DATA SHEET FOR FIBER OPTIC CABLE

TRIPLE SHEATH SINGLE STEEL WIRE ARMORED FLAME-RETARDANT FIBER OPTIC CABLE WITH APL & SINGLE MODE G.652D/G.655 FIBER FOR OUTDOOR HARSH HYDROCARBON ENVIRONMENT APPLICATION (AL/FR-PE/PA/FR-PE)

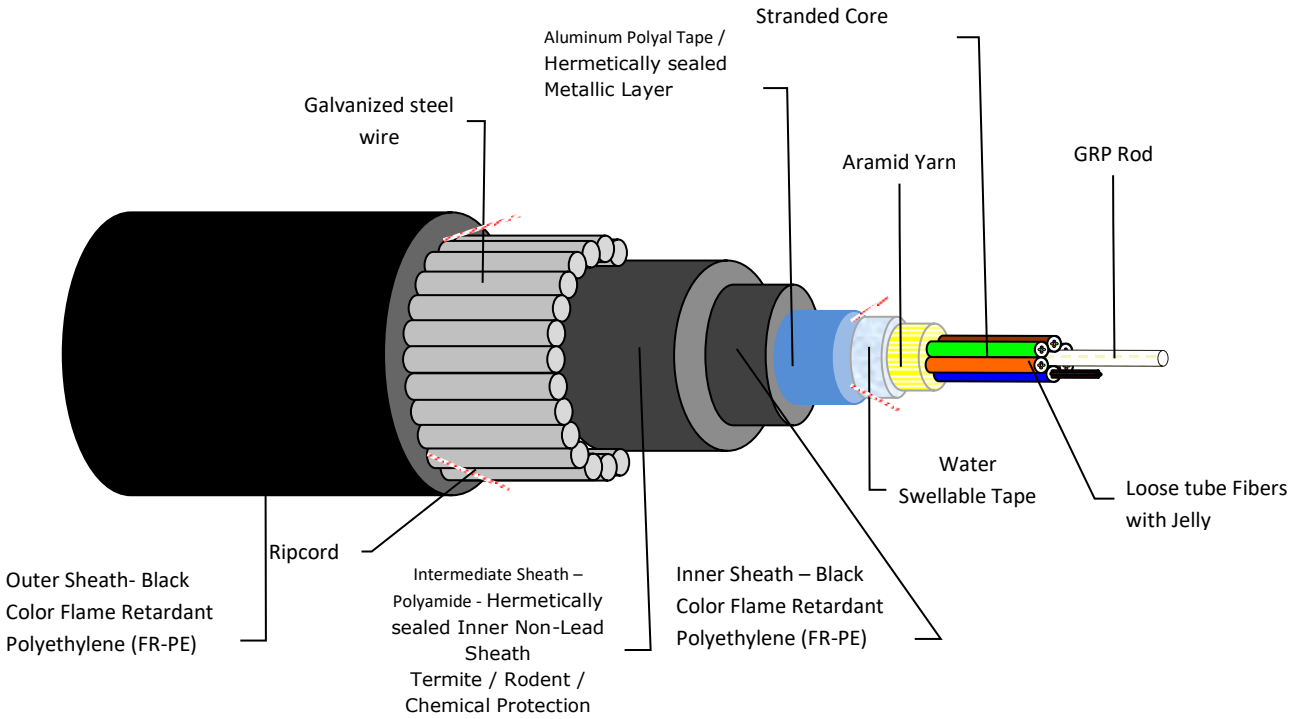
CABLE & FIBER TECHNOLOGY

An advanced loose tube optical cable with SZ stranded core and fiber with outstanding optical and geometrical properties.

CABLE APPLICATION

Cable can be direct buried, along with pipeline, pulled or blown through ducts or placed in outdoor cable trays and specially design for Harsh hydrocarbon Environment. The complete cable confirms Flame Retardant standards as per to IEC-60332-1-2 & IEC-60332-22-Cat-A

DRY CORE VERSION (TYPICAL)



Design Construction

Sr. No.	Cable Construction Details	Material Specification
1	Central Strength Element	Glass Reinforced Plastic (GRP) Rod – PE Coating Required for 48F Cable
2	Loose Tube & Fibers	Poly-butylene Terephthalate (PBTP) with Thixotropic filling gel
3	Filler color & Material Numbers	Natural Polyethylene No. of dummy Filler as per physical specification of cable.
4	Stranded Cable Core	Loose Tubes with Fibers and Fillers Stranded Around GRP rod
5	Core Water Blocking Element	Water Swellable Yarn applied between interstices of core
6	Peripheral Strength Member / Outer Strength Member	Aramid Yarn below the Water swellable tape
7	Core Wrapping	Water Swellable Tape with Binders
8	Ripcord	Below Aluminum Tape – 2 Numbers
9	Moisture Barrier (Hermetically sealed Metallic Layer)	Co Polymer Coated Aluminum Tape for protection against harsh hydrocarbon environment.
10	Inner Sheath	Flame Retardant Polyethylene (FR-PE) – Black Color (1.0 mm Nominal Thickness)
11	Intermediate Sheath – (Hermetically sealed Inner Non-Lead Sheath) / Termite / Rodent / Chemical protection	Polyamide Sheath Over Inner Sheath – Black Color (0.5 mm Nominal Thickness) Hermetically sealed inner(Intermediate) non-lead sheath to provide additional protection against the harsh hydrocarbon environment
12	Armoring / Rodent / Mechanical Protection	Galvanized steel wire armoring Over Intermediate Sheath
13	Ripcord	Below Outer Sheath – 2 Numbers
14	Outer Sheath	Flame Retardant, UV & Oil Resistance Polyethylene (Flame/UV Resistance - PE) Sheath Black Color (2.0 mm Nominal Thickness)

PHYSICAL SPECIFICATION

Nominal Dimensions

Fiber Count	Standard Tube Layup (Others On Request)	No. of Fillers	Nominal Cable Weight in kg/km	Nominal Cable Diameter in mm	Standard OFO Cable Code
24	Four Loose Tube / 6 Fiber Per Loose Tube	2	480	16.8	F6D24N2.0KW-ABNYB

U :- Single Mode G.652D N :- Single Mode G.655

Loose Tube and Fiber Color Coding (As per EIA/TIA-598 D):

24F = (4T x 6F)

Loose Tube No.	Color	Fiber No.	Color
1	Blue	1	Blue
2	Orange	2	Orange
3	Green	3	Green
4	Brown	4	Brown
5	Filler	5	Slate
6	Filler	6	White

Standard Cable Marking at 1 Meter Interval: (Sequence may be change)

Marking details For 24F SM G.655 Fiber	24F 9/125 SINGLE MODE G.655 OMAN FIBER OPTIC CABLE ID Year of Manufacture Meter Marking
Marking Color	White

Printing is done with hot stamp/tape transfer method for excellent abrasion resistance.

OPTICAL, MECHANICAL AND QUALITY INFORMATION

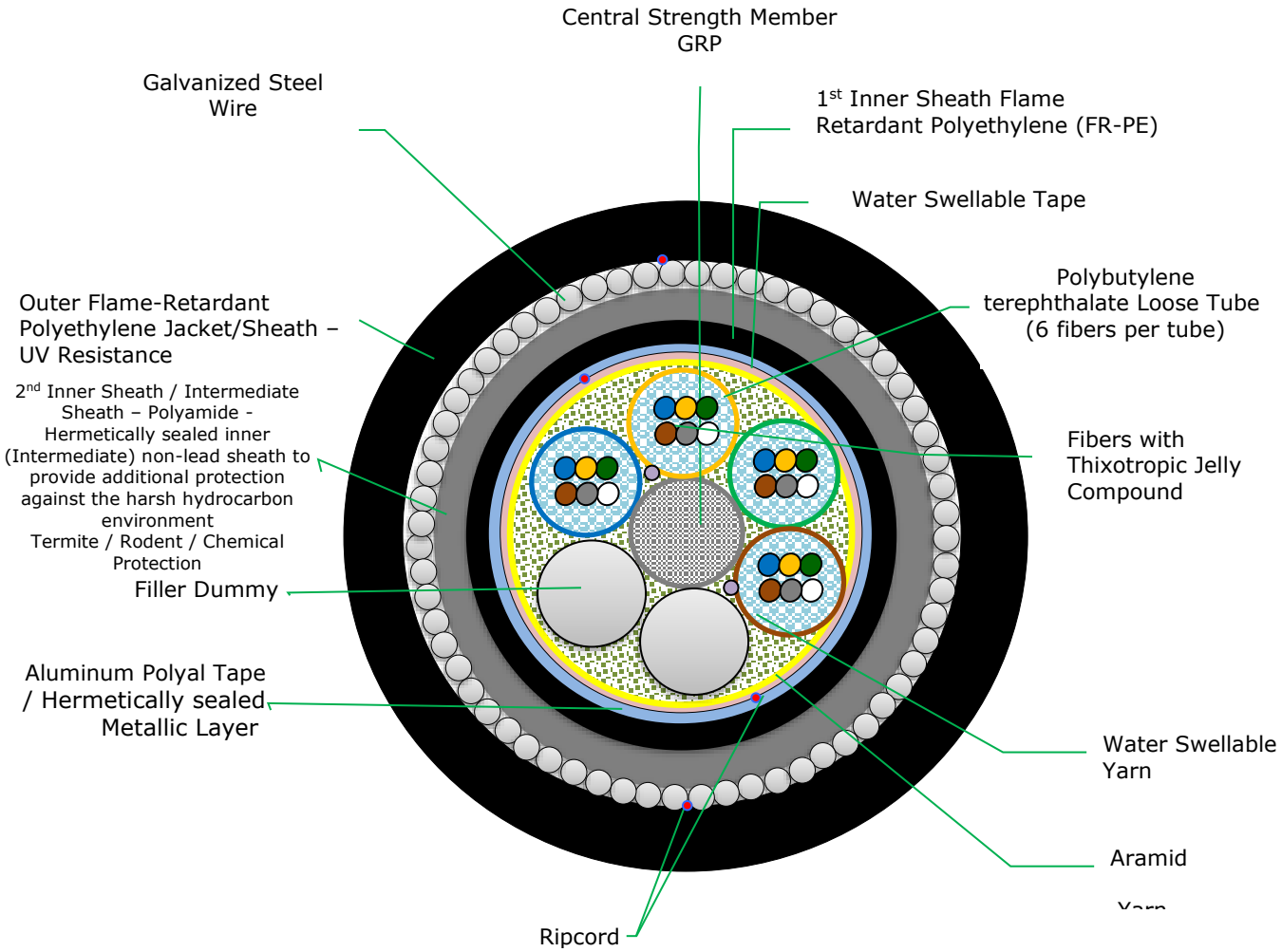
CABLE WITH SINGLEMODE G.655

PARAMETER	λ (nm)	G.655
Fiber Type		ITU-T-G.655
Core Material		Silica (SiO2) doped with germanium dioxide (GeO2)
Cladding Material		Pure silica (SiO2)
Coating material		Dual layers of UV-cured acrylate (Non-colored)
Attenuation Coefficient (dB/Km) Max Cable Stage	1310	0.40
Attenuation Coefficient (dB/Km) Max Cable Stage	1550	0.23
Attenuation Coefficient (dB/Km) Max Cable Stage	1625	0.25
Cladding Diameter (µm)	--	125 ± 0.7
Cladding non-circularity	--	≤ 1.0 %
Mode field diameter at 1550nm (µm)	--	9.6 ± 0.4
Nominal Coating Diameter(µm) Uncolored	--	245 ± 5
Core Concentricity Error (µm)	--	≤0.6
Coating-cladding Concentricity Error (µm)	--	≤12
Point discontinuity (dB)	1550	≤ 0.05
Chromatic Dispersion (ps/nm.km)	1530-1565	2.0-6.0
Chromatic Dispersion (ps/nm.km)	1565-1625	4.0-11.26
Cable cut-off wavelength (nm)	--	≤ 1450
Dispersion slope ps/nm².km	--	≤ 0.092
Polarization mode dispersion (PMD) ps/√Km	--	≤ 0.2
Fiber Proof Test	Kpsi	100 (1%)

MECHANICAL, ENVIRONMENTAL & OTHER CHARACTERISTICS

PARAMETER	SPECIFICATION	UNITS
Tensile Strength / Maximum Pulling Tension IEC 60794-1-2-E1	Load: >2000 Newton	Attenuation Change ≤ 0.1 dB @1550 nm
	Length of cable : about 145 m	No fiber break and no sheath damage.
	Load time: 5 min	
Crush Test IEC 60794-1-2-E3	Load: 3000 N/100X100mm	Attenuation Change ≤ 0.1 dB @1550 nm
	Load time: 1 min	No fiber break and no sheath damage.
Impact Test IEC 60794-1-2-E4	Points of impact: 3	Attenuation Change ≤ 0.1 dB @1550 nm
	Times of per point: 1	No fiber break and no sheath damage.
	Impact energy: 25 Newton-Meter	
Repeated Bending IEC 60794-1-2-E6	Bending radius: 20 x OD	Attenuation Change ≤ 0.1 dB @1550 nm
	No. of cycle: 30 Load – 5Kg	No fiber break and no sheath damage.
Torsion IEC 60794-1-2-E7	Length: 2 meter	Attenuation Change ≤ 0.1 dB @1550 nm
	Twist angle: ±180°	No fiber break and no sheath damage.
	No. of cycle: 10 Weight – 5 Kg.	
Cable bend IEC 60794-1-2-E11	Diameter of mandrel: 20 x OD	Attenuation Change ≤ 0.1 dB @1550 nm
	Number of turns :1	No fiber break and no sheath damage.
	Number of cycles : 5	
Water Penetration IEC 60794-1-2-F5B	Height of water: 1 meter	No water leak from the cable core of the opposite end
	Sample length: 3 meter	
	Time: 24 hrs	
Temperature Cycling IEC 60794-1-2-F1	Temperature: -40℃ to +70℃	Attenuation Change ≤ 0.1 dB @1550nm
	Time of each step: 12hrs	No fiber break and no sheath damage.
	Number of cycle: 2	
Kink Resistance IEC 60794-1-2-E10	10xD, D=Cable Diameter	Attenuation Change ≤ 0.1 dB @1550nm
		No fiber break and no sheath damage.
Flame Retardant	**IEC-60332-1-2 & IEC-60332-22-Cat-A**	
Minimum Bending Radius At Full Load / During Installation		15D (D = Cable Outer Diameter)
Minimum Bending Radius At No Load / Installed		10D (D = Cable Outer Diameter)
Storage Temperature		0 °C To +70 °C
Installation & Operating Temperature		-28 °C To +70 °C
Cable Design Lifetime	25	Years
Packing Lengths	4 ± 5%	Km

24F SM G.655 TRIPLE SHEATH SINGLE STEEL WIRE ARMORED FLAME-RETARDANT FIBER OPTIC CABLE CROSS SECTIONAL DIAGRAM (TYPICA) (AL/FR-PE/PA/FR-PE)



GENERAL INFORMATION

FEATURES & ADVANTAGES

- Extraordinarily robust construction
- Outstanding rodent and insect resistance
- Easy cable preparation, even in mid-span
- SZ strand for easy mid span splicing
- Flexible buffer tubes provide easy fiber routing inside closure
- No preferential bend axis for easy cable handling, coil storage, figure-eights, etc.

INSTALLATION

The cable must be installed according to the latest version of the document titled OFO Installation Guidelines for Terrestrial Cables. This document explains safety, minimum bend radius, maximum pulling tension and other critical information about the cable and is available in downloadable form at www.omanfiber.com