High Power SMA Fiber Cable

For High Power Diode Lasers, DPSS lasers and Amplifiers

WaveSource SMA fiber cables are manufactured using “air-gap technology” with free-standing fiber tips that are not in contact with any adhesives.

Coupling high power in glued standard SMA connectors leads to their rapid demise. The silica fiber is transparent to pump laser, can resist higher temperature, and has a much higher damage threshold comparing to adhesive. It can receive or emit higher laser power density without running into the risk of damage.

An alternative solution was sought after by some suppliers to allow the optical fiber to protrude out of the ferrule. However, the protruding fibers are easily damaged during handling and use. In addition if the ferrule has a slight misalignment with the entering laser beam, the adhesive will be evaporated by the high power laser that will initiate a catastrophic damage chain.

Our high-power SMA cables offer a viable alternative to the previous approaches. The optical fiber end faces do not protrude out of the connector end faces, the fibers are free standing and surrounded only by air. This ensures the coupling of high laser power without damage.

Adhesives are not used in the front part of the connector. In addition, metallic parts provide for the rapid conduction of heat.

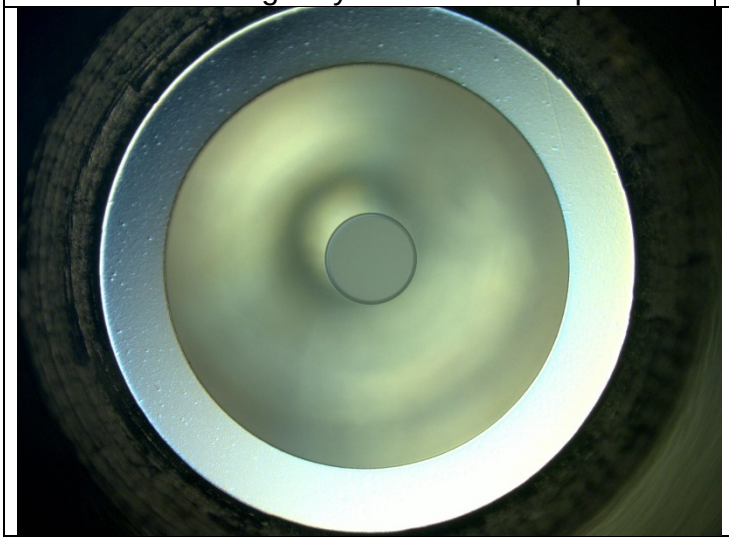
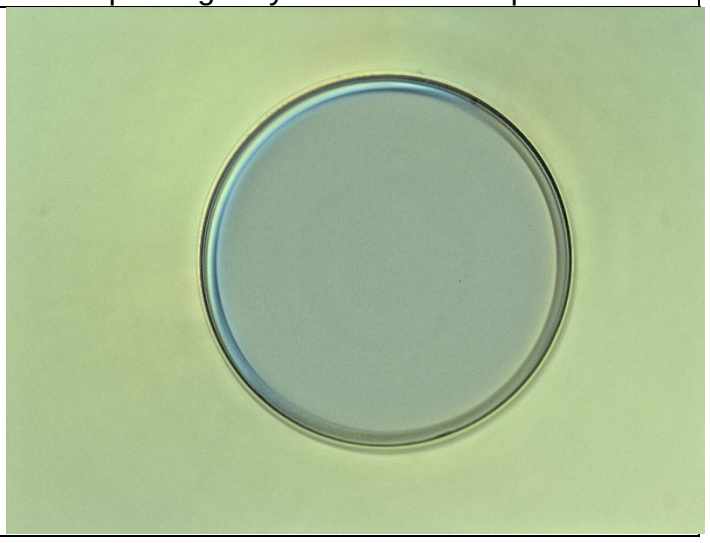
Features

- Free standing, air-gapped fiber tip
- Utilizes Air-Gap-Ferrule Technology
- Low-OH Fiber with 0.22 NA
- High centricity
- Super polished fiber end-face
- Operating Wavelength Range: 400 to 2200 nm

Applications:

- Fiber lasers and amplifiers
- Fiber sensing
- Materials processing
- High power Laser surgery
- LIDAR

Typical images of connector ferrule & fiber

SMA ferrule image by100X microscope	Fiber tip image by400X microscope
	

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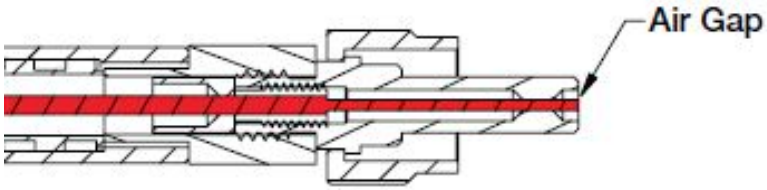
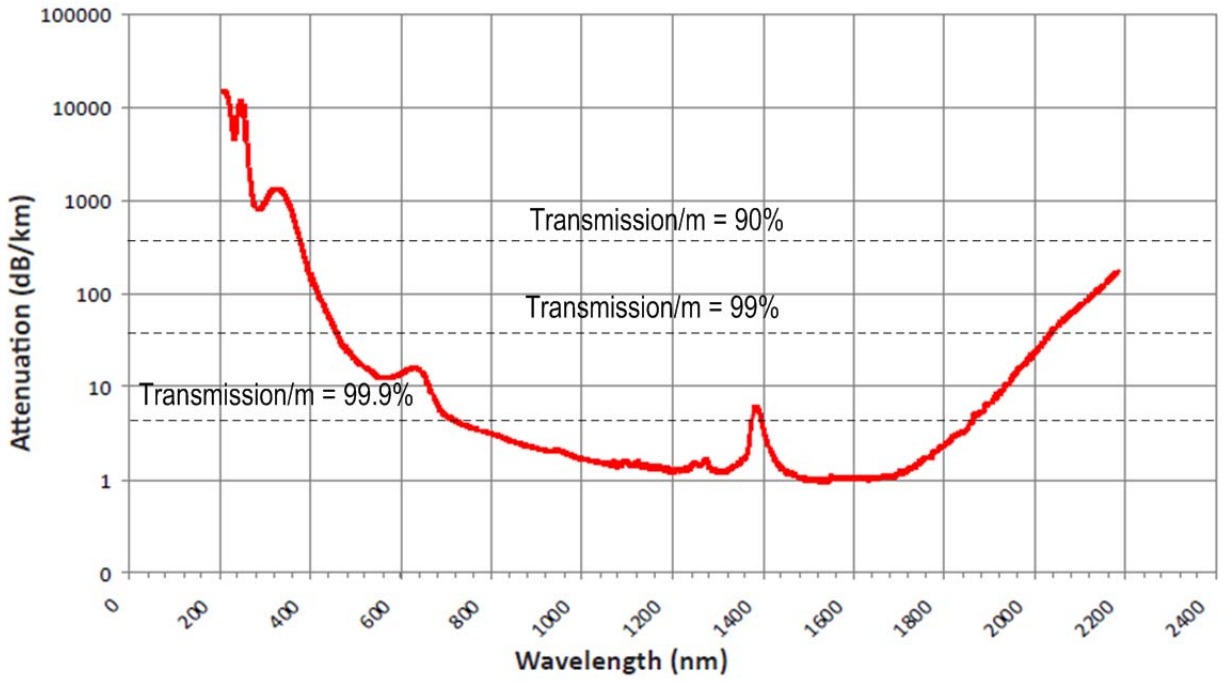
Specifications

Connector Type		SMA 905 on both fiber ends with air-gapped fiber tip technology without fiber protruding			
Ferrule diameter	mm	3.167 - 3.172			
Outer diameter	mm	9.5			
Fiber core diameter	μm	200	400	600	800
Cladding diameter	μm	220	480	720	880
Cable length	m	Per customer specify ± 0.1			
Fiber numerical aperture		0.22 ± 0.02			
Fiber protective jacket		PVC or stainless armed			
Cable jacket diameter	mm	3			
Centricity	μm	<6			
Long term bending radius	mm	44	96	144	176
Short term bending radius	mm	22	48	72	88
Damage threshold	W	50 @ 980nm & 808nm			
	kW/cm2	50 @ 980nm & 808nm			
Operating temperature	C	-50 -- 130			

SMA connector tip structure



Fiber absorption spectrum



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