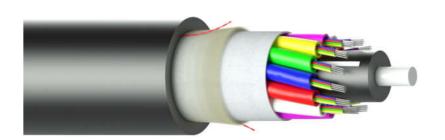


ADSS 192/M24 G.652D SJ HDPE 2.7kN D13





*indicative purpose drawings

APPLICATION & STANDARDS

- ~ Designed for outdoor aerial installation on poles. It can also be used in ducts where there is no need of rodent protection;
- ~ IEC 60794-4-20 Aerial optical cables along electrical power lines Family specification for ADSS (all dielectric self-supported) optical cables:
- ~ EN 60794-1 Optical fibre cables. Generic specification. Basic optical cable test procedures;
- ~ ITU-T G.652 Characteristics of a single-mode optical fibre and cable;

CONSTRUCTION

- ~ Central FRP rod, PE coated;
- ~ **PBT loose tubes** containing fibers, filled with a suitable water tightness compound;
- ~ Water swellable yarn;
- ~ Water blocking tape;
- ~ **Aramid yarns** as peripheral strength member;
- ~ Ripcords;
- Outer Jacket (Black HDPE, UV resistant);

Stranding: Loose tubes SZ stranded around central strength member;

GENERAL DESCRIPTION

All Dielectric Self-Supporting Fiber Optic Cables are designed for aerial installation. It does not need support or messenger wire for installation which makes it a cost-effective and simple way of setting up fiber optic networks.

The aramid yarns helps the cable to have good tensile performance and temperature performance under extreme weathers.

This cable contains fibers made of high pure silica and germanium doped silica.

The above design is only a sample of the options available. Contact our sales team for other specifications. Our policy of continuous improvement may result in a change of specifications without notice.

CONSTRUCTION & MAIN FEATURES

G.652D - OPTICAL FIBER PERFORMANCE Attenuation Coefficient: at 1310 nm Max: ≤ 0.36 dB/km at 1350 nm Max: ≤ 0.23 dB/km Chromatic Dispersion: between 1285 - 1330 nm: ≤ 18 ps/nm-km at 1550nm ≤ 18 ps/nm-km Chromatic dispersion coefficient \text{\text{\text{\text{Aomin:1300 nm}}} \text{\	CHARACTERISTIC	SPECIFIED VALUE					
at 1310 nm Max :	G.652D - OPTICAL FIBER PERFORMANCE						
at 1550 nm Max :	Attenuation Coefficient:						
Chromatic Dispersion: ≤ 3.5 ps/nm·km between 1285 - 1330 nm: ≤ 18 ps/nm·km at 1550nm Aomin: 1300 nm Chromatic dispersion coefficient λomin: 1300 nm Point Discontinuity: ≤ 0.1 dB at 1310&1550 nm ≤ 0.2 ps/vkm Polarization Mode Dispersion (Link Design) ≤ 0.2 ps/vkm Cable Cut off Wavelength (λcc) ≤ 1260 nm Mode Field Diameter: = 1250 nm at 1310 nm 9.2 ± 0.4 μm at 1550 nm 10.4±0.5 μm Cladding Diameter 25.9 μm Cladding Non-Circularity ≤ 0.7 μm Core / Cladding Concentricity error ≤ 0.5 μm Coating Diameter 25.9 μm FIBER OPTIC CABLE PARAMETERS Core Type G.652D Fiber Count 192 Tube Count 8 Filler Count 0 Cable Diameter 13.0 ± 0.5 mm Cable Weight 130 ± 15 kg/km Max. Installation Tensile Strength (IEC-60794-1-21-E1) 2700 N, no fibre strain Crush (IEC-60794-1-21-E3) 2000 N/10cm	at 1310 nm Max :	≤ 0.36 dB/km					
between 1285 - 1330 nm: ≤ 3.5 ps/nm·km at 1550nm ≤ 18 ps/nm·km Chromatic dispersion coefficient λomin:1300 nm λoMax:1324 nm Point Discontinuity: ≤ 0.1 dB at 1310&1550 nm ≤ 0.2 ps/vkm Polarization Mode Dispersion (PMD Individual) ≤ 0.2 ps/vkm Polarization Mode Dispersion (Link Design) ≤ 0.2 ps/vkm Cable Cut off Wavelength (λcc) ≤ 1260 nm Mode Field Diameter: at 1310 nm at 1310 nm 9.2 ± 0.4 μm cladding Diameter 10.4±0.5 μm Cladding Diameter 20.5 μm Coating Diameter ≤ 0.5 μm Coating Diameter ≥ 0.5 μm Coating Diameter 20.5 μm Coating Diameter 20.5 μm Core Type G.652D Fiber Count 192 Tube Count 8 Filler Count 0 Cable Weight 130 ± 15 kg/km Max. Installation Tensile Strength (IEC-60794-1-21-E1) 4000 N, 10min., fibre strain ≤ 0.33% Aux. Operation Tensile Strength (IEC-60794-1-21-E3) 2000 N/10cm Wate	at 1550 nm Max :	≤ 0.23 dB/km					
at 1550nm ≤ 18 ps/nm·km Chromatic dispersion coefficient λomin:1300 nm λoMax:1324 nm Point Discontinuity: at 1310&1550 nm ≤ 0.1 dB Polarization Mode Dispersion (PMD Individual) ≤ 0.2 ps/vkm Polarization Mode Dispersion (Link Design) ≤ 0.20 ps/vkm Cable Cut off Wavelength (λcc) ≤ 1260 nm Mode Field Diameter : at 1310 nm 9.2 ± 0.4 μm at 1550 nm 10.4±0.5 μm Cladding Diameter 20.7% Cladding Non-Circularity ≤ 0.5 μm Core / Cladding Concentricity error ≤ 0.5 μm Coating Diameter 250 ± 7μm FIBER OPTIC CABLE PARAMETERS Core Type G.652D Fiber Count 192 Tube Count 8 Filler Count 0 Cable Diameter 13.0 ± 0.5 mm Cable Weight 130 ± 15 kg/km Max. Installation Tensile Strength (IEC-60794-1-21-E1) 4000 N, 10min., fibre strain ≤ 0.33% 1-21-E1) 2700 N, no fibre strain Crush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5) 1 m wate	·						
Chromatic dispersion coefficient λomin:1300 nm λoMax:1324 nm Point Discontinuity: ≤ 0.1 dB at 1310&1550 nm ≤ 0.2 ps/vkm Polarization Mode Dispersion (PMD Individual) ≤ 0.2 ps/vkm Polarization Mode Dispersion (Link Design) ≤ 0.2 ps/vkm Cable Cut off Wavelength (λcc) ≤ 1260 nm Mode Field Diameter: 1250 nm at 1310 nm 9.2 ± 0.4 μm at 1550 nm 10.4±0.5 μm Cladding Diameter 125 ± 1.0 μm Cladding Non-Circularity ≤ 0.7% Core / Cladding Concentricity error ≤ 0.5 μm Core Type G.652D Fiber Optic Cable Parameters 192 Core Type G.652D Fiber Count 192 Tube Count 8 Filler Count 0 Cable Diameter 13.0 ± 0.5 mm Cable Weight 130 ± 15 kg/km Max. Installation Tensile Strength (IEC-60794-1-21-E1) 4000 N, 10min., fibre strain ≤ 0.33% 1-21-E1) 2700 N, no fibre strain Crush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5) 1 m water head, 3 m sample, 24 hours							
Chromatic dispersion coefficient λoMax:1324 nm Point Discontinuity: at 1310&1550 nm ≤ 0.1 dB Polarization Mode Dispersion (PMD Individual) Polarization Mode Dispersion (Link Design) ≤ 0.2 ps/vkm Cable Cut off Wavelength (λcc) ≤ 1260 nm Mode Field Diameter: at 1310 nm at 1550 nm 9.2 ±0.4 μm Cladding Diameter 10.4±0.5 μm Cladding Diameter 125 ±1.0 μm Cladding Non-Circularity ≤ 0.7% Core / Cladding Concentricity error ≤ 0.5 μm Coating Diameter 250 ± 7μm FIBER OPTIC CABLE PARAMETERS Core Type G.652D Fiber Count 192 Tube Count 8 Filler Count 0 Cable Diameter 13.0 ± 0.5 mm Cable Weight 130 ± 15 kg/km Max. Installation Tensile Strength (IEC-60794-1-21-E1) 4000 N, 10min., fibre strain ≤ 0.33% Max. Operation Tensile Strength (IEC-60794-1-21-E3) 2700 N, no fibre strain Water Penetration (IEC-60794-1-22-F5) 1 m water head, 3 m sample, 24 hours Minimum Bending Radius 20 x D Temperature (Installation) -10°C ÷ +50 °C T	at 1550nm	• •					
at 1310&1550 nm Polarization Mode Dispersion (PMD Individual) Polarization Mode Dispersion (Link Design) Cable Cut off Wavelength (λcc) Mode Field Diameter: at 1310 nm at 1550 nm Cladding Diameter Cladding Non-Circularity Core / Cladding Concentricity error Coating Diameter Core Type Fiber Optic Cable PARAMETERS Core Type Filler Count Cable Diameter Cable Weight Max. Installation Tensile Strength (IEC-60794-1-21-E1) Crush (IEC-60794-1-21-E3) Max Operation Tensile Strength (IEC-60794-1-21-F5) Minimum Bending Radius Temperature (Installation) Temperature (Storage) \$ 20.2 ps/vkm ≤ 0.2 ps/vkm ≤ 0.2 ps/vkm ≤ 0.2 ps/vkm ≤ 0.20 ps/vkm € 0	·						
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Individual) ≤ 0.2 ps/vkm Polarization Mode Dispersion (Link Design) ≤ 0.08 ps / vkm. Cable Cut off Wavelength (λcc) ≤ 1260 nm Mode Field Diameter: 3 t 1310 nm at 1310 nm 9.2 ± 0.4 μm at 1350 nm 10.4±0.5 μm Cladding Diameter 25.5 ± 1.0 μm Cladding Non-Circularity ≤ 0.7% Core / Cladding Concentricity error ≤ 0.5 μm Coating Diameter 250 ± 7μm FIBER OPTIC CABLE PARAMETERS Core Type G.652D Fiber Count 192 Tube Count 8 Filler Count 0 Cable Diameter 13.0 ± 0.5 mm Cable Weight 13.0 ± 0.5 mm Max. Installation Tensile Strength (IEC-60794-1-21-E1) 4000 N, 10min., fibre strain ≤ 0.33% Max. Operation Tensile Strength (IEC-60794-1-21-E1) 2700 N, no fibre strain Max. Operation Tensile Strength (IEC-60794-1-22-F5) 1 m water head, 3 m sample, 24 hours Water Penetration (IEC-60794-1-22-F5) 1 m water head, 3 m sample, 24 hours Minimum Bending Radius 20 x D Temperature (Installation) -10°C ÷ +50°C <t< td=""><td></td><td></td></t<>							
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at 1310 nm at 1550 nm Cladding Diameter Cladding Non-Circularity Core / Cladding Concentricity error Cotting Diameter		≤ 1260 nm					
at 1550 nm		9.2 ±0.4 µm					
Cladding Diameter 125 ±1.0 μ m Cladding Non-Circularity ≤0.7% Core / Cladding Concentricity error ≤0.5 μ m Coating Diameter 250 ± 7μ m FIBER OPTIC CABLE PARAMETERS Core Type G.652D Fiber Count 192 Tube Count 8 Filler Count 0 Cable Diameter 13.0 ± 0.5 mm Cable Weight 130 ± 15 kg/km Max. Installation Tensile Strength (IEC-60794-1-21-E1) Max. Operation Tensile Strength (IEC-60794-1-21-E1) Crush (IEC-60794-1-21-E3) Count (IEC-60794-1-22-F5) Temperature (Installation) 10 Temperature (Operation) 10 Temperature (Storage) 125 ±1.0 μ m Solution 125 ±1.0 μ m		•					
Cladding Non-Circularity≤0.7%Core / Cladding Concentricity error≤ 0.5 μmCoating Diameter250 ± 7μmFIBER OPTIC CABLE PARAMETERSCore TypeG.652DFiber Count192Tube Count8Filler Count0Cable Diameter $13.0 \pm 0.5 \text{ mm}$ Cable Weight $130 \pm 15 \text{ kg/km}$ Max. Installation Tensile Strength (IEC-60794-1-21-E1) 4000 N , 10min. , fibre strain ≤ 0.33%Max. Operation Tensile Strength (IEC-60794-1-21-E3) 2700 N , no fibre strainCrush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5)1 m water head, 3 m sample, 24 hoursMinimum Bending Radius $20 \times D$ Temperature (Installation) $-10^{\circ}\text{C} \div +50 ^{\circ}\text{C}$ Temperature (Operation) $-40^{\circ}\text{C} \div +70 ^{\circ}\text{C}$ Temperature (Storage) $-20^{\circ}\text{C} \div +70 ^{\circ}\text{C}$		•					
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Fiber Count 192 Tube Count 8 Filler Count 0 Cable Diameter 13.0 \pm 0.5 mm Cable Weight 130 \pm 15 kg/km Max. Installation Tensile Strength (IEC-60794-1-21-E1) 4000 N, 10min., fibre strain \leq 0.33% Max. Operation Tensile Strength (IEC-60794-1-21-E1) 2700 N, no fibre strain Crush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5) 1 m water head, 3 m sample, 24 hours Minimum Bending Radius 20 x D Temperature (Installation) -10°C \div +50 °C Temperature (Operation) -40°C \div +70 °C Temperature (Storage) -20°C \div +70 °C	FIBER OPTIC CABLE PARAMETERS						
Tube Count8Filler Count0Cable Diameter $13.0 \pm 0.5 \text{ mm}$ Cable Weight $130 \pm 15 \text{ kg/km}$ Max. Installation Tensile Strength (IEC-60794-1-21-E1) $4000 \text{ N}, 10 \text{min.}, \text{ fibre strain} \le 0.33\%$ Max. Operation Tensile Strength (IEC-60794-1-21-E1) $2700 \text{ N}, \text{ no fibre strain}$ Crush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5) $1 \text{ m water head, } 3 \text{ m sample, } 24 \text{ hours}$ Minimum Bending Radius $20 \times D$ Temperature (Installation) $-10^{\circ}\text{C} \div +50 ^{\circ}\text{C}$ Temperature (Operation) $-40^{\circ}\text{C} \div +70 ^{\circ}\text{C}$ Temperature (Storage) $-20^{\circ}\text{C} \div +70 ^{\circ}\text{C}$	Core Type	G.652D					
Filler Count 0 Cable Diameter 13.0 \pm 0.5 mm Cable Weight 130 \pm 15 kg/km Max. Installation Tensile Strength (IEC-60794-1-21-E1) Max. Operation Tensile Strength (IEC-60794-1-21-E1) Crush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5) 1 m water head, 3 m sample, 24 hours Minimum Bending Radius 20 x D Temperature (Installation) -10°C \div +50 °C Temperature (Operation) -40°C \div +70 °C Temperature (Storage) -20°C \div +70 °C	Fiber Count	192					
Cable Diameter $13.0 \pm 0.5 \text{ mm}$ Cable Weight $130 \pm 15 \text{ kg/km}$ Max. Installation Tensile Strength (IEC-60794-1-21-E1) $4000 \text{ N}, 10 \text{min.}, \text{ fibre strain} \le 0.33\%$ Max. Operation Tensile Strength (IEC-60794-1-21-E1) $2700 \text{ N}, \text{ no fibre strain}$ Crush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5) $1 \text{ m water head, } 3 \text{ m sample, } 24 \text{ hours}$ Minimum Bending Radius $20 \times D$ Temperature (Installation) $-10^{\circ}\text{C} \div +50 ^{\circ}\text{C}$ Temperature (Operation) $-40^{\circ}\text{C} \div +70 ^{\circ}\text{C}$ Temperature (Storage) $-20^{\circ}\text{C} \div +70 ^{\circ}\text{C}$	Tube Count	8					
Cable Weight 130 ± 15 kg/km Max. Installation Tensile Strength (IEC-60794-1-21-E1) 4000 N, 10min., fibre strain ≤ 0.33% Max. Operation Tensile Strength (IEC-60794-1-21-E1) 2700 N, no fibre strain Crush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5) 1 m water head, 3 m sample, 24 hours Minimum Bending Radius 20 x D Temperature (Installation) -10°C ÷ +50 °C Temperature (Operation) -40°C ÷ +70 °C Temperature (Storage) -20°C ÷ +70 °C	Filler Count	0					
Max. Installation Tensile Strength (IEC-60794-1-21-E1) $4000 \text{ N}, 10 \text{min.}, \text{ fibre strain} \le 0.33\%$ Max. Operation Tensile Strength (IEC-60794-1-21-E1) $2700 \text{ N}, \text{ no fibre strain}$ Crush (IEC-60794-1-21-E3) $2000 \text{ N}/10 \text{cm}$ Water Penetration (IEC-60794-1-22-F5) $1 \text{ m water head, } 3 \text{ m sample, } 24 \text{ hours}$ Minimum Bending Radius $20 \times D$ Temperature (Installation) $-10^{\circ}\text{C} \div +50^{\circ}\text{C}$ Temperature (Operation) $-40^{\circ}\text{C} \div +70^{\circ}\text{C}$ Temperature (Storage) $-20^{\circ}\text{C} \div +70^{\circ}\text{C}$	Cable Diameter	13.0 ± 0.5 mm					
1-21-E1) Max. Operation Tensile Strength (IEC-60794-1-21-E1) Crush (IEC-60794-1-21-E3) Water Penetration (IEC-60794-1-22-F5) Minimum Bending Radius Temperature (Installation) Temperature (Operation) Temperature (Storage) $4000 \text{ N, } 10 \text{min., fibre strain} \le 0.33\%$ $2700 \text{ N, no fibre strain}$ 2000 N/10cm $1 \text{ m water head, } 3 \text{ m sample, } 24 \text{ hours}$ $20 \times D$ $-10^{\circ}\text{C} \div +50^{\circ}\text{C}$ $-40^{\circ}\text{C} \div +70^{\circ}\text{C}$	Cable Weight	130 ± 15 kg/km					
Max. Operation Tensile Strength (IEC-60794- 1-21-E1) $2700 \text{ N, no fibre strain}$ Crush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5) $1 \text{ m water head, } 3 \text{ m sample, } 24 \text{ hours}$ Minimum Bending Radius $20 \times D$ Temperature (Installation) $-10^{\circ}\text{C} \div +50^{\circ}\text{C}$ Temperature (Operation) $-40^{\circ}\text{C} \div +70^{\circ}\text{C}$ Temperature (Storage) $-20^{\circ}\text{C} \div +70^{\circ}\text{C}$		4000 N, 10min., fibre strain ≤ 0.33%					
Crush (IEC-60794-1-21-E3) 2000 N/10cm Water Penetration (IEC-60794-1-22-F5) $1 \text{ m water head, } 3 \text{ m sample, } 24 \text{ hours}$ Minimum Bending Radius $20 \times D$ Temperature (Installation) $-10^{\circ}\text{C} \div +50^{\circ}\text{C}$ Temperature (Operation) $-40^{\circ}\text{C} \div +70^{\circ}\text{C}$ Temperature (Storage) $-20^{\circ}\text{C} \div +70^{\circ}\text{C}$	Max. Operation Tensile Strength (IEC-60794-	2700 N, no fibre strain					
Water Penetration (IEC-60794-1-22-F5)1 m water head, 3 m sample, 24 hoursMinimum Bending Radius $20 \times D$ Temperature (Installation) $-10^{\circ}\text{C} \div +50^{\circ}\text{C}$ Temperature (Operation) $-40^{\circ}\text{C} \div +70^{\circ}\text{C}$ Temperature (Storage) $-20^{\circ}\text{C} \div +70^{\circ}\text{C}$, ,	2000 N/10cm					
Temperature (Installation) $-10^{\circ}\text{C} \div +50^{\circ}\text{C}$ Temperature (Operation) $-40^{\circ}\text{C} \div +70^{\circ}\text{C}$ Temperature (Storage) $-20^{\circ}\text{C} \div +70^{\circ}\text{C}$	Water Penetration (IEC-60794-1-22-F5)	1 m water head, 3 m sample, 24 hours					
Temperature (Operation) $-40^{\circ}\text{C} \div +70^{\circ}\text{C}$ Temperature (Storage) $-20^{\circ}\text{C} \div +70^{\circ}\text{C}$	Minimum Bending Radius	20 x D					
Temperature (Storage) -20°C ÷ +70 °C	Temperature (Installation)	-10°C ÷ +50 °C					
	Temperature (Operation)	-40°C ÷ +70 °C					
Packing Wooden drum with protection	Temperature (Storage)	-20°C ÷ +70 °C					
	Packing	Wooden drum with protection					

The above design is only a sample of the options available. Contact our sales team for other specifications. Our policy of continuous improvement may result in a change of specifications without notice.

CHARACTERISTIC	SPECIFIED VALUE
Delivery Lengths	To be confirmed, ± 5% tolerance
	<pre><optivine> + <adss 192="" g.652d="" m24="" pre="" sj<=""></adss></optivine></pre>
Marking	HDPE 2.7kN D13>+ <manufacturing date=""> +</manufacturing>
	<length marking=""></length>

				Fiber&	Tube C	olor Ide	entifica	tion				
No.	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Yellow	Blue	Orange	Brown	White	Violet	Pink	Aqua	Grey	Black
	Fiber Color Identification*											
							ication					
No.	13	14	15	16	17	18	19	20	21	22	23	24

^{*} Fibers from 13 to 24 will be marked with one black ring at every 50mm.