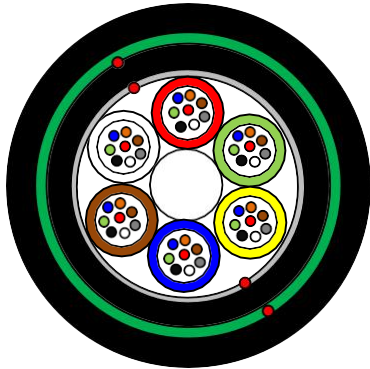


Cable Design

Loose Tube Optical Fiber Cable-Double Sheath-Steel Tape Protection- G.652D Fiber



- **Central Strain-support Element (CE):** glass fiber reinforced plastic rod (FRP), with PE sheath covering when needed.
- **Loose Tube:** PBT plastic material, containing 12 fibers and filled with a suitable water tightness compound.
- **Filler Elements:** black PE plastic rods, when needed.
- **Stranding:** elements SZ stranded around the CSM.
- **Longitudinal Water Tightness:** water blocking with cable filling compound.
- **Glass Yarns:** glass yarn flat tape.
- **Ripcord(s):** 2 ripcords under each sheath if needed.
- **Inner Sheath:** Black PE.
- **Steel Tape Protection:** corrugated steel-plastic tape armor providing additional protection.
- **Outer Sheath:** Black HDPE.

Cable Specification

Cable Cores		48	96	144	288
No. of Tubes		4	8	12	24
No. of Fillers		2	0	0	0
Fiber Counts in Tube		12			
Tube/Filler- Φ	mm	2.05			
CSM- Φ	mm	2.1	2.5	3.0	3.0
CSM with PE- Φ	mm	/	3.5	6.3	4.2
Inner PE Sheath Thickness	mm	0.7			
Outer PE Sheath Thickness	mm	1.6			
Nominal Cable Diameter	mm	12.6	13.9	16.8	19.3
Nominal Cable Weight	kg/km	144	172	242	303
Tensile Force	N	3000	4000	5000	5000

Cable Application

Temperature Range		Minimum Bend Radius	
Transportation & Storage	-30~+70°C	Load	20×D
Operation	-30~+70°C	Unload	10×D

Main Mechanical and Environmental Characteristic

Test	Test Standard	Specified Value	Acceptance Criteria
Tensile	IEC 60794-1-2-E1	Tensile Force, 5min	$\Delta\alpha\leq 0.1\text{dB}$, fiber strain $\leq 0.6\%$
Crush	IEC 60794-1-2-E3	3000N/10cm, 5min	$\Delta\alpha$ reversible, no damage
Repeated Bending	IEC 60794-1-2-E6	R=20D, 250N, 20cycles	$\Delta\alpha$ reversible, no damage
Impact	IEC 60794-1-2-E4	10J, R=300mm, 3times	$\Delta\alpha$ reversible, no damage
Torsion	IEC 60794-1-2-E7	100N, 10cycles, +/-1800	$\Delta\alpha$ reversible, no damage
Temperature Cycling	IEC 60794-1-2-F1	-30~+70°C, 2cycles	$\Delta\alpha\leq 0.05\text{dB/km}$, no damage
Water Penetration	IEC 60794-1-2-F5	3m cable, 1m height, 24h	No water leakage

Cabled Fiber Performance (G.652D)

Characteristics		Acceptance Value
Attenuation	@1310nm	$\leq 0.35\text{dB/km}$
	@1383nm	$\leq 0.34\text{dB/km}$
	@1550nm	$\leq 0.21\text{dB/km}$
	@1625nm	$\leq 0.23\text{dB/km}$
Mode Field Diameter	@1310nm	$9.2\pm 0.4\ \mu\text{m}$
	@1550nm	$10.4\pm 0.5\ \mu\text{m}$
Dispersion	@1300 +30/-15nm	$\leq 3.0\text{ps}/(\text{nm}\cdot\text{km})$
	@1550nm	$\leq 18\text{ps}/(\text{nm}\cdot\text{km})$
	@1625nm	$\leq 22\text{ps}/(\text{nm}\cdot\text{km})$
Zero-Dispersion wavelength		1302nm~
Zero-Dispersion slope		$\leq 0.092\text{ps}/(\text{nm}^2\cdot\text{km})$
Cable cutoff wavelength $\lambda_{cc}(\text{nm})$		$\leq 1260\text{nm}$
Cladding diameter		$125\pm 0.7\ \mu\text{m}$
Cladding non-circularity		$\leq 0.7\%$
Core/cladding concentricity error		$\leq 0.5\ \mu\text{m}$
Proof stress		$\geq 0.69\text{GPa}(100\text{kpsi})$
Dynamic stress corrosion susceptibility parameter (typical value)		≥ 20

Fiber and Tube Color

Color Identification of Fiber

No	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Yellow	Blue	Brown	White	Grey	Violet	Black	Orange	Aqua	Pink

Color Identification of Tube

No	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Yellow	Blue	Brown	White	Grey	Violet	Black	Orange	Aqua	Pink

Note: If the tube number is more than 12, the tube color code will be repeated again.

Sheath Marking, Delivery Length

The outer sheath is marked in 1 meter intervals as follows:

In Accordance with Custom's Requirement

Standard delivery length will be 4 km with -1+3% tolerance.