



Verrillon® VHS700 Series Bend-Insensitive Fibers

With their optimized optical design, VHS700 fibers are engineered to operate under extremely small bend radii down to 7.5 mm with minimal bend loss at 1550 nm. This low bend loss performance represents more than a 20X improvement over standard single-mode fiber. VHS700's bend loss exceeds the specifications outlined in the ITU-T G.657.A2 bend loss standard. The ultra-low bend loss provided by VHS700 Series makes it the fiber to use in tight bend applications. It also is designed to be used in cabling applications where there are EFL constraints.

Compatible with standard dual-wavelength single-mode fiber, the VHS700 cutoff is <1290 nm and MFD is similar to standard single-mode fiber. This compatibility makes the fiber easy to splice, with minimal splice loss.

VHS700 is available with polyimide, silicone-PFA, silicone-MTA, MTA and carbon coatings which allow it to withstand high temperatures and hydrogen-containing atmospheres. Carbon coating can be applied to provide hermeticity against water and hydrogen in downhole applications and for fatigue resistance in long-term deployments.

VHS700 is available at proof test levels of 100 kpsi and 200 kpsi, with other levels available upon request.

Features

- Optimized for 1310/1550 nm Dual Wavelength Operation
- Optimized Refractive Index Profile to minimize bend loss
- Greater than 20x bend loss improvement at 1550 nm over standard SMF
- MFD compatible with standard SMF for ease of splicing and minimal splice loss

Specifications

PART NO.	SMF-12-CMTDA-125-2	SMF-12-MTDA-125-1	SMF-12-CMTDA-125-1
Description	125/245 μ m Carbon/Mid-Temp Dual Acrylate Bend Insensitive, Single-mode Fiber, 0.12NA, 200 kpsi	125/245 μ m Mid-Temp Dual Acrylate Bend Insensitive, Single-mode Fiber, 0.12NA, 100 kpsi	125/245 μ m Carbon/Mid-Temp Dual Acrylate Bend Insensitive, Single-mode Fiber, 0.12NA, 100 kpsi
PARAMETER		VALUE	
Material			
Hermetic Coating	Carbon	—	Carbon
Coating	Mid-Temp Dual Acrylate	Mid-Temp Dual Acrylate	Mid-Temp Dual Acrylate
Geometry			
Clad Diameter (μ m)	125 \pm 1	125 \pm 1	125 \pm 1
Core/Clad Offset (μ m)	\leq 0.5	\leq 0.5	\leq 0.5
Coating Diameter (μ m)	245 \pm 10	245 \pm 10	245 \pm 10
Optical			
NA (nominal)	0.12	0.12	0.12
Attenuation ¹ @ 1310 nm (dB/km), 1550 nm (dB/km)	\leq 0.4, \leq 0.25	\leq 0.4, \leq 0.25	\leq 0.4, \leq 0.25
Cutoff Wavelength (nm)	\leq 1290	\leq 1290	\leq 1290
Mode Field Diameter ² @ 1310 nm (μ m), 1550 nm (μ m)	8.6 \pm 0.4, 9.8 \pm 0.6	8.6 \pm 0.4, 9.8 \pm 0.6	8.6 \pm 0.4, 9.8 \pm 0.6
Bend Loss ³ @ 1550 nm (dB)	\leq 0.5	\leq 0.5	\leq 0.5
Mechanical			
Proof Test (kpsi)	200	100	100
Operating Temperature ($^{\circ}$ C)	-40 to +150	-40 to +150	-40 to +150

¹ Measured on Zero Tension Spool

² Petermann II Definition

³ One turn on 7.5 mm radius mandrel