For Faster Communication

OPTICAL FIBER CABLES & FRP RODS
Telephones | Internet | LAN - Local Area Network | WAN - Wide Area Network | CATV
Utilities - Management of Power Grid | Security – Closed Circuit
TV and Intrusion Sensors | Military - Everywhere
Polycab an ISO 9001:2008, ISO 14001:2004, OHSA 18001:2007 company is India's no. 1 Cables & Wires Company with a glorious track record of over 4 decades. Our manufacturing facilities at Halol (Vadodara), Daman, Nashik & Roorkee in India, addresses to the specific needs with state-of-the-art machinery and technology. Polycab’s turnover has crossed ₹ 4300 crores (US$ 716.6 million) in the fiscal year 2013-14 and is projected to cross ₹ 4800 crores (US$ 800 million) in fiscal year 2014-2015.

Polycab derives its strength from its customers and those being in sectors like Utilities, Power Generation, Transmission & Distribution, Petroleum & Oil Refineries, OEMs, EPC contractors, Steel & Metal, Cement, Chemical, Atomic Energy, Nuclear Plants, as well as Government partners like BSNL, Railways and Private Telecom Operators like Reliance, Vodafone, Airtel, Aircel, Tata, Idea and many more.

THINGS YOU DIDN'T KNOW ABOUT POLYCB

Between its facilities in Daman, Halol (Vadodara), Nashik and Roorkee the company has 3.5 million square feet of manufacturing space.

Polycab manufactures enough cables each year to circumnavigate the earth three and a half times and enough wire to go to the moon and come back- four times.

Polycab has increased its turnover 100 times in sixteen years.

Over 300 Authorised distributors service its India needs and its overseas interests.

Chairman’s Message

The journey of over four decades would not have been as exciting and fulfilling without the unconditional support of all our customers & our sales partners, I would like to express our deep gratitude to you, as you have made Polycab one of the outstanding companies in our industry.

The advent of the second millennium has brought in its wake a transformation in the mind-set of the customers. The expectation of customer has risen exponentially. This trend is here to stay and we have to gear up towards keeping our customers totally satisfied.

Despite our rapid growth and elevation to the leadership position in the industry, the simplicity in Polycab’s flexibility and openness to new market trends and changing technology continue to be our driving force. The core values of, simplicity, team work, trust amongst people, customer focus and meeting commitments have given us a unique position and respectability among the Indian industry.

Gearing up for the future and to keep winning in tomorrow’s world, we have a well recognized market presence with a strong product & portfolio, streamlined and efficient manufacturing capabilities to withstand the winds of change. But we will need to be even more proactive, agile and customer centric. We will need to anticipate the future and be ready with solutions, even before the customer asks for them.

There are many new challenges the cable industry is facing with new market opportunities and product developments. Due to thrust in renewable energy sector, we have enthusiastically achieved success towards developing and delivering products for this segment and at the same time ensured to be internationally competitive.

Polycab’s business model is evolving. We are enhancing our key internal operations to ensure a consistent and positive experience for our customers. Our business processes will begin and end with the customers. We have identified focus areas of growth over the next 5 years and beyond. Polycab aspires to be a Rs.10000+ crore company within the next 4-5 years.

We take this opportunity to thank you and convey our gratitude for the unabated support and trust you have always reposed on Polycab and encouraged it to move ahead confidently. We are confident that this will keep us ahead in our constant endeavour to be the preferred brand.

We hope to improve each day to serve you better.

HAPPY CABLING!!!

INDER T. JAISINGHANI
Chairman & Managing Director
“A customer is the most important visitor on our premises. He is not dependent on us. We are dependent on him. He is not an interruption in our works. He is the purpose of it. He is not an outsider in our business. He is part of it. We are not doing him a favor by serving him he is doing us a favor by giving us an opportunity to do so.”
- Mahatma Gandhi

VISION

“Our vision is to improve the quality of life and bring greater happiness to our customers. We will do so through reliable, safe sustainable and best in class products and services, while enhancing stake holder value continuously.”

CORE VALUES

Trust | Teamwork | Customer Delight | Action
Commitment | Excellence | Sustainability

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What is Optical Fiber?

Optical Fiber is a unique transmission medium. It has some unique advantages over conventional communication media such as copper wire, microwave or co-axial cables. The major advantage is its high transmission capacity i.e. optical fiber can carry information at higher data rates over very long distance. Since fibers are made of a dielectric material, they are immune to radiated and conducted interference. It is nearly impossible to tap an optical fiber; therefore optical fiber transmission is very secure. Optic fiber is small and light weight which is an evident issue whenever weight and bulk are a practical concern. Fiber Optics is the least expensive, most reliable method for high speed and/or long distance communications. The medium used in Fiber optic transmission is glass or plastic. Optical fiber can be seen as dielectric circular medium with a core and cladding. The core has a slightly higher index of refraction and light is guided by total internal reflection at the boundary between core and cladding. Fiber Optics is the communications medium that works by sending optical signals down hair-thin strands of extremely pure glass or plastic fiber. The light is “guided” down the center of the fiber called the “core”.

The core is surrounded by an optical material called the “cladding” that traps the light in the core using an optical technique called “total internal reflection.” The fiber itself is coated by a “buffer” as it is made to protect the fiber from moisture and physical damage. The buffer is what one strips off the fiber for termination or splicing. The carrier of information signal is light. Light is an electromagnetic radiation. It can be viewed either as photons or waves and travels at the speed of 3,00,000 kms/sec. Both view points are valid and valuable. The term ‘light’ is commonly used to refer to visible light that occupies a tiny portion of the electromagnetic spectrum from 391 to 770 nm. However, because of the transmission properties of optic fibers, light wave systems use radiation with wavelengths ranging from approximately 800 to 1600 nm. These wavelengths belong to the Infrared Ray (IR) portion of the electromagnetic spectrum, but the term light wave is commonly used when referring to them.

The light wave used as carrier in optical transmission systems is an electromagnetic wave with a wavelength around 1 μm and oscillation frequency of about 300 Hz. The typical fiber optic wavelengths are 850 nm, 1310 nm & 1550 nm; all being located in the near infrared range of the electromagnetic spectrum. These 3 wavelengths result from the attenuation characteristics of glass as well as from the availability of semiconductor type sources and receivers. They are referred to as the three wavelength windows in fiber.

Applications:
- LAN: Local Area Network & Fiber To The Home (FTTH)
- CATV: for video, voice and internet connections
- Utilities: Management of power grid
- Security: closed circuit TV and intrusion sensors
- Military: everywhere

Manufacturing Process

Colouring

The fibers are coloured as per the requirement of the customers. The standard colours are Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Pink and Aqua as per Munsell colour standards.

Buffering

The individually coloured fibers are buffered into loose tube according to the cable design.

Stranding

The loose tube stranded to form the core around a strength member which is usually made of fiber reinforced plastic rod in a S/Z pattern to avoid strain on fiber. The core is wrapped by a non-hygroscopic polyester tape, which acts as a moisture barrier.

Sheathing / Jacketing

The core is sheathed or armoured according to the cable design and specifications. The cable is finally sheathed or jacketed as per the customer specification. The sheathing is usually of black HDPE in case of Direct/Duct buried cable and also be of Nylon PA-12 in specific cases.

Manufacturing Process
**Duct/Unarmoured Cables**

**UNI-TUBE UNARMOURED CABLE (2F-24F)**

**APPLICATIONS & FEATURES**
- Suitable for duct installation
- Used for CATV and other networks
- Light in weight
- Small cable diameter
- Ease of installation
- Available up to 24 fibers

**FIBER TRANSMISSION PERFORMANCE**

<table>
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<tr>
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**CONSTRUCTION DIAGRAM OF 24 FIBERS**

**CONSTRUCTION DETAILS**
- Non metallic, anti-buckling FRP Rod as strength member embedded in sheath
- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Outer sheath with UV Stabilized HDPE compound
- Fiber count 2F-24F (OM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

**INTERNATIONAL STANDARDS**

**COORDINATE LENGTH**
- 2000 meters ± 10% or as per customer’s requirement

**ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)**
- Operating Temperature: -30°C to + 70°C
- Storage Temperature: -30°C to + 70°C
- Installation Temperature: -20°C to + 70°C

**APPLICATIONS & FEATURES**
- Dry core construction (Galfrey/Composites fibers/Customized designs/Metallic CSM/Aramid or Glass Yarns/Rip Cord(s)/FR PVC/LSZH
- Suitable for blowing in ducts
- Suitable for installation alongside power lines
- Local Loop, metro, long-haul and broadband network
- Light Weight and flexible
- Available up to 144 Fibers

**FIBER COLOUR CODING**
- Pink
- Violet
- Yellow
- Black
- Red
- White
- Slate
- Green
- Orange
- Blue
- Natural

**MULTI-TUBE SINGLE SHEATH UNARMOURED CABLE (2F-144F)**

**APPLICATIONS & FEATURES**
- Suitable for blowing in ducts
- Suitable for installation alongside power lines
- Light Weight and flexible
- Available up to 144 Fibers

**FIBER COLOUR CODING**
- Blue
- Orange
- Green
- Brown
- Slate
- White
- Red
- Black
- Yellow
- Pink
- Aqua / Natural

**CONSTRUCTION DIAGRAM OF 24 FIBERS**

**CONSTRUCTION DETAILS**
- Non metallic, anti-buckling FRP Rod as central strength member (CSM)
- Loose tube containing coloured fibers and filled with thixotropic jelly
- Cable core fully filled with flooding jelly
- 0.2 Core wrapped with polyester tape
- Outer sheath with UV Stabilized HDPE compound
- Fiber count 2F-144F (OM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

**INTERNATIONAL STANDARDS**

**COORDINATE LENGTH**
- 2000 meters ± 10% or as per customer’s requirement

**ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)**
- Operating Temperature: -30°C to + 70°C
- Storage Temperature: -30°C to + 70°C
- Installation Temperature: -20°C to + 70°C

**APPLICATIONS & FEATURES**
- Non metallic, anti-buckling FRP Rod as strength member (CSM)
- Loose tube containing coloured fibers and filled with thixotropic jelly
- Cable core fully filled with flooding jelly
- 0.2 Core wrapped with polyester tape
- Outer sheath with UV Stabilized HDPE compound
- Fiber count 2F-144F (OM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

**FIBER COLOUR CODING**
- Pink
- Violet
- Yellow
- Black
- Red
- White
- Slate
- Green
- Orange
- Blue
- Natural

**MULTI-TUBE UNARMOURED CABLE (2F-24F)**

**APPLICATIONS & FEATURES**
- Suitable for duct installation
- Used for CATV and other networks
- Light in weight
- Small cable diameter
- Ease of installation
- Available up to 24 fibers

**FIBER TRANSMISSION PERFORMANCE**

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**CONSTRUCTION DIAGRAM OF 24 FIBERS**

**CONSTRUCTION DETAILS**
- Non metallic, anti-buckling FRP Rod as strength member embedded in sheath
- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Outer sheath with UV Stabilized HDPE compound
- Fiber count 2F-24F (OM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

**INTERNATIONAL STANDARDS**

**ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)**
- Operating Temperature: -20°C to + 70°C
- Storage Temperature: -30°C to + 70°C
- Installation Temperature: -20°C to + 70°C

**APPLICATIONS & FEATURES**
- Single mode launchable fibers
- Suitable for Local, metro, long haul and broadband network
- Light Weight and flexible
- Available up to 24 fibers
Duct/Unarmoured Cables

MULTI-TUBE DOUBLE SHEATH UNARMOURED CABLE (2F-144F)

APPLICATIONS & FEATURES
- Suitable for blowing in ducts
- Termina resistance
- Local loop, metro, long-haul and broadband network
- Light weight and flexible
- Available up to 144 fibers

INTERNATIONAL STANDARDS
- EN 187000; Telecordia GR-20 issue 3rd May, 2008

CONSTRUCTION DETAILS
- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Loose tube containing coloured fibers and filled with thixotropic jelly
- Cable core fully filled with flooding jelly
- S/2 Core wrapped with polyester tape
- Inner sheath with UV Stabilized HDPE compound
- Terminate nylon PA-12 outer sheath
- Fiber count 2F-144F (SM Fiber G.652D, G.655, G.657 and multimode)
- Dry core design
- S/Z Core wrapped with water blocking tape
- Outer Sheath with UV Stabilized HDPE compound
- Fiber count 192F-288F (SM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)
- Operating Temperature: -30°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -20°C to +70°C

DRUM LENGTH
- 2000 meters ± 10% or as per customer’s requirement

MULTI-TUBE DOUBLE LAYER SINGLE SHEATH UNARMOURED CABLE (192F-288F)

APPLICATIONS & FEATURES
- Suitable for blowing in ducts
- Suitable for installation alongside power lines
- Local loop, metro, long-haul and broadband network
- Double layer S/Z stranded

INTERNATIONAL STANDARDS
- EN 187000; Telecordia GR-20 issue 3rd May, 2008

CONSTRUCTION DETAILS
- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Loose tube containing coloured fibers and filled with thixotropic jelly
- Dry core design
- S/Z Core wrapped with water blocking tape
- Outer Sheath with UV Stabilized HDPE compound
- Fiber count 192F-288F (SM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)
- Operating Temperature: -30°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -20°C to +70°C

DRUM LENGTH
- 2000 meters ± 10% or as per customer’s requirement

FIBER TRANSMISSION PERFORMANCE
- Parameters
- Multimode
- Single Mode
- Fiber Core Diameter (µm)
- 62.5
- 50
- 50
- 9
- Fiber Category
- OM1
- OM2
- OM3
- OM4
- 0.6520
- Wavelength (nm)
- 850/1300
- 850/1300
- 850/1300
- 850/1300
- 1310/1550/1625
- Maximum Attenuation (dB/km)
- 3.4/1.0
- 3.0/1.0
- 3.0/1.0
- 3.0/1.0
- 0.36/0.23/0.26
- Bandwidth (MHz.km) 850/1300
- 200/500
- 500/500
- 1500/500
- 3500/500
- N/A

COLOUR CODING
- FIBER & TUBE
- BLUE
- ORANGE
- GREEN
- BROWN
- SLATE
- WHITE
- RED
- BLACK
- YELLOW
- PINK
- AQUA / NATURAL

COLOUR CODING
- FIBER & TUBE
- BLUE
- ORANGE
- GREEN
- BROWN
- SLATE
- WHITE
- RED
- BLACK
- YELLOW
- PINK
- AQUA / NATURAL

* Tube colour coding :- Blue (Marker), Orange (Tracer), remaining are natural tubes.
**Duct/Unarmoured Cables**

**MULTI-TUBE DOUBLE SHEATH RIBBON TYPE UNARMOURED CABLE (48F-576F)**

**APPLICATIONS & FEATURES**
- Suitable for blowing in ducts
- Termite resistance
- Local loop, metro, long-haul and broadband network
- Available upto 576 fibers

**TECHNICAL DATA**

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**CONSTRUCTION DETAILS**
- Non-metallic, anti-buckling FRP not as Central Strength Member (CSM)
- Loose tube containing ribbon fibers and filled with thixotropic jelly
- Cable core fully filled with flooding jelly
- 5/2 core wrapped with polyester tape
- Inner sheath with UV Stabilized HDPE compound
- Termite resistance nylon PA-12 orange outer sheath
- Inner sheath with UV Stabilized HDPE compound

**ENFORCEMENT CONDITIONS (IEC 60794-1-2-F1)**
- Operating Temperature: -20°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -20°C to +70°C

**DRUM LENGTH**
- 2000 meters ± 10% or as per customer’s requirement

**COLOUR CODING**
- Blue
- Orange
- Green
- Brown
- Red
- White
- Black
- Yellow
- Violet
- Pink
- Natural

**OPTIONS AVAILABLE ON REQUEST**
- Non-metallic, FRP Rods/Composite fibers/Custonized designs/Armed or Glass Yarns/Rip Chord(s)/LSZH/FR PVC
- Non-Metallic FRP Rods/Composite fibers/Customized designs/Aramid or Glass Yarns/Rip Chord(s)/LSZH/FR PVC

**APPLICATIONS & FEATURES**
- Suitable for local loop, metro, long-haul and broadband network
- Available upto 576 fibers

**CONSTRUCTION DIAGRAM OF 288 FIBERS**

**UNI-TUBE STEEL TAPE ARMOURED CABLE (2F-24F)**

**APPLICATIONS & FEATURES**
- Suitable for direct burial and inside duct installation
- ECCS Tape armouring provide excellent protection against rodent
- ECCS Tape armouring provide high crush resistance & tensile strength
- Robust construction
- Light weight to easy installation
- Available upto 24 fibers

**TECHNICAL DATA**

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**FIBER TRANSMISSION PERFORMANCE**

**CONSTRUCTION DETAILS**
- Metallic, anti-buckling steel wire as strength member embedded in sheath
- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Electrolyte chrome plated, corrugated steel tape armoured
- Outer sheath with UV Stabilized HDPE compound
- Fiber count 2F-24F (SM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

**ENFORCEMENT CONDITIONS (IEC 60794-1-2-F1)**
- Operating Temperature: -30°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -20°C to +70°C

**DRUM LENGTH**
- 2000 meters ± 10% or as per customer’s requirement

**COLOUR CODING**
- Blue
- Orange
- Green
- Brown
- Red
- White
- Black
- Yellow
- Violet
- Pink
- Natural

**OPTIONS AVAILABLE ON REQUEST**
- Non-Metallic FRP Rods/Composite fibers/Custonized designs/Armed or Glass Yarns/Rip Chord(s)/LSZH/FR PVC
- Non-Metallic FRP Rods/Composite fibers/Customized designs/Aramid or Glass Yarns/Rip Chord(s)/LSZH/FR PVC

**CONSTRUCTION DIAGRAM OF 24 FIBERS**
Armed Cables

MULTI-TUBE SINGLE SHEATH STEEL TAPE ARMoured CABLE (2F-144F)

CONSTRUCTION DIAGRAM OF 24 FIBERS

APPL ICATIONS & FEATURES
• Suitable for direct burial & inside duct installation
• Improves compressive strength and rodent protection
• Local loop, metro, long-haul and broadband network
• Robust construction
• Light weight and flexible
• Available upto 144 fibers

OPTI ONS AVA I LABLE ON REQUEST
• Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
• Loose tube containing coloured fibers and filled with thixotropic jelly
• Cable core fully filled with flooding jelly
• S/Z core wrapped with polyester tape
• Electrolyte chrome coated corrugated steel tape armouring
• Inner sheath with UV Stabilized HDPE compound
• Fiber count 2F-144F (SM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

INTERNATIONAL STANDARDS

INTERNATIONAL STANDARDS

ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)
• Operating Temperature: -20˚C to +70˚C
• Storage Temperature: -30˚C to +70˚C
• Installation Temperature: -20˚C to +70˚C

DRUM LENGTH
2000 meters ± 10% or as per customer’s requirement

CONSTRUCTION DETAILS
• Dry core construction (Gel free)/Composite fibers/
• Available upto 144 fibers
• Light weight and flexible
• Robust construction
• Local loop, metro, long-haul and broadband network
• Suitable for direct burial & inside duct installation
• It provides additional protection against crush & impact
• Local loop, metro, long-haul and broadband network
• Robust construction
• Available upto 144 fibers

TECHNICAL DATA

Fiber Count Outer Diameter (Nominal) Weight (kg/km) Tensile Strength (N) Bending Radius
Upto 36F 10.7 mm (0.42 in) 125 2000 1000 150 200
48F-72F 12.2 mm (0.48 in) 154 2500 1250 150 200
96F 13.6 mm (0.54 in) 188 2500 1250 150 200
144F 16.7 mm (0.66 in) 268 2500 1250 150 200

FIBER TRANSMISSION PERFORMANCE
Parameters Fiber Core Diameter (µm) Multimode Single Mode
Fiber Core Diameter (µm) 62.5 62.5 62.5 62.5
Fiber Category 0M1 0M2 0M3 0M4 0M5 0M6
Wavelength (nm) 850/1300 850/1300 850/1300 850/1300 850/1300 850/1300
Maximum Attenuation (dB/km) 3.4/1.0 3.0/1.0 3.0/1.0 3.0/1.0 3.0/1.0 3.0/1.0
Bandwidth (MHz·km) 850/1300 200/500 500/500 1500/1500 3500/500 N/A

MULTI-TUBE DOUBLE SHEATH STEEL TAPE ARMoured CABLE (2F-144F)

CONSTRUCTION DIAGRAM OF 24 FIBERS

APPL ICATIONS & FEATURES
• Suitable for direct burial & inside duct installation
• Improves compressive strength and rodent protection
• It provides additional protection against crush & impact

OPTI ONS AVA I LABLE ON REQUEST
• Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
• Loose tube containing coloured fibers and filled with thixotropic jelly
• Inner sheath with UV Stabilized HDPE compound
• Cable core fully filled with flooding jelly
• S/Z core wrapped with polyester tape
• Electrolyte chrome coated corrugated steel tape armouring
• Inner sheath with UV Stabilized HDPE compound
• Fiber count 2F-144F (SM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

INTERNATIONAL STANDARDS

ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)
• Operating Temperature: -30˚C to +70˚C
• Storage Temperature: -30˚C to +70˚C
• Installation Temperature: -20˚C to +70˚C

DRUM LENGTH
2000 meters ± 10% or as per customer’s requirement

CONSTRUCTION DETAILS
• Dry core construction (Gel free)/Composite fibers/
• It provides additional protection against crush & impact
• Local loop, metro, long-haul and broadband network
• Robust construction
• Available upto 144 fibers

TECHNICAL DATA

Fiber Count Outer Diameter (Nominal) Weight (kg/km) Tensile Strength (N) Bending Radius
Upto 36F 13.0 mm (0.51 in) 166 2000 1000 150 200
48F-72F 14.4 mm (0.57 in) 204 2500 1250 150 200
96F 15.8 mm (0.62 in) 234 2500 1250 150 200
144F 18.9 mm (0.74 in) 333 2500 1250 150 200

FIBER TRANSMISSION PERFORMANCE
Parameters Fiber Core Diameter (µm) Multimode Single Mode
Fiber Core Diameter (µm) 62.5 62.5 62.5 62.5
Fiber Category 0M1 0M2 0M3 0M4 0M5 0M6
Wavelength (nm) 850/1300 850/1300 850/1300 850/1300 850/1300 850/1300
Maximum Attenuation (dB/km) 3.4/1.0 3.0/1.0 3.0/1.0 3.0/1.0 3.0/1.0 3.0/1.0
Bandwidth (MHz·km) 850/1300 200/500 500/500 1500/1500 3500/500 N/A
### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (mm)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Temporary</td>
<td>Permanent</td>
</tr>
<tr>
<td>Upto 36F</td>
<td>13.2 mm (0.52 in)</td>
<td>145</td>
<td>6000</td>
<td>3000</td>
</tr>
<tr>
<td>48F-72F</td>
<td>14.7 mm (0.58 in)</td>
<td>178</td>
<td>6000</td>
<td>3000</td>
</tr>
<tr>
<td>96F</td>
<td>16.1 mm (0.63 in)</td>
<td>210</td>
<td>6000</td>
<td>3000</td>
</tr>
<tr>
<td>144F</td>
<td>19.2 mm (0.76 in)</td>
<td>293</td>
<td>6000</td>
<td>3000</td>
</tr>
</tbody>
</table>

### FIBER & TUBE COLOUR CODING

- **BLUE**
- **ORANGE**
- **GREEN**
- **BROWN**
- **WHITE**
- **RED**
- **BLACK**
- **YELLOW**
- **VIOLET**
- **PINK**
- **SLATE**
- **ORANGE**
- **AQUA**
- **NATURAL**

### APPLICATIONS & FEATURES

- Suitable for direct burial & ducts installation
- Suitable for installed in areas with high risk of rodent presence
- Dielectric armour provides rodent resistant protection
- Local loop, metro, long-haul and broadband network
- Available upto 144 fibers

### ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)

- Operating Temperature: -30°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -30°C to +70°C

### DRUM LENGTH

2000 meters ± 10% or as per customer’s requirement

### FIBER TRANSMISSION PERFORMANCE

- **Multimode**
- **Single Mode**

#### Parameters

- Fiber Core Diameter (µm)
- Fiber Category
- Wavelengths (nm)
- Maximum Attenuation (dB/km)
- Bandwidth (MHz•km)

#### Values

- 62.5 µm
- OM1
- 850/1300
- 3.4/1.0
- 20/500

### OPTIONS AVAILABLE ON REQUEST

- Customized designs/Rip Cord
- Composite fibers/Customized designs/Armored or Glass Yarns/Rip Cord (Polyethylene/Polyvinyl Chloride (PE/PVC)

### INTERNATIONAL STANDARDS

- EN 187000
- Telecordia GR-20 issue 3rd May, 2008
- IEC 60794, IEC 60793
- ITU-T Rec. G.650, G.652

### CONSTRUCTION DETAILS

- Non-metallic, anti-buckling FRP not as Central Strength Member (CSM)
- Loose tube containing coloured fibers and filled with thixotropic jelly
- Outer sheath with UV Stabilized HDPE compound
- Glass Yarns (GFRP) as dielectric armour
- Designed for installation in areas wherein mechanical impact is expected

### APPLICATIONS & FEATURES

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Inner sheath with LSZH compound
- Galvanized steel wire armoured
- Designed for installing in areas where mechanical protection
- Improves compressive strength and rodent protection
- Improves compressive strength and rodent protection
- Designed for installing in areas wherein mechanical impact is expected
- Excellent mechanical features
- Available upto 24 fibers

### INTERNATIONAL STANDARDS

- EN 187000
- Telecordia GR-20 issue 3rd May, 2008
- IEC 60794, IEC 60793
- ITU-T Rec. G.650, G.652

### CONSTRUCTION DETAILS

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Outer sheath with UV Stabilized HDPE compound
- Fiber count 2F-24F
- Installation Temperature: -20°C to +70°C
- Storage Temperature: -20°C to +70°C
- Operating Temperature: -20°C to +70°C

### APPLICATIONS & FEATURES

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Inner sheath with LSZH compound
- Galvanized steel wire armoured
- Designed for installing in areas where mechanical protection
- Improves compressive strength and rodent protection
- Designed for installing in areas wherein mechanical impact is expected

### INTERNATIONAL STANDARDS

- EN 187000
- Telecordia GR-20 issue 3rd May, 2008
- IEC 60794, IEC 60793
- ITU-T Rec. G.650, G.652

### CONSTRUCTION DETAILS

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Inner sheath with LSZH compound
- Galvanized steel wire armoured
- Designed for installing in areas where mechanical protection
- Improves compressive strength and rodent protection
- Designed for installing in areas wherein mechanical impact is expected

### APPLICATIONS & FEATURES

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Inner sheath with LSZH compound
- Galvanized steel wire armoured
- Designed for installing in areas where mechanical protection
- Improves compressive strength and rodent protection
- Designed for installing in areas wherein mechanical impact is expected

### INTERNATIONAL STANDARDS

- EN 187000
- Telecordia GR-20 issue 3rd May, 2008
- IEC 60794, IEC 60793
- ITU-T Rec. G.650, G.652

### CONSTRUCTION DETAILS

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Inner sheath with LSZH compound
- Galvanized steel wire armoured
- Designed for installing in areas where mechanical protection
- Improves compressive strength and rodent protection
- Designed for installing in areas wherein mechanical impact is expected

### APPLICATIONS & FEATURES

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Inner sheath with LSZH compound
- Galvanized steel wire armoured
- Designed for installing in areas where mechanical protection
- Improves compressive strength and rodent protection
- Designed for installing in areas wherein mechanical impact is expected

### INTERNATIONAL STANDARDS

- EN 187000
- Telecordia GR-20 issue 3rd May, 2008
- IEC 60794, IEC 60793
- ITU-T Rec. G.650, G.652

### CONSTRUCTION DETAILS

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Inner sheath with LSZH compound
- Galvanized steel wire armoured
- Designed for installing in areas where mechanical protection
- Improves compressive strength and rodent protection
- Designed for installing in areas wherein mechanical impact is expected

### APPLICATIONS & FEATURES

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Inner sheath with LSZH compound
- Galvanized steel wire armoured
- Designed for installing in areas where mechanical protection
- Improves compressive strength and rodent protection
- Designed for installing in areas wherein mechanical impact is expected

### INTERNATIONAL STANDARDS

- EN 187000
- Telecordia GR-20 issue 3rd May, 2008
- IEC 60794, IEC 60793
- ITU-T Rec. G.650, G.652
Armoured Cables

MULTI-TUBE STEEL WIRE ARMOURED CABLE (2F-144F)

CONSTRUCTION DIAGRAM OF 24 FIBERS

APPLICATIONS & FEATURES
- Suitable for direct burial & inside duct installation
- Improves compressive strength and rodent protection
- Designed for installation in areas where mechanical impact is expected
- Excellent mechanical features
- Available upto 144 fibers

INTERNATIONAL STANDARDS
- EN 187000; Telecordia GR-20 issue 3rd May, 2008
- IEC 60794; IEC 60793; ITU-T Rec. G.650; ITU-T Rec. G.652;

FIBER TRANSMISSION PERFORMANCE

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Fiber Count</th>
<th>Fiber Diameter (µm)</th>
<th>Fiber Category</th>
<th>Wavelengths (nm)</th>
<th>Maximum Attenuation (dB/km)</th>
<th>Bandwidth (MHz*km)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>62.5</td>
<td>0M1</td>
<td>850/1300</td>
<td>3.4/1.0</td>
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<td></td>
<td>50</td>
<td>0M2</td>
<td>850/1300</td>
<td>3.0/1.0</td>
<td>850/1300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>0M3</td>
<td>850/1300</td>
<td>3.0/1.0</td>
<td>850/1300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>0M4</td>
<td>850/1300</td>
<td>3.0/1.0</td>
<td>850/1300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td></td>
<td>1310/1550/1625</td>
<td>3.0/1.0</td>
<td>1310/1550/1625</td>
</tr>
</tbody>
</table>

TECHNICAL DATA

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Fiber Diameter (mm)</th>
<th>Outer Diameter (Nominal)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 36F</td>
<td>14.5 mm (0.57 in)</td>
<td>14.5 mm (0.57 in)</td>
<td>305</td>
<td>1500</td>
<td>750</td>
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<tr>
<td>48F-72F</td>
<td>16.0 mm (0.63 in)</td>
<td>16.0 mm (0.63 in)</td>
<td>365</td>
<td>2100</td>
<td>1050</td>
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<tr>
<td>96F</td>
<td>17.5 mm (0.69 in)</td>
<td>17.5 mm (0.69 in)</td>
<td>433</td>
<td>2100</td>
<td>1050</td>
</tr>
<tr>
<td>144F</td>
<td>20.5 mm (0.81 in)</td>
<td>20.5 mm (0.81 in)</td>
<td>560</td>
<td>2400</td>
<td>1300</td>
</tr>
</tbody>
</table>

COLOUR CODING

FIBER & TUBE  | BLUE | ORANGE | GREEN | BROWN | SLATE | WHITE | RED | BLACK | YELLOW | PINK | AQUA | NATURAL |

Armed Cables

MULTI-TUBE SINGLE SHEATH RIBBON TYPE ARMOURED CABLE (48F-576F)

CONSTRUCTION DIAGRAM OF 288 FIBERS

APPLICATIONS & FEATURES
- Suitable for direct burial & inside duct installation
- Improves compressive strength and rodent protection
- Local loop, metro, long-haul and broadband network
- Robust construction
- Available upto 576 fibers

INTERNATIONAL STANDARDS
- IEC 60794; IEC 60793; ITU-T Rec. G.650; ITU-T Rec. G.652;

CONSTRUCTION DETAILS
- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Loose tube containing coloured fibers and fitted with thixotropic jelly
- Cable core fully filled with flooding jelly
- 5/2 core wrapped with polyester tape
- Electrolyte chrome coated corrugated steel tape armouring
- Suitable for direct burial & inside duct installation
- Robust construction

FIBER TRANSMISSION PERFORMANCE

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Fiber Count</th>
<th>Fiber Diameter (µm)</th>
<th>Fiber Category</th>
<th>Wavelengths (nm)</th>
<th>Maximum Attenuation (dB/km)</th>
<th>Bandwidth (MHz*km)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td>850/1300</td>
<td>3.4/1.0</td>
<td>850/1300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>0M2</td>
<td>850/1300</td>
<td>3.0/1.0</td>
<td>850/1300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>0M3</td>
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<td>850/1300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>0M4</td>
<td>850/1300</td>
<td>3.0/1.0</td>
<td>850/1300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td></td>
<td>1310/1550/1625</td>
<td>3.0/1.0</td>
<td>1310/1550/1625</td>
</tr>
</tbody>
</table>

TECHNICAL DATA

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Fiber Diameter (mm)</th>
<th>Outer Diameter (Nominal)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 36F</td>
<td>16.6 mm (0.65 in)</td>
<td>16.6 mm (0.65 in)</td>
<td>325</td>
<td>4000</td>
<td>2000</td>
</tr>
<tr>
<td>144F</td>
<td>20.0 mm (0.79 in)</td>
<td>20.0 mm (0.79 in)</td>
<td>375</td>
<td>4000</td>
<td>2000</td>
</tr>
<tr>
<td>288F</td>
<td>24.3 mm (0.96 in)</td>
<td>24.3 mm (0.96 in)</td>
<td>569</td>
<td>4000</td>
<td>2000</td>
</tr>
<tr>
<td>576F</td>
<td>29.3 mm (1.16 in)</td>
<td>29.3 mm (1.16 in)</td>
<td>785</td>
<td>4000</td>
<td>2000</td>
</tr>
</tbody>
</table>

COLOUR CODING

FIBER & TUBE  | BLUE | ORANGE | GREEN | BROWN | SLATE | WHITE | RED | BLACK | YELLOW | PINK | AQUA | NATURAL |

Ribbon is identified as 1RIBBON1, 2RIBBON2, 3RIBBON3, 4RIBBON4 and so on.
All Dielectric Self Supporting Cables (ADSS)

MULTI-TUBE ADSS SINGLE SHEATH AERIAL CABLE (2F-144F)

**APPLICATIONS & FEATURES**
- Suitable for self-supporting aerial installation
- Cable can be installed parallel with power lines
- Local loop, metro, long-haul and broadband network
- Dielectric design eliminates grounding issues
- Light weight and flexible
- Available up to 144 fibers

**ENVIRONMENTAL CONDITIONS**
- Operating Temperature: -30˚C to +70˚C
- Storage Temperature: -30˚C to +70˚C
- Installation Temperature: -20˚C to +70˚C

**TECHNICAL DATA**
- Fiber Count: 2F-144F
- Weight (kg/km): 13.4 mm (0.53 in)
- Tensile Strength (N): 147
- Bending Radius: 150
- Drum Length: 2000 meters ± 10%

**COLOUR CODING**
- Pink
- Red
- Yellow
- Black
- White
- Slate
- Brown
- Green
- Orange
- Blue
- Aqua/Natural

**CONSTRUCTION DETAILS**
- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Loose tube containing colored fibers and filled with thixotropic jelly
- Cable core fully filled with flooding jelly
- S/Z core wrapped with polyester tape
- Aramid yarns are used as a Peripheral Strength Member (PSM)
- Outer Sheath with UV Stabilized HDPE compound
- Fiber count 2F-144F (SM Fiber G.652D, G.655, G.657 and MultiMode OM1, OM2, OM3 & OM4)

**APPLICATIONS & FEATURES**
- Suitable for self-supporting aerial installation
- Cable can be installed parallel with power lines
- Local loop, metro, long-haul and broadband network
- Dielectric design eliminates grounding issues
- Light weight and flexible
- Available up to 144 fibers

**ENVIRONMENTAL CONDITIONS**
- Operating Temperature: -30˚C to +70˚C
- Storage Temperature: -30˚C to +70˚C
- Installation Temperature: -20˚C to +70˚C

**TECHNICAL DATA**
- Fiber Count: 2F-144F
- Weight (kg/km): 13.4 mm (0.53 in)
- Tensile Strength (N): 147
- Bending Radius: 150
- Drum Length: 2000 meters ± 10%

**COLOUR CODING**
- Pink
- Red
- Yellow
- Black
- White
- Slate
- Brown
- Green
- Orange
- Blue
- Aqua/Natural

**CONSTRUCTION DETAILS**
- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Loose tube containing colored fibers and filled with thixotropic jelly
- Cable core fully filled with flooding jelly
- S/Z core wrapped with polyester tape
- Aramid yarns are used as a Peripheral Strength Member (PSM)
- Outer Sheath with UV Stabilized HDPE compound
- Fiber count 2F-144F (SM Fiber G.652D, G.655, G.657 and MultiMode OM1, OM2, OM3 & OM4)

**APPLICATIONS & FEATURES**
- Suitable for self-supporting aerial installation
- Cable can be installed parallel with power lines
- Local loop, metro, long-haul and broadband network
- Dielectric design eliminates grounding issues
- Light weight and flexible
- Available up to 144 fibers

**ENVIRONMENTAL CONDITIONS**
- Operating Temperature: -30˚C to +70˚C
- Storage Temperature: -30˚C to +70˚C
- Installation Temperature: -20˚C to +70˚C

**TECHNICAL DATA**
- Fiber Count: 2F-144F
- Weight (kg/km): 13.4 mm (0.53 in)
- Tensile Strength (N): 147
- Bending Radius: 150
- Drum Length: 2000 meters ± 10%

**COLOUR CODING**
- Pink
- Red
- Yellow
- Black
- White
- Slate
- Brown
- Green
- Orange
- Blue
- Aqua/Natural

**CONSTRUCTION DETAILS**
- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Loose tube containing colored fibers and filled with thixotropic jelly
- Cable core fully filled with flooding jelly
- S/Z core wrapped with polyester tape
- Aramid yarns are used as a Peripheral Strength Member (PSM)
- Outer Sheath with UV Stabilized HDPE compound
- Fiber count 2F-144F (SM Fiber G.652D, G.655, G.657 and MultiMode OM1, OM2, OM3 & OM4)

**APPLICATIONS & FEATURES**
- Suitable for self-supporting aerial installation
- Cable can be installed parallel with power lines
- Local loop, metro, long-haul and broadband network
- Dielectric design eliminates grounding issues
- Light weight and flexible
- Available up to 144 fibers

**ENVIRONMENTAL CONDITIONS**
- Operating Temperature: -30˚C to +70˚C
- Storage Temperature: -30˚C to +70˚C
- Installation Temperature: -20˚C to +70˚C

**TECHNICAL DATA**
- Fiber Count: 2F-144F
- Weight (kg/km): 13.4 mm (0.53 in)
- Tensile Strength (N): 147
- Bending Radius: 150
- Drum Length: 2000 meters ± 10%

**COLOUR CODING**
- Pink
- Red
- Yellow
- Black
- White
- Slate
- Brown
- Green
- Orange
- Blue
- Aqua/Natural

**CONSTRUCTION DETAILS**
- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Loose tube containing colored fibers and filled with thixotropic jelly
- Cable core fully filled with flooding jelly
- S/Z core wrapped with polyester tape
- Aramid yarns are used as a Peripheral Strength Member (PSM)
- Outer Sheath with UV Stabilized HDPE compound
- Fiber count 2F-144F (SM Fiber G.652D, G.655, G.657 and MultiMode OM1, OM2, OM3 & OM4)
**Figure-8 Cables**

**UNI-TUBE FIGURE-8 AERIAL CABLE (2F-24F)**

- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Galvanized, stranded steel wire used as integrated messenger wire
- Outer sheath with UV Stabilized HDPE compound
- Local loop, metro, long-haul and broadband network

**APPLICATIONS & FEATURES**
- Suitable for aerial installation except on power lines
- Messenger wire provides required tensile strength recommended for aerial application
- Light weight cable construction design for ease of handling & installation
- Available upto 24 fibers

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter <em>Nominal</em></th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F-12F</td>
<td>5.5 X 3.0 mm (0.22 X 0.12 in)</td>
<td>87</td>
<td>2500</td>
<td>150 200</td>
</tr>
<tr>
<td>24F</td>
<td>5.5 X 3.0 mm (0.22 X 0.12 in)</td>
<td>98</td>
<td>2500</td>
<td>150 200</td>
</tr>
</tbody>
</table>

*H= Height of Cable ;  W= Width of Cable

**FIBER TRANSMISSION PERFORMANCE**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Multimode</th>
<th>Single Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Core Diameter (µm)</td>
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<td>50</td>
</tr>
<tr>
<td>Fiber Category</td>
<td>OM1</td>
<td>OM2</td>
</tr>
<tr>
<td>Wavelengths (nm)</td>
<td>1550/1550</td>
<td>1550/1550</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/ km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
</tr>
<tr>
<td>Bandwidth (MHz*km)</td>
<td>850/1300</td>
<td>500/500</td>
</tr>
</tbody>
</table>

**INTERNATIONAL STANDARDS**


**APPLICATIONS & FEATURES**

- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Loose tube containing coloured fibers and filled with thixotropic jelly
- Cable core fully filled with floating jelly
- 6/2 core wrapped with polyester tape
- Galvanized, stranded steel wire used as integrated messenger wire
- Outer sheath with UV Stabilized HDPE compound
- Fiber count 2F-144F (SM Fiber G.652D, G.655, G.657 and Multimode G.653, G.654)

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter <em>Nominal</em></th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F-12F</td>
<td>5.5 X 3.0 mm (0.22 X 0.12 in)</td>
<td>87</td>
<td>2500</td>
<td>150 200</td>
</tr>
<tr>
<td>24F</td>
<td>5.5 X 3.0 mm (0.22 X 0.12 in)</td>
<td>98</td>
<td>2500</td>
<td>150 200</td>
</tr>
</tbody>
</table>

*H= Height of Cable ;  W= Width of Cable

**FIBER TRANSMISSION PERFORMANCE**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Multimode</th>
<th>Single Mode</th>
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<tbody>
<tr>
<td>Fiber Core Diameter (µm)</td>
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</tr>
<tr>
<td>Fiber Category</td>
<td>OM1</td>
<td>OM2</td>
</tr>
<tr>
<td>Wavelengths (nm)</td>
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<td>1550/1550</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/ km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
</tr>
<tr>
<td>Bandwidth (MHz*km)</td>
<td>850/1300</td>
<td>500/500</td>
</tr>
</tbody>
</table>
## Micro Duct Cables

### UNI-TUBE MICRO DUCT CABLE (2F-24F)

**CONSTRUCTION DIAGRAM OF 24 FIBERS**

- Aramid Yarn
- Loose Tube
- Primary Coated Fiber
- Thixotropic Jelly
- Outer Jacket Nylon PA-12

**APPLICATIONS & FEATURES**
- Suitable for micro duct installation
- All dielectric design
- Light in weight
- Small cable diameter
- Ease of installation
- Available upto 24 fibers

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (Nominal)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F-12F</td>
<td>3.8 mm (0.15 in)</td>
<td>11</td>
<td>500</td>
<td>100</td>
</tr>
<tr>
<td>24F</td>
<td>5.6 mm (0.22 in)</td>
<td>24</td>
<td>800</td>
<td>400</td>
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</tbody>
</table>

**FIBER TRANSMISSION PERFORMANCE**

<table>
<thead>
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<th>Parameters</th>
<th>Multimode</th>
<th>Single Mode</th>
</tr>
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<tr>
<td>Fiber Core Diameter (µm)</td>
<td>62.5</td>
<td>50</td>
</tr>
<tr>
<td>Fiber Category</td>
<td>OM1</td>
<td>OM2</td>
</tr>
<tr>
<td>Wavelengths (nm)</td>
<td>850/1300</td>
<td>850/1300</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
</tr>
<tr>
<td>Bandwidth (MHz*km)</td>
<td>200/500</td>
<td>500/500</td>
</tr>
</tbody>
</table>

**ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)**

- Permanent: -20˚C to +70˚C
- Temporary: -30˚C to +70˚C

**APPLICATIONS & FEATURES**
- Suitable for blowing in micro ducts
- Local loop, metro, long haul and broadband network
- Light weight and flexible
- Available upto 144 fibers

**COLOUR CODING**

- BLUE
- ORANGE
- GREEN
- BROWN
- SLATE
- WHITE
- RED
- BLACK
- YELLOW
- VIOLET
- PINK
- NATURAL

### MULTI-TUBE MICRO DUCT CABLE (6F-144F)

**CONSTRUCTION DIAGRAM OF 72 FIBERS**

- Outer Sheath Nylon PA-12
- Loose Tube FRP Rod (CSM)
- Primary Coated Fiber
- Thixotropic Jelly Water Swellable Yarn

**APPLICATIONS & FEATURES**
- Suitable for blowing in micro ducts
- Local loop, metro, long haul and broadband network
- Light weight and flexible
- Available upto 144 fibers

**COLOUR CODING**

- BLUE
- ORANGE
- GREEN
- BROWN
- SLATE
- WHITE
- RED
- BLACK
- YELLOW
- VIOLET
- PINK
- NATURAL

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (Nominal)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 72F</td>
<td>5.8 mm (0.23 in)</td>
<td>27</td>
<td>500</td>
<td>150</td>
</tr>
<tr>
<td>96F</td>
<td>6.6 mm (0.27 in)</td>
<td>40</td>
<td>1000</td>
<td>500</td>
</tr>
<tr>
<td>144F</td>
<td>9.0 mm (0.35 in)</td>
<td>73</td>
<td>1500</td>
<td>750</td>
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**FIBER TRANSMISSION PERFORMANCE**

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<td>Fiber Core Diameter (µm)</td>
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</tr>
<tr>
<td>Fiber Category</td>
<td>OM1</td>
<td>OM2</td>
</tr>
<tr>
<td>Wavelengths (nm)</td>
<td>850/1300</td>
<td>850/1300</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
</tr>
<tr>
<td>Bandwidth (MHz*km)</td>
<td>200/500</td>
<td>500/500</td>
</tr>
</tbody>
</table>
### Interconnect Cables

#### SIMPLEX CABLE

**Construction Details**
- Tight buffered fiber coated with LSZH compound
- Aramid yarn reinforcement
- Outer jacket with LSZH compound
- Fiber count 1F (SM Fiber G.652D, G.657 and Multimode OM1, OM2, OM3 & OM4)

**International Standards**
- IEC 60794-1-2-F1
- IEC 60794-1-2-F2
- IEC 60794-1-2-F3
- IEC 60794-1-3-F1

**Drum Length**
- 2000 meters ± 10% or as per customer’s requirement

**Applications & Features**
- Suitable for building inter-connections (Campus LAN)
- Fiber patch panels within communications closets
- Link between electronic equipment & fiber patch panels
- Connectorized patchcords
- Gel free design
- Easy to strip & terminate

**Technical Data**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (mm)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1F</td>
<td>2.0 mm (0.08 in)</td>
<td>4</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>1F</td>
<td>3.0 mm (0.12 in)</td>
<td>10</td>
<td>300</td>
<td>150</td>
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</table>

**Fiber Transmission Performance**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Multimode</th>
<th>Single Mode</th>
</tr>
</thead>
<tbody>
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<td>Fiber Core Diameter (µm)</td>
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</tr>
<tr>
<td>Fiber Category</td>
<td>OM1 OM2 OM3 OM4</td>
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<tr>
<td>Wavelength (nm)</td>
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<td>850/1300</td>
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<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
</tr>
<tr>
<td>Bandwidth (MHz/km)</td>
<td>200/500</td>
<td>500/500</td>
</tr>
</tbody>
</table>

#### DUPLEX CABLE

**Construction Details**
- Tight buffered fiber coated with LSZH compound
- Aramid yarn reinforcement
- Outer jacket with LSZH compound
- Fiber count 2F (SM Fiber G.652D, G.657 and Multimode OM1, OM2, OM3 & OM4)

**International Standards**
- IEC 60794-1-2-F1
- IEC 60794-1-2-F2
- IEC 60794-1-2-F3
- IEC 60794-1-3-F1

**Drum Length**
- 2000 meters ± 10% or as per customer’s requirement

**Applications & Features**
- Suitable for building inter-connections (Campus LAN)
- Fiber patch panels within communications closets
- Link between electronic equipment & fiber patch panels
- Connectorized patchcords
- Gel free design
- Easy to strip & terminate

**Technical Data**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (mm)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F (Maxi-Zip)</td>
<td>3.0 X 0.6 mm (0.12 X 0.24 in)</td>
<td>16</td>
<td>600</td>
<td>300</td>
</tr>
<tr>
<td>2F (Mini-Zip)</td>
<td>2.0 X 0.0 mm (0.08 X 0.16 in)</td>
<td>8</td>
<td>400</td>
<td>200</td>
</tr>
</tbody>
</table>

**Fiber Transmission Performance**

<table>
<thead>
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<th>Parameters</th>
<th>Multimode</th>
<th>Single Mode</th>
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</thead>
<tbody>
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<td>50</td>
</tr>
<tr>
<td>Fiber Category</td>
<td>OM1 OM2 OM3 OM4</td>
<td>0.6520</td>
</tr>
<tr>
<td>Wavelength (nm)</td>
<td>850/1300</td>
<td>850/1300</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
</tr>
<tr>
<td>Bandwidth (MHz/km)</td>
<td>200/500</td>
<td>500/500</td>
</tr>
</tbody>
</table>
FTTH Cables

**FLAT DROP OUTDOOR CABLE (1F-2F)**

**APPLICATIONS & FEATURES**
- Suitable for outdoor installation
- Suitable for aerial installation, to the end connectivity up to home
- Easy installation
- Broadband network
- Gel free design
- Available upto 2 fibers

**ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)**
- Operating Temperature: -30°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -20°C to +70°C

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (HxW)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>1F-2F</td>
<td>2.0 X 5.0 mm (0.08 X 0.2 in)</td>
<td>25</td>
<td>1000</td>
<td>500</td>
</tr>
</tbody>
</table>

*H= Height of Cable; W= Width of Cable

**FIBER TRANSMISSION PERFORMANCE**

<table>
<thead>
<tr>
<th>Parameters</th>
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<th>50</th>
<th>50</th>
<th>50</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Core Diameter (µm)</td>
<td>0M1</td>
<td>0M2</td>
<td>0M3</td>
<td>0M4</td>
<td>G.652D</td>
</tr>
<tr>
<td>Wavelength (nm)</td>
<td>850/1300</td>
<td>850/1300</td>
<td>850/1300</td>
<td>850/1300</td>
<td>1310/1550/1625</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
<td>3.0/1.0</td>
<td>3.0/1.0</td>
<td>0.36/0.25/0.26</td>
</tr>
<tr>
<td>Bandwidth (MHz.km)</td>
<td>200/500</td>
<td>500/500</td>
<td>1500/500</td>
<td>3500/500</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**FLAT DROP INDOOR CABLE (1F-4F)**

**APPLICATIONS & FEATURES**
- Suitable for indoor installation in any type of civil structures
- Suitable for aerial installation to the end connectivity up to home
- Easy installation
- Broadband network
- Gel free design
- Available upto 4 fibers

**CONSTRUCTION DETAILS**
- Fiber embedded in LSZH Sheath between 2 FRP as Peripheral Strength Member (PSM)
- Outer sheath with LSZH compound
- FRP Rod as a peripheral strength member
- ARP Rod/Steel wire as a peripheral strength member
- Composite fibers/Customized designs

**INTERNATIONAL STANDARDS**

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (HxW)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F</td>
<td>2.0 X 3.5 mm (0.08 X 0.14 in)</td>
<td>8</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>4F</td>
<td>2.7 X 3.5 mm (0.08 X 0.14 in)</td>
<td>10</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

*H= Height of Cable; W= Width of Cable

**FIBER TRANSMISSION PERFORMANCE**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>62.5</th>
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<th>50</th>
<th>50</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Core Diameter (µm)</td>
<td>0M1</td>
<td>0M2</td>
<td>0M3</td>
<td>0M4</td>
<td>G.652D</td>
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<tr>
<td>Wavelength (nm)</td>
<td>850/1300</td>
<td>850/1300</td>
<td>850/1300</td>
<td>850/1300</td>
<td>1310/1550/1625</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
<td>3.0/1.0</td>
<td>3.0/1.0</td>
<td>0.36/0.25/0.26</td>
</tr>
<tr>
<td>Bandwidth (MHz.km)</td>
<td>200/500</td>
<td>500/500</td>
<td>1500/500</td>
<td>3500/500</td>
<td>N/A</td>
</tr>
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</table>
## Indoor Cables

### Premises Distribution Cable

#### Construction Details
- Tight Buffered fiber coated with LSZH compound
- Aramid yarn reinforcement
- Outer jacket with LSZH compound
- Fiber count 2F-24F (SM Fiber G.652D, G.657 and Multimode OM1, OM2, OM3 & OM4)

#### International Standards

#### Technical Data

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (mm)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Temporary</td>
<td>Permanent</td>
</tr>
<tr>
<td>4F</td>
<td>5.0 mm (0.20 in)</td>
<td>27</td>
<td>1000</td>
<td>500</td>
</tr>
<tr>
<td>6F</td>
<td>5.8 mm (0.23 in)</td>
<td>34</td>
<td>1000</td>
<td>500</td>
</tr>
<tr>
<td>8F</td>
<td>6.6 mm (0.25 in)</td>
<td>40</td>
<td>1000</td>
<td>500</td>
</tr>
<tr>
<td>12F</td>
<td>7.6 mm (0.30 in)</td>
<td>50</td>
<td>1000</td>
<td>500</td>
</tr>
<tr>
<td>16F</td>
<td>8.5 mm (0.33 in)</td>
<td>60</td>
<td>1200</td>
<td>600</td>
</tr>
<tr>
<td>24F</td>
<td>9.5 mm (0.37 in)</td>
<td>72</td>
<td>1200</td>
<td>600</td>
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#### Fiber Transmission Performance

<table>
<thead>
<tr>
<th>Parameters</th>
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<th>Single Mode</th>
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<td>Fiber Category</td>
<td>OM1</td>
<td>OM2</td>
</tr>
<tr>
<td>Wavelengths (nm)</td>
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<td>850/1300</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
</tr>
<tr>
<td>Bandwidth (MHz.km)</td>
<td>850/1300</td>
<td>200/500</td>
</tr>
</tbody>
</table>

### Breakout Tight Buffer Unarmoured Cable (4F-12F)

#### Construction Details
- Low to medium fiber count requirement
- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Individual fiber jacket outer diameter 2.5 mm (Simplex sub-units)
- For easy identification all the tight buffers are colour coated
- Outer jacket with LSZH compound
- For easy identification all the tight buffers are colour coated
- Fiber count 4F-12F (SM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

#### International Standards

#### Technical Data

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (mm)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Temporary</td>
<td>Permanent</td>
</tr>
<tr>
<td>4F-12F</td>
<td>15.4 mm (0.61 in)</td>
<td>96</td>
<td>800</td>
<td>400</td>
</tr>
<tr>
<td>4F</td>
<td>12.1 mm (0.48 in)</td>
<td>126</td>
<td>800</td>
<td>400</td>
</tr>
<tr>
<td>12F</td>
<td>15.1 mm (0.60 in)</td>
<td>186</td>
<td>800</td>
<td>400</td>
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#### Fiber Transmission Performance

<table>
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<th>Multimode</th>
<th>Single Mode</th>
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<td>50</td>
</tr>
<tr>
<td>Fiber Category</td>
<td>OM1</td>
<td>OM2</td>
</tr>
<tr>
<td>Wavelengths (nm)</td>
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<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
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<tr>
<td>Bandwidth (MHz.km)</td>
<td>850/1300</td>
<td>200/500</td>
</tr>
</tbody>
</table>
**UNI-TUBE ARP ARMOURED CABLE (2F-12F)**

**APPLICATIONS & FEATURES**
- Suitable for indoor & outdoor applications
- Ideal for FTTH applications
- High crush resistance
- Excellent rodent proof
- Very light in weight
- Available upto 12 fibers

**CONSTRUCTION DETAILS**
- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Armouring with aramid reinforced plastic rod
- Glass yarn (IGFR) as a Peripheral Strength Member (PSM)
- Outer sheath with UV Stabilized HDPE compound
- Fiber count 2F-12F (SM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

**INTERNATIONAL STANDARDS**

**OPERATIONAL TEMPERATURE**
- Operating Temperature: -30°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -20°C to +70°C

**DRUM LENGTH**
- 2000 meters ± 10% or as per customer’s requirement

**FIBER & TUBE COLOUR CODING**
- BLUE
- ORANGE
- GREEN
- BROWN
- SLATE
- WHITE
- RED
- BLACK
- YELLOW
- VIOLET
- PINK
- AQUA / NATURAL

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (mm)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
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</thead>
<tbody>
<tr>
<td>2F-12F</td>
<td>8.0 mm (0.31 in)</td>
<td>54</td>
<td>1000</td>
<td>50</td>
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**FIBER TRANSMISSION PERFORMANCE**

<table>
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<th>Parameters</th>
<th>Multimode</th>
<th>Single Mode</th>
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<td>Fiber Core Diameter (µm)</td>
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<tr>
<td>Fiber Category</td>
<td>OM1</td>
<td>OM2</td>
</tr>
<tr>
<td>Wavelength (nm)</td>
<td>850/1300</td>
<td>850/1300</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
</tr>
<tr>
<td>Bandwidth (MHz•km)</td>
<td>200/500</td>
<td>500/500</td>
</tr>
</tbody>
</table>

---

**UNI-TUBE CERAMIC ARMOURED CABLE (2F-12F)**

**APPLICATIONS & FEATURES**
- Suitable for aerial & duct installation
- All dielectric design
- Light in weight
- High tensile & crush resistance
- Rodent proof
- Available upto 12 fibers

**CONSTRUCTION DETAILS**
- Single loose tube filled with thixotropic jelly and centrally placed in the cable
- Dielectric rigid ceramic armour
- Outer sheath UV Stabilized HDPE compound
- Fiber count 2F-12F (SM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

**INTERNATIONAL STANDARDS**

**OPERATIONAL TEMPERATURE**
- Operating Temperature: -30°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -20°C to +70°C

**DRUM LENGTH**
- 2000 meters ± 10% or as per customer’s requirement

**FIBER & TUBE COLOUR CODING**
- BLUE
- ORANGE
- GREEN
- BROWN
- SLATE
- WHITE
- RED
- BLACK
- YELLOW
- VIOLET
- PINK
- AQUA / NATURAL

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (mm)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F-12F</td>
<td>8.0 mm (0.31 in)</td>
<td>65</td>
<td>1500</td>
<td>750</td>
</tr>
</tbody>
</table>

**FIBER TRANSMISSION PERFORMANCE**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Multimode</th>
<th>Single Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Core Diameter (µm)</td>
<td>62.5</td>
<td>9</td>
</tr>
<tr>
<td>Fiber Category</td>
<td>OM1</td>
<td>OM2</td>
</tr>
<tr>
<td>Wavelength (nm)</td>
<td>850/1300</td>
<td>850/1300</td>
</tr>
<tr>
<td>Maximum Attenuation (dB/km)</td>
<td>3.4/1.0</td>
<td>3.0/1.0</td>
</tr>
<tr>
<td>Bandwidth (MHz•km)</td>
<td>200/500</td>
<td>500/500</td>
</tr>
</tbody>
</table>
### Special Cables

#### TACTICAL CABLE (2F-8F)

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Outer Diameter (mm)</th>
<th>Weight (kg/km)</th>
<th>Tensile Strength (N)</th>
<th>Bending Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F-4F</td>
<td>3.9 (0.15 in)</td>
<td>29</td>
<td>1100</td>
<td>150</td>
</tr>
<tr>
<td>6F-8F</td>
<td>4.5 (0.18 in)</td>
<td>42</td>
<td>1500</td>
<td>150</td>
</tr>
</tbody>
</table>

**FIBER TRANSMISSION PERFORMANCE**

<table>
<thead>
<tr>
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<th>Multimode</th>
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<tr>
<td>Fiber Core Diameter (µm)</td>
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<td>50</td>
</tr>
<tr>
<td>Fiber Category</td>
<td>OM1</td>
<td>OM2</td>
</tr>
<tr>
<td>Wavelength (nm)</td>
<td>850/1300</td>
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<tr>
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<tr>
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</tbody>
</table>

#### MULTI-TUBE INTRUSION PROOF ARMOURED CABLE (48F + 8F)

**APPLICATIONS & FEATURES**

- Superior cable design combines ribbon-optical fiber and sensitive layer content single-fiber to provide the signals for IP Cameras, Surveillance devices, Monitoring devices or media converters via sensory fibers
- Networking security sensors can help prevent physical attacks from internal and external sources, and they also protect against accidental intrusions and the inside threat
- Intrusion proof cabling systems are immune to cable taps and prevent against accidental intrusions and the inside threat
- Sensory layer content single fiber to provide the signals for media convertors via sensory fibers

**ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)**

- Operating Temperature: -50˚C to + 70˚C
- Storage Temperature: -30˚C to + 70˚C
- Installation Temperature: -20˚C to + 70˚C

**APPLICATIONS & FEATURES**

- Composite fibers/Customized designs
- Tactical military or civil applications

**FIBER COLOUR CODING**

- Blue
- Orange
- Green
- Brown
- White
- Black
- Yellow
- Violet
- Pink
- Aqua/Natural

**INTERNATIONAL STANDARDS**

- EN 18700; Telecordia GR-20 issue 3rd May, 2008
Special Cables

HYBRID CABLE (OPTICAL FIBER WITH COPPER CONDUCTOR)

CONSTRUCTION DIAGRAM OF 6 FIBERS

<table>
<thead>
<tr>
<th>APPLICATIONS &amp; FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable for underground installation on pathways or road</td>
</tr>
<tr>
<td>Robust under all conditions of operation, adjustment, replacement, storage and transport</td>
</tr>
<tr>
<td>Suitable for lighting prone areas</td>
</tr>
<tr>
<td>Better tensile strength</td>
</tr>
</tbody>
</table>

CONSTRUCTION DETAILS
- Non metallic, anti-buckling FRP rod as Central Strength Member (CSM)
- Loose tube containing coloured fibers and filled with thixotropic jelly
- Cable core dry type
- S/Z core wrapped with water blocking tape
- Outer sheath with UV Stabilized HDPE compound
- Fiber count 6F (SM Fiber G.652D, G.655, G.657 and Multimode OM1, OM2, OM3 & OM4)

ENVIRONMENTAL CONDITIONS (IEC 60794-1-2-F1)
- Operating Temperature: -30°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -20°C to +70°C

2000 meters ± 10% or as per customer’s requirement

INTERNATIONAL STANDARDS
- EN 187000; Telecordia GR-20 issue 3rd May, 2008

MULTI-TUBE FRP ROD ARMOURED CABLE

CONSTRUCTION DIAGRAM OF 24 FIBERS

<table>
<thead>
<tr>
<th>APPLICATIONS &amp; FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable for direct burial &amp; inside duct installation</td>
</tr>
<tr>
<td>Improves compressive strength and rodent protection</td>
</tr>
<tr>
<td>Designed for installation in areas where mechanical impact is expected</td>
</tr>
<tr>
<td>Excellent mechanical feature</td>
</tr>
<tr>
<td>Rugged &amp; robust design</td>
</tr>
<tr>
<td>Available upto 144 fibers</td>
</tr>
</tbody>
</table>

CONSTRUCTION DETAILS
- Dry core construction (Gap free)/Composite fibers/Customized designs/Metallic CSM/Flat FRP/ Rip Cord(s)/LSZH/FR PVC
- Operating Temperature: -30°C to +70°C
- Storage Temperature: -30°C to +70°C
- Installation Temperature: -20°C to +70°C

2000 meters ± 10% or as per customer’s requirement

INTERNATIONAL STANDARDS

FIBER TRANSMISSION PERFORMANCE

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Single Mode</th>
<th>Multi Mode</th>
</tr>
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<tbody>
<tr>
<td>Fiber Core Diameter (µm)</td>
<td>62.5</td>
<td>50</td>
</tr>
<tr>
<td>Fiber Category</td>
<td>OM1</td>
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</tr>
<tr>
<td>Wavelength (nm)</td>
<td>850/1300</td>
<td>850/1300</td>
</tr>
<tr>
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<tr>
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<td>850/1300</td>
<td>200/500</td>
</tr>
</tbody>
</table>

FIBER TRANSMISSION PERFORMANCE
**FIBER REINFORCED PLASTIC (FRP) ROD**

**PRODUCT DESCRIPTION**
- Fiber Reinforced Plastic (FRP) is manufactured using E-Glass fiber with high heat resistance
- Fiber Reinforced Plastic (FRP) is available in various coatings including EAA and HDPE which allows easy handling
- Bi-electric cable composite strength member widely known as FRP/GRP rod is designed to provide excellent strength performance while maintaining high degree of stiffness, preventing cable buckling over its entire service life
- Long continuous standard lengths FRP rod improves yield & productivity on the factory floor. It has an added advantage of high heat resistant property with high torsional strength

**PRODUCT FEATURES**
- Superior dimensional stability and prevents sagging in aerial installation
- Light weight, excellent tensile strength and high tensile modulus
- Consistent diameter and shape, designed for all dielectric or metallic cable applications
- Cost effective solution as a strength member
- Provides anti-buckling properties and protection during installation
- Inexpensive way to increase diameter to accommodate designs with high fiber counts increases equipment uptime and productivity
- Long, splice-free lengths and adhesion to up jacketing materials
- Used as central or peripheral reinforcement in fiber optic cable
- Dual Advantage: Reinforcement during installation as well as reduce stress on signal carrying optic fiber/conductor

**MECHANICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Properties</th>
<th>Value</th>
<th>Units</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength at break</td>
<td>≥2.0</td>
<td>GPa</td>
<td>ASTM D3916</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>≥5.6</td>
<td>%</td>
<td>ASTM D3916</td>
</tr>
<tr>
<td>Tensile modulus</td>
<td>≥50</td>
<td>GPa</td>
<td>ASTM D3916</td>
</tr>
<tr>
<td>Coefficient of thermal expansion</td>
<td>≤0.6</td>
<td>°C</td>
<td>ASTM D5696</td>
</tr>
<tr>
<td>Water absorption</td>
<td>≤0.1</td>
<td>%</td>
<td>ASTM D5670</td>
</tr>
<tr>
<td>Flexural modulus</td>
<td>≥50</td>
<td>GPa</td>
<td>ASTM D2790</td>
</tr>
<tr>
<td>Flexural strength</td>
<td>≥2.7</td>
<td>GPa</td>
<td>ASTM D2790</td>
</tr>
<tr>
<td>Heat stress tolerance (slip), 100°C, 8 days</td>
<td>≥50 D</td>
<td>mm</td>
<td>ASTM D3916</td>
</tr>
<tr>
<td>Minimum Bend Radius at 25°C</td>
<td>≤25</td>
<td>D</td>
<td>mm</td>
</tr>
</tbody>
</table>

**PHYSICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Properties</th>
<th>Value</th>
<th>Units</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aramid content</td>
<td>67±3</td>
<td>%</td>
<td>ASTM D3916</td>
</tr>
<tr>
<td>Unit weight</td>
<td>0.17±0.05</td>
<td>gm/m</td>
<td>Weighing Scale</td>
</tr>
<tr>
<td>Diameter tolerance</td>
<td>&lt;0.05</td>
<td>mm</td>
<td>Micrometer</td>
</tr>
<tr>
<td>Ovality</td>
<td>&lt;0.05</td>
<td>mm</td>
<td>Micrometer</td>
</tr>
</tbody>
</table>

**Packaging Details**

<table>
<thead>
<tr>
<th>Properties</th>
<th>Spool Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spool Diameter</td>
<td>630, 935, 935, 935, 1025</td>
</tr>
<tr>
<td>Barrel Diameter</td>
<td>300, 400, 400, 400, 450</td>
</tr>
<tr>
<td>Traverse</td>
<td>450, 400, 450, 500, 510</td>
</tr>
<tr>
<td>Overall Width</td>
<td>514, 464, 514, 614, 674</td>
</tr>
<tr>
<td>Central Bore (CB)</td>
<td>80, 80, 80, 80, 80</td>
</tr>
<tr>
<td>CB to Dinning hole distance</td>
<td>120, 120, 120, 120, 120</td>
</tr>
</tbody>
</table>

**Fiber Reinforced Plastic (ARP) Rod**

**PRODUCT DESCRIPTION**
- Aramid Reinforced Plastic (ARP) Rod manufactured using Aramid yarn and a proprietary resin system to provide low bending radius & good anti-buckling properties with very high modulus
- Aramid Reinforced Plastic (ARP) rods are non-metallic composites designed primarily for use as a central strength member in fiber optic cables
- Aramid Reinforced Plastic (ARP) rods offer high tensile strength & better bending properties with minimum weight

**PRODUCT APPLICATION**
- Aramid Reinforced Plastic (ARP) Rod in addition to high tensile modulus and protection during installation
- It is most suitable for Aerial, FTTH, Drop and Micro duct cables
- These are also ideal for all dielectric cable configurations where placement close to power lines is common

**0.40 mm ARAMID REINFORCED PLASTIC ROD**

**PHYSICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Properties</th>
<th>Value</th>
<th>Units</th>
<th>Test Method</th>
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<tbody>
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**MECHANICAL PROPERTIES**

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<th>Properties</th>
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<th>Units</th>
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</tr>
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<tbody>
<tr>
<td>Tensile strength at break</td>
<td>≥1.50</td>
<td>GPa</td>
<td>ASTM D3916</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>≥2.5</td>
<td>%</td>
<td>ASTM D3916</td>
</tr>
<tr>
<td>Tensile modulus</td>
<td>≥50</td>
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<td>Minimum Bend Radius at 25°C</td>
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</tbody>
</table>

**0.50 mm ARAMID REINFORCED PLASTIC ROD**

**PHYSICAL PROPERTIES**

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</tbody>
</table>
Let’s go green