

Single Mode Silica/Silica

Fiberguide Industries

ASI™ 633 Series, ASI™ 1500 Series

Technical Data

REFERENCE SUMMARY

Product Category:
Fiber

Mode:
Single Mode

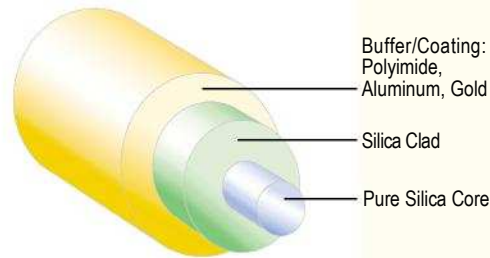
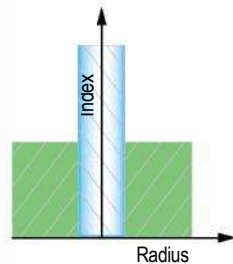
Type:
Single Mode Silica/Silica

Trade Name:
ASI™ 633 Series
ASI™ 1500 Series

DESCRIPTION

While single mode silica/silica fibers are available from a number of suppliers with standard polymer coatings, Fiberguide is unique in offering these fibers with high performance buffers/coatings of gold or polyimide. A single mode fiber has a sufficiently small core diameter that it can only transmit a single transverse optical mode. Typical core diameters are in the range of several microns up to around 10 microns depending on the wavelength being transmitted. Conventional single mode fibers covered in this data sheet have circularly symmetric cores. As such, they can actually transmit two orthogonally polarized modes. Normally, this aspect is ignored because such orthogonal modes travel at nearly the same velocity and they can be treated as one. However, in very high data rate systems and other critical applications it is important to preserve the polarization state that is launched into the fiber. Such cases require the use of polarization preserving single mode fibers that are discussed in the accompanying data sheet.

FIBER CROSS SECTION



FEATURES & BENEFITS

Features	Benefits
Single Mode guidance permits achieving superior output beam quality.	Perfect for lasers and amplifiers.
Precludes modal dispersion in optical fiber communications systems.	Multimode fibers would limit transmission bandwidth.
Fixed spatial shape independent of launch conditions in measurement setups.	Accurate measurement system.
More resistant to attenuation than multimode fibers.	Can be used in significantly longer cable runs.

APPLICATIONS

Optical sensor systems	Imaging catheters and other medical devices	WDM fused couplers
Severe temperature environments	Instrumentation	Tap couplers
Oil and gas applications	Device pigtail	Photonic devices
	Light delivery	Tight coils and integrated modules



A HALMA COMPANY

Fiberguide Industries, Inc., 1 Bay Street, Stirling, NJ 07980
Phone: 908-647-6601 Fax: 908-647-8464 info@fiberguide.com www.fiberguide.com

Form No: REF 723 DS020, Rev. Rev. 22/07/2011, Printed in the U.S.A.
© Copyright 2007 Fiberguide Industries, Inc., Specifications subject to change without notice.

Single Mode Silica/Silica

Fiberguide Industries

ASI™ 633 Series, ASI™ 1500 Series

Technical Data

REFERENCE SUMMARY

Product Category:
Fiber

Mode:
Single Mode

Type:
Single Mode Silica/Silica

Trade Name:
ASI™ 633 Series
ASI™ 1500 Series

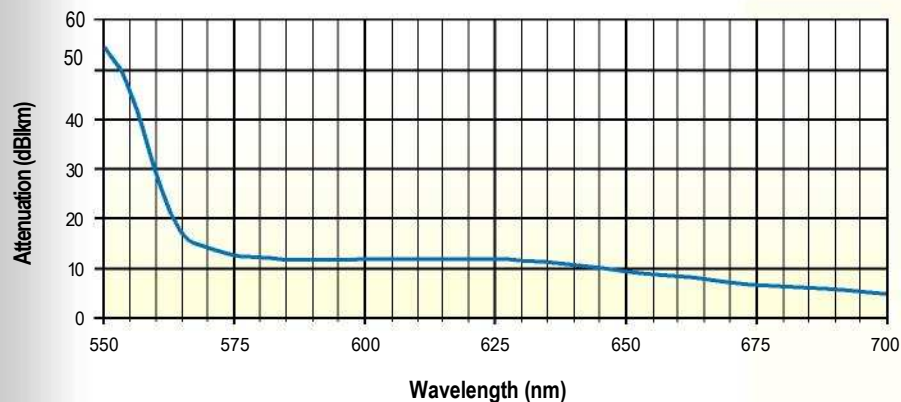
TYPICAL APPLICATIONS



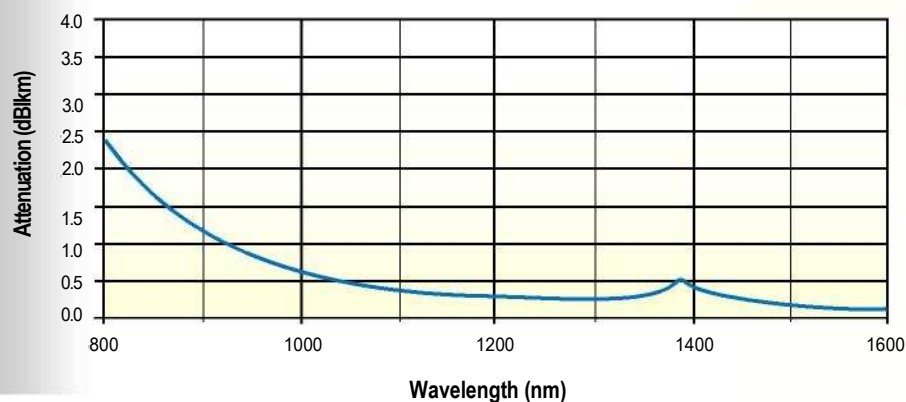
SPECTRAL ATTENUATION

(Typical)

ASI™ 633 Attenuation



ASI™ 1500 Attenuation



A HALMA COMPANY

Fiberguide Industries, Inc., 1 Bay Street, Stirling, NJ 07980
Phone: 908-647-6601 Fax: 908-647-8464 info@fiberguide.com www.fiberguide.com

Form No: REF 723 DS020, Rev. Rev. 22/07/2011, Printed in the U.S.A.
© Copyright 2007 Fiberguide Industries, Inc., Specifications subject to change without notice.

REFERENCE SUMMARY

Product Category:
Fiber

Mode:
Single Mode

Type:
Single Mode Silica/Silica

Trade Name:
ASI™ 633 Series
ASI™ 1500 Series

FIBER SPECIFICATIONS

Note: The fibers in the following table carry a designation "ASI" standing for "Anhydrous Silica", followed by the mode-field diameter and cladding diameters (in microns) and concluding with the suffix "T" that designates Polyimide (Thermocoat) buffer ($145\mu\text{m} \pm 5\mu\text{m}$ O.D.), suffix "A" that designates Aluminum buffer ($175\mu\text{m} \pm 15\%$ O.D.), and suffix "G" that designates Gold buffer ($155\mu\text{m} \pm 15\%$ O.D.).

Product Number	ASI 4.3/125	ASI 9.0/125
Mode Field Diameter ¹	$4.3\mu\text{m} \pm 0.3\mu\text{m}$	$8.5\mu\text{m} - 9.5\mu\text{m}$
Clad Diameter	$125\mu\text{m} \pm 2.0\mu\text{m}$	$125\mu\text{m} + 1.0\mu\text{m} / - 3.0\mu\text{m}$
Design Wavelength ²	633nm - 680nm	1310nm
Cut-off Wavelength	500nm - 600nm	$\leq 1260\text{nm}$
Numerical Aperture	0.12 ± 0.02	0.12 ± 0.02
Core/Cladding Concentricity	$\leq 1.0\mu\text{m}$	$\leq 1.0\mu\text{m}$
Cladding Non-Circularity	$\leq 1\%$	$\leq 1\%$
Attenuation ³	$\leq 15\text{dB/km}$	$\leq 0.5\text{dB/km}$
Zero Dispersion Wavelength		1310nm
Zero Dispersion Slope		$\leq 0.092(\text{ps/nm}^2)*\text{km}$
Group Index of Refraction		1.466 @ 1310nm and 1550nm
Dispersion Coefficient		$1285\text{nm} - 1330\text{nm} \leq 2.8(\text{ps/nm})*\text{km}$ $1550\text{nm} \leq$
Proof Test		
Polyimide:	50 to 70kpsi	
Aluminum:	100 to 150kpsi	
Gold:	50 to 70kpsi	

NOTES

- 1 - The Mode Field Diameter is a nominal, calculated value, estimated at the operating wavelength(s) using typical value of numerical aperture and cut-off wavelength.
- 2 - The Design Wavelength is the wavelength (s) at which the fiber is typically used.
- 3 - Attenuation is a worst-case value. Quoted for the shortest design wavelength.

Fiberguide Industries Customization Program

Fiberguide Industries is a full service custom fiber and value-added assembly provider. If you have unique requirements, please contact us to discuss tailoring a product or design to optimize optical performance for your specific application.

Fiberguide Industries, Inc., 1 Bay Street, Stirling, NJ 07980
Phone: 908-647-6601 Fax: 908-647-8464 info@fiberguide.com www.fiberguide.com

Form No: REF 723 DS020, Rev. 22/07/2011, Printed in the U.S.A.
© Copyright 2007 Fiberguide Industries, Inc., Specifications subject to change without notice.



A HALMA COMPANY