485 and ISO 9001.

Optional: Measurement Protocols for Attenuation and Eccentricity

Measurement protocols can be provided for specified fiber assemblies upon request:

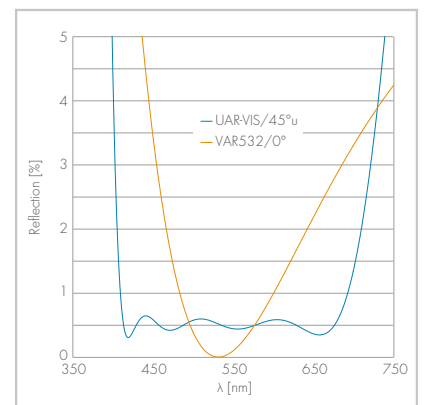
- Measurement protocol for attenuation
- Measurement values for eccentricity
- Photos of end faces

Laser Fiber Specifications

	SMA Fiber	D80 Fiber
Fiber diameter	100 μm to 1500 μm in step-index fibers with an NA of 0.22 and 0.12 (upon request); low OH and high OH	
Cladding	metal jacket with PVC coating (outer diameter: 5.6 mm in black and red) stainless steel jacket (outer diameter: 4.0 mm or 4.6 mm) PTFE jackets (outer diameter: 2.1 mm; free choice of color)	metal protection jacket with green PVC cladding (outer diameter: 8.3 mm) metal protection jacket with black PVC cladding (outer diameter: 5.6 mm) metal protection jacket with red PVC cladding (outer diameter: 5.6 mm) stainless-steel jacket (outer diameter: 4.0 mm or 4.6 mm) other claddings available upon request
Attenuation	< 1.5 dB (selected fibers available upon request)	
Fiber length	1 – 15 m	
Eccentricity	< 5 μm and < 10 μm	
Connector	SMA905, which is free standing and has a hexagonal union nut	D80 connector (LD80 compatible) with and without a counter pin
Ferrule material	copper	
Laser power	100 – 200 W (depending on the fiber diameter)	
Heat sink	version for passive air cooling → heat sink available upon request with water supply	
Marking	Individual marking of the heat sink (e.g., with a company logo) is possible; each fiber is equipped with laser-marked heat shrink tubing, which contains our lot number (can also be provided with custom data upon request)	

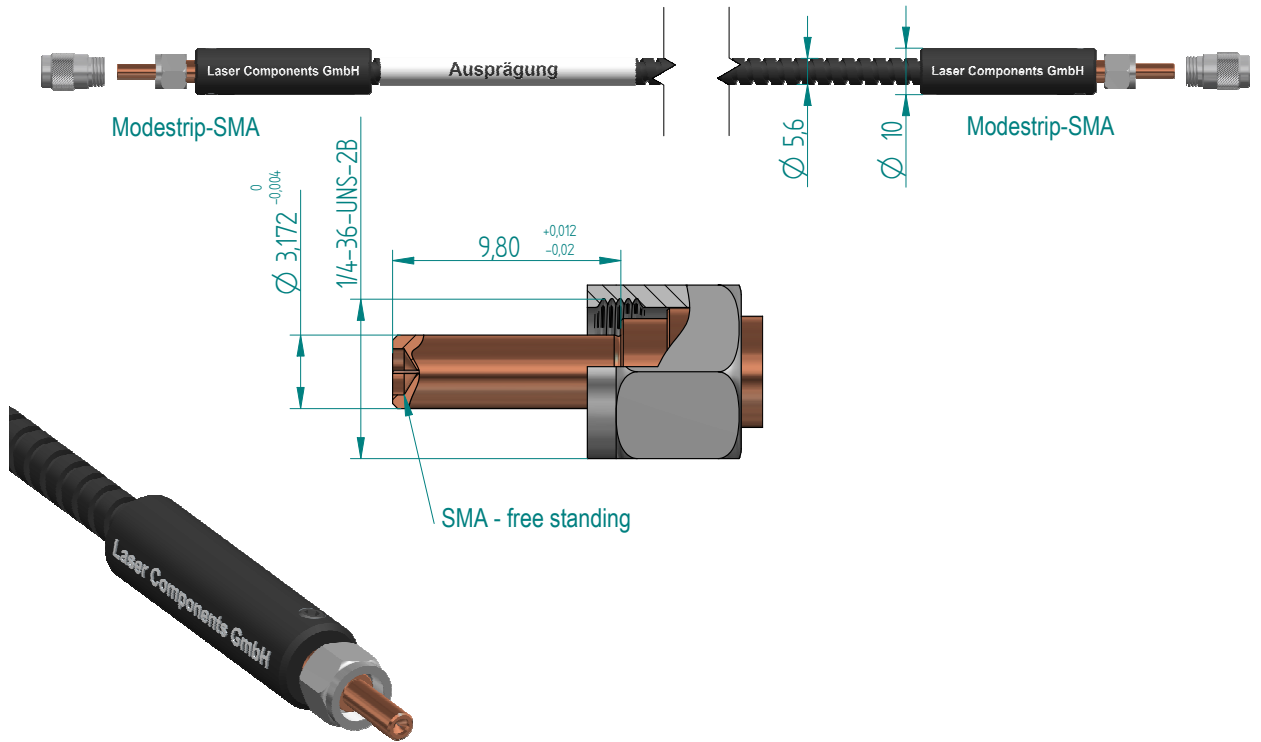
Optional: AR Coating

An anti-reflective coating can also be applied to the fiber end faces: contact us directly for individual consultation.



Technical Drawing

SMA free-standing ModeStrip on both sides; black metal jacket

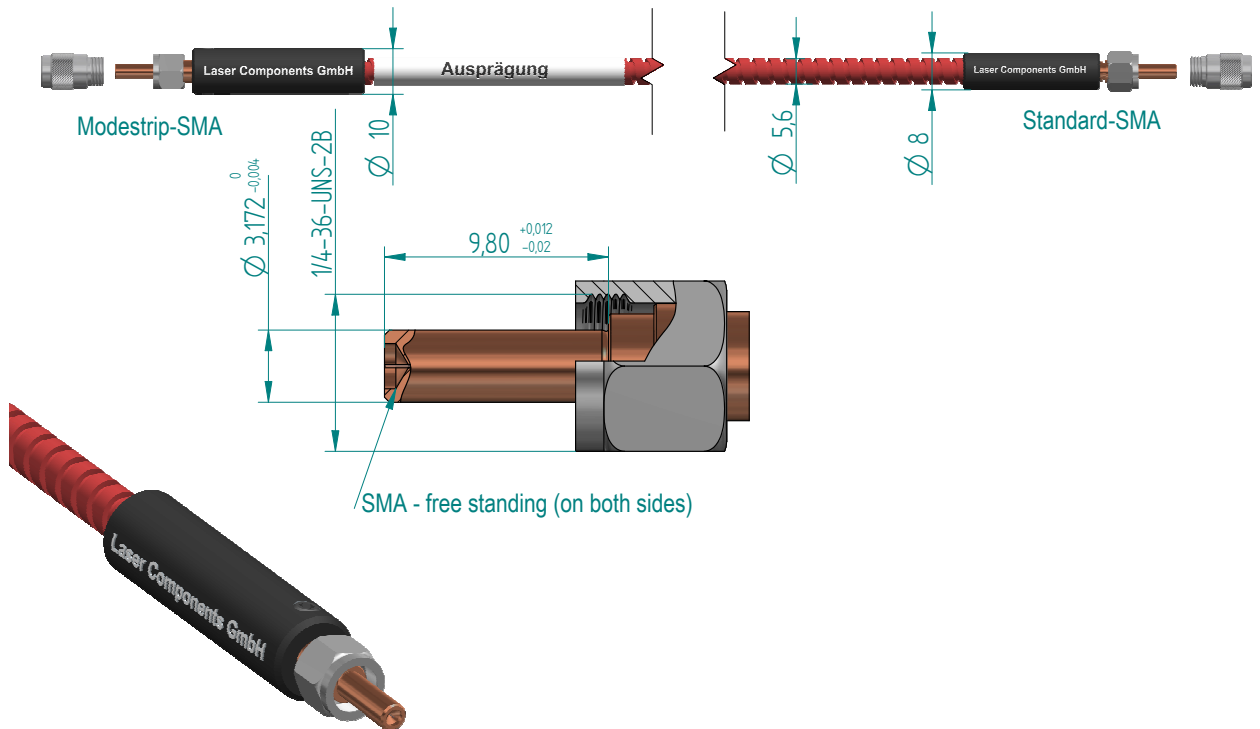


Specifications

- Eccentricity < 10 μm (fiber core to ferrule)
- Fiber type upon request
- Fiber length upon request
- 5.6 mm protective metal jacket (black)
- Convection-cooled cladding mode stripper (on both sides)
- Measurement protocol for attenuation, photos of end faces and measurement values for eccentricity available upon request
- Custom laser marking of heat shrink tubing

Technical Drawing

SMA free-standing ModeStrip / SMA free-standing Standard; red metal jacket

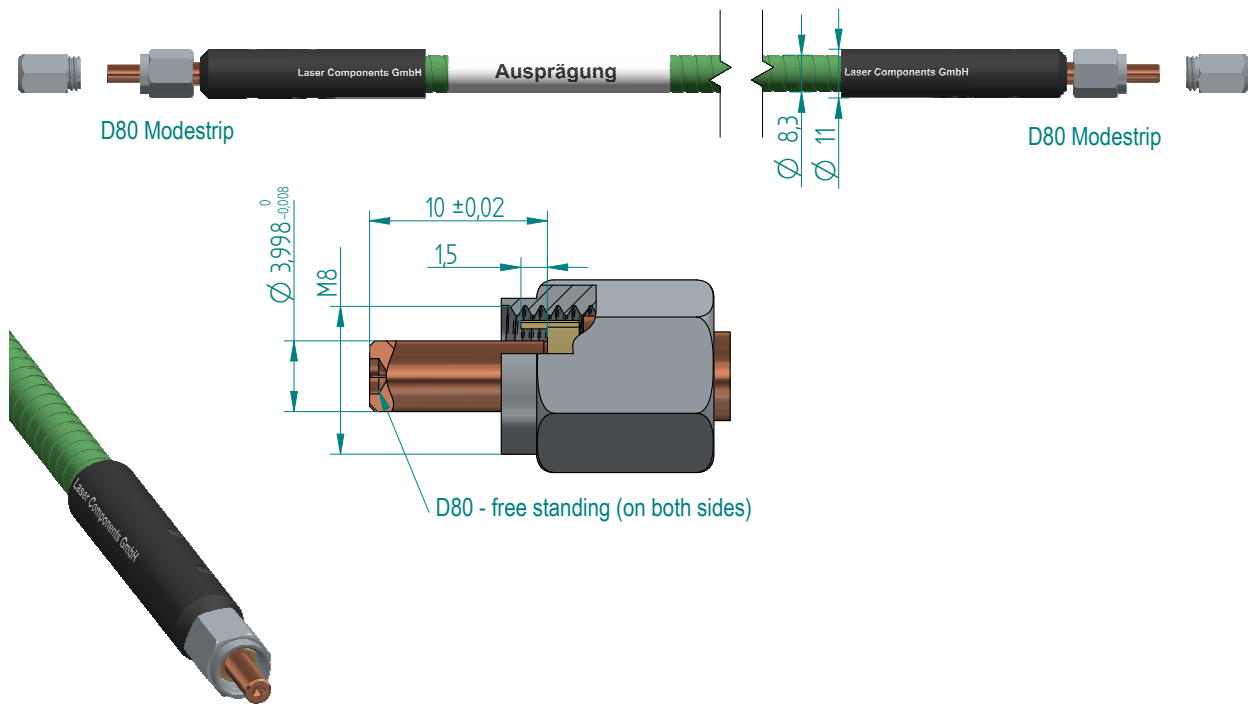


Specifications

- Eccentricity < 10 μm (fiber core to ferrule)
- Fiber type upon request
- Fiber length upon request
- 5.6 mm protective metal jacket (red)
- Convection-cooled cladding mode stripper (on one side)
- Measurement protocol for attenuation, photos of end faces and measurement values for eccentricity available upon request
- Custom laser marking of heat shrink tubing

Technical Drawing

D80 ModeStrip on both sides; green metal jacket

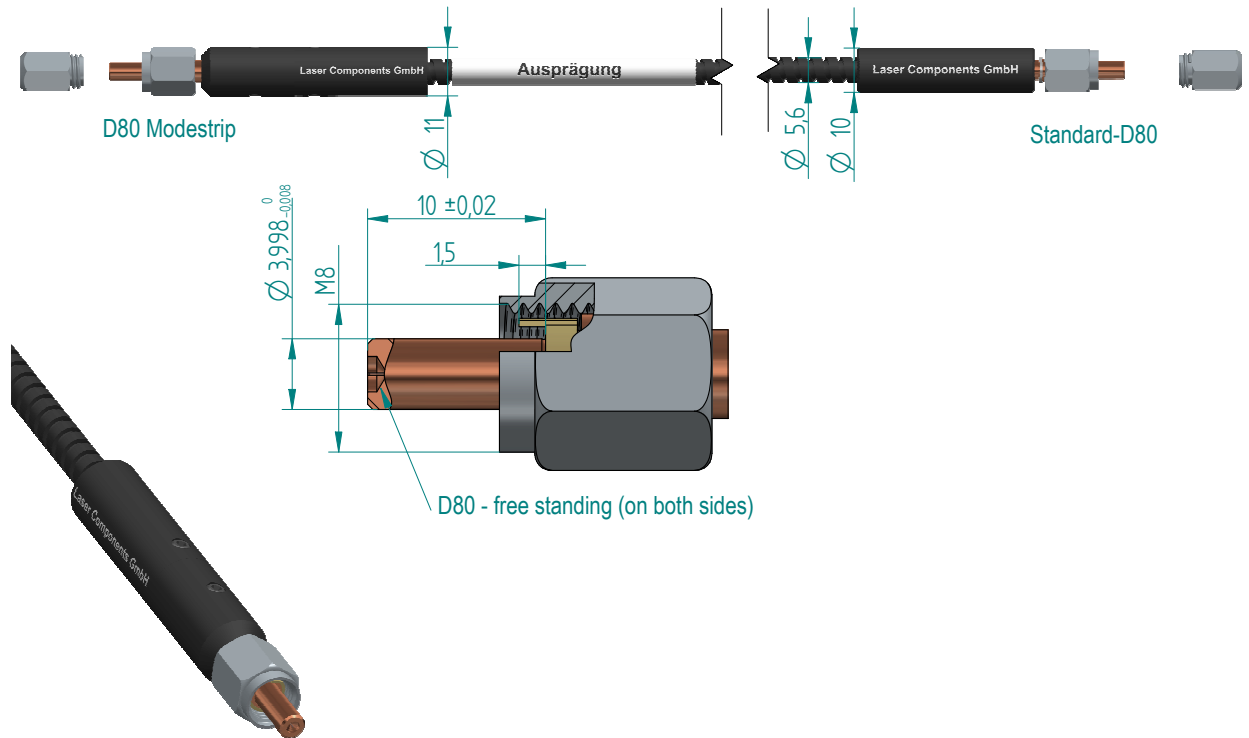


Specifications

- Eccentricity < 10 µm (fiber core to ferrule)
- Fiber type upon request
- Fiber length upon request
- Cladding mode strip (on both sides)
- Convection-cooled heat sink (black anodized)
- 8.3 mm (outer diameter) protective metal jacket (green)
- Measurement protocol for attenuation, photos of end faces and measurement values for eccentricity available upon request
- Custom laser marking of heat shrink tubing
- D80 ferrule with/without counter pin available upon request

Technical Drawing

D80 ModeStrip / D80 Standard ; black metal jacket



Specifications

- Eccentricity < 10 µm (fiber core to ferrule)
- Fiber type upon request
- Fiber length upon request
- Cladding mode strip (on one side)
- Convection-cooled heat sink (black anodized)
- 5.6 mm (outer diameter) protective metal jacket (black)
- Measurement protocol for attenuation, photos of end faces and measurement values for eccentricity available upon request
- Custom laser marking of heat shrink tubing
- D80 ferrule with/without counter pin available upon request