

PFC

PERSIAN FIBER COMMUNICATION CO.
TECHNICAL SPECIFICATION FOR DATA CABLE
SALE ENGINEERING DEPARTMENT

FIBER

Zipcord

2 Core

SM
MM

MULTI
TUBE

DOUBLE
JACKET

DIRECT
BURIED

HDPE



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SPECIFICATION FOR DATA CABLE

FIBER

Zipcord Indoor

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1- GENERAL

This specification covers in detail the optical, physical and mechanical characteristics of optical cables used in Patch Cable and Indoor application.

2- OPTICAL FIBER

2-1 – Optical Characteristics

The fibers may be standard single mode (ITU-G652) and have the following table (1).

PARAMETERS (Maximum Individual)		UNIT	VALUE
Fiber Attenuation	1310nm	dB/km	<0.35
	1550nm	dB/km	<0.25
Temperature Variation Attenuation	-	dB/km	≤0.05
Point Discontinuities	1310/1550nm	dB	≤0.10
Water Peak Attenuation	1383±3	dB/km	See note
Attenuation Change vs. Wavelength	1285-1310	dB/km	≤0.10
	1525-1575	dB/km	≤0.05
Attenuation Change vs. Bending	100wraps/50mmdia	dB	≤0.5
	1wrap/32mmdia	dB	≤0.05
Zero Dispersion Wavelength	-	nm	1300-1324
Maximum Dispersion	1310nm	Ps/nm.Km	≤3.2
	1550nm	Ps/nm.Km	≤18.0
Zero Dispersion Slope	-	Ps/nm ² .Km	≤0.092
Nominal Mode Field Diameter	1310nm	μm	9.2±0.4
	1550nm	μm	10.4±0.8
Cable Fiber Cut-off Wavelength	(λ _{cc})	nm	<1260
Polarization Mode Dispersion	1310nm	Ps/√Km	<0.2
	1550nm	Ps/√Km	<0.2

The fibers will be MM Fiber 50/125 have the following properties table (2).
TABLE (2)

Item	Parameters		Unit	Value
2.1. OPTICAL CHARACTERISTICS				
2.1.1	Attenuation	@ 850 nm	dB/km	Max 2.4
		@ 1300 nm	dB/km	Max 0.6
2.1.2	Bandwidth	850 nm	MHz-km	Max 1500
		1300 nm@	MHz-km	Max 500
2.1.3	Point Discontinuity		dB	Max 0.1
2.1.4	Numerical Aperture		-	0.200 ± 0.015
2.2. DIMENSIONAL SPECIFICATION				
2.2.1	Core Diameter		μm	50 ± 2.5
2.2.2	Cladding Diameter		μm	125.0 ± 1.0
2.2.3	Coating Diameter		μm	245 ± 7
2.2.4	Core Non-Circularity		%	Max 5
2.2.5	Cladding Non-Circularity		%	Max 0.6
2.2.6	Core/Cladding Eccentricity		μm	Max 1
2.2.7	Coating/Cladding Eccentricity		μm	Max 10

2-2 – Fiber and loose tube identification

Fibers in each loose tube and the tubes will be identified with the following table (3).

Fiber/Tube No.	Color	Fiber/Tube No.	Color
1	White	7	Brown
2	Red	8	Violet
3	Green	9	Orange
4	Blue	10	Pink
5	Yellow	11	Grey
6	Black	12	Natural

Note: For less than 12 core optical cables there should be first colors.



3 - CABLE CONSTRUCTION

Cable constructions are in accordance with the following table (4) and FIG. (1)

Subject	Description
3-1- Optical fiber	Single Mode fiber 9/125,Multimode fiber 50/125. The fibers are color coded and properly operate at a wide range of temperature from -60 °C up to +85 °C.
3-2- strength member	A layer of Aramid yarn will be applied over the buffer. Swell able yarn may be applied over Aramid yarns.
3-3- Core	Tight Buffer Per Zipcord
3-4- Outer jacket	A colorful LSZH jacket in according to will be applied on Aramid yarn. The nominal jacket thickness is max-1.5mm.



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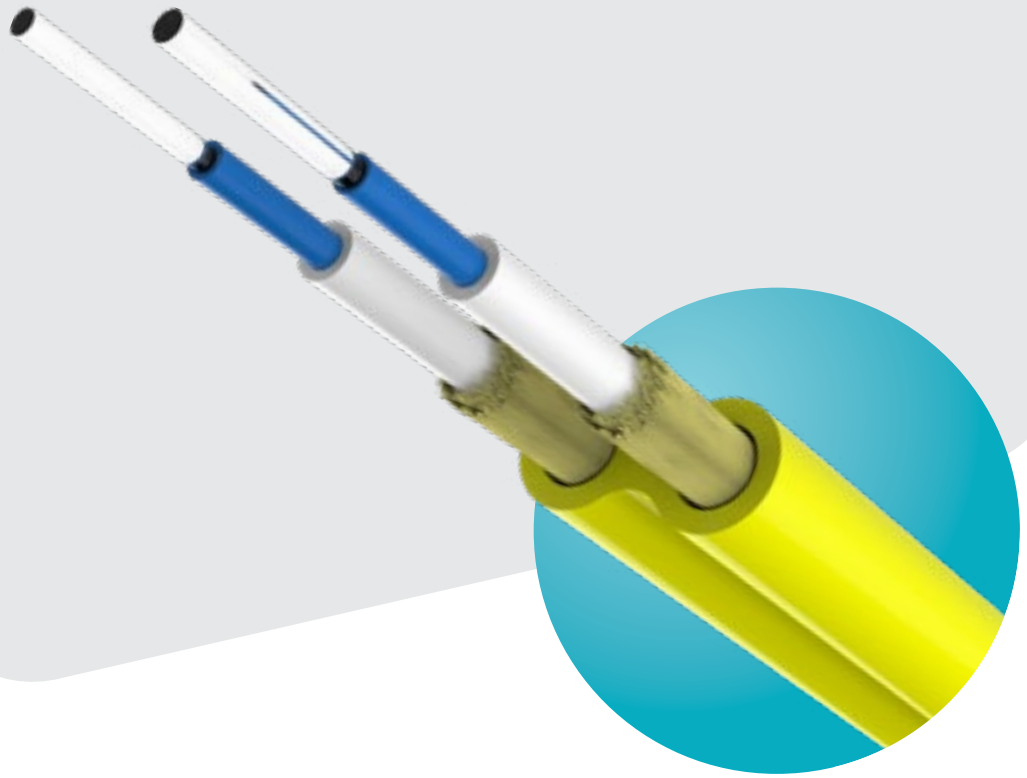
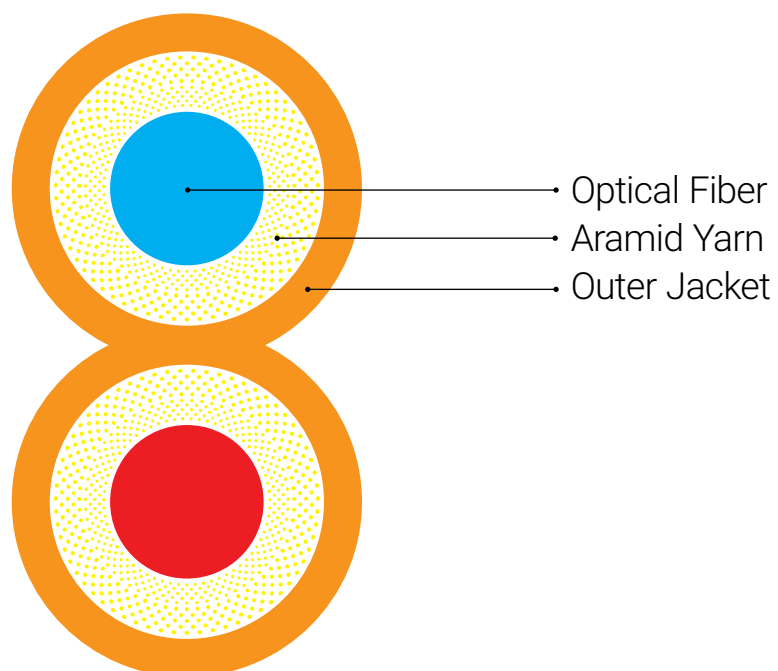


FIG (1)

The figure normally shows the general structure



4 - CABLE SIZES AND GENERAL DATA'S

4-1 - CABLE SIZES AND GENERAL DATA

Cables size and general data are in accordance with the following table (5).

PARAMETERS		Description
Number of Zipcord		2
Fiber per Zipcord		1
Number of fibers		2
Zipcord Diameter (mm)		~1.8
Pulling Tension (N)	Operation	2000
	Installation	3000
Approx Overall diameter (mm)		3.2
Approx Weight (Kg/km)		40

4-2 – IDENTIFICATION MARKING

Each length of the cable shall be permanently identified as to the manufacturer, year of manufacture, number of tubes, fiber per tubes and cable type. The marking will be printed on the outer jacket.

NOTE: Other method as request



5 – MECHANICAL AND FUNCTIONAL TESTS

Mechanical and functional tests are in accordance with the following table (6).

ITEM	CONDITIONED	REFERENCE
WATER PENETRATION	1 mLength/1 mheight/1 hours/nodrop	FOTP-82
COMPRESSION	220 N / on 10 mm section of cable	EIA/TIA 455-41
FLEXING	25 mechanical flexing / heave diameter 20 times the cable diameter	EIA/TIA 455-104
IMPACT	660 g weight / 1 m height / In 2 at 3 locations along cable	EIA/TIA 455-25
TENSILE & BENDING	Pulling force As technical spec	EIA/TIA 455-33
TWIST	2mlength/10cyclesofmechanicaltwisting	EIA/TIA 455-85
LOW OR HIGH TEMPERATURE BEND	sheave diameter 20 times the cable diameter / 4 full turns / 4 hours / at temperatures -30°C & +80°C	EIA/TIA 455-37
KNOT	10 kg weight / in cross sectional diameter of the knot	EIA/TIA 455-87
TEMPERATURE CYCLING	2 hours from 0°C to -40°C / 8 hours in -40°C / 4 hours from -40°C to +85°C / 8 hours in +85°C / 2 hours from +85°C to 0°C / 5 cycles	IEC 794-1-F1

6- Transmission Distance Comparison

Data Rate	Interface Type	Fiber Mode	Wavelength	Maximum Distance
1G	1000BASE	SM	1310nm	10km
		OM2	1300nm	550m
		OM3	1300nm	550m
10G	10GBASE	SM	1310nm	10km
		OM2	1300nm	220m
		OM3	1300nm	220m
40G	40GBASE	SM	1310nm	10km
		OM2	-	-
		OM3	850nm	100m
100G	100GBASE	SM	1310nm	10km
		OM2	-	-
		OM3	850nm	70m

7- Total specification

PARAMETERS	Description
Attenuation at 1550nm	Max 0.25
Attenuation at 1310nm	Max 0.35
Attenuation at 850nm	Max 2.4
Attenuation at 1300nm	Max 0.6
Number of Zipcord	2
Fiber per Buffer	1
Number of fibers	2
Fiber Grade	SM: G.652.D OM2/OM3: Bend Insensitive
Zipcord Diameter (mm)	~1.8
Overall diameter (mm)	2mm,3mm
Fiber Type	SM/ OM2/OM3
Structure	Fig8-Tight Buffer
Strength member	Aramid Yarn
Number of Jacket	Single Jacket
Cable Jacket	LSZH
Jacket Color	SM:Yellow, OM2:Orange, OM3: Natural
Application	Indoor
Marker Height (mm)	3.0 ± 0.3
Distance Marker(m)	1
Color	Black
Packaging	Wooden Reel



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