

Standard High-Power Fiber Assemblies: SMA and D80

High-power SMA and D80 assemblies are mainly used as connection fibers for diode laser systems. Since standard SMA connectors that are glued cannot withstand the high power, high-power connectors are used in which the optical fiber stands freely inside the connector surrounded by air.

LASER COMPONENTS has specialized in the assembly of high-power laser fibers since 1995. Controlled cleanroom conditions guarantee a high degree of cleanliness of the fiber end faces and thus create the conditions for high-quality production processes. In addition, the efficiency of power coupling into the fiber has been considerably increased due to the laser polishing process developed in house.

Quality Standards

The standard eccentricity of the connectors is $<10\ \mu\text{m}$. Upon request, we can guarantee an eccentricity of $<5\ \mu\text{m}$. For this purpose, the individual fiber cables must be measured prior to shipment with the help of a measuring microscope.

Our fiber optic assembly is certified according to EN ISO 13485 (medical products) and ISO 9001.

Areas of Application of Diode Lasers:

- Metal and plastic welding
- Selective curing
- Soft and hard soldering
- Deposition welding

Options

- Guaranteed eccentricity: $<5\ \mu\text{m}$
- AR-coated fiber end faces
- Measurement protocol for attenuation
- Measurement protocol for centricity
- Photos of end faces

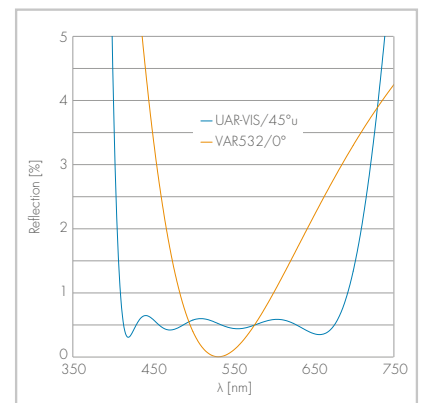


Laser Fiber Specifications

	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 and 4.6 mm)	
Attenuation	< 1.5 dB (selected fibers available upon request)	
Fiber length	1 – 15 m	
Eccentricity	< 5 μm , < 10 μm or < 20 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	ARCAP or copper	copper
Laser power	10 – 300 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)	

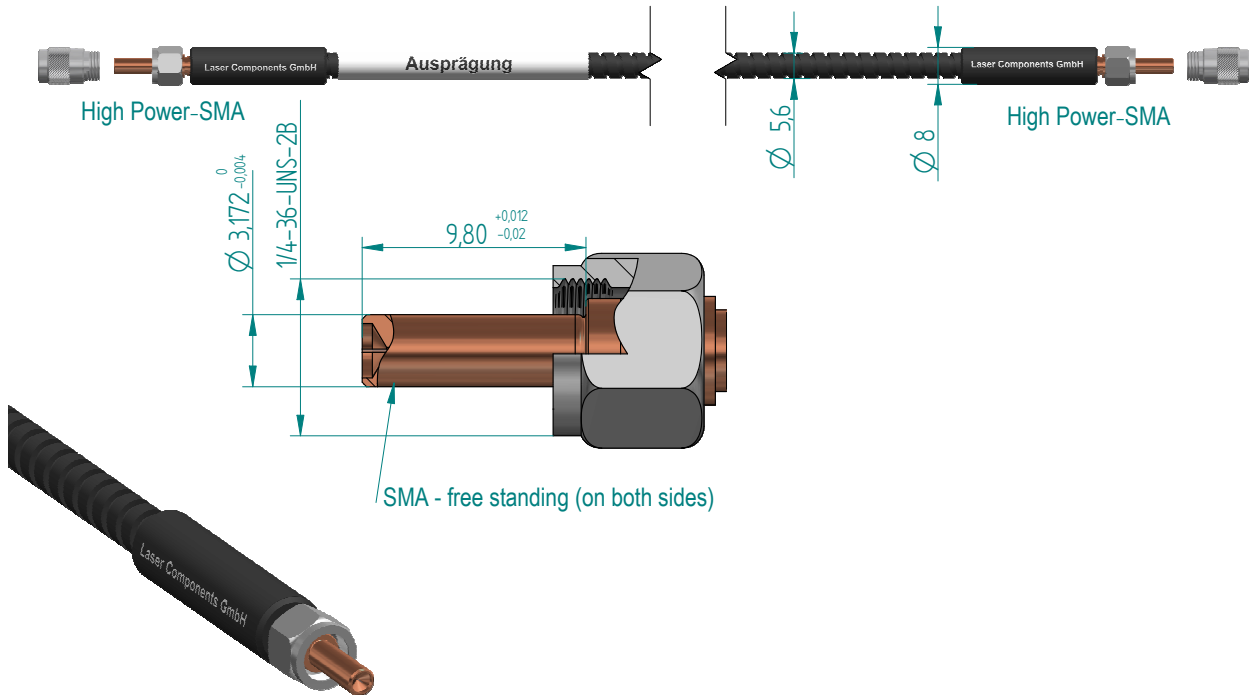
Optional: AR Coating

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



Technical Drawing

SMA high-power connector with copper ferrule on both sides; black metal jacket

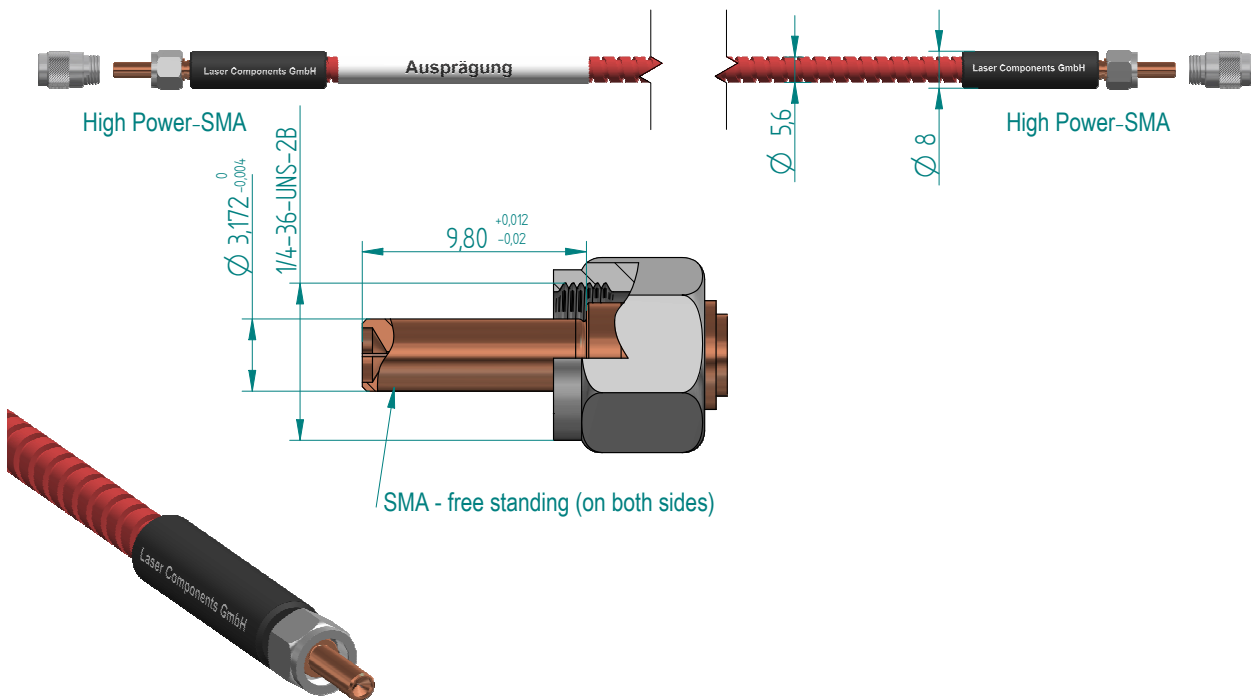


Specifications

- Eccentricity < 10 µm (fiber core to ferrule)
- Fiber type upon request
- Fiber length upon request
- 5.6 mm protective metal jacket (black)
- 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 high-power connector with copper ferrule on both sides; red metal jacket

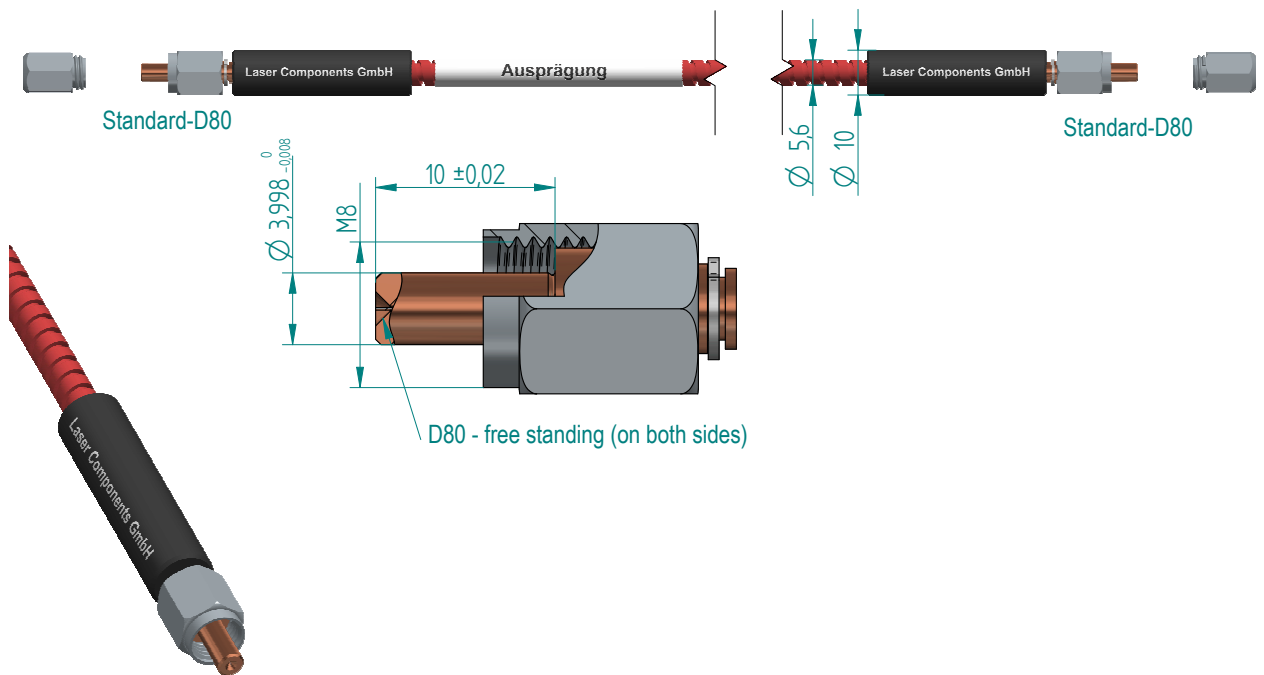


Specifications

- Eccentricity <math>< 10 \mu\text{m}</math> (fiber core to ferrule)
- Fiber type upon request
- Fiber length upon request
- 5.6 mm protective metal jacket (red)
- 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 connector with copper ferrule on both sides; red metal jacket

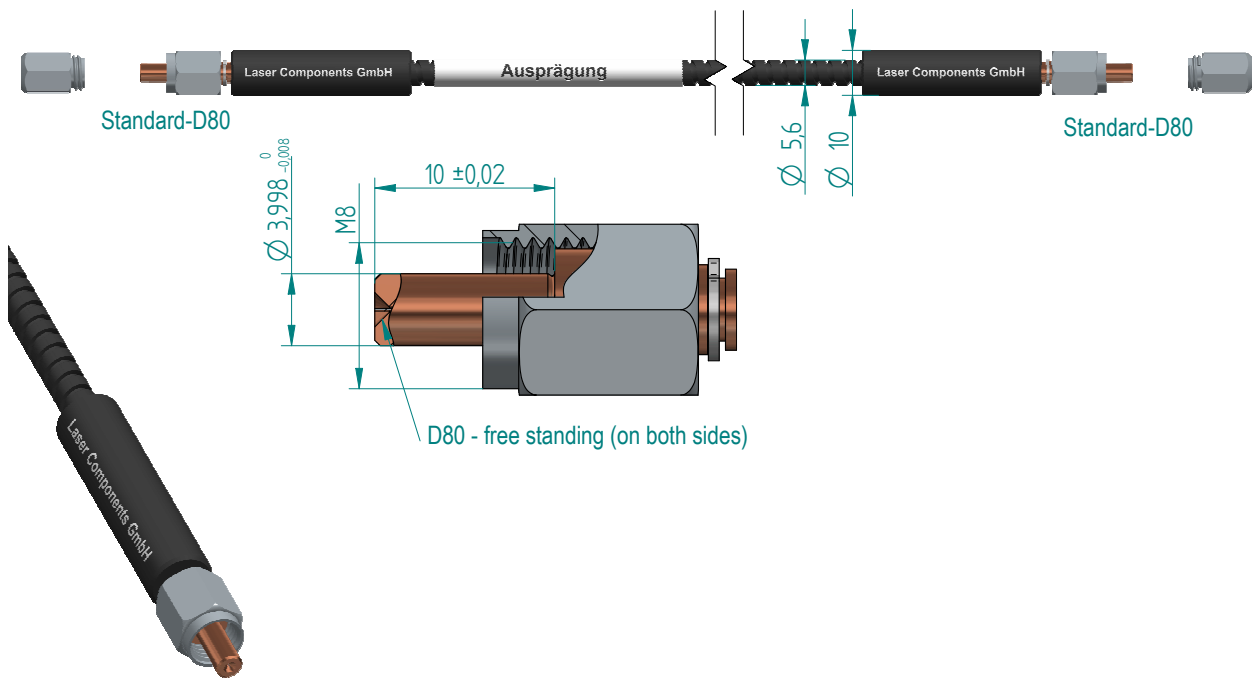


Specifications

- Eccentricity < 10 µm (fiber core to ferrule)
- Fiber type upon request
- Fiber length upon request
- 5.6 mm protective metal jacket (red)
- 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 or without counter pin available upon request

Technical Drawing

D80 connector with copper ferrule on both sides; black metal jacket



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