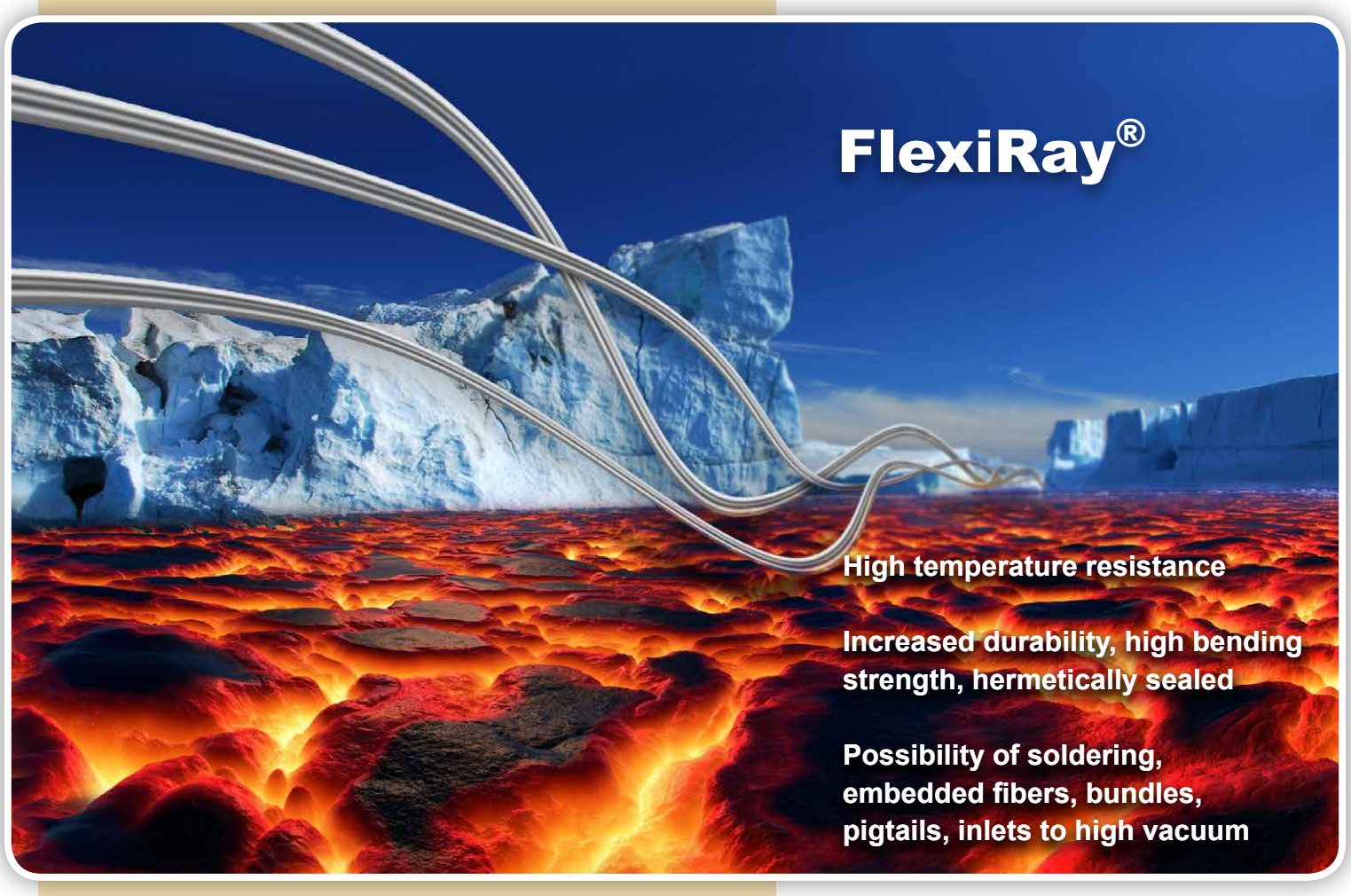
Metal Coated Fibers, Cables and Bundles

art photonics



art photonics' metal-coated silica fibers are the optimal solution when used in high temperature, vacuum and harsh environmental conditions.

Hermetically sealed Metal-Coated Silica (MCS) optical fibers have significant improvements including increased mechanical strength and fatigue resistance compared to standard silica fibers with polymer coating.

The transmission covers a spectral range of 200 to 2400 nm.

Laser cables and bundles made from MCS can be used at high temperatures (>600°C) and in vacuum.

Applications:

- High temperature environments
- Harsh Chemical environments
- Nuclear radiation
- High Power Laser delivery
- Medical applications
- Soldered fiber bundles

FlexiRay® MCS	Specification
Core material	Pure silica High OH^- (λ= 0.18 – 1.2 µm) Low OH^- (λ= 0.35 – 2.5 µm)
Cladding material	Fluoride doped fused silica
Standard Numerical Aperture (NA) *	0.22 ± 0.02 (Full Acceptance Angle 25°)
Material of metal coating	Al, Cu-alloy
Humidity Range	Up to 100%
Minimal bending radius (long term) **Minimal bending radius (short term)**	200 x fiber outer diameter 100 x fiber outer diameter
Attenuation	3dB/km

Coating material	Al	Cu-alloy
Standard Fiber core diameters, µm	9	9
	100	100
	200	200
	400	400
	600	600
	800	800
	1000	1000
Coating thickness, µm	15 – 150	15 – 50
Min operating temperature, °C	-270	-270
Max operating temperature, °C	400	600
Tensile strength (short gauge), GPa	3.5 – 6	2 – 3
Two point bending strength, GPa	>10	>10
Static fatigue parameter	>100	>100

Soldered MCS fiber bundle for combining power up to multi-kW range from many diode lasers.

Specification MCS fiber cables				
Fiber Optic Cable Type	SMA	P-SMA	P+SMA	HP-SMA
Connector Type*	SMA 905	SMA 905 free fiber end	SMA 905 free fiber end	SMA 905 free fiber end, epoxy free, long coupling nut
Ferrule Material	ARCAP	ARCAP	ARCAP; Copper-Alloy	ARCAP; Copper-Alloy
Fiber Centricity, µm	<6	<6	<6	<10
Core Diameter*, µm	200, 400, 600, 800 (optional: other diameter and core shape)			
Numerical Aperture*	0.22 ± 0.02 (Full Acceptance Angle 25°)			
Fiber Cable Length, m	1.5, 3.0, 5.0 (optional: from 5cm to 200m)			
Protective Tubing*		Stainless Steel tube		
Protective tubing OD*, mm	3.0	5.0	5.0	5.0

* Others available on request.

20170123-2-DE

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