

FEATURES AND SPECIFICATIONS

24, 48, 96 G652D Fibers ADSS Cable

General description:

These cables comprise of 24, 48, 96 Single Mode Fibers (ITU-T G.652D) and are constructed with loose tubes which are detailed in Table 2.

Loose Tubes (2.8mm diameter) are manufactured from high strength, low shrinkage PBT Compound, and each tube will contain a number of optical fibres as quoted in Table 2 and a thixotropic jelly, to prevent water penetration and protect the fibres against shock. Fibre colour sequence is defined in Table 1. The elements are SZ stranded around a non-metallic central strength member (3.0mm FRP with PE coating if required) and the formation retained with polyester binders. To prevent the ingress of water, the cable core is jelly filled. A Polyester tape is longitudinally applied over the cable core.

Then over the cable core, black LDPE is applied as inner sheath with nominal radial thickness of 1.3mm.

Over the cable core are applied Aramid Yarns, in two layers, contra-helically, in order to assure zero torsion to the cable.

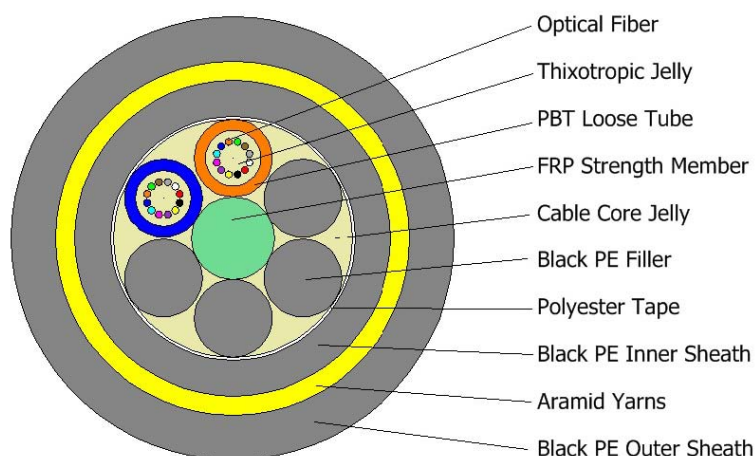
Finally an outer sheath of black HDPE, with a nominal radial thickness of 1.6mm is applied over the Aramid yarns strength member.

Table 1: Fiber Colours

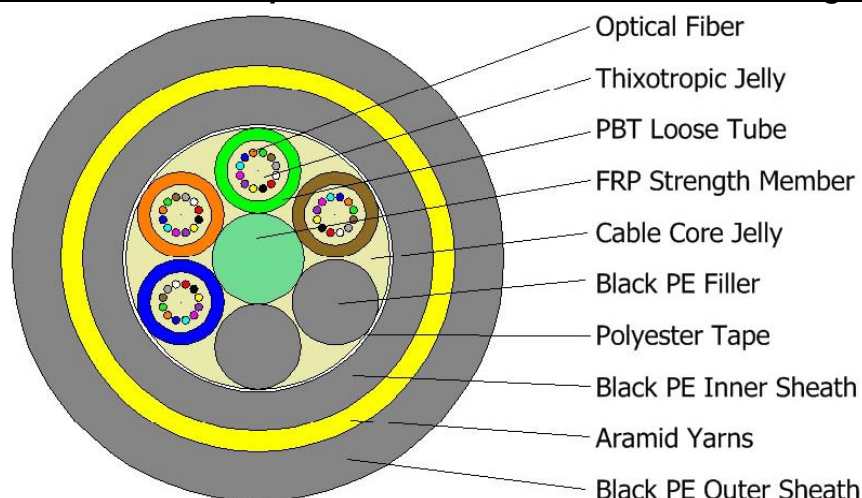
Fibre No.	1	2	3	4	5	6
Colour	Blue	Orange	Green	Brown	Grey	White
Fibre No.	7	8	9	10	11	12
Colour	Red	Black	Yellow	Violet	Pink	Aqua

Table 2: Cable Core Construction and Colours

Fibre Count	1	2	3	4	5	6
24F	Blue L.T. 12F	Orange L.T. 12F	Black PE Filler	Black PE Filler	Black PE Filler	Black PE Filler
48F	Blue L.T. 12F	Orange L.T. 12F	Green L.T. 12F	Brown L.T. 12F	Black PE Filler	Black PE Filler
Fibre Count	1	2	3	4	5	6
96F	Blue L.T. 12F	Orange L.T. 12F	Green L.T. 12F	Brown L.T. 12F	Grey L.T. 12F	White L.T. 12F
	7	8				
	Red L.T. 12F	Black L.T. 12F				

Drawing and Principal Parameters 1
(For 24F ADSS Cable under 150m span, Max. 180km/h wind & Max. 3.0kg/m ice load)


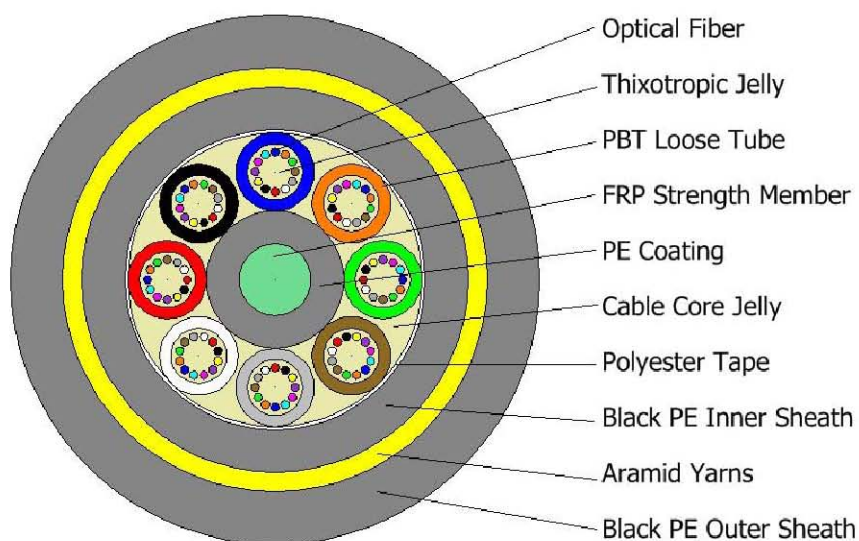
Cable Environmental Performance	
Maximum Span	150 meters
Cable Initial Sag (%)	2.0 %
Temperature Range	-40°C to +70 °C
Maximum Wind Speed	50m/s (180km/h)
Maximum Ice Load	3.0 kg/m
Cable Physical / Mechanical Characteristics	
Fibre Count	24 (12 Fibres / Tube)
Maximum Working Tension (MAT)	13.64 kN (1390 kgs)
Estimated Tensile Strength (UTS)	43.07 kN (4390 kgs)
Thermal Coefficient of Expansion	$8.93 \times 10^{-6}/^{\circ}\text{C}$
Area of Aramid	26.3 mm ²
Approx. Cable Weight	200 kgs / km
Cable Diameter	16.0 mm
Minimum Bending Radius	Dynamic 320 mm, Static 200 mm
Crush Resistance	3000 N/10 cm
Water Penetration	No water penetration of the cable core, on a 3 metre sample, with a 1 metre head of water applied for 24 hours
Outer Sheath Material	Black HDPE
Max. Electrical Field Strength	$\leq 12 \text{ kV/m}$ tested according to IEEE P1222
Drum Length	Standard 4000m

Drawing and Principal Parameters 2
(For 48F ADSS Cable under 150m span, Max. 180km/h wind & Max. 3.0kg/m ice load)


Cable Environmental Performance	
Maximum Span	150 meters
Cable Initial Sag (%)	2.0 %
Temperature Range	-40 oC to +70 oC
Maximum Wind Speed	50m/s (180km/h)
Maximum Ice Load	3.0 kg/m
Cable Physical / Mechanical Characteristics	
Fibre Count	48 (12 Fibres / Tube)
Maximum Working Tension (MAT)	13.64 kN (1390 kgs)
Estimated Tensile Strength (UTS)	43.07 kN (4390 kgs)
Thermal Coefficient of Expansion	$8.93 \times 10^{-6}/^{\circ}\text{C}$
Area of Aramid	26.3 mm ²
Approx. Cable Weight	200 kgs / km
Cable Diameter	16.0 mm
Minimum Bending Radius	Dynamic 320 mm, Static 200 mm
Crush Resistance	3000 N/10 cm
Water Penetration	No water penetration of the cable core, on a 3 metre sample, with a 1 metre head of water applied for 24 hours
Outer Sheath Material	Black HDPE
Max. Electrical Field Strength	$\leq 12 \text{ kV/m}$ tested according to IEEE P1222
Drum Length	Standard 4000m

Drawing and Principal Parameters 3

(For 96F ADSS Cable under 150m span, Max. 180km/h wind & Max. 3.0kg/m ice load)



Cable Environmental Performance	
Maximum Span	150 meters
Cable Initial Sag (%)	2.0 %
Temperature Range	-40°C to +70 °C
Maximum Wind Speed	50m/s (180km/h)
Maximum Ice Load	3.0 kg/m
Cable Physical / Mechanical Characteristics	
Fibre Count	96 (12 Fibres / Tube)
Maximum Working Tension (MAT)	13.93 kN (1420 kgs)
Estimated Tensile Strength (UTS)	43.07 kN (4390 kgs)
Thermal Coefficient of Expansion	$9.75 \times 10^{-6}/^{\circ}\text{C}$
Area of Aramid	26.3 mm ²
Approx. Cable Weight	239 kgs / km
Cable Diameter	17.5 mm
Minimum Bending Radius	Dynamic 350 mm, Static 220 mm
Crush Resistance	3000 N/10 cm
Water Penetration	No water penetration of the cable core, on a 3 metre sample, with a 1 metre head of water applied for 24 hours
Outer Sheath Material	Black HDPE
Max. Electrical Field Strength	≤ 12 kV/m tested according to IEEE P1222
Drum Length	Standard 4000m

Optical Fiber Characteristics

SINGLE MODE OPTICAL FIBRE ITU-T G.652D TECHNICAL DETAILS		
Parameter	Units	Value / Details
<u>General Characteristics</u>		
Material:		Silica/Doped silica
Index Profile:		Step Index, Matched Cladding
<u>Dimensions</u>		
Cladding Diameter	μm	125 ± 0.7
Cladding Non-Circularity error	%	≤ 1
Core / Cladding concentricity error	μm	≤ 0.5
<u>Primary Coating</u>		
Material:		UV Cured acrylic resin
External Diameter (uncoloured fibre)	μm	245 ± 5
Coating Concentricity error	μm	≤ 12
<u>Transmission Characteristics</u>		
Mode Field Diameter @ 1310 nm	μm	9.2 ± 0.4
Fibre Attenuation (Cabled)	@ 1310 nm	dB/km
	@ 1383 nm	dB/km
	@ 1550 nm	dB/km
	@ 1625 nm	dB/km
Chromatic Dispersion	In the range 1285 to 1330 nm	ps/(nm.km)
	At 1550 nm	ps/(nm.km)
Cut-off wavelength "λ _c "	Nm	1170 to 1280
Cabled cut-off wavelength "λ _{cc} "	nm	≤ 1260
Zero dispersion wavelength (λ ₀)	ps/(nm ² .km)	1302 to 1322
Zero Dispersion Slope (S ₀)	ps/(nm ² .km)	≤ 0.092
Polarisation mode dispersion coefficient (PMD _{SINGLE DRUM}) PMD _{LINK}	ps/√km	≤ 0.1
	ps/√km	≤ 0.08
<u>Effective Group Index</u>		
@ 1310 nm		1.4675
@ 1550 nm		1.4681
<u>Mechanical Characteristics of Primary Fibre</u>		
Proof Test for 1 sec (or equivalent)	%	≥ 1 (0.69Gpa)
Macro bending attenuation		
100 turns 50mm diameter @ 1310nm	dB	≤ 0.05
100 turns 50mm diameter @ 1550nm	dB	≤ 0.05
100 turns 60mm diameter @ 1625nm	dB	≤ 0.05