Our cables at:

ATHENS AIRPORT

PIRAEUS PORT

TUNNEL IN PARIS

NATIONAL PETROLEUM OIL COMPANY
- SYMBOLS AND THE MEANING OF THE SYMBOLS FOR FIBRE OPTIC CABLES

- SINGLE LOOSE TUBE, SINGLE SHEATH, NON METALLIC

- SINGLE LOOSE TUBE, SINGLE SHEATH, CORRUGATED STEEL TAPE ARMORED,

- MULTI LOOSE TUBE, SINGLE SHEATH, NON METALLIC ARMORED / DUCT

- MULTI LOOSE TUBE, SINGLE SHEATH, NON METALLIC ARMORED / DUCT TYPE DRY CORE CABLE

- MULTI LOOSE TUBE, SINGLE SHEATH, CORRUGATED STEEL TAPE ARMORED, DIRECT BURIAL / DUCT TYPE

- MULTI LOOSE TUBE, DOUBLE SHEATH, DOUBLE GALVANIZED STEEL TAPE ARMORED, DIRECT BURIAL / DUCT TYPE

- MULTI LOOSE TUBE, DOUBLE SHEATH, CORRUGATED STEEL TAPE ARMORED, DIRECT BURIAL / DUCT TYPE

- MULTI LOOSE TUBE, DOUBLE SHEATH, NON METALLIC ARMORED, DIRECT BURIAL / DUCT TYPE

- MULTI LOOSE TUBE, DOUBLE SHEATH, ADSS AERIAL TYPE

- SIMPLE PATCH CABLE (ZIPCORD)

- DUBLEX PATCH CABLE (DUBLEX ZIPCORD)

- BREAKOUT CABLES INDOOR

- BREAKOUT CABLES OUTDOOR

- AERIAL TYPE BREAKOUT CABLES WITH MESSENGER
# THE MEANING OF THE SYMBOLS FOR FIBRE OPTIC CABLES

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<th>Description</th>
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<tbody>
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<td>SINGLE LOOSE TUBE</td>
</tr>
<tr>
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<tr>
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<td>CORRUGATED STEEL TAPE</td>
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<tr>
<td>NMA</td>
<td>NON METALLIC STRENGTH MEMBER</td>
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<td>DOUBLE ARMOR TWO LAYERS OF GALVANIZED STEEL TAPE</td>
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<td>SINGLE JACKET (SHEATH)</td>
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<td>-P</td>
<td>FIBER OPTIC + POWER HYBRID CABLE</td>
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<td>LSZH</td>
<td>LOW SMOKE ZERO HALOGEN SHEATH</td>
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<td>ADSS</td>
<td>ALL DIELECTRIC SELF SUPPORTING CABLE</td>
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<td>DIN VDE 0888</td>
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<td>A-</td>
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<tr>
<td>B</td>
<td>ARMORING</td>
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<tr>
<td>(BN)</td>
<td>GLASS YARN NON METALLIC ARMORING FOR RO- DENT PROTECTION</td>
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<tr>
<td>D</td>
<td>LOOSE BUFFER TUBE, FILLED GLASS YARN NON METALLIC ARMORING FOR RO- DENT PROTECTION</td>
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<td>E</td>
<td>SINGLE MODE FIBER</td>
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<td>F</td>
<td>FILLING COMPOUND IN THE CABLE CORE</td>
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<td>G</td>
<td>MULTI MODE FIBER</td>
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<td>J-</td>
<td>INDOOR CABLE</td>
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<tr>
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<td>LAMINATED ALUMINIUM TAPE</td>
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<td>Q</td>
<td>DRY SWELLABLE MATERIAL IN THE CABLE CORE (DRY CORE)</td>
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<tr>
<td>(SR)</td>
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<tr>
<td>Y</td>
<td>POLYVINYL CHLORIDE JACKET (SHEATH)</td>
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<td>POLYETHYLENE JACKET (SHEATH)</td>
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<td>(ZN)</td>
<td>NON-METALLIC ANTI-BUCKLING ANG STRENGTH MEMBERS</td>
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SINGLE LOOSE TUBE, SINGLE SHEATH, NON METALLIC ARMoured DUCT TYPE INTERNAL & EXTERNAL FIBER OPTIC CABLE

**Applications**
- Light weight structure enables easy and fast installation
- Non Metallic / All dielectric structure prevents electromagnetic interference
- Rodent Protection and waterproof
- Preferred for LAN, WAN applications for structural cabling and premise networks
- Optional LSZH sheath enables usage as Indoor cable as well as Outdoor

**Construction:**
1 - Outer PE Sheath (Optional LSZH sheath)
2 - E-Glass yarn
3 - Loose Tube (PBT)
4 - Water Resistive Tube filling Compound
5 - Optical fibers
6 - Ripcord

**Technical Data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tr>
<td>Optic Fiber Type:</td>
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<td>Crush Strength (N/10cm)</td>
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<td>Min Permissible Bending Radius (mm)</td>
<td>15xo static &amp; 20xo dynamic where o is cable outside diameter in mm</td>
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<td>Temperature Range (°C)</td>
<td>During Operation: -40 °C to + 70 °C During Installation: -30 °C to + 60 °C</td>
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**Standards References:**
- IEC 60793
- IEC 60794
SINGLE LOOSE TUBE, SINGLE SHEATH, CORRUGATED STEEL TAPE ARMOURED, DIRECT BURIAL / DUCT TYPE

Applications
- Light weight structure enables easy and fast installation
- Smaller diameter permits easy handling
- Rodent Protection and waterproof
- Application in PE Pipes by blowing / plough technique
- Preferred for LAN, WAN, MAN application for structural cabling and Premise networks
- Possibility of usage as Indoor Cable as well as Outdoor due to light structure
- Optional supporting or galvanized Steel Wire or Power Cable:
  - SLT-SA-SJ-A (A-DQ(ZN)(SR)2YT)
  - SLT-NMA-SJ-A (A-DQ(ZN)B2YT)
  - SLT-NMA-SJ-P (A-DQ(ZN)B2Y+POWER)

Construction:
1 - Outer PE Sheath (Optional LSZH Yarn)
2 - Non Metallic Strenght element
   (glass Yarn or Aramid Yarn)
3 - Core Wrapping(s)
4 - PBT Tube
5 - Core Filling Compound
6 - Optical Fibers
7 - Water Resistive Tube Filling Compound
8 - Non Metallic Central Strenght Member
9 - Ripcord

Technical Data
Optic Fiber Type:
- SM: 652-B, G 652-D, G 655
- MM: 62,5/125 OM1, 50/125 OM2, 50/125 OM3

Core Count: 2 to 24
Cable Weight (kg/Km): 85

Outer Diameter (mm): 7,5
Tensile Strenght (N) (IEC 794-1-E1): 1200
Crush Strength (N/10cm) (IEC 794-1-E3): 2500

Min Permissible Bending Radius (mm) (IEC 794-1-E 11):
- 15xo static & 20xo dynamic where o is cable outside diameter in mm

Temperature Range (°C) (IEC 794-1-F-1):
- During Operation: -40 °C to + 70 °C
- During Installation: -30 °C to + 60 °C
### Technical Data

**Optic Fiber Type:**
- SM: 652-B, G 652-D, G 655
- MM: 62.5/125 OM1, 50/125 OM2, 50/125 OM3

**Tensile Strength (N)** (IEC 794-1-E1):
- 1200 (Min.) to 6000

**Crush Strength (N/10cm)** (IEC 794-1-E3):
- 3000

**Min Permissible Bending Radius (mm)** (IEC 794-1-E11):
- 15xo static & 20xo dynamic where o is cable outside diameter in mm

**Temperature Range (°C)** (IEC 794-1-F-1):
- During Operation: -40 °C to + 70 °C
- During Installation: -30 °C to + 60 °C

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### Construction:

1. Outer PE Sheath (Optional LSZH Yarn)
2. Non Metallic Strenght element (glass Yarn or Aramid Yarn)
3. Core Wrapping(s)
4. PBT Tube
5. Core Filling Compound
6. Optical Fibers
7. Water Resistive Tube Filling Compound
8. Non Metallic Central Strenght Member
9. Ripcord

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### Other type of Multi Loose Tube, Single Sheath, Non Metallic Armored/Duct

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### Standards

References:
- IEC 60793
- IEC 60794

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**Applications**

- Light weight structure enables easy and fast installation
- Possibility of usage as Indoor Cable as well as Outdoor due to light structure
- Non Metallic Construction / All dielectric structure prevents electromagnetic interference and enables application in power lines side by side with Energy Cables
- Waterproof
- Rodent protection-provided by adequate amount of E glass yarn
- Suitable to be installed with blowing/ploughing method
- Optional LSZH Sheath
MULTI LOOSE TUBE, SINGLE SHEATH, NON METALLIC ARMOURED/DUCT, TYPE DRY CORE CABLE

Applications
- Light weight structure enables easy and fast installation
- Possibility of usage as Indoor Cable as well as Outdoor due to light structure
- Non Metallic Construction / All dielectric structure prevents electromagnetic interference and enables application in power lines side by side with Energy Cables
- Waterproof
- Rodent protection-provided by adequate amount of E glass yarn
- Suitable to be installed with blowing/ploughing method
- Optional LSZH Sheath

Construction:
1. Outer PE Sheath (Optional LSZH Yarn)
2. Non Metallic Strength element (glass Yarn or Aramid Yarn)
3. Water Swelling Tape
4. PBT Tube
5. Water Swelling Yarn
6. Optical fibers
7. Water Resistive Tube filling Compound
8. Non Metallic Central Strength Member (FRP)
9. Ripcord

Technical Data

Optic Fiber Type:
- SM: 652-B, G 652-D, G 655
- MM: 62,5/125 OM1, 50/125 OM2, 50/125 OM3

Tensile Strength (N) (IEC 794-1-E1):
1200 (Min.) to 6000

Crush Strength (N/10cm) (IEC 794-1-E3):
3000

Min Permissible Bending Radius (mm) (IEC 794-1-E 11):
15xo static & 20xo dynamic where o is cable outside diameter in mm

Temperature Range (°C) (IEC 794-1-F-1):
- During Operation: -40 °C to + 70 °C
- During Installation: -30 °C to + 60 °C

Other type of Multi Loose Tube, Single Sheath, Non Metallic Armored/Duct Type Dry Core Cable

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<tr>
<th>Fiber Count</th>
<th>Buffer Count</th>
<th>Filler Count</th>
<th>Cable Diameter Aprx (mm)</th>
<th>Cable Weight (Kg/Km)</th>
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Standards
- IEC 60793
- IEC 60794

References:
- IEC 60793
- IEC 60794
MULTI LOOSE TUBE, SINGLE SHEATH, CORRUGATED STEEL TYPE ARMORED, DIRECT BURIAL/ DUCT TYPE

Applications
- Light weight but heavy duty direct burial / duct usage
- Single sheath enables easy and fast installations
- Suitable to be installed and used in harsh environments under heavy weather conditions
- Rodent Protection and waterproof
- Application both as backbone cable for WAN Telecommunication Systems and as data lines for LAN / Structure Cabling

Construction:
1. Outer PE Sheath (Optional LSZH Yarn)
2. Corrugated Steel Tape Armored
3. Non Metallic Strength element (glass Yarn or Aramid Yarn)
4. Core Wrapping(s)
5. Core filling Compound
6. PBT Tube
7. Water Resistive Tube filling Compound
8. Optical fibers
9. Non Metallic Central Strength Member (FRP)
10. Ripcord

Technical Data
Optic Fiber Type:
- SM: 652-B, G 652-D, G 655
- MM: 62.5/125 OM1, 50/125 OM2, 50/125 OM3

Tensile Strength (N) (IEC 794-1-E1):
1500 (Min.) to 6000

Crush Strength (N/10cm) (IEC 794-1-E3):
4000

Min Permissible Bending Radius (mm) (IEC 794-1-E 11):
15xo static & 20xo dynamic where o is cable outside diameter in mm

Temperature Range (°C) (IEC 794-1-F-1):
- During Operation: -40 °C to + 70 °C
- During Installation: -30 °C to + 60 °C

Other type of Multi Loose Tube, Single Sheath, Corrugated Steel Tape Armored, Direct Burial /Duct Type

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<tr>
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<th>Buffer Count</th>
<th>Filler Count</th>
<th>Cable Diameter Aprx (mm)</th>
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MULTI LOOSE TUBE
Multiloose tube, double sheath, double layer swa and spa galvanized steel type armored, direct burial/duct type

Applications:
- Heavy duty cable for direct burial / duct usage
- Suitable to be installed and used in hard environments under heavy weather conditions
- Galvanized Steel Armor and Second Jacket provides protection against Rodents, moisture and all external effects. Waterproof
- Aluminum foil provides extra protection against moisture
- Suitable to be used for all type of underground application
- To be used as backbone cable for WAN telecommunication systems
- Two layers of galvanized steel tapes helically overlapped around the inner jacket to improve the mechanical strength of the cable

Construction:
1. Outer PE Sheath
2. Crepe Paper
3. Helically Applied Double layer of Galvanized Steel Tape by overlapping method
4. Crepe Paper
5. Inner PE Sheath
6. Aluminum Foil
7. Aramid Yarn for tensile strength
8. Core Wrapping(s)
9. Core filling Compound
10. Ripcord
11. PBT Tube
12. Water Resistive Tube filling Compound
13. Optical fibers
14. Non Metallic Central Strength Member

Technical Data

Optic Fiber Type:
- SM: 652-B, G 652-D, G 655
- MM: 62.5/125 OM1, 50/125 OM2, 50/125 OM3

Tensile Strength (N) (IEC 794-1-E1):
3000 (Min.) to 10000

Crush Strength (N/10cm) (IEC 794-1-E3):
6000

Min Permissible Bending Radius (mm) (IEC 794-1-E11):
20x static & 20x dynamic where o is cable outside diameter in mm

Temperature Range (°C) (IEC 794-1-F-1):
- During Operation: -40 °C to + 70 °C
- During Installation: -30 °C to + 60 °C

Construction:

Other type of Multi Loose Tube, Double Sheath, Double Layer Swa and Spa Galvanized Steel Tape Armored, Direct Burial/Duct Type

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<td>6</td>
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<td>96</td>
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<td>144</td>
<td>12</td>
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</table>
MULTI LOOSE TUBE
Multi loose tube, double sheath, corrugated steel tape armored, direct burial / duct type

Applications
- Heavy duty cable for direct burial/duct usage
- Suitable to be installed and used in harsh environments under heavy weather conditions
- Corrugated Steel Armor and Second Jacket provides protection against Rodents, moisture and all external effects
- To be used as backbone cable for MAN, WAN, LAN applications and GSM, CATV, SMATV networks
- Rodent protection and waterproof
- Possibly of installation with blowing/plough technique into PE pipes or applied directly underground

Construction:
1. Outer PE Sheath
2. Corrugated Steel Tape Armored
3. Inner PE Sheath
4. Aramid yarn for tensile strength (or Glass Yarn)
5. Core Wrapping(s)
6. Core filling Compound
7. Ripcord
8. PBT Tube
9. Water Resistive Tube filling Compound
10. Optical fibers
11. Non Metallic Central Strength Member (FRP)

Technical Data
Optic Fiber Type:
SM: 652-B, G 652-D, G 655
MM: 62.5/125 OM1, 50/125 OM2, 50/125 OM3

Tensile Strength (N) (IEC 794-1-E1):
2500 (Min.) to 8000

Crush Strength (N/10cm) (IEC 794-1-E3):
5000

Min Permissible Bending Radius (mm) (IEC 794-1-E11):
15xø static & 20xø dynamic where ø is cable outside diameter in mm

Temperature Range (°C) (IEC 794-1-F-1):
During Operation: -40 °C to + 70 °C
During Installation: -30 °C to + 60 °C

Applications
- Heavy duty cable for direct burial / duct usage
- Suitable to be installed and used in harsh environments under heavy weather conditions
- Corrugated Steel Armor and Second Jacket provides protection against Rodents, moisture and all external effects
- To be used as backbone cable for MAN, WAN, LAN applications and GSM, CATV, SMATV networks
- Rodent protection and waterproof
- Possibly of installation with blowing/plough technique into PE pipes or applied directly underground

Construction:
1. Outer PE Sheath
2. Corrugated Steel Tape Armored
3. Inner PE Sheath
4. Aramid yarn for tensile strength (or Glass Yarn)
5. Core Wrapping(s)
6. Core filling Compound
7. Ripcord
8. PBT Tube
9. Water Resistive Tube filling Compound
10. Optical fibers
11. Non Metallic Central Strength Member (FRP)

Technical Data
Optic Fiber Type:
SM: 652-B, G 652-D, G 655
MM: 62.5/125 OM1, 50/125 OM2, 50/125 OM3

Tensile Strength (N) (IEC 794-1-E1):
2500 (Min.) to 8000

Crush Strength (N/10cm) (IEC 794-1-E3):
5000

Min Permissible Bending Radius (mm) (IEC 794-1-E11):
15xø static & 20xø dynamic where ø is cable outside diameter in mm

Temperature Range (°C) (IEC 794-1-F-1):
During Operation: -40 °C to + 70 °C
During Installation: -30 °C to + 60 °C

Other type of Multi Loose Tube, Single Sheath, Corrugated Steel Tape Armored, Direct Burial / Duct Type

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Buffer Count</th>
<th>Filler Count</th>
<th>Outer Sheath thickness</th>
<th>Cable Diameter Aprx (mm)</th>
<th>Cable Weight (Kg/Km)</th>
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<td>810</td>
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</tbody>
</table>

Standards
References:
- IEC 60793
- IEC 60794
**MULTI LOOSE TUBE**

**MULTILOOSE TUBE, DOUBLE SHEATH, NON METALLIC ARMORED, DIRECT BURIAL / DUCT TYPE**

### Applications
- Heavy duty cable for direct burial / duct usage
- Suitable to be installed and used in hard environments under heavy weather conditions
- Galvanized Steel Armor and Second Jacket provides protection against Rodents, moisture and all external effects. Waterproof
- Aluminum foil provides extra protection against moisture
- Suitable to be used for all type of underground application
- To be used as backbone cable for WAN telecommunication systems
- Two layers of galvanized steel tapes helically overlapped around the inner jacket to improve the mechanical strength of the cable

### Construction:
1. Outer PE Sheath
2. Non metallic strength member (Aramid Yarn or Glass Yarn)
3. Inner PE Sheath
4. Core Wrapping(s)
5. Core filling Compound
6. PBT Tube
7. Optical fibers
8. Water Resistive Tube filling Compound
9. Non Metallic Central Strength Member(FRP)
10. Ripcord

### Technical Data

<table>
<thead>
<tr>
<th>Optic Fiber Type</th>
<th>Tensile Strength (N) (IEC 794-1-E1):</th>
<th>Crush Strength (N/10cm) (IEC 794-1-E3):</th>
<th>Min Permissible Bending Radius (mm) (IEC 794-1-E1):</th>
<th>Temperature Range (°C) (IEC 794-1-F-1):</th>
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<tbody>
<tr>
<td>SM: 652-B, G 652-D, G 655 MM: 62.5/125 OM1, 50/125 OM2, 50/125 OM3</td>
<td>2000 (Min.) to 5000</td>
<td>4000</td>
<td>15xo static &amp; 20xo dynamic where o is cable outside diameter in mm</td>
<td>During Operation: -40 °C to + 70 °C During Installation: -30 °C to + 60 °C</td>
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### Other type of Multi Loose Tube, Double Sheath, non Metallic Armored, Direct Burial/Duct Type

<table>
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<tr>
<th>Fiber Count</th>
<th>Buffer Count</th>
<th>Filler Count</th>
<th>Outer Sheath thickness</th>
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<th>Cable Weight (Kg/Km)</th>
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<tr>
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<td>5</td>
<td>1,1/1,6</td>
<td>14</td>
<td>140</td>
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<td>4</td>
<td>1,1/1,6</td>
<td>14</td>
<td>140</td>
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<tr>
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<tr>
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<td>1,1/1,6</td>
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<td>390</td>
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</table>
MULTI LOOSE TUBE
Multi loose tube, double sheath, adss aerial type

Applications
- Aerial cable type without Steel Messenger Wire
- Aerial installation between the poles with the help of special installation / suspension equipment
- All dielectric construction enables application in power lines side by side with Energy Cables
- Very light and easy to install
- Special High Density Black PE provides excellent resistance during installation and protection against external effects like tough weather conditions and UV Ray during operation
- Generally preferred as Aerial backbone cable for Wide Area Telecom Networks
- Optional armored steel wire supported version: MLT-SA-SJ -A (A-DF(SR)2YT)

Construction:
1. Outer Black special HDPE Sheath
2. High modulus Aramid Yarns
3. Optional Inner PE Sheath
4. Core Wrapping(s)
5. PBT tube
6. Core filling Compound
7. Optical fibers
8. Water Resistive Tube filling Compound
9. Non Metallic Central Strength Member
10. Ripcord

Technical Data
Optic Fiber Type:
SM: 652-B, G 652-D, G 655
MM: 62,5/125 OM1, 50/125 OM2, 50/125 OM3

Tensile Strenght (N) (IEC 794-1-E1):
2700 (Min.) to 15000

Crush Strength (N/10cm) (IEC 794-1-E3):
4000

Min Permissible Bending Radius (mm) (IEC 794-1-E 11):
15x static & 20x dynamic where o is cable outside diameter

Temperature Range (°C) (IEC 794-1-F-1):
During Operation: -40 °C to + 70 °C
During Installation: -30 °C to + 60 °C

Other type of Multi Loose Tube, Double Sheath, Adds Aerial Type

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Buffer Count</th>
<th>Filler Count</th>
<th>Outer Sheath thickness</th>
<th>Cable Diameter Aprx (mm)</th>
<th>Cable Weight (Kg/Km)</th>
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<td>1,1/1,6</td>
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<td>1,1/1,6</td>
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<td>1,1/1,6</td>
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<td>2</td>
<td>1,1/1,6</td>
<td>16</td>
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<td>5</td>
<td>1</td>
<td>1,1/1,6</td>
<td>16</td>
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<tr>
<td>72</td>
<td>6</td>
<td>-</td>
<td>1,1/1,6</td>
<td>16</td>
<td>180</td>
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</tbody>
</table>

Standards References:
- IEC 60793
- IEC 60794
SIMPLE PATCH CABLE (zipcord)

Applications
- Indoor interconnected and Patch-cord installations. All dielectric non-metallic construction, hence no ground loop problems

Construction:
1. Optical fiber
2. Tight buffered fibre of 900 µm diameter (Easy to strip)
3. Non-metallic strenght members (Aramide or glass yarn)
4. Flame Retardant Non-Corrosive/Low Smoke Zero Halogen Outer Jacket

Technical Data

<table>
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<th>Number of Fibers:</th>
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<tr>
<td>Optic Fiber Type:</td>
<td>ITU-T G.651 (MM), ITU-T G.652 (SM), ITU-T g.655 &amp; G.656 (NZDS Fiber)</td>
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<tr>
<td>Outer Sheath Diameter:</td>
<td>1.8 mm / 2.8 mm</td>
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<td>Weight:</td>
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<td>Minimum Bending Radius:</td>
<td>25 (N)</td>
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<td>Tensile Strenght:</td>
<td>150,200 (N)</td>
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<td>Crush Resistance:</td>
<td>300 (N)</td>
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<tr>
<td>Operating Temperature:</td>
<td>-30°C to +70°C</td>
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</tbody>
</table>

Standard Cable Colour

- Multi Mode 50/125: Blue
- Multi Mode 62.5/125: Orange
- Single-Mode: Yellow (Other colours are available upon request)

Standard Cable Marking: Cable <Cable Type><Meter Marking><Manufacturing Year>

Standards References:
- IEC 60793
- IEC 60794
DOUBLE PATCH CABLE (Dublex Zipcord)

**Applications**
- Indoor interconnected and Patch-cord installations. All dielectric non-metallic construction, hence no ground loop problems

**Construction:**
1. Optical fiber
2. Tight buffered fibre of 900 µm diameter (Easy to strip)
3. Non-metallic strenght members (Aramid or glass yarn)
4. Flame Retardant Non-Corrosive/Low Smoke Zero Halogen Outer Jacket

**Technical Data**
- **Number of Fibers:** 2
- **Optic Fiber Type:** ITU-T G.651 (MM), ITU-T G.652 (SM), ITU-T g.655 & G.656 (NZDS Fiber)
- **Outer Sheath Diameter:** 1,8 x 3,6 mm / 2,8 x 5,6 mm
- **Weight:** 14,20 (Kg/Km)
- **Minimum Bending Radius:** 25 (N)
- **Tensile Strenght:** 300 (N)
- **Crush Resistance:** 400 (N)
- **Operating Temperature:** -30°C to +70°C
- **Standard Cable Colour**
  - Multi Mode 50/125: Blue
  - Multi Mode 62,5/125: Orange
  - Single-Mode: Yellow (Other colours are available upon request)
- **Standard Cable Marking:** Cable <Cable Type><Meter Marking><Manufacturing Year>

**Standards**
- IEC 60793
- IEC 60794
### Breakout Cables Indoor

**Applications**
- Indoor and duct installations; Halogen Free Flame Retardant / Flame Retardant Non-Corrosive / Low Smoke Zero Halogen design. All dielectric non-metallic construction, hence no ground loop problems; Ready for direct connectorization in field; suitable for backbone and horizontal sub systems such as FTTH and FTTD.

**Construction:**
1. Optical fiber
2. Tight buffered fibre of 900 µm diameter (Easy to strip)
3. Non-metallic strenght members (Aramide or glass yarn)
4. Flame Retardant Non-Corrosive/Low Smoke Zero Halogen Outer Jacket

---

#### Technical Data

<table>
<thead>
<tr>
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<th>Characteristics</th>
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<td>Number of Fibers</td>
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<tr>
<td>Optic Fiber Type</td>
<td>ITU-T G.651 (MM), ITU-T G.652 (SM), ITU-T g.655 &amp; G.656 (NZDS Fiber)</td>
</tr>
<tr>
<td>Outer Sheath Diameter</td>
<td>4.0 mm to 7.5 mm</td>
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<td>Weight</td>
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<td>Minimum Bending Radius</td>
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<tr>
<td>Tensile Strenght</td>
<td>400 to 2000 (N)</td>
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<tr>
<td>Crush Resistance</td>
<td>1000 (N)</td>
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<td>Operating Temperature</td>
<td>-30°C to +70°C</td>
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<tr>
<td>Standard Cable Colour</td>
<td>Multi Mode 50/125-62,5/125: Orange</td>
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<tr>
<td>Single-Mode</td>
<td>Yellow (Other colours are available upon request)</td>
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<tr>
<td>Standard Reel Lenght</td>
<td>1000 m - 2000 m</td>
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<td>Standard Cable Marking</td>
<td>Cable &lt;Cable Type&gt;&lt;Meter Marking&gt;&lt;Manufacturing Year&gt;</td>
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**Standards References:**
- IEC 60793
- IEC 60794
BREAKOUT CABLES OUTDOOR

Applications
- Outdoor and duct installations; ready for direct connectorization in field; suitable for backbone and horizontal sub systems such as FTTH and FTTD.

Construction:
1. Optical fiber
2. Tight buffered fibre of 900 μm diameter (Easy to strip)
3. Non-metallic strength members (Aramid or glass yarn)
4. Flame Retardant Non-Corrosive/Low Smoke Zero Halogen Outer Jacket
5. Corrugated Steel Tape armored
6. Outer Black PE Sheath

Technical Data

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<thead>
<tr>
<th>Number of Fibers:</th>
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<tr>
<td>Outer Sheath Diameter:</td>
<td>10 mm / 12 mm</td>
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<tr>
<td>Weight:</td>
<td>110,140 (Kg/Km)</td>
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<td>Minimum Bending Radius:</td>
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<td>Tensile Strength:</td>
<td>1200 to 2000 (N)</td>
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<td>Crush Resistance:</td>
<td>2000 (N)</td>
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<td>Operating Temperature:</td>
<td>-30°C to +70°C</td>
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Standard Cable Colour
- Standard Colour: Black
- Multi Mode 50/125-62,5/125: Orange

Standard Reel Length: 1200 m - 2000 m

Standard Cable Marking: Cable <Cable Type><Meter Marking><Manufacturing Year>

Standards
- IEC 60793
- IEC 60794

www.ramcro.it
AERIAL TYPE BREAKOUT CABLES WITH MESSENGER

Applications
- Outdoor and Aerial installations; ready for direct connectorization in field; suitable for backbone and horizontal sub systems such as FTTH and FTTD.

Construction:
1. Optical fiber
2. Tight buffered fibre of 900 µm diameter (Easy to strip)
3. Non-metallic strength members (Aramid or glass yarn)
4. Flame Retardant Non-Corrosive/Low Smoke Zero Halogen Outer Jacket
5. Corrugated Steel Tape armored
6. Outer Black PE Sheath
7. Supporting Steel Wire

Technical Data

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<td>Number of Fibers</td>
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<tr>
<td>Optic Fiber Type</td>
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<tr>
<td>Outer Sheath Diameter</td>
<td>8.5 x 16 mm to 13x21 mm</td>
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<td>Minimum Bending Radius</td>
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<td>Tensile Strength</td>
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<td>Crush Resistance</td>
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<td>Standard Reel Lenght</td>
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<td>Standard Cable Marking</td>
<td>Cable &lt;Cable Type&gt;&lt;Meter Marking&gt;&lt;Manufacturing Year&gt;</td>
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Standards References:
- IEC 60793
- IEC 60794
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<th>TYPE OF CABLE</th>
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<td>POLSKIE LNG REGASIFICATION TERMINAL PROJECT</td>
<td>SIRTI</td>
<td>FIBER HYBRID CABLE</td>
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<td>LYBIA</td>
<td>SWEET CONDENSATE STABILIZER UNIT PROJECT – AT MARSA EL BREGA GAS PLANT</td>
<td>SIRTE OIL COMPANY</td>
<td>FIBER HYBRID CABLE</td>
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<tr>
<td>DUBAI</td>
<td>NATIONAL PETROLEUM CONST. CO</td>
<td>NPCC &amp; ADCO</td>
<td>FIBER OPTICAL CABLE</td>
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