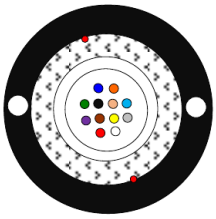
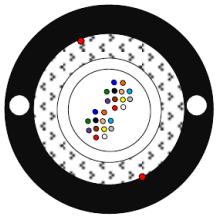
Duct or Aerial Cable

1. Application / Construction

Identification	OFC-4/8/12/24 G.652D		
Application	Duct or aerial cable		
Cross Section (not to scale)	4/8/12 F 	24 F 	
Configuration	- Central Loose tube with up to 24 optical fibers, filled with thixotropic compound - Strength member: Glass yarns - Two parallel FRPs embedded in the sheath - Outer sheath: Black HDPE, two ripcords under sheath		
Temperature Range	Storage and transport -40 to +70°C	Installation -10 to +50°C	Operation -40 to +70°C
Standards	IEC 60793-1, IEC 60793-2, IEC 60794-3-10, IEC 60794-4-20		

2. Dimensions

Number of fibres	Unit	2	4	8	12	24
Loose tubes x fibers	/	1x2	1x4	1x8	1x12	1x24
Loose tube Ø(±0.15)	mm	Outer:2.0/Inner:1.4				Outer:2.4 Inner:1.6
Glass yarns	/	6x 630 Tex (3.78kg)				
FRP Ø	mm	Nominal 0.5*2				
Outer sheath thickness(±0.2)	mm	1.5				
Outer diameter (±0.4)	mm	5.3				5.8
Weight (± 15%)	kg/km	26				29

Note: sheath thickness not consider ripcord portion.

3. Mechanical Properties

Max. tensile load	500N
Crush resistance / 10 cm	1000N
Bending radius (installation)	20 x Cable Ø
Bending radius (operation)	10 x Cable Ø

See Point 6: Test Methods

4. Marking

Fibers color	1	2	3	4	5	6	7	8	9	10	11	12
	blue	orange	green	brown	slate	white	red	black	yellow	violet	rose	aqua
	13	14	15	16	17	18	19	20	21	22	23	24
	blue	orange	green	brown	slate	white	red	natural	yellow	violet	rose	aqua

Tube color: Natural

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5. Optical Fiber

Fiber type	G.652D		
Optical	Fibre attenuation .. cabled	1310nm ≤0.36 dB/km	1550nm ≤0.22 dB/km
	Mode field diameter (MFD)	1310nm: 9.2±0.5μm	
	Zero dispersion wavelength	1300~1324 nm	
	Zero dispersion slope	≤0.092 ps/nm² ·km	
	Polarisation mode dispersion (PMD)	≤0.2 ps/√km	
	Cut-off wavelength	≤1260 nm	
	Macro bending loss 100 turns; Φ50 mm	@1625 nm ≤ 0.10 dB	
	Cladding diameter	125±1μm	
	Core/clad concentricity error	≤1.0%	
	Cladding non-circularity	≤0.6μm	
Mechanical	Proof stress	≥ 0.69 Gpa	

6. Test Methods

Test	Conditions	Acceptance criteria
Tensile strength IEC 60794-1-2 E1	Tensile strength: see Point 3 Sample length: ≥ 50 m Test duration: 5 minutes	- Fiber strain≤ 0.6% - $\Delta\alpha \leq 0.1$ dB - No damage
Crush resistance IEC 60794-1-2 E3	Crush: see Point 3 Test duration: 1 min, number of tests: 3	- $\Delta\alpha \leq 0.05$ dB after test - No damage
Impact IEC 60794-1-2 E4	Impact energy: 3 J R = 10 mm, number of places/tests: 3 Impact number: 1	- $\Delta\alpha \leq 0.05$ dB after test - No damage
Repeated bending IEC 60794-1-2 E6	Bending radius: 20x cable Ø Load: 1kg 30 cycles	- $\Delta\alpha \leq 0.05$ dB after test - No damage
Torsion IEC 60794-1-2 E7	Sample length: 2 m ± 180°, 10 cycles	- $\Delta\alpha \leq 0.05$ dB after test - No damage
Bend IEC 60794-1-2 E11A	Bending radius: 20x cable Ø 4 bends, 3 cycles	- $\Delta\alpha \leq 0.05$ dB after test - No damage
Temperature cycling IEC 60794-1-2 F1	-40°C ~+70°C 12 hours at each temperature step 2 cycles	- $\Delta\alpha \leq 0.1$ dB/km - No damage
Water penetration IEC 60794-1-2 F5	Sample length: 3 m water column height: 1 m Test duration: 24 h	- No water leakage from the cable core

All optical measurements at 1550 nm