

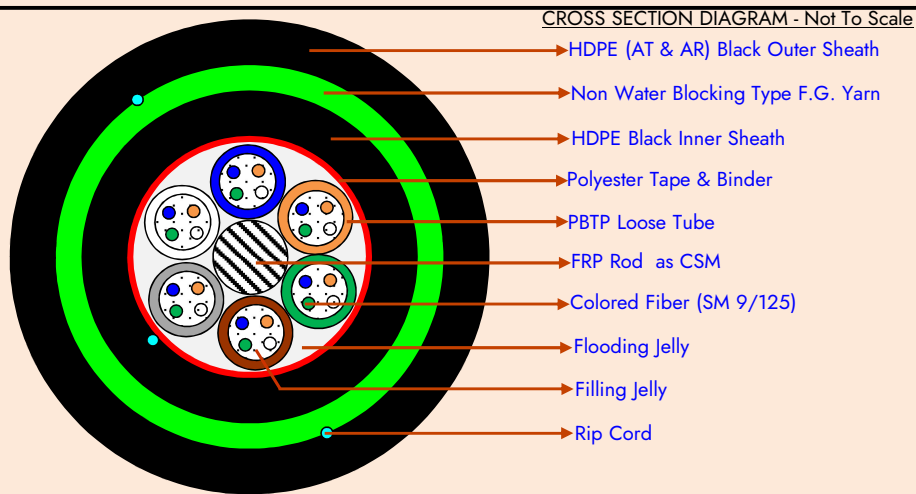
Technical Data Sheet for 24F Metal Free O.F. Cable with Double HDPE Sheath (G 652D Fiber)

Enq.Ref.: DOM/OFC/TEL/SUS/0324/074 dated 29.03.2024

TP No.: 23-24/OFC/DOM/1780 Date : 03.04.2024

Type of Fiber : Single Mode G 652D

Fiber Allocation Scheme		
Tube Colour	Fiber Type	No of Fibers
Blue	SM G 652D	4
Orange	SM G 652D	4
Green	SM G 652D	4
Brown	SM G 652D	4
Slate	SM G 652D	4
White	SM G 652D	4
Optical Fiber Colour Coding as per TIA-598-D		



Cable Construction Details:-

No of fibers per Tube & Colours	: 4 Fibers per tube :-Blue, Orange, Green & Natural
Loose Tube	: PBT Loose Tue Filled With Thixotropic Jelly (OD-1.9 ± 0.1 mm) (ID-1.2 mm Minimum)
No of Loose Tube	: 6 Loose Tubes
Tube Identification Sequence	: Blue, Orange, Green, Brown, Slate & White
Central Strength Member	: EAA Coated Fiber Reinforced Plastic - FRP(Non-Metallic) (2.0+0.1/-0.0 mm)
Cable Filling	: Anti Hydroscopic Flooding Jelly
Core Wrapping	: Polyester binder yarn
Inner Sheath	: High Density Polyethylene - Black Colour - 1.2 mm Minimum
Rip Cords	: One rip cord provide below inner sheath & two rip cords below outer sheath
Peripheral Strength & Rodent Protection	: Non-Water Blocking Type Fibre Glass Yarns Provided over the Inner Sheath (Light Green Colour) (20kg/Km Min.)
Outer Sheath	: Anti Termite & Anti Rodent High Density Polyethylene - Black Colour - 1.6 mm Minimum

Optical Characteristics for G 652D Fibers

Attenuation(dB/km):	Before Cablling	After Cablling	Dispersion	
@1310 nm :	≤ 0.34 dB/km	≤ 0.35 dB/km	1288 - 1339 nm	: ≤ 3.5 ps/nm.km
@1285-1380 nm :	≤ 0.37 dB/km		1271 - 1361 nm	: ≤ 5.3 ps/nm.km
@1390-1525 nm :	≤ 0.34 dB/km		1550 nm	: ≤ 18 ps/nm.km
@1550 nm :	≤ 0.21 dB/km	≤ 0.21 dB/km	1625 nm	: ≤ 22 ps/nm.km
@1525 - 1625 nm :	≤ 0.24 dB/km		Zero Dispersion wavelength	: 1300-1324 nm
@1625 nm :	≤ 0.24 dB/km	≤ 0.26 dB/km	Zero Dispersion Slope	: ≤ 0.092ps/nm ² .km
@1490 nm :	≤ 0.24 dB/km	≤ 0.26 dB/km	PMD Co-efficient at Fiber with	: ≤ 0.2 ps/sqrt.km
@1380 -1390 nm :	≤ 0.34 dB/km	≤ 0.36 dB/km	Cable (1310nm & 1550nm)	
			Splice Loss (Max)	: ≤ 0.1 dB
			(Average)	: ≤ 0.05 dB

Technical Data Sheet for 24F Metal Free O.F. Cable with Double HDPE Sheath (G 652D Fiber)

Fiber cut-off wavelength	: ≤ 1320 nm	Environmental specifications	
Cable cut-off wavelength	: ≤ 1260 nm	Temperature dependence -60 to +85°C	Induced attenuation at both 1310nm & 1550nm
Mode Field Diameter @1310 nm	: 9.2 ± 0.6 μ m		: ≤ 0.05 dB
Fiber Geometry		Cladding Non-Circularity	: ≤ 1 %
Coating Diameter (Un-coloured)	: 245 ± 10 μ m	Mode Field Concentricity error	: ≤ 0.6 μ m
Cladding Diameter	: 125 ± 1.0 μ m	Coating/Cladding Concentricity error	: ≤ 12 μ m
Fiber Curl	: ≥ 4 m radius Curv.	Operating Temperature	: -20° C to +70° C
Proof test	: 1% (100kpsi or 0.7GPa)	Storage Temperature	: -20° C to +70° C

Properties	IEC Standards	Specified Values
Tensile Strength	[IEC 60794-1-2-E1]	2.5 x W x 9.81 N or 2670 N at 0.25 % (W = Weight of 1 Km Cable)
Crush Strength	[IEC 60794-1-2-E3]	204 kg / 100 x 100 mm for 60 Sec.
Repeated Bending	[IEC 60794-1-2-E6]	20D at 90° angle for 30 Cycle
Torsion Resistance	[IEC 60794-1-2-E7]	10 Cycle (+/-180 deg C), 2 Mtr Length, 0.5 Twist/Meter
Cable Bend Test	[IEC 60794-1-2-E11]	4 Complete Turn rapped & unrapped at 20D for 10 cycle
Minimum bending Radius without microbending	[IEC 60794-1-2-E11]	20 x D (D=Cable Diameter in mm)
Maximum bending Radius (Short Term)	[IEC 60794-1-2-E11]	15 x D (D=Cable Diameter in mm)
Maximum bending Radius (Long Term)	[IEC 60794-1-2-E11]	20 x D (D=Cable Diameter in mm)
Temperature Cycling	[IEC 60794-1-2-F1]	At -20°C, -10°C, +60°C & +70°C (12 Hrs each)
Impact Resistance	[IEC 60794-1-2-E4]	50 N from 0.5 Mtr Height for 10 Nos
Kink Resistance	[IEC 60794-1-2-E10]	10D (D=Cable Dia.)
Water Penetration Test (Applicable for Inner Sheath)	[IEC 60794-1-2-F5]	Sample length= 3.0m, water height =1m, 24 Hrs.
Optical Fiber Colour Coding	[TIA-598-D]	Applicable
Fiber Strain Margin	-	0.25%
Tensile Proof Test /Screening Level	-	0.02 kN/mm ²

Physical Characteristics

Total No. of Fiber	: 24 Nos.	Inner Sheath Thickness	: 1.2 mm Minimum
Type of Fiber	: Single Mode(G.652D)	Outer Sheath Thickness	: 1.6 mm Minimum
No. of Loose Tube	: 6 Nos.	Cable Outer Diameter	: 13.2 ± 1.0 mm
No. of Fiber Per Loose Tube	: 4 Nos.	Nominal Cable Weight	: 140 Kg/Km
Loose Tube Diameter	: OD-1.9 $\pm$ 0.1 mm ID-1.2 mm Minimum	Min. Continues Length Per Drum	: 2.0 Km $\pm$ 10 % / 4.0 Km $\pm$ 5%
FRP Diameter	: 2.0+0.1/-0.0 mm		

Printing Details (Sequance May Change) :

APAR INDIA O.F. Cable *-- LT - SM 24F G 652D 2024 Cable No xxxx Meter Marking yyyy M

Y.K.Gupta
Asst.Vice President
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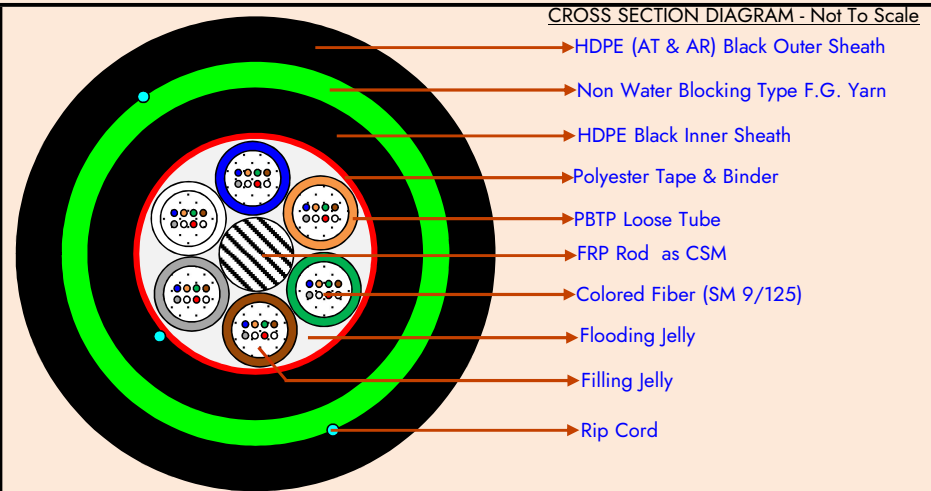

Technical Data Sheet for 48F Metal Free O.F. Cable with Double HDPE Sheath (G 652D Fiber)

Enq.Ref.: DOM/OFC/TEL/SUS/0424/035 dated 15.04.2024

TP No.: 24-25/OFC/DOM/0051 Date : 17.04.2024

Type of Fiber : Single Mode G 652D

Fiber Allocation Scheme		
Tube Colour	Fiber Type	No of Fibers
Blue	SM G 652D	8
Orange	SM G 652D	8
Green	SM G 652D	8
Brown	SM G 652D	8
Slate	SM G 652D	8
White	SM G 652D	8
Optical Fiber Colour Coding as per TIA-598-D		



Cable Construction Details:-

No of fibers per Tube & Colours	: 8 Fibers per tube :-Blue, Orange, Green, Brown, Slate, White, Red & Natural
Loose Tube	: PBT Loose Tue Filled With Thixotropic Jelly (OD-1.9 ± 0.1 mm) (ID-1.2 mm Minimum)
No of Loose Tube	: 6 Loose Tubes
Tube Identification Sequence	: Blue, Orange, Green, Brown, Slate & White
Central Strength Member	: EAA Coated Fiber Reinforced Plastic - FRP(Non-Metallic) (2.0+0.1/-0.0 mm)
Cable Filling	: Anti Hydroscopic Flooding Jelly
Core Wrapping	: Polyester binder yarn
Inner Sheath	: High Density Polyethylene - Black Colour - 1.2 mm Minimum
Rip Cords	: One rip cord provide below inner sheath & two rip cords below outer sheath
Peripheral Strength & Rodent Protection	: Non-Water Blocking Type Fibre Glass Yarns Provided over the Inner Sheath (Light Green Colour) (20kg/Km Min.)
Outer Sheath	: Anti Termite & Anti Rodent High Density Polyethylene - Black Colour - 1.6 mm Minimum

Optical Characteristics for G 652D Fibers

Attenuation(dB/km):	Before Cablling	After Cablling	Dispersion	
@1310 nm :	≤ 0.34 dB/km	≤ 0.35 dB/km	1288 - 1339 nm	: ≤ 3.5 ps/nm.km
@1285-1380 nm :	≤ 0.37 dB/km		1271 - 1361 nm	: ≤ 5.3 ps/nm.km
@1390-1525 nm :	≤ 0.34 dB/km		1550 nm	: ≤ 18 ps/nm.km
@1550 nm :	≤ 0.21 dB/km	≤ 0.21 dB/km	1625 nm	: ≤ 22 ps/nm.km
@1525 - 1625 nm :	≤ 0.24 dB/km		Zero Dispersion wavelength	: 1300-1324 nm
@1625 nm :	≤ 0.24 dB/km	≤ 0.26 dB/km	Zero Dispersion Slope	: ≤ 0.092ps/nm ² .km
@1490 nm :	≤ 0.24 dB/km	≤ 0.26 dB/km	PMD Co-efficient at Fiber with	: ≤ 0.2 ps/sqrt.km
@1380 -1390 nm :	≤ 0.34 dB/km	≤ 0.36 dB/km	Cable (1310nm & 1550nm)	
			Splice Loss (Max)	: ≤ 0.1 dB
			(Average)	: ≤ 0.05 dB

Technical Data Sheet for 48F Metal Free O.F. Cable with Double HDPE Sheath (G 652D Fiber)

Fiber cut-off wavelength	: ≤ 1320 nm	Environmental specifications	
Cable cut-off wavelength	: ≤ 1260 nm	Induced attenuation at both 1310nm & 1550nm	
Mode Field Diameter @1310 nm	: 9.2 ± 0.6 μ m	Temperature dependence -60 to +85°C	: ≤ 0.05 dB
Fiber Geometry		Cladding Non-Circularity	: ≤ 1 %
Coating Diameter (Un-coloured)	: 245 ± 10 μ m	Mode Field Concentricity error	: ≤ 0.6 μ m
Cladding Diameter	: 125 ± 1.0 μ m	Coating/Cladding Concentricity error	: ≤ 12 μ m
Fiber Curl	: ≥ 4 m radius Curv.	Operating Temperature	: -20° C to +70° C
Proof test	: 1% (100kpsi or 0.7GPa)	Storage Temperature	: -20° C to +70° C

Properties	IEC Standards	Specified Values
Tensile Strength	[IEC 60794-1-2-E1]	2.5 x W x 9.81 N or 2670 N at 0.25 % (W = Weight of 1 Km Cable)
Crush Strength	[IEC 60794-1-2-E3]	204 kg / 100 x 100 mm for 60 Sec.
Repeated Bending	[IEC 60794-1-2-E6]	20D at 90° angle for 30 Cycle
Torsion Resistance	[IEC 60794-1-2-E7]	10 Cycle (+/-180 deg C), 2 Mtr Length, 0.5 Twist/Meter
Cable Bend Test	[IEC 60794-1-2-E11]	4 Complete Turn rapped & unrapped at 20D for 10 cycle
Minimum bending Radius without microbending	[IEC 60794-1-2-E11]	20 x D (D=Cable Diameter in mm)
Maximum bending Radius (Short Term)	[IEC 60794-1-2-E11]	15 x D (D=Cable Diameter in mm)
Maximum bending Radius (Long Term)	[IEC 60794-1-2-E11]	20 x D (D=Cable Diameter in mm)
Temperature Cycling	[IEC 60794-1-2-F1]	At -20°C, -10°C, +60°C & +70°C (12 Hrs each)
Impact Resistance	[IEC 60794-1-2-E4]	50 N from 0.5 Mtr Height for 10 Nos
Kink Resistance	[IEC 60794-1-2-E10]	10D (D=Cable Dia.)
Water Penetration Test (Applicable for Inner Sheath)	[IEC 60794-1-2-F5]	Sample length= 3.0m, water height =1m, 24 Hrs.
Optical Fiber Colour Coding	[TIA-598-D]	Applicable
Fiber Strain Margin	-	0.25%
Tensile Proof Test /Screening Level	-	0.02 kN/mm ²

Physical Characteristics

Total No. of Fiber	: 48 Nos.	Inner Sheath Thickness	: 1.2 mm Minimum
Type of Fiber	: Single Mode(G.652D)	Outer Sheath Thickness	: 1.6 mm Minimum
No. of Loose Tube	: 6 Nos.	Cable Outer Diameter	: 13.2 ± 1.0 mm
No. of Fiber Per Loose Tube	: 8 Nos.	Nominal Cable Weight	: 140 Kg/Km
Loose Tube Diameter	: OD-1.9 $\pm$ 0.1 mm ID-1.2 mm Minimum	Min. Continues Length Per Drum	: 2.0 Km $\pm$ 10 % / 4.0 Km $\pm$ 5%
FRP Diameter	: 2.0+0.1/-0.0 mm		

Printing Details (Sequance May Change) :

APAR INDIA O.F. Cable *-- ∞ LT - SM 48F G 652D 2024 Cable No xxxx Meter Marking yyyy M

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Asst.Vice President
Apur Industries Ltd.
