



Verrillon® VHS100 Series Harsh Environment Fibers

Verrillon VHS100 Series of single-mode fibers are suitable for low to mid-temperature harsh environment applications. VHS100 has the best performance in hydrogen when coated with our hermetic coating. Depending on the specific application, VHS100 is available with a diverse range of coatings including Carbon Mid-temp Dual Acrylates (CMTDA), Carbon Silicone Mid-temp Acrylates (CSMTA), Carbon Silicone-PFA and Carbon Polyimide.

Features

- Highly compatible with standard single-mode fibers for ease of spliceability
- Combined with carbon coating, VHS100 exhibits very high resistance to hydrogen and moisture in the mid-range of temperatures
- Available with all Verrillon® Harsh Environments coatings
- VHS100 is designed to operate at both 1310 and 1550 nm wavelengths
- Typically used with single-mode DTS and DAS sensing interrogators

Specifications

PART NO.	SMF-1-P-125-2	SMF-1-P-125-3	SMF-1-CP-125-3
Description	125/155 μm Polyimide, Single-mode fiber, 0.12NA, 150 kpsi	125/155 μm Polyimide, Single-mode fiber, 0.12NA, 100 kpsi	125/155 μm Carbon/Polyimide, Single-mode fiber, 0.12NA, 100 kpsi
PARAMETER	VALUE		
Material			
Hermetic Coating	—	—	Carbon
Coating	Polyimide	Polyimide	Polyimide
Geometry			
Clad Diameter (μm)	125 ± 2	125 ± 2	125 ± 2
Core/Clad Offset (μm)	≤ 0.5	≤ 0.5	≤ 0.5
Coating Diameter (μm)	155 ± 5	155 ± 5	155 ± 5
Polyimide Coating Concentricity ¹ (%)	≥ 80	≥ 80	≥ 80
Optical			
NA (nominal)	0.12	0.12	0.12
Attenuation ² @ 1310 nm (dB/km)	≤ 0.7	≤ 0.7	≤ 0.7
Attenuation ² @ 1550 nm (dB/km)	≤ 0.6	≤ 0.6	≤ 0.6
Cutoff Wavelength (nm)	1250 ± 50	1250 ± 50	1250 ± 50
Mode Field Diameter ³ @ 1310 nm (μm)	9.2 ± 0.6	9.2 ± 0.6	9.2 ± 0.6
Mode Field Diameter ³ @ 1550 nm (μm)	10.4 ± 0.8	10.4 ± 0.8	10.4 ± 0.8
Mechanical			
Proof Test (kpsi)	≥ 150	≥ 100	≥ 100
Operating Temperature (°C)	-65 to +300	-65 to +300	-65 to +300

¹ Measured as (Min. Wall/Max. Wall) x 100

² Measured on Zero Tension spool

³ Petermann II Definition

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Specifications

PART NO.	SMF-1-CMTDA-125-1
Description	125/245 μm Carbon/ Mid-Temp Dual Acrylate coated, Single-mode fiber 0.12NA, 100 kpsi
PARAMETER	VALUE
Material	
Hermetic Coating	Carbon
Coating	Mid-Temp Dual Acrylate
Geometry	
Clad Diameter (μm)	125 ± 2
Core/Clad Offset (μm)	≤ 0.5
Coating Diameter (μm)	245 ± 15
Optical	
NA (nominal)	0.12
Attenuation ¹	
@ 1310 nm (dB/km)	≤ 0.5
@ 1550 nm (dB/km)	≤ 0.3
Cutoff Wavelength (nm)	≤ 1250 ± 50
Mode Field Diameter ²	
@ 1310 nm (μm)	9.2 ± 0.6
@ 1550 nm (μm)	10.4 ± 0.8
Mechanical	
Proof Test (kpsi)	≥ 100
Operating Temperature (°C)	-40 to +150

¹ Measured on loose coil

² Petermann II Definition

Specifications

PART NO.	SMF-1-MTDA-125-1
Description	125/245 μm Mid-Temp Dual Acrylate coated, Single-mode fiber, 0.12NA, 100 kpsi
PARAMETER	VALUE
Material	
Coating	Mid-Temp Dual Acrylate
Geometry	
Clad Diameter (μm)	125 ± 2
Core/Clad Offset (μm)	≤ 0.5
Coating Diameter (μm)	245 ± 5
Optical	
NA (nominal)	0.12
Attenuation	
@ 1310 nm (dB/km)	≤ 0.40
@ 1550 nm (dB/km)	≤ 0.25
Cutoff Wavelength (nm)	1250 ± 50
Mode Field Diameter ¹	
@ 1310 nm (μm)	9.2 ± 0.6
@ 1550 nm (μm)	10.4 ± 0.8
Mechanical	
Proof Test (kpsi)	≥ 100
Operating Temperature (°C)	-40 to +150

¹ Petermann II Definition

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Specifications

PART NO.	SMF-1-CA-125-2	SMF-1-CA-125-3
Description	125/245 μm Carbon/Acrylate coated, Single-mode Fiber, 0.12 NA, 200 kpsi	125/245 μm Carbon/Acrylate coated, Single-mode Fiber, 0.12 NA, 100 kpsi
PARAMETER	VALUE	
Material		
Hermetic Coating	Carbon	Carbon
Coating	UV Acrylate	UV Acrylate
Geometry		
Clad Diameter (μm)	125 ± 2	125 ± 2
Core/Clad Offset (μm)	≤ 0.5	≤ 0.5
Coating Diameter (μm)	245 ± 15	245 ± 15
Optical		
NA (nominal)	0.12	0.12
Attenuation ¹		
@ 1310 nm (dB/km)	≤ 0.6	≤ 0.6
@ 1550 nm (dB/km)	≤ 0.5	≤ 0.5
Cutoff Wavelength (nm)	≤ 1250 ± 50	≤ 1250 ± 50
Mode Field Diameter ²		
@ 1310 nm (μm)	9.2 ± 0.6	9.2 ± 0.6
@ 1550 nm (μm)	10.4 ± 1.0	10.4 ± 1.0
Mechanical		
Proof Test (kpsi)	≥ 200	≥ 100
Operating Temperature (°C)	-40 to +85	-40 to +85

¹ Measured on loose coil

² Petermann II Definition