

Fiber G.657.A1 Singlemode Optical Fiber

Bending Loss Insensitive Fiber ITU-T G.657.A1(VAD Process). V-Protect offers Strong bend (Zero Water Peak) singlemode optical fiber produced by the Vapour Phase Axial Deposition (VAD) method, which enables construction of high -capacity, low-cost transmission in FTTH Networks. Strong bend singlemode optical fiber has step index and matched clad type characteristics operating in the entire wavelength region from 1280 nm to 1625 nm, free of OH-peak at 1383 ± 3 nm in compliance with the latest ITU-T G.657.A1 standard. Its low sensitivity to macrobending results in lower attenuation levels in the 1600 nm wavelength region. Strong bend fiber has low PMD (Polarization Mode Dispersion) and supports legacy transmission equipment and applications.



Features

- Fully compliant with ITU-T G.652.D&G.657.A1
- Allowable bending diameter : 20mm (0.79in)
- 1/3 Bending diameter compared to conventional SMF(60mm (2.34in))
- Good splicing with conventional SMF and ZWPF

Application

- Fully compatibility with conventional SMF
- Minimized construction space
- FTTH/Premise/LAN cable
- Air blown fiber
- Optical cord

Fiber characteristics

	Singlemode	G.657.A1
■ Fiber type		
■ Composition		
Core		Germanium doped silica
Cladding		Silica, step index and matched clad type
Coating		Dual layers of UV-cured acrylate
■ Geometrical Characteristics		
Mode field diameter		$8.9 \pm 0.4 \mu\text{m}$ at 1310 nm
Cladding diameter		$125.0 \pm 0.7 \mu\text{m}$
Core/cladding concentricity error		$\leq 0.5 \mu\text{m}$
Cladding non-circularity		$\leq 0.7 \%$
Fiber curl radius		$\geq 4 \text{ m}$
Primary coating diameter (for uncolored fiber)		$242 \pm 5 \mu\text{m}$
Primary coating diameter (for colored fiber)		$250 \pm 10 \mu\text{m}$
Coating/cladding concentricity error		$\leq 12 \mu\text{m}$
■ Optical Characteristics		
Attenuation	at 1310 nm	$\leq 0.34 \text{ dB/km}$
	at 1550 nm	$\leq 0.20 \text{ dB/km}$
	at $1383 \pm 3 \text{ nm}$	$\leq 0.31 \text{ dB/km}$ (after H_2 aging)
Attenuation Change	at 1285 ~ 1330 nm	$\leq 0.03 \text{ dB/km}$ (1310 nm reference)
	at 1525 ~ 1575 nm	$\leq 0.02 \text{ dB/km}$ (1550 nm reference)
Point discontinuity	at 1310 nm and 1550 nm	$\leq 0.05 \text{ dB}$
Zero dispersion wavelength		1302 ~ 1324 nm
Zero dispersion slope		$\leq 0.090 \text{ ps}/(\text{nm}^2 \cdot \text{km})$
Chromatic dispersion	at 1285 ~ 1330 nm	$\leq 3.5 \text{ ps}/(\text{nm} \cdot \text{km})$
	at 1550 nm	$\leq 18 \text{ ps}/(\text{nm} \cdot \text{km})$
Cable cut-off wavelength (λ_{cc})		$\leq 1260 \text{ nm}$
PMD	for individual value (uncabled fiber)	$\leq 0.15 \text{ ps}/\sqrt{\text{km}}$
	for link value	$\leq 0.1 \text{ ps}/\sqrt{\text{km}}$

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Singlemode Optical Fiber

Optical fiber

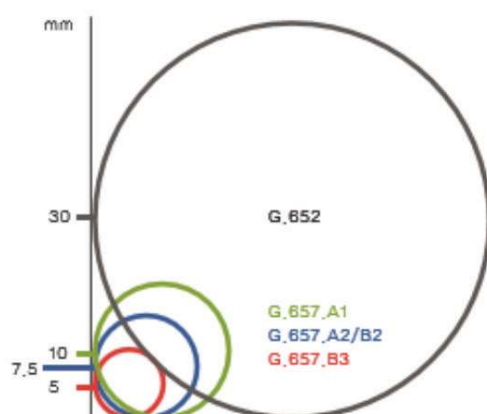
■ Mechanical Characteristics

Fiber proof test level	≥ 120 kpsi (1.2 % strain)
Macrobending loss:	
for 10 turns at a 7.5 mm mandrel radius	≤ 0.25 dB at 1550 nm
for 10 turns at a 7.5 mm mandrel radius	≤ 1.0 dB at 1625 nm
for 1 turn at a 5 mm mandrel radius	≤ 0.75 dB at 1550 nm
for 1 turn at a 5 mm mandrel radius	≤ 1.5 dB at 1625 nm
Coating strip force	1.3 ~ 8.9 N
Dynamic fatigue resistance parameter	≥ 20

■ Environmental Characteristics

Induced attenuation at 1310 nm and 1550 nm:	
from -60°C to +85°C temperature cycling	≤ 0.05 dB/km
+85°C / 98 % RH temperature humidity cycling	≤ 0.05 dB/km
+85°C heat aging	≤ 0.05 dB/km
+23°C water immersion	≤ 0.05 dB/km

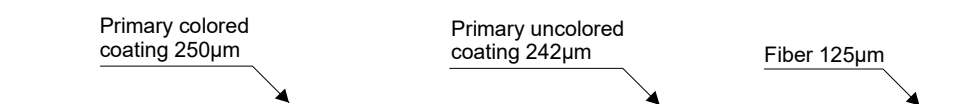
✧ Radius



✧ Packing

■ Fiber type	Singlemode	G.657.A1	
		25,2	50,4
■ Length on spool [km]	Flange diameter [mm]	234.5	265
	Barrel diameter [mm]	152.0	170
	Inner width [mm]	96.0	150
	Outer width [mm]	116.0	175
	Bore diameter [mm]	25.4	25,4
■ Spool dimension			

✧ Fiber construction



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Optical fiber

Order code

OC-FA1-x

Fiber color

00 - neutral, **01** - red, **02** - green, **03** - blue, **04** - yellow, **05** - white, **06** - grey, **07** - brown, **08** - violet, **09** - aqua, **10** - black, **11** - orange, **12** - pink, **13** - neutral/black, **14** - red/black, **15** - green/black, **16** - blue/black, **17** - yellow/black, **18** - white/black, **19** - grey/black, **20** - brown/black, **21** - violet/black, **22** - aqua/black, **23** - black/white, **24** - orange/black, **25** - pink/black

Standard colours:

Fiber type	G.652.D	G.657.A1,A2,B3	OM1 62,5/125	OM2 50/125	OM3 50/125	OM4 50/125	OM5 50/125
Fiber colour	Yellow	White	Blue	Orange	Aqua	Violet	Green
RAL	1021	9010	5015	2003	6027	4005	6001

Label on the spool contain

Tape of fiber
Length

Warranty

V-Protect warrants that the delivered fibers meet this specification. If the fibers fail to meet this specification, V-Protect agrees to replace such failed fibers. V-Protect makes no warranty, however, as to the results to be obtained from the use of these fibers. In no event shall V-Protect be liable for removal or installation costs or other indirect or consequential damages.