

# Optical Fiber Duct Cable A-DQ(ZN)2Y 1500N

## Cable Design

### Buffer Tube Optical Fiber Cable-Dielectric-Dry Core-G.652D Fiber



- **Central Strain-support Element (CE):** glass fiber reinforced plastic rod (FRP), with PE sheath covering when needed.
- **Buffer Tube:** PBT plastic material, containing 12 fibers and filled with a suitable water tightness compound.
- **Filler Elements:** Nature PP plastic rods, when needed.
- **Stranding:** loose tubes (and fillers), SZ stranded around the CE.
- **Longitudinal Water Tightness:** dry core with water swellable elements.
- **Ripcord(s):** 2 polyester ripcords under sheath.
- **Outer Sheath:** Black HDPE.

## Cable Specification

Cable Cores		24	48	96	144	192
No. of Tubes		4	4	8	12	6+10
No. of Fillers		2	2	8	12	2
Fiber Counts in Fiber		6	12			
Tube/Filler- $\phi$	mm	2.0	2.1			
CSM- $\phi$	mm	2.1	2.3	2.5	2.8	2.3
Coated CSM- $\Phi$	mm			3.8	6.5	
Thickness of Outer PE Sheath	mm	1.6			1.8	
Nominal Cable Diameter	mm	9.7	10.2	11.7	14.8	15.5
Nominal Cable Weight	Kg/km	72	80	105	168	174

## Cable Application

Temperature Range		Minimum Bend Radius	
Transportation & Storage	-25~+70°C	Load	20×D
Operation	-25~+60°C	Unload	10×D

## Main Mechanical and Environmental Characteristic

Test	Test Standard	Specified Value	Acceptance Criteria
Tensile	IEC 60794-1-2-E1	1500N, 1 min	$\Delta\alpha \leq 0.05\text{dB}$ fiber strain $\leq 0.33\%$
Crush	IEC 60794-1-2-E3	1500N/10cm, 1 min, 3 times	$\Delta\alpha$ reversible, no damage
Impact	IEC 60794-1-2-E4	25J, R=300mm, 3 impact	$\Delta\alpha$ reversible, no damage
Repeated Bending	IEC 60794-1-2-E6	R=20D, 100N, 100 cycles	$\Delta\alpha \leq 0.05\text{dB}$ after test, no damage
Bend	IEC 60794-1-2-E11	R=10D, 3 cycles, 5 turns, -15°C	$\Delta\alpha \leq 0.05\text{dB}$ after test, no damage
Torsion	IEC 60794-1-2-E7	100N, 5 cycles, +/-180°	$\Delta\alpha \leq 0.05\text{dB}$ after test, no damage
Temperature Cycling	IEC 60794-1-2-F1	-25~+70°C, 2 cycles, 6h	$\Delta\alpha \leq 0.05\text{dB/km}$ , after test, no
Water Penetration	IEC 60794-1-2-F5	1m sample, 1m height, 24h	No water leakage

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Test	Test Standard	Specified Value	Acceptance Criteria
Drip	IEC 60794-1-2-E14	60°C, 5 sample	No drip
Kink	IEC 60794-1-2-E10	Diameter=10D	No kink
Tube Kinking	IEC 60794-1-2-G7	L=70, L1=350, L2=100	No kink

## Cabled Fiber Performance (G.652D)

Characteristics		Acceptance Value
Attenuation	@1310nm	≤0.35dB/km
	@1383nm	≤0.34dB/km
	@1550nm	≤0.21dB/km
	@1625nm	≤0.23dB/km
Mode Field Diameter	@1310nm	9.2±0.4 μm
	@1550nm	10.4±0.5 μm
Dispersion	@1300 +30/-15nm	≤3.0ps/(nm·km)
	@1550nm	≤18ps/(nm·km)
	@1625nm	≤22ps/(nm·km)
Macro bend loss at 1550nm	Ø50mm 100 turns	≤0.05dB
Macro bend loss at 1525nm	Ø60mm 100 turns	≤0.10dB
Zero-Dispersion wavelength		1302nm~1322nm
Zero-Dispersion slope		≤0.092ps/(nm <sup>2</sup> ·km)
Cable cutoff wavelength λ <sub>cc</sub> (nm)		≤1270nm
Polarization Mode Dispersion (PMD)	Max. individual	≤0.15ps/km 1/2
	Linked design	≤0.07ps/km 1/2
Cladding diameter		125±1.0μm
Cladding non-circularity		≤0.7%
Core/cladding concentricity error		≤0.5μm
Fiber diameter with coating (colored)		245±10μm
Cladding/coating concentricity error		≤12μm
Proof stress		≥0.69GPa(100kpsi)
Dynamic stress corrosion susceptibility parameter (typical value)		≥20

## Fiber & 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

## Sheath Marking

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

**In Accordance with Custom's Requirement**

## Delivery Length

Standard delivery length will be 4 or 6km.