

Technical Specification for Optical Fiber Cable

SPEC No.: GF HD-002
Product Code: OJFPP-24LT/MICROABC
Version: 0

Optical fibers / 24Fibers loose tube with gel-filled / S-Z(Dual layers) Dry core / Outer jacket for air blown cable application

Standard

ITU-T G.652.D, G.657.A1
IEC 60793-1, 60794-1-1, 60794-5-10
ISO 9001:2015, 14001:2015
TIA 598-D



Application

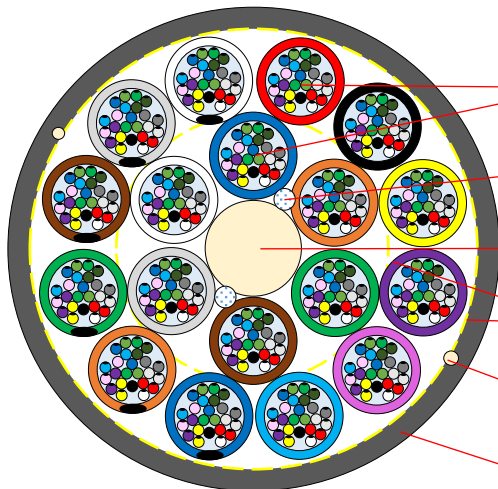
Installation into microduct by air pressure
Local area network
Communication link

Features

Distinguishable by color of fiber & Loose tube
Compact tube for fiber high density & Light weight
UV-resistant outer jacket

Cable Cross Section

In case of 432F cable



Loose tubes: 24fibers and gel-filled

Core dry block: Water swellable yarns

Central strength member: GFRP rod

Binder: Water blocking binders

Ripcord(s)

Outer jacket: Black color HDPE with UV resistance

Not to scale

Cable Construction

Fiber count	Unit position	Active tube	Fibers per tube	Nominal cable outer diameter		Nominal cable weight	
				inch	mm	lbs/kft	kg/km
144	6	6	24	0.283	7.1	29	43
288	12	12	24	0.433	11.0	68	102
432	18 [6(1'st)+12(2'nd)]	18	24	0.441	11.2	67	100

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Cable Handling

Tensile strength	Short-term	Cable weight(kg/km) X 9.8N
	Long-term	Short-term X 30%
Min. Bending radius	During installation	20 X cable outer diameter (pulling with load)
	Installed	10 X Cable outer diameter (without load)
Temperature range	Installation	+ 5 °F ~ 104 °F (- 15 °C ~ + 40 °C)
	Operation	- 22 °F ~ 158 °F (- 30 °C ~ + 70 °C)
	Storage	- 40 °F ~ 158 °F (- 40 °C ~ + 70 °C)

Fiber Characteristics for Single Mode Fiber

Fiber type	ITU-T G.652.D	ITU-T G.657.A1
Mode field diameter (MFD)	9.2 ± 0.4 μm @1310 nm	8.9 ± 0.4 μm @1310 nm
Mode field concentricity error	≤ 0.8 μm	
Cladding diameter	125 ± 1 μm	
Cladding non-circularity	≤ 1.0 %	
Coating diameter	245 μm ± 15 μm	
Attenuation	≤ 0.40 dB/km @ 1310 nm, ≤ 0.30 dB/km @ 1550 nm	
Chromatic dispersion	≤ 3.5 ps/(nm.km)@ 1285 ~ 1330 nm, ≤ 18 ps/(nm.km)@ 1550 nm	
Cable cut-off wave length	≤ 1260 nm	
Zero dispersion wavelength	1300 ~ 1324 nm	
Zero dispersion slope	≤ 0.092 ps/nm ² .km	
Proof test	Nom. 100 kpsi	

Fiber Identification

01~12	Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
13~24*	Blue*	Orange*	Green*	Brown*	Grey*	White*	Red*	Natural*	Yellow*	Violet*	Pink*	Aqua*

*13~24: black color dots on fibers

Tube Identification

01~12	Blue	Orange	Green	Brown	Grey	White	Red	Black	Yellow	Violet	Pink	Aqua
13~18*	Blue*	Orange*	Green*	Brown*	Grey*	White*	-	-	-	-	-	-

*13~18: a black color stripe line on tubes and a white color stripe line on black color tube.

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Cable Identification

Jacket Marking	Method	Inkjet printing or Hot foil indent with white color
	General sequence	Customer (Upon request), Fiber type, Fiber count, Cable type, Serial number (#####), Manufacturer, Manufacture year (YYYY), Length marking (Every 1m or 2ft)
	Example	00000FT SM 432F ABC 00001 GAON CABLE 2024 00002FT

Packing

Drum	Material	Plywood drum fastened on a pallet or wooden drum with wood bars lagging
	Length	Standard 13,000 ft (4,000 m), Max. 20,000ft(6,100m)

Mechanical / Environmental Tests (Based on IEC 60794-5-10)

Test items	Method	Description	Acceptance criteria ¹⁾
Tensile performance	E1	Cable weight X 9.8N X 10 min.	$\leq 0.6\%$ Fiber strain, during test
Crush	E3A	Short-term: 500N / 100 x 100 mm plate X 1 min	$\Delta \leq 0.05\text{dB}$, after test
Impact	E4	1J in 3 different places 500mm apart	$\Delta \leq 0.05\text{dB}$, after test
Repeated bending	E6	25 cycles X Bending radius 20 D ²⁾	No damage to the sheath to the cable element(visual)
Torsion	E7	2m x $\pm 180^\circ$ X 1 Min. X 10cycles	$\Delta \leq 0.05\text{dB}$, after test
Kink	E10	40 D	No damage to the sheath to the cable element(visual)
Bend	E11	40 D, U shape 4 turns, $\pm 180^\circ$	$\Delta \leq 0.05\text{dB}$, after test
Temperature cycling	F1	≥ 1000 m sample, soak: 8 h, 2 cycles, $+ 23^\circ\text{C} \rightarrow -30^\circ\text{C} \rightarrow 70^\circ\text{C} \rightarrow + 23^\circ\text{C}$	$\Delta \leq 0.15\text{dB/km}$, after test
Water penetration	F5B	3m sample, 1m height, 24 h	No leakage

¹⁾ It shall be measured at 1550nm for SM. The acceptance measurement equipment error is 0.05dB for SM.

²⁾ Cable diameter

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Code	Description
O	Optical fiber
JF	Jelly compound in loose tubes
P	PBT
P	PE compound
-24LT	24 fibers in compact tube
/MICROABC	Micro tube for air blown cable

History Record

Version	Date	Description
0	Nov. 29. 2024	Issue specification from technical proposal