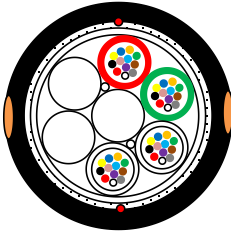
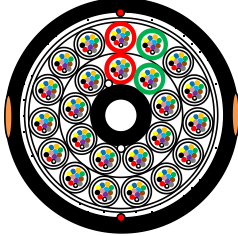
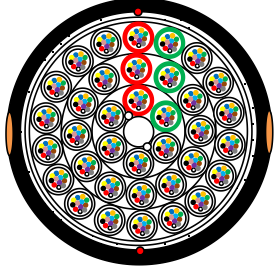


## 1. Application / Construction

CH09

Identification	A-DQ(ZN)B2Y nx12/nx24 E9 G.652D 9,0 kN		
Application	Outdoor installation		
Cross Section (not to scale)	12/24/48/72/96/144F	288/576F	432F
			
Configuration	<ul style="list-style-type: none"> <li>- Loose tube with up to 24 optical fibers, filled with thixotropic compound</li> <li>- Central strength member made of fibre reinforced plastic (FRP) or coated FRP</li> <li>- Stranding: loose tubes (and dummies), SZ stranded around central strength member</li> <li>- Longitudinal water tightness: dry, water blocking yarns and tape</li> <li>- Peripheral strength member: glass yarns (Anti-rodents armor)</li> <li>- Outer sheath: black HDPE (Halogen free), with two diametrically opposite orange stripes (width 3~5mm), two red ripcords under the sheath</li> <li>- CPR Fca</li> </ul>		
Temperature Range	Storage and transport -30 to +70°C	Installation -10 to +50°C	Operation -30 to +60°C
Standards	IEC 60793-1, IEC 60793-2, IEC 60794-3-10		
ZTT Specification	ZTT 21-116984-3-D		

## 2. Dimension

Number of fibers		12	24	48	72	96	144	288	432	576
Loose tubes x fibers	L1	1x12	2x12	4x12	6x12	8x12	12x12	9x12	6x12	9x24
	L2	--	--	--	--	--	--	15x12	12x12	15x24
	L3	--	--	--	--	--	--	--	18x12	--
Loose tubes / Dummies		5	4	2	0	0	0	0	0	0
Loose tube Ø (±0.2)	mm	2.3							2.4	2.8
Coated FRP/FRP	mm	2.5			3.9(3.4)	6.9(3.8)	4.7(3.8)	2.5	5.7(3.8)	
Outer sheath thickness	mm	1.5						1.7		
Outer diameter (±5%)	mm	12.0				13.1	15.8	19.0	22.5	22.0
Weight	kg	129				150	213	285	375	365

Sizes and values without tolerances are nominal values, the sheath thickness is not including the rip cord position.

## 3. Mechanical Properties

Max. tensile load(Installation)	9000N
Crush resistance / 10 cm	2000N
Bending radius (installation)	20 x cable-Ø
Bending radius (operation)	15 x cable-Ø

See Point 6: Test Methods

## 4. Marking

Fiber Colors 13~24 fiber has one black ring, and the 20 <sup>th</sup> fiber is natural without ring	1	2	3	4	5	6	7	8	9	10	11	12
	red	green	yellow	blue	white	violet	orange	black	grey	brown	pink	aqua
	13	14	15	16	17	18	19	20	21	22	23	24
	red	green	yellow	blue	white	violet	orange	natural	grey	brown	pink	aqua
Tube Colors 13~18 <sup>th</sup> tube is white	1	2	3	4	5	6	7	8	9	10	11	12
	red	green	white	white	white	white	white	white	white	white	white	white

Outer Sheath: black, ink jet or hot foil, marking in 1 meter intervals as follows:

**ZTT OPTICAL CABLE A-DQ(ZN)B2Y <n>x<m> G.652D <batch ID> <meter marking >**

## 5. Optical Fiber

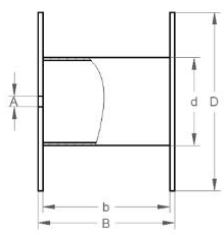
Standard	ITU-T G.652D ZTT-ALF®		
Optical	Fibre attenuation .. before cabling .. after cabling	@ 1310 nm ≤0.34 dB/km ≤0.36 dB/km	@ 1550 nm ≤0.20 dB/km ≤0.22 dB/km
	Mode field diameter (MFD)	9.0 ± 0.4 μm	10.4 ± 0.6 μm
	Zero dispersion wavelength	1300~1324 nm	
	Zero dispersion slope	≤0.092 ps/nm <sup>2</sup> ·km	
	Polarisation mode dispersion (PMD)	≤0.2 ps/√km	
	Cut-off wavelength	≤1260 nm	
	Macro bending loss .. 100 turns Ø50 mm	@1550 nm ≤0.05 dB	@1625 nm ≤0.10 dB
Geometric	Outer diameter	245 ± 10 μm	
	Cladding diameter	125 ± 1.0 μm	
	Core/clad concentricity error	≤0.6 μm	
	Cladding non-circularity	≤1.0 %	
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: 1 min	- Fiber strain: ≤0.33%, Δα reversible - No damage
Crush resistance IEC 60794-1-2 E3	Crush: see Point 3 Test duration: 15 mins, number of tests: 3	- Δα ≤0.05dB after test - No damage
Impact IEC 60794-1-2 E4	Impact energy: 5Nm R = 300 mm, number of places/tests: 3	- Δα ≤0.05dB after test - No damage
Repeated bending IEC 60794-1-2 E6	Bending radius: 20x cable Ø 35 cycles, 100N load	- Δα ≤0.05dB after test - No damage
Torsion IEC 60794-1-2 E7	Sample length: 2 m ± 180°, 10 cycles, 100N	- Δα ≤0.05dB after test - No damage
Bend IEC 60794-1-2 E11A	Bending radius: 15x cable Ø 4 bends, 3 cycles	- Δα ≤0.05dB after test - No damage
Temperature cycling IEC 60794-1-2 F1	-30°C.. +60°C 12 hours at each temperature step, 2 cycles	- Δα≤0.05dB/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

All optical measurements at 1550 nm

## 7. Logistics

Cable type	Standard Length (-1% +3%)	4000 m	
A-DQ(ZN)B2Y 24/48/72	Drum type Dimensions (Weight)	Wood 145*70*75 (625 kg)	
A-DQ(ZN)B2Y 96		Wood 155*70*75 (730 kg)	
A-DQ(ZN)B2Y 144		Wood 165*80*105 (1009 kg)	
A-DQ(ZN)B2Y 288		Wood 185*90*105 (1335 kg)	
A-DQ(ZN)B2Y 432		Wood 215*100*105 (1750 kg)	
A-DQ(ZN)B2Y 576		Wood 215*100*105 (1710 kg)	

Dimensions including protection. Indicative values, actually delivered drum sizes and weights may deviate. Cable ends sealed with caps

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