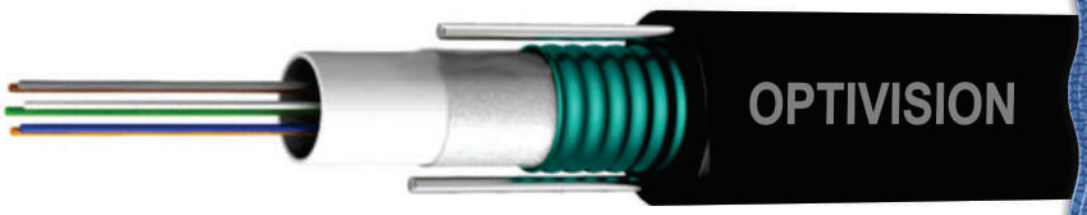
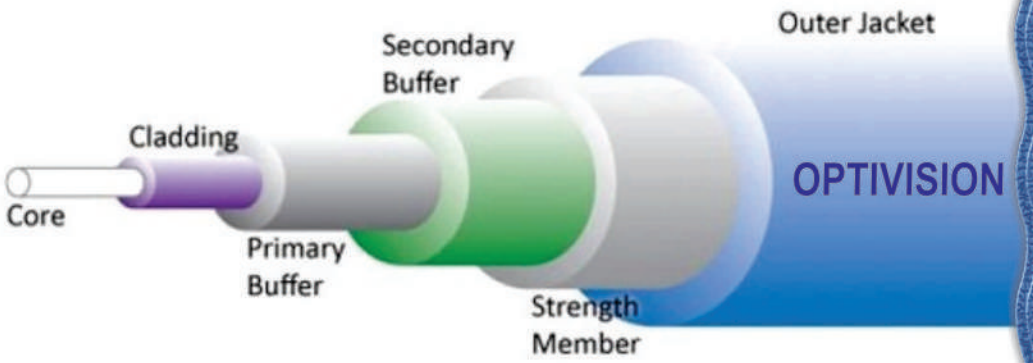
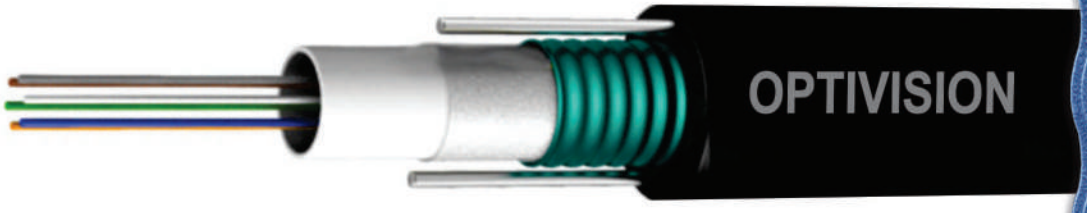
OptiVision®

Expanding Digital Technologies

OPTICAL FIBER CABLES







Performance Plus QUALITY HIGH TESTED

BEST PRODUCTS

UNIQUE DESIGN LATEST TECHNOLOGY

UNIQUE NETWORKING

TARGETED SOLUTION

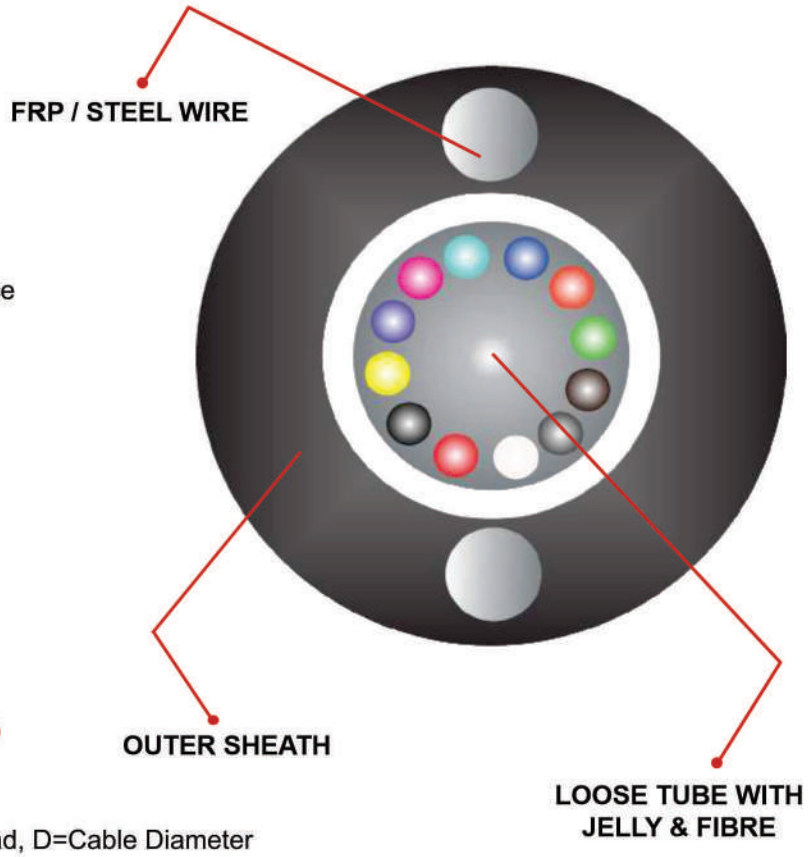
TECHNOLOGY PLATFORM

State-of-the-art

OUTDOOR CABLES (2-12F)

Applicatons

Inside Duct, Pulled or Blown
For CATV applicaton, aerial applicaton
along with messenger wire



Cable Construction

Up to 12 low water peak single mode fibres in compliance with ITU-T-G.652D
Metallic / Non metallic rod used as strength member embedded in sheath
Loose buffer tubes jelly filled and centrally placed in the cable
UV stabilized PE outer sheath, black

Mechanical Characteristics

Temperature Range	(IEC 60794-1-2-F1)
Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	20D, D=Cable Diameter
Installed	15D, D=Cable Diameter
Repeated Bending (IEC 60794-1-2-E6)	30 Cycle, r=20D, 5 Kg,Load, D=Cable Diameter

Tensile Force (IEC 60794-1-2-E1)

During Installation	800 N
Installed	500 N
Torsion Resistance (IEC 60794-1-2-E7)	10 Cycle (± 360°) 5 Kg weight, L=1 Mtr
Crush Resistance (IEC 60794-1-2-E3)	500 N (100 X 100 mm) for 60 sec
Kink Resistance (IEC 60794-1-2-E10)	15D, D=Cable Diameter
Water Penetration (IEC 60794-1-2-F5B)	1 Mtr Water Head,3 Mtr Cable Sample, 24 Hours

Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC~LSZH, and HOPE**
***Strength member can be Steel or FRP**
***These are general characteristics; customized designs are available as per requirements**

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
2 to 12	5.8	30	800	500

OUTDOOR CABLES (2-144 F)

Applicatons

Inside Duct, Pulled or Blown

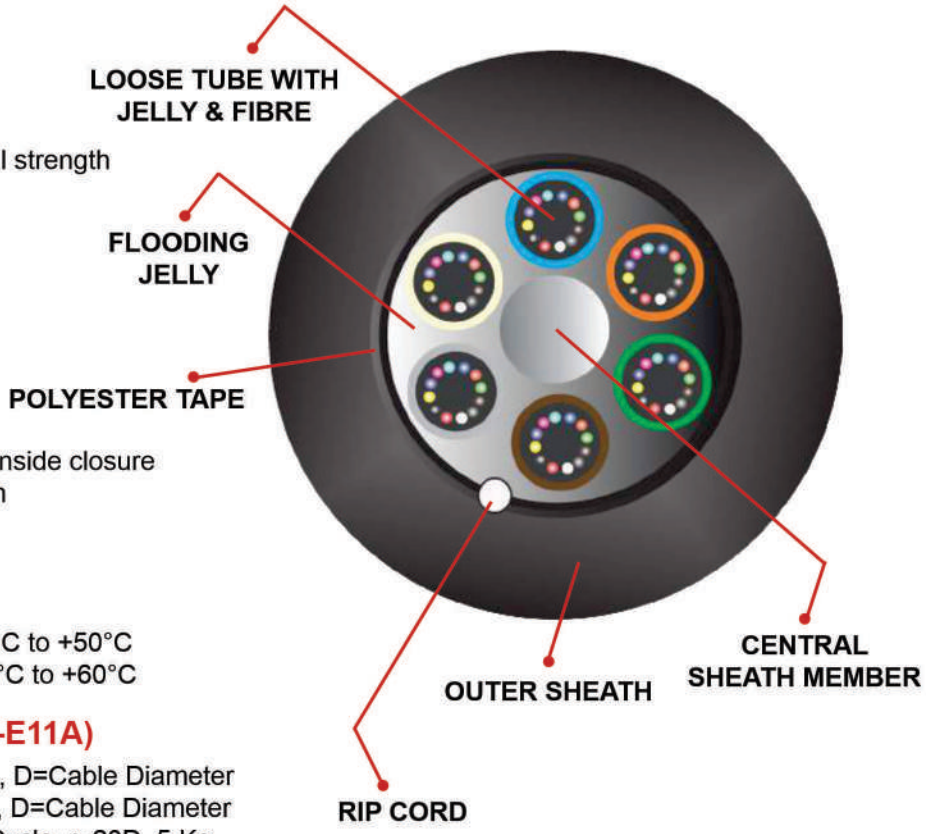
Cable Construction

Up to 144 low water peak single mode
fibres in compliance with ITU-T-G.652D
Metallic / Non metallic element used as central strength
Member for Tensile Strength
Loose buffer tubes jelly filled
Loose buffer tubes S-Z Stranded
Cable core filled with jelly
S-Z core wrapped with polyester tape
UV stabilized PE outer sheath, black

Special Features

Flexible buffer tubes provide easy ber routing inside closure
Lighter weight cable for fast and easy installation

Multi-tube Single Sheath Unarmoured Cable
Multi Loose Tube Design



Mechanical Characteristics

Temperature Range (IEC 60794-1-2-F1)	
Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	20D, D=Cable Diameter
Installed	15D, D=Cable Diameter
Repeated Bending (IEC 60794-1-2-E6)	30 Cycle, r=20D, 5 Kg Load, D=Cable Diameter

Tensile Force (IEC 60794-1-2-E1)

During Installation	1800 N
Installed	1000 N
Torsion Resistance (IEC 60794-1-2-E7)	10 Cycle (± 360°) 5 Kg,Weight, L=1 Mtr
Crush Resistance (IEC 60794-1-2-E3)	1800 N (100 X 100 mm)for 60 sec
Kink Resistance (IEC 60794-1-2-E10)	10D, D=Cable Diameter

Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC, LSZH, and HDPE**
***Strength member can be Steel or FRP**
***These are general characteristics; customized designs are available as per requirements**

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
Upto 72	10.0	85	1800	1000
96	12.0	115	1800	1000
144	15.0	180	1800	1000

Outdoor Cables (2-144 F)

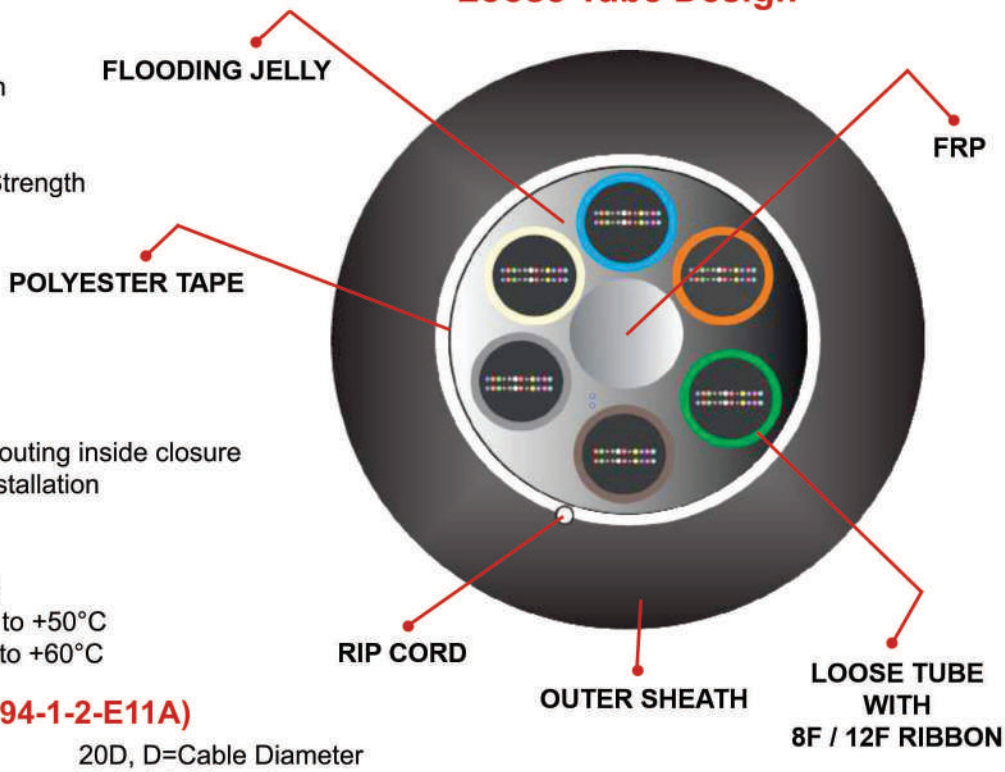
Applicatons

Inside Duct, Pulled or Blown

Cable Construction

288 low water peak single mode fibres in
compliance with ITU-T-G.652D
Metallic / Non metallic element used
as central strength member for Tensile Strength
Loose buffer tubes jelly filled
Loose buffer tubes S-Z Stranded
Cable core filled with jelly
S-Z core wrapped with polyester tape
UV stabilized PE outer sheath, black

Ribbon Type Unarmoured Cable Multi Loose Tube Design



Special Features

Flexible buffer tubes provide easy fibre routing inside closure
Lighter weight cable for fast and easy installation

Mechanical Characteristics

Temperature Range (IEC 60794-1-2-F1)	
Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	20D, D=Cable Diameter
Installed 15D,	D=Cable Diameter
Repeated Bending	30 Cycle, r=20D, 5 Kg
(IEC 60794-1-2-E6)	Load, D=Cable Diameter

Tensile Force (IEC 60794-1-2-E1)

During Installation	3000 N
Installed	1500 N
Torsion Resistance (IEC 60794-1-2-E7)	10 Cycle (± 360°) 5 Kg,weight, L=1 Mtr
Crush Resistance (IEC 60794-1-2-E3)	1500 N (100 X 100 mm) for 60 sec
Kink Resistance (IEC 60794-1-2-E10)	15D, D=Cable Diameter
Water Penetration (IEC 60794-1-2-F5B)	1 Mtr Water Head,3 Mtr Cable Sample, 24 Hours

Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC, LSZH, and HDPE**
***Strength member can be Steel or FRP**
***These are general characteristics; customized designs are available as per requirements**

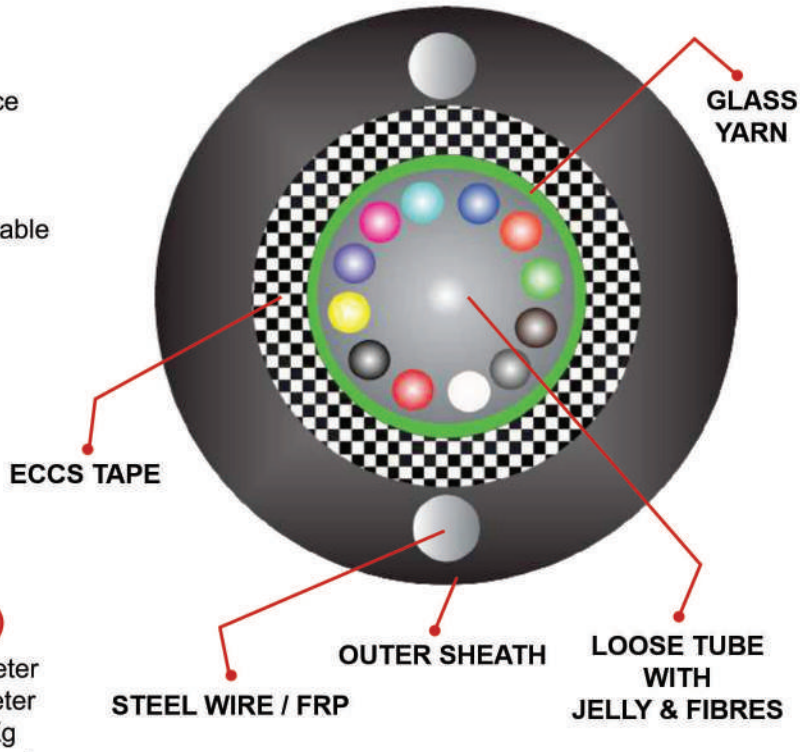
Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
96	17.0	250	3000	1500
288	18.5	330	3000	1500

Outdoor Cables (2-12 F)

Applicatons

Inside Duct, Pulled or Blown
In areas where high mechanical load is required
In areas where rodent attack is there

Uni Tube Unarmoured Cable Design



Cable Construction

Up to 12 low water peak single mode fibres in compliance with ITU-T-G.652D
Metallic / Anti buckling element steel wires are used as Peripheral Strength Member
Loose buffer tube jelly filled and centrally placed in the cable
UV stabilized PE outer sheath, black

Special Features

Lighter weight cable for fast and easy installation
Robust Construction

Mechanical Characteristics

Temperature Range (IEC 60794-1-2-F1)	
Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	20D, D=Cable Diameter
Installed	15D, D=Cable Diameter
Repeated Bending (IEC 60794-1-2-E6)	30 Cycle, r=20D, 5 Kg Load, D=Cable Diameter

Tensile Force (IEC 60794-1-2-E1)

During Installation	1800 N
Installed	1000 N
Torsion Resistance (IEC 60794-1-2-E7)	10 Cycle (± 360°) 5 Kg, weight, L=1 Mtr
Crush Resistance (IEC 60794-1-2-E3)	1000 N (100 X 100 mm), for 60 sec
Kink Resistance (IEC 60794-1-2-E10)	10D, D=Cable Diameter
Water Penetration (IEC 60794-1-2-F5B)	1 Mtr Water Head, 3 Mtr Cable Sample, 24 Hours

Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC, LSZH, and HDPE**
***Strength member can be Steel or FRP**

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
Upto 12	8.5	70	1800	1000

Outdoor Cables (2-144 F)

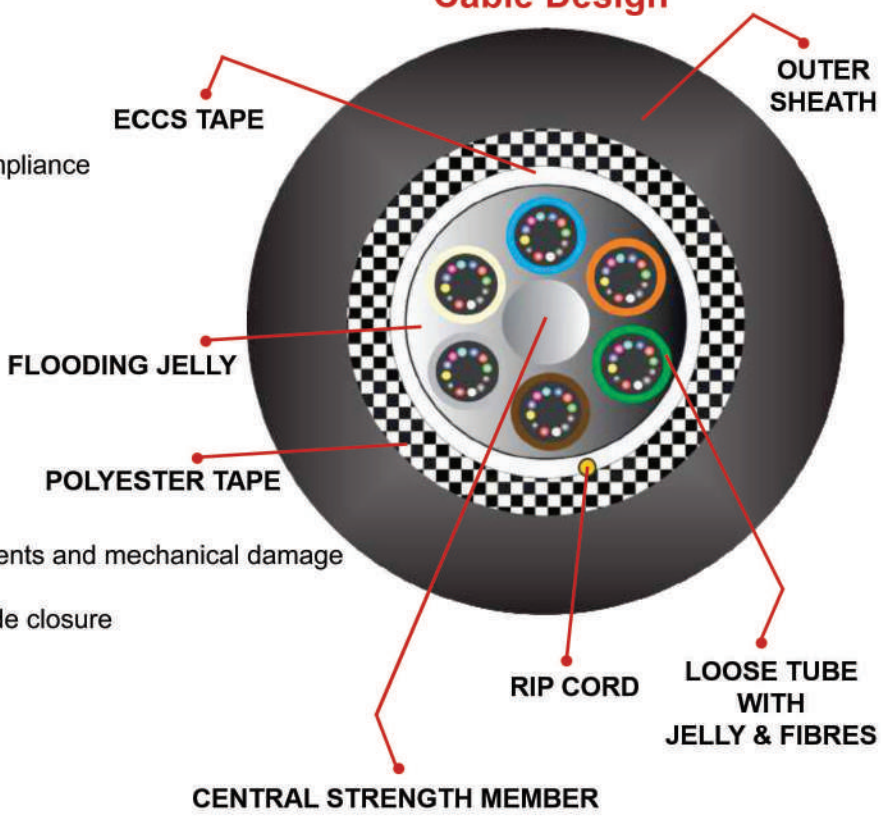
Applicatons

Direct Buried / Inside Duct
In areas where high mechanical load is required
In areas where rodent attack is there

Cable Construction

Up to 144 low water peak single mode fibres in compliance with ITU-T-G.652D
Non metallic and anti buckling element FRP rod used as Central Strength Member
Loose bu□er tubes jelly filled
Loose bu□er tubes S-Z Stranded
Cable core filled with jelly
S-Z core wrapped with polyester tape
ECCS Tape Armouring (Corrugated)
UV stabilized PE outer sheath, black

Multi-tube Single Sheath Armoured Cable Design



Special Features

Corrugated steel tape act as protection against rodents and mechanical damage
Robust construction
Flexible buffer tubes provide easy fibre routing inside closure

Mechanical Characteristics

Temperature Range (IEC 60794-1-2-F1)	
Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	20D, D=Cable Diameter
Installed 15D,	D=Cable Diameter
Repeated Bending (IEC 60794-1-2-E6)	30 Cycle, r=20D, 5 Kg Load, D=Cable Diameter

Tensile Force (IEC 60794-1-2-E1)

During Installation	2700 N
Installed	1500 N
Torsion Resistance (IEC 60794-1-2-E7)	10 Cycle (± 360°) 5 Kg, weight, L=1 Mtr
Crush Resistance (IEC 60794-1-2-E3)	1800 N (100 X 100 mm),for 60 sec
Kink Resistance (IEC 60794-1-2-E10)	10D, D=Cable Diameter
Water Penetration (IEC 60794-1-2-F5B)	1 Mtr Water Head, 3 Mtr Cable Sample, 24 Hours

Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC, LSZH, and HDPE**
***Strength member can be Steel or FRP**
***These are general characteristics; customized designs are available as per requirements**

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
Upto 72	11.5	125	2700	1500
96	13.5	170	2700	1500
144	16.5	250	2700	1500

Outdoor Cables (2-144 F)

Applicatons

Direct buried / Inside Duct
In areas where high mechanical load is required
In areas where rodent attack is there

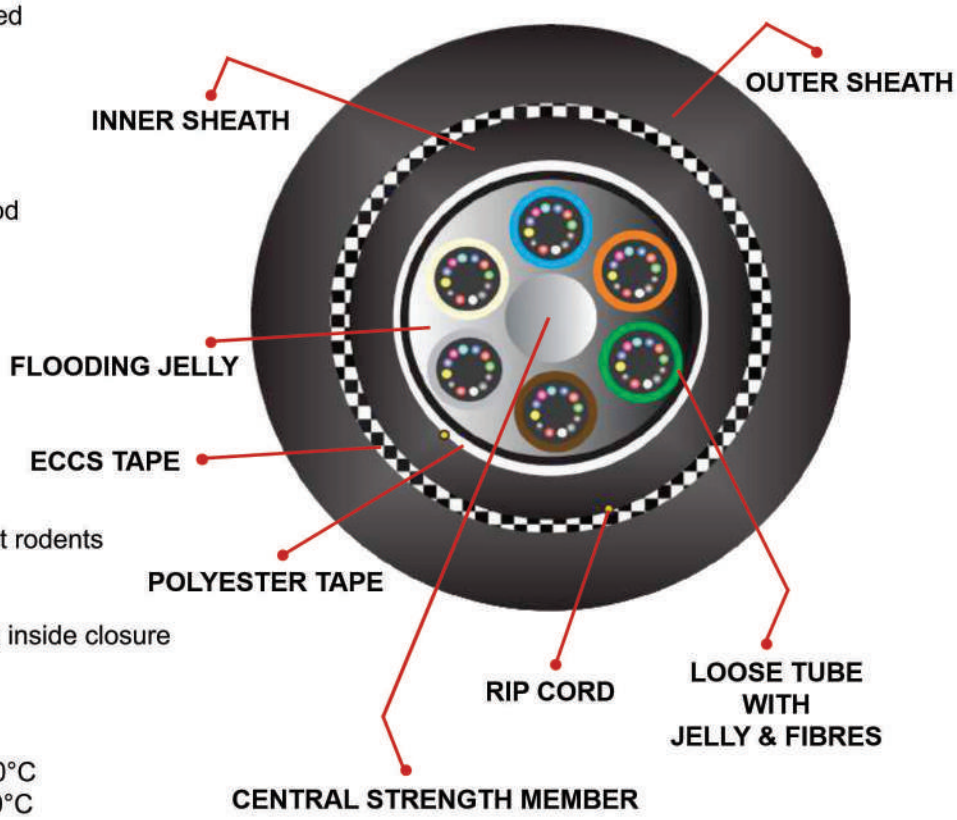
Cable Construction

Up to 144 low water peak single mode fibres
in compliance with ITU-T-G.652D
Non metallic and anti buckling element FRP rod
used as Central Strength Member
Loose bu□er tubes jelly filled
Loose bu□er tubes S-Z Stranded
Cable core filled with jelly
S-Z core wrapped with polyester tape
ECCS Tape Armouring (Corrugated)
UV stabilized PE Inner & outer sheath, black

Special Features

Corrugated steel tape act as protection against rodents
and mechanical damage
Robust construction
Flexible buffer tubes provide easy fibre routing inside closure

Multi-tube Double Sheath Armoured Cable Design



Mechanical Characteristics

Temperature Range (IEC 60794-1-2-F1)	
Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	20D, D=Cable Diameter
Installed	15D,D=Cable Diameter
Repeated Bending (IEC 60794-1-2-E6)	30 Cycle, r=20D, 5 Kg Load, D=Cable Diameter

Tensile Force (IEC 60794-1-2-E1)

During Installation	3500 N
Installed	2000 N
Torsion Resistance (IEC 60794-1-2-E7)	10 Cycle (± 360°) 5 Kg, weight, L=1 Mtr
Crush Resistance (IEC 60794-1-2-E3)	1800 N (100 X 100 mm), for 60 sec
Kink Resistance (IEC 60794-1-2-E10)	10D, D=Cable Diameter
Water Penetration (IEC 60794-1-2-F5B)	1 Mtr Water Head, 3 Mtr Cable Sample, 24 Hours

Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC, Nylon, LSZH, and HDPE**
***Strength member can be Steel or FRP**
***These are general characteristics; customized designs are available as per requirements**

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
Upto 48	14.0	180	2700	1500
96	15.5	220	2700	1500
144	19.0	300	2700	1500

Outdoor Cables (2-144 F)

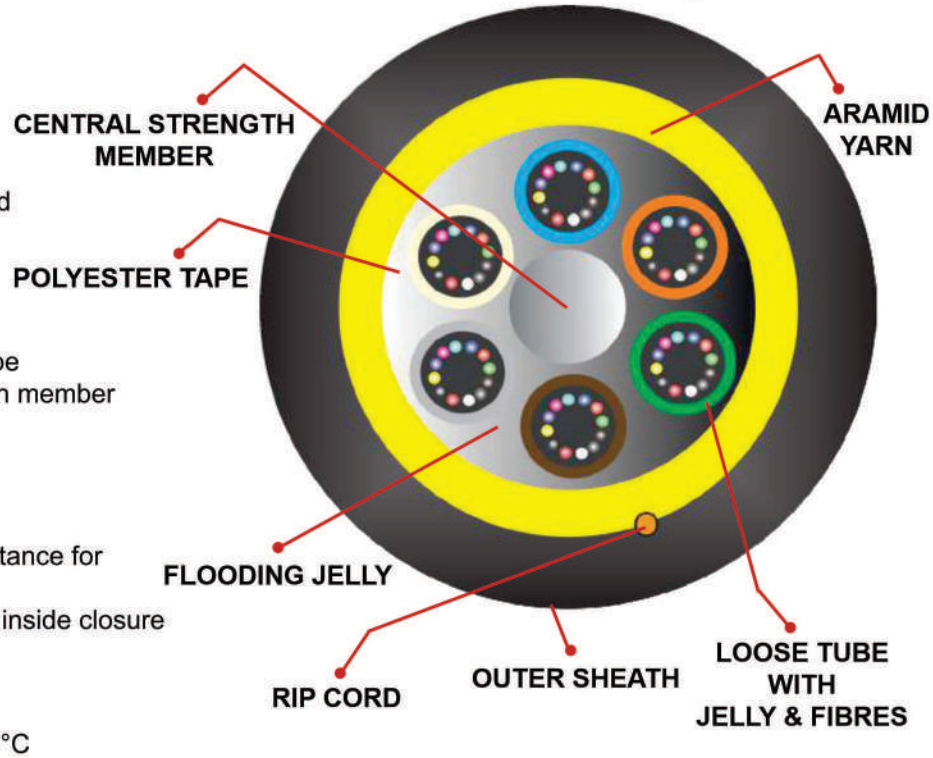
Applicatons

Self supporting aerial installation with rigorous load conditions Including heavy wind & ice
Suitable for span length of 100 mtrs

Cable Construction

Up to 144 low water peak single mode fibres in compliance with ITU-T-G.652D
Non metallic and anti buckling element FRP rod used as Central Strength Member
Loose buffer tubes jelly filled
Loose buffer tubes S-Z Stranded
Cable core filled with jelly / WS Yarn
S-Z core wrapped with polyester tape / WS Tape
High modulus, aramid yarns peripheral strength member
UV stabilized outer sheath, black

All Dielectric Self Supporting Cable Multi Loose Tube Design



Special Features

Single layer stranded construction
Offers exceptional strength and corrosion resistance for Aerial application
Flexible buffer tubes provide easy fibre routing inside closure

Mechanical Characteristics

Temperature Range (IEC 60794-1-2-F1)	
Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	20D, D=Cable Diameter
Installed	15D, D=Cable Diameter
Repeated Bending (IEC 60794-1-2-E6)	30 Cycle, r=20D, 5 Kg Load, D=Cable Diameter

Tensile Force (IEC 60794-1-2-E1)

During Installation	5W * 9.81 N
Installed	2W * 9.81 N
Torsion Resistance (IEC 60794-1-2-E7)	10 Cycle (± 360°) 5 Kg, weight, L=1 Mtr
Crush Resistance (IEC 60794-1-2-E3)	2000 N (100 X 100 mm), for 60 sec
Kink Resistance (IEC 60794-1-2-E10)	20D, D=Cable Diameter
Water Penetration (IEC 60794-1-2-F5B)	1 Mtr Water Head, 3 Mtr Cable Sample, 24 Hours

Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC, LSZH, and HDPE**
***Cable construction can be jelly filled or dry core**
***Strength member can be Steel or FRP**
***These are general characteristics; customized designs are available as per requirements**

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
Upto 48	12.5	135	4000	2000
96	15.0	180	4000	2000
144	18.0	250	4000	2000

Outdoor Cables (2-144 F)

Applicatons

Lashed aerial installation with rigorous load conditions
Including heavy wind & ice
Suitable for span length of 100 mtrs

Cable Construction

Up to 144 low water peak single mode fibres
in compliance with ITU-T-G.652D
Non metallic and anti buckling element FRP rod
used as Central Strength Member
Loose buffer tubes jelly filled
Loose buffer tubes S-Z Stranded
Cable core filled with jelly / WS Yarn
S-Z core wrapped with polyester tape / WS Tape
High tensile, stranded steel wire used as messenger
UV stabilized outer sheath, black

Special Features

Single layer stranded construction
Offers exceptional strength and corrosion resistance for
Aerial application with high tensile messenger
Flexible buffer tubes provide easy fibre routing inside closure

Mechanical Characteristics

Temperature Range (IEC 60794-1-2-F1)	
Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

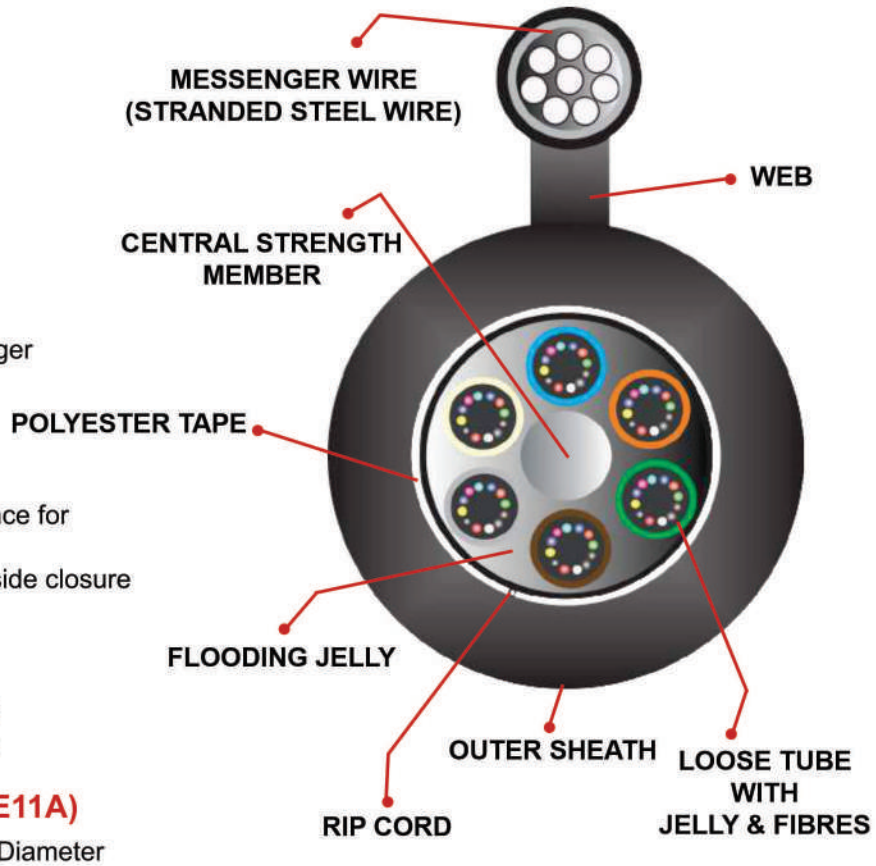
Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	20D, D=Cable Diameter
Installed	15D, D=Cable Diameter
Repeated Bending (IEC 60794-1-2-E6)	30 Cycle, r=20D, 5 Kg Load, D=Cable Diameter

Tensile Force (IEC 60794-1-2-E1)

During Installation	5W * 9.81 N
Installed	2W * 9.81 N
Torsion Resistance (IEC 60794-1-2-E7)	10 Cycle (± 360°) 5 Kg, weight, L=1 Mtr
Crush Resistance (IEC 60794-1-2-E3)	2000 N (100 X 100 mm), for 60 sec
Kink Resistance (IEC 60794-1-2-E10)	20D, D=Cable Diameter
Water Penetration (IEC 60794-1-2-F5B)	1 Mtr Water Head, 3 Mtr Cable Sample, 24 Hours

Self Supporting Aerial Cable Multi Loose Tube Design



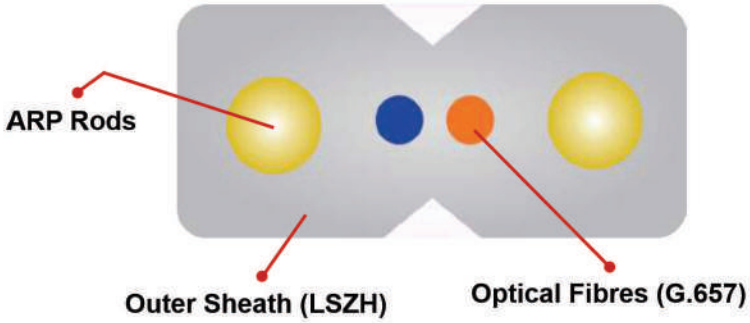
Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC, LSZH, and HDPE**
***Cable construction can be jelly filled or dry core**

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
Upto 48	11.0	135	5000	2500
96	12.5	180	5000	2500
144	15.5	250	5000	2500

FTTH Cable (2F)

Applicatons

Low bending cable suitable for Indoor application



Cable Construction

Primary coated fibre – G.657
Strength Member – ARP Rods
Sheath – White LSZH Loose bu□er tubes S-Z Stranded

Variants*
****Strength member can be Steel or FRP**
***These are general characteristics; customized designs are available as per requirements**

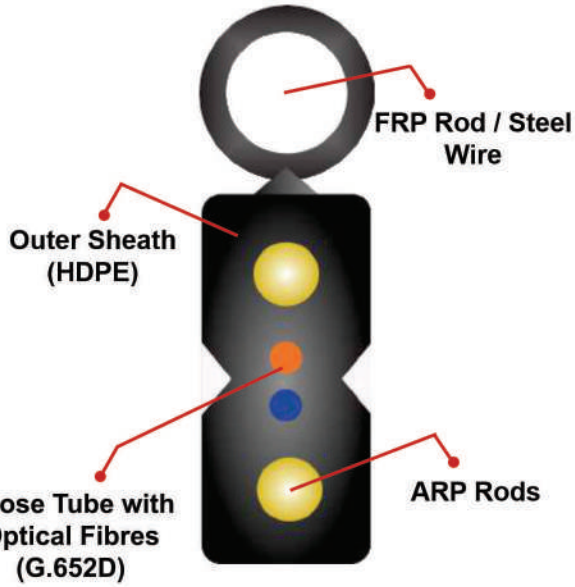
Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
1 to 2 F	3.2 * 2.1	20	150	100

Suitable for Outdoor Application

Drop Cable (2 to 6F)

Applicatons

Drop cable suitable for outdoor application
Suitable for introducing fibre into the building



Cable Design

2, 4, 6 No of Single Mode Fibre – G.652D
Strength Member – ARP Rods
UV Stabilized HDPE Sheath, black
Supporting FRP Rod / Steel WIre

Mechanical Characteristics

Temperature Range (IEC 60794-1-2-F1)

Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	20D, D=Cable Diameter
Installed	15D, D=Cable Diameter

Tensile Force (IEC 60794-1-2-E1)

Installed	500 N
During Installation	1000 N

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
2 to 6 F	6.8 * 3.0	20	1000	500

Outdoor FO Cable (2-8 F)

Applicatons

Indoor or Outdoor
Military or civil applications
Rapid Deployment in harsh conditions

Cable Construction

Up to 8 fibres, Single Mode or Multimode fibres
Gel-filled stainless steel loose tube, centrally placed in the cable
Armouring & strain relief made of stainless steel wires
Outer Sheath is of Polyamide with extra abrasion resistnce

Special Features

Lighter weight cable for fast and easy installation
Robust Construction
Rodent Proof
High crush resistance

Temperature Range

Laying & Installation	-50°C to +70°C
Operation	-40°C to +60°C

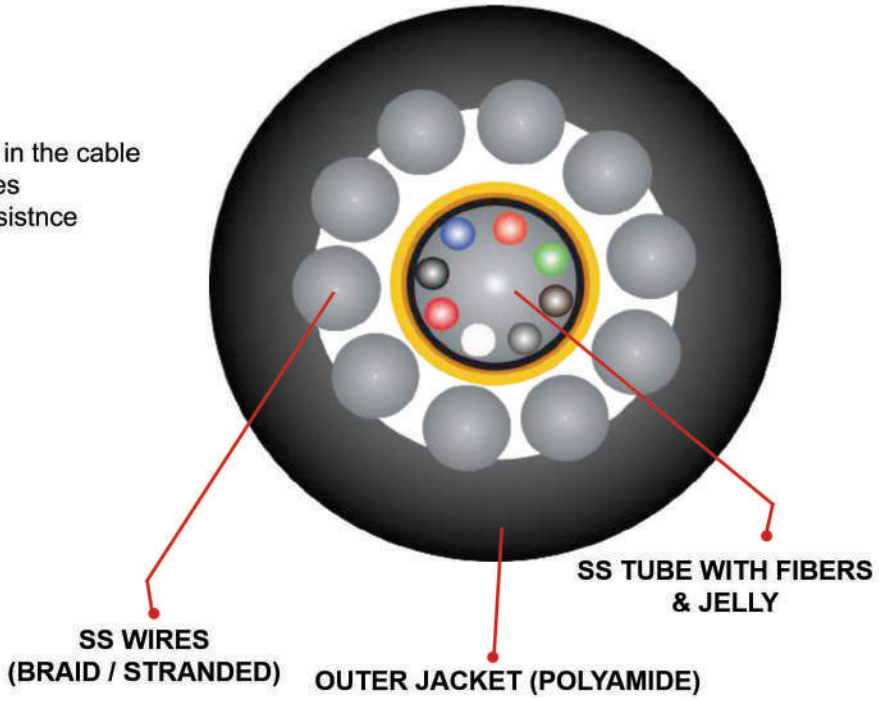
Mechanical Characteristics

Tensile Force	
During Installation	1800 N
Installed	1100 N
Crush Resistance	1000 N (100 X 100 mm)

Min Bending Radius

Permanent	10*D, D=Cable Diameter
Installed	15*D, D=Cable Diameter

Stainless Steel Loose Tube with Stainless Steel Wire Armouring Cable



Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC, Nylon, PU, LSZH, and HDPE **These are general characteristics; customized designs are available as per requirements**
****These are general characteristics; customized designs are available as per requirements**

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
Upto 8	4.0	28	1000	800

Tactical Cable (2-12 F)

Applicatons

Suitable for Aerial, Pipeline Intra Building Backbones & Installation inharsh environment for Distribution

Cable Construction

Tight Bu□ered Fiber without jelly compound

Special Features

Light weight cable for fast and easy installation

Mechanical Characteristics

Temperature Range (IEC 60794-1-2-F1)

Laying & Installation	-10°C to +50°C
Operation	-20°C to +60°C

Cable Bending Radius (IEC 60794-1-2-E11A)

During Installation	25D, D=Cable Diameter
Installed	20D, D=Cable Diameter
Crush Resistance	1000 N

Tensile Force (IEC 60794-1-2-E1)

During Installation	1000 N
Installed	800 N

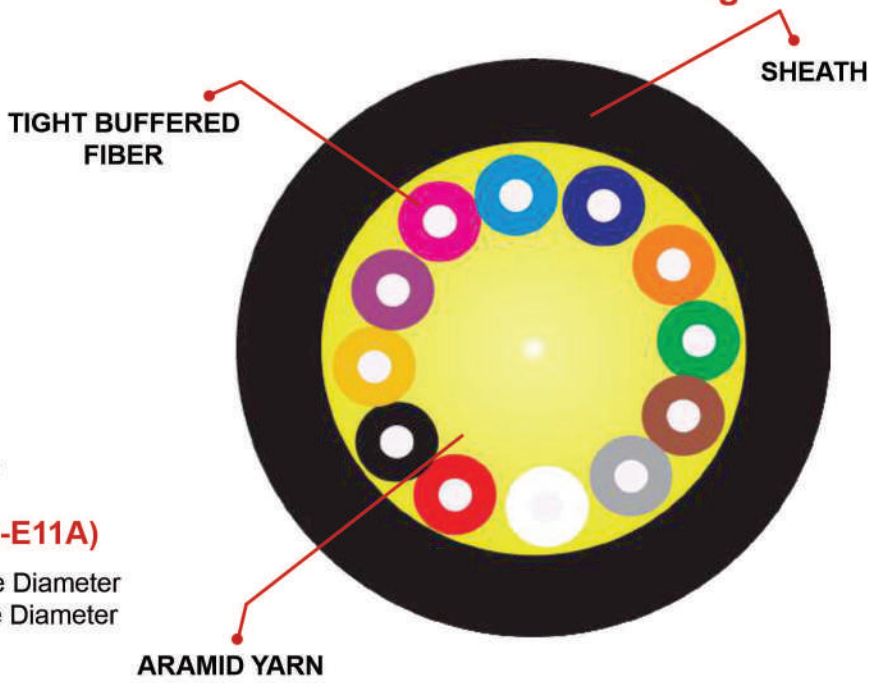
Drum Length

2000 / 3000 / 4000 meters ± 10%

Cable Sheath Marking

Cable sheath shall be marked in white color with hot indentation method. Marking details can be customized. Below mentioned details are generally marked on the cable sheath.
Drum Number, Telephone Symbol, Laser Symbol, Number of Fibers, Month & Year of Manufacturing , Manafacturer's Name Sequential Length Marking

Single Tube Unarmoured Cable
Central Loose Tube Design



Cable Drum Packing

Every lenght will be delivered on non-returnable wodden drums. Generally the cable drum flange will be marked with following.
Arrow showing rolling direction of drum.
Manufacturer's name
Number of fibers
Cable lenght in meters
Drum Number
Net & gross weight
Customer's name & destination

Both ends of the cable shall be sealed to prevent the ingress of moisture during transportation & storage, physical damage

Variants*
***Cable can be supplied with single mode (ITU-T-G652, G655, and G657) & Multimode (50µm & 62.5µm)**
***Outer Jacket can be of PVC, NYLON, LSZH, HDPE and PU**
***Cable construction can be jelly filled or dry core**
***Strength member can be Steel or FRP**
***These are general characteristics; customized designs are available as per requirements**

Fibre Count	Diameter (mm) (Nominal)	Weight (kg/km)	Tensile Strength Installation	Tensile Strength Installed
2 to 8	6.0	30	1000	800
12	8	40	1000	800

General Instructions

Drum Length
2000 meters ± 5%

Cable Sheath Marking
Cable sheath shall be marked in black colour with hot foil indentation / inkjet printing. Marking details can be customized. Below mentioned details are generally marked on the cable sheath.

Drum Number, Telephone Symbol, Laser Symbol, Number of Fibres, Cable Type, Manufacturer's Name, Year, Sequential Length Marking.

Cable Drum Packing
Every length will be delivered on non-returnable wooden drums. Generally the cable drum flange will be marked with following.

- Arrow showing rolling direction of the drum.
- Manufacturer's name
- Number of fibres
- Cable length in meters
- Drum Number
- Net & gross weight
- Customer's name & destination

Both ends of the cable shall be sealed to prevent the ingress of moisture during transportation and storage, physical damage.