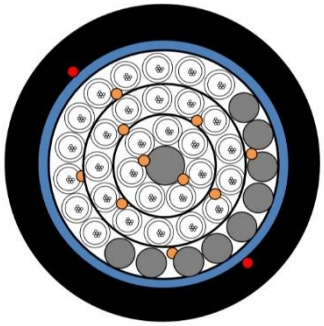
Underground/Duct Fiber Optic Cable

Type: OPUG 720FO G652D



Application

For installation in ducts or directly burried
Fully dielectric cable
~ IEEE Std P.1222 - Standard construction of composite fiber for use on electric utility power lines
~ IEC 60793-1 - Optical fiber Part 1: Generic specifications
~ IEC 60793-2 - Optical fiber Part 2: Product specifications
~ IEC 60794-1-2 - Optical fiber cables – Part 4: Sectional specification – Aerial optical cables along electrical power lines
~ EIA/TIA 598 - Color code of fiber optic cables
~ ITU-T G.652 - Characteristics of a single-mode optical fiber cable

Cable Construction

Central Strength Member (FRP)
PBT Loose Tube
Optical Fibers
Jelly
Filler(s)
Water Blocking Yarn(s)
Water Blocking Tape
Ripcord(s)
Outer Sheath (HDPE)

Technical Characteristics

Optical Fiber	
Characteristic	**Specified Value**
Attenuation Coefficient: at 1310 nm Max : at 1550 nm Max :	≤ 0.35 dB/km ≤ 0.22 dB/km
Chromatic Dispersion: between 1285 - 1330 nm: at 1550nm	 ≤ 3.5 ps/nm·km ≤ 18 ps/nm·km
Attenuation Non-uniformity at 1310 nm at 1550 nm	≤ 0.03 dB ≤ 0.03 dB
Point Discontinuity: at 1310&1550 nm	≤ 0.1 dB
Polarization Mode Dispersion (PMD) PMD Q value	≤ 0.2 ps/√km

The optical fiber core and sheath shall be of the E9 / 125 type. The protective cover must be in direct contact with the surface of the optical fiber to protect it and avoid cracking of the optical fiber	E9 / 125 type
Cable Cut off Wavelength (λcc)	≤ 1260 nm
Mode Field Diameter: at 1310 nm at 1550 nm	9.2 ±0.4μm 10.4±0.5μm
The uniformity attenuation at any projected wavelength	≤ 0.1 dB/km
Cladding Diameter	125 ±1.0μm
Mode field (Core/clad) concentricity error	≤ 0.6 μm
Cladding Non-Circularity	≤1%
Coating Diameter	245 ± 7μm
Core / Cladding Concentricity error	≤ 0.6μm
The increase in attenuation of 100 optical fiber cores wrapped on a 50 mm diameter chuck at 1310 nm: at 1550 nm:	 ≤0,05 dB; ≤ 0,05 dB
Coating-Cladding Concentricity error	≤ 12μm
Proof Test	≥ 1.0%, 1 sec. ≥ 0.69Gpa (100kpsi)
Temperature Cycling Induced Attenuation: at 1550nm and 1625 nm (-400C to +700C)	0.05dB/km
Macro bending Loss : at 1550nm and 1625 nm (100 turns; Φ 60 mm)	≤ 0.1dB

Fiber Optic Cable	
Core Type *	G.652.D
Fiber Count	720
Tube Count	30
Filler Count	9
Cable Diameter (mm)	19.8
Cable Weight (kg/km)	312
Allowable Tensile Strength (short-term)	1.5 kN
Water ingress resistance	1m, 24H, 3 samples
Minimum Bending Radius (Installing)	20 x D
Minimum Bending Radius (Operating)	10 x D
Temperature (Installation)	-10°C ~ +60 °C
Temperature (Transportation and Operation)	-40°C ~ +70 °C
Life Span	>30 yr
Packing	Wooden drum with protection
Delivery Lengths	To be confirmed, ± %5 tolerance
Marking	<OPTIVINE> + <UNDERGROUND> + <fiber count and type> + <manufacturing date> + <length marking>

Fiber Color Identification**												
No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Color	Red	Blue	Green	Yellow	Purple	White	Orange	Grey	Brown	Black	Turquese	Pink

Tube Color Identification***												
No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Color	Red	Blue	Green	Yellow	Purple	White	Orange	Grey	Brown	Black	Turquese	Pink

* Other fiber types can be used upon request.

** When tubes go beyond 12 fibers, the colors repeat but use black rings to distinguish fibers.

*** When cables go beyond 12 tubes, the colors repeat but use a stripe to distinguish tubes. When cables go beyond 24 tubes, the colors repeat but 2 stripes are used to distinguish tubes.

**** Customized solutions can be offered upon request.