SHAHID GHANDI COMMUNICATION CABLE CO.

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TECHNICAL SPECIFICTION FOR
OPTICAL BURIED UNFILLED CABLE
MM 62.5/125
(OBUC-MM)

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SPECIFICATION FOR

OPTICAL BURIED UNFILLED CABLE

MM 62.5/125

1 - GENERAL

This specification covers in detail the optical, physical and mechanical characteristics of optical cables used in direct buried application.

2 - Optical Fiber

The fibers will be MM Fiber 62.5/125 have the following properties**:**

TABLE (1)

Item	Parameters		Unit	Value
2.1. OPTICAL CHARACTERISTICS				
2.1.1	Attenuation	@ 850 nm	dB/km	Max 3
		@ 1300 nm	dB/km	Max 1
2.1.2	Bandwidth	@850 nm	MHz-km	Min 160
		1300 nm @	MHz-km	Min 400
2.1.3	Point Discontinuity		dB	Max 0.1
2.1.4	Numerical Aperture		---	0.275 ± 0.015
2.2. DIMENSIONAL SPECIFICATION				
2.2.1	Core Diameter		µm	62.5 ± 3.0
2.2.2	Cladding Diameter		µm	125.0 ± 1.0
2.2.3	Coating Diameter		µm	245 ± 10
2.2.4	Core Non-Circularity		%	Max 6
2.2.5	Cladding Non-Circularity		%	Max 2
2.2.6	Core/Cladding Eccentricity		µm	Max 3
2.2.7	Coating/Cladding Eccentricity		µm	Max 12.5

2-3 – Fiber identification

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

TABLE (3)

Fiber No.	Color
1	White
2	Red
3	Green
4	Blue
5	Yellow
6	Black

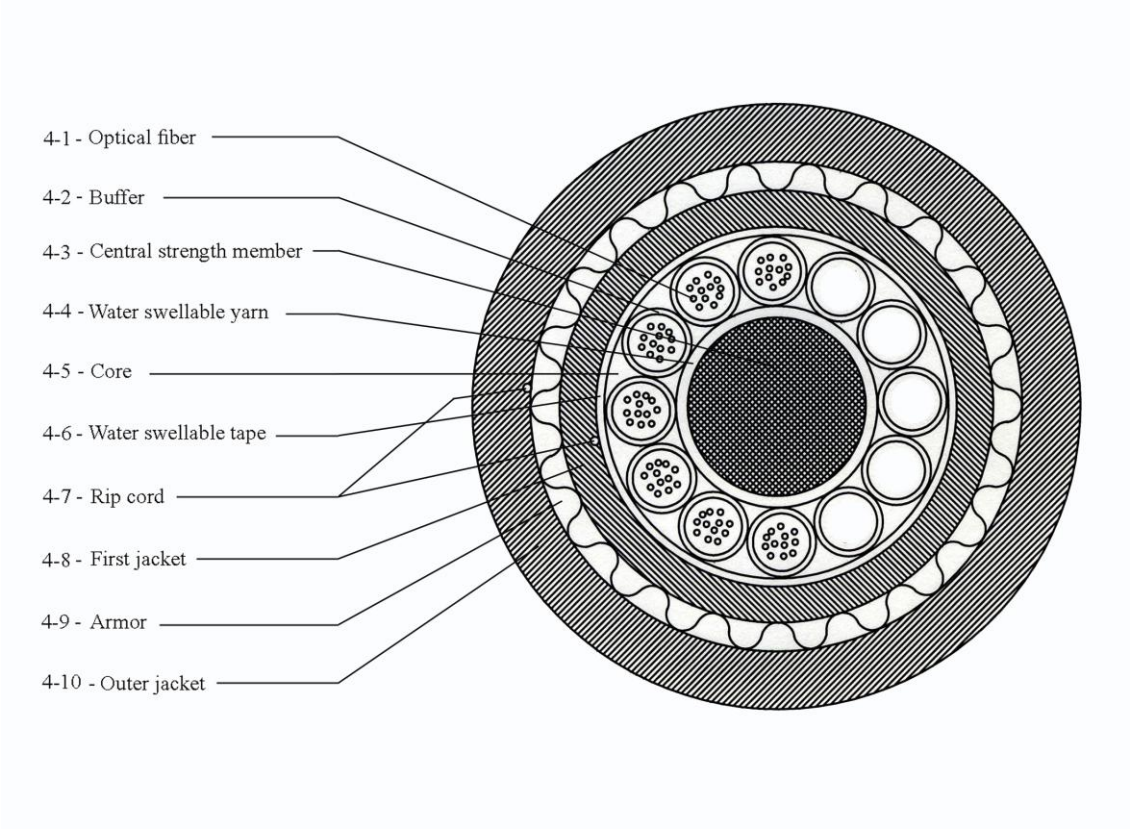
3 - CABLE CONSTRUCTION

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

TABLE (4)

Subject	Description
3-1- Optical fiber	Multimode fiber 62.5/125. The fibers are color coded and properly operate at a wide range of temperature from -40 ºC up to +80 ºC.
3-2- Buffer	Loose tubes of PBT materials, color coded, contains up to 12 optical fibers, filled with thixotropic jelly. The jelly is free from dirt, metallic particles and would be non toxic and present no any dermal hazards.
3-3- Central strength member	Non-metal central strength member (FRP) with minimum diameter 2.5mm.
3-4- Water swell able yarn	The water swellable yarn will be wound helically around the Strength member.
3-5- Core	Loose tubes will be stranded around central strength member by SZ stranding method. For adapting the loose tubes to central element the fillers of PP or HDPE may be used in cable construction.
3-6- Water swellable tape	A layer of water swellable tape with a sufficient thickness applied longitudinally over loose tubes. The overlap shall not be less than 3 mm.
3-7- Rip cord	2 Diametrically opposed rip cords will be placed over the swellable tape under the inner jacket and 2 rip cords over the steal tape under the outer jacket. The rip cord must be strong and flexible enough to be able to strip or the jackets easily.
3-8- First jacket	A black LDPE jacket in accordance to ASTM D-1248. The nominal thickness of the jacket is 1.5 mm.
3-9- Armor	A corrugated steel tape will be applied on inner jacket. This layer act as anti rodent. The overlap shall not be less than 3mm.
3-10- Outer jacket	A black HDPE jacket in according to ASTM-D1248 will be applied on corrugated steel tape. The nominal jacket thickness is 2mm.

FIG. (1)



4 - CABLE SIZES AND GENERAL DATAS

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

TABLE (5)

PARAMETERS	N2x6	N4x6	**N8x6**	**N12x6**	**N12x12**
Number of tubes	2	4	8	12	12
Fiber per tubes	6	6	6	6	12
Number of fibers	12	24	48	72	144
Central Strength Member(mm)	2.5	2.5	2.5	3	3
Pulling tension (N)*	2800	2800	3000	3500	3500
Overall diameter (mm)	17	17	19	22	24
Weight (Kg/km)	260	265	318	427	508

* Note: The pulling tension may be increased as an option by using the messenger with higher diameter .

5 - Mechanical and Functional tests

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

TABLE (6)

ITEM	CONDITIOND	REFERENCE
WATER PENETRATION	1 m Length / 1 m height / 1 hours no drop	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 3000 N (As technical spec)	EIA/TIA 455-33
TWIST	2 m length / 10 cycles of mechanical twisting	EIA/TIA 455-85
LOW OR HIGH TEMPRATURE BEND	sheave diameter 20 times the cable diameter / 4 full turns / 4 hours / at temperatures -30°c & +60°c	EIA/TIA 455-37
KNOT	10 kg weight / in cross sectional diameter of the knot	EIA/TIA 455-87
TEMPRATURE 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

Note:
The change in attenuation will not exceed 0.05 dB at 1550 nm.