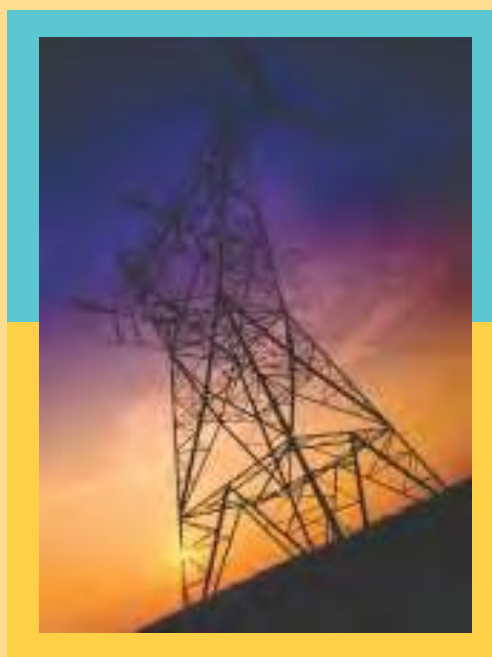


# COPPER TELECOM CABLES

## FIBER OPTIC CABLES



Dataflex Cables Enterprises is one of India's largest business conglomerates. Since its inception in 1979, Dataflex Cables enterprises have been one of the fastest growing business house in India. Dataflex Cables Enterprises has diverse businesses under its fold ranging from Power, Tyres, Infrastructure, IT to Pharma and cables. The group's management comprises individuals extensively qualified and experienced in their domain areas. Dataflex cables's wide ranging business invite growing returns and high esteem in the eyes of all its stakeholders. The group lives by values of keen entrepreneurial skills, performance and excellence

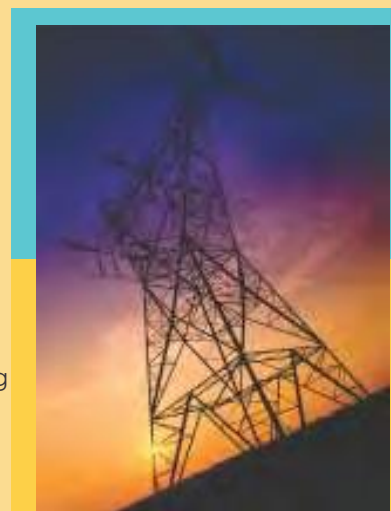
## Dataflex Cables Culture Pillars

- Delivery Focus
- Ownership & Accountability
- Cost & Profitability Focus
- Empowering Performance
- Valuing People
- Forward Looking
- Diverse Opportunities



KEC International Limited is one of the largest Power Transmission Engineering, Procurement & Construction (EPC) companies in the world. KEC, a US \$ 1 Billion turnover company of the DATAFLEX CABLES Group from India, has a significant presence in the segments of Power Transmission & Distribution, Cabling, Railways, Telecom and water resource management. KEC's strengths lie in Design, Manufacture, Supply and Construction of Turnkey Projects in the areas of Power Transmission lines up to 1200 Kv, Power Distribution networks, Substations, Telecom, Railways, Cabling & Engineering Services. It has also developed in-house expertise to execute hot line stringing and Optical Ground Wire (OPGW) jointing. KEC has made an

indelible mark on the world map by constantly and consistently re-engineering itself to retain its position of leadership in the areas of quality, technology, capacity and capability. KEC has gone from strength to strength successfully exporting its EPC services to over 45 countries and widening its client base across the world.



Dataflex cables merged with KEC International Limited and it has established as one of the leading power and telecom cables manufacturer with 3 manufacturing facilities in India for Low Tension, High Tension and EHV (Extra High Voltage) Cables catering to Power sector and Jelly filled Copper Telecom Cables and Optic Fiber cables from 2 fibers to 288 fibers catering to Telecom sector in India and several countries abroad.

### Manufacturing Facilities:

#### Product Range:

- Instrumentation Cables & Fire survival Cables
- LTPVC / XLPE Power Cables upto 1000sq.mm
- LT PVC / XLPE Control Cables
- Flexible and House Wires as per IS 694
- Optic Fiber Cables - 2f to 288f for Direct Burial / Duct / Aerial Deployment.
- PIJF Telecom Cables - 2 to 2400 Pairs in 0.4, 0.5, 0.63, 0.9mm diameter.
- oth Jelly filled and Dry Core - suitable for Direct Burial / Duct / Aerial Deployment.
- LT Power and Control Cables.

## Your best bet for finest quality in Optical Fiber Cables

KEC Manufactures a wide range of Optical Fiber Cables for indoor and outdoor applications.

### Various types of Optical Fiber Cables

- Single & Multi mode Fiber (with OM2 & OM3 type MM Fiber)
- Duct, Direct Burial (Tape Armoured & Wire Armoured), Aerial & Indoor
- Central Loose tube & Multi loose tube designs
- Unarmoured, Single & Double Armoured
- Hybrid & Composite Cables
- Speciality Cables such as Fire Retardant, Anti tracking, Ant termite & Anti rodent type.

### Typical Optical Fiber Parameters

| Parameters                  | Description  |
|-----------------------------|--|
| Type of cable               | Duct, Direct Burial, Aerial ADSS & FTTX                          |
| No of Fiber                 | 2F to 288F   |
| Fiber Type                  | ITU-T G652, G652C, G652D, G653, G654, G655, G657                 |
| Loose tube Material         | PBTP   |
| Water Resistance Material   | Thixotropic Jelly  |
| Strength Member             | FRP, Aramid Yarn, GFR Yarns                                      |
| Moisture Barrier            | Water Swellable Tape & Yarn, Flooding Jelly, Polyal              |
| Armouring Material          | Copolymer coated SS Tape & ECCS Tape                             |
| Sheath/Jacket Material      | HDPE, Antitermite, Anti rodent, Antitracking, LSZH, Polyamide-12 |
| Operating Temperature       | -30°C to +70°C   |
| Tensile Strength (N)        | As per IEC 794-1-E1  |
| Crush Resistance (N)        | As per IEC 794-1-E3  |
| Impact Resistance (N-m)     | As per IEC 794-1-E4  |
| Torsion Test                | As per IEC 794-1-E7  |
| Minimum Bending Radius (mm) | As per IEC 794-1-E11   |
| Repeating Bending           | As per IEC 794-1-E6  |
| Water Penetration Test      | As per IEC 794-1-F5  |
| Kink Resistance (mm)        | As per IEC 794-1-E10   |

KEC International Ltd works for continual improvement in quality for better and efficient products, specifications may change without prior notice.

## World-class plant and machinery

KEC's telecom cable manufacturing facility at Mysore is equipped with most modern machinery manufactured by the world leaders in respective fields.

The process starts with UV coloring of fiber, to secondary coating, SZ stranding and tandem sheathing, armouring and jacketing. We also produce Fig 8 & ADSS cables for aerial deployment. Our design team can help customers to optimize their design for cables.

The cables are manufactured using the most well known fiber brands in the world. We also offer cables to customers with fibers of their preferences.

### Standard Fiber Parameters.

| PARAMETER              | UNIT  | ITU-T-G652B<br>SMF | ITU-T-G652D<br>SMF | ITU-T-G655<br>SMF | ITU-T-G651<br>MM 50/125 | IEC 60793-2<br>MMF 62.5/125 |
|------------------------|-------|--------------------|--------------------|-------------------|-------------------------|-----------------------------|
| Attenuation at 1300 nm | dB/Km | NA                 | NA                 | NA                | Max. 2.5                | Max. 2.7                    |
| Attenuation at 1310 nm | dB/Km | Max. 0.36          | Max. 0.35          | NA                | NA                      | NA                          |
| Attenuation at 1550 nm | dB/Km | Max. 0.23          | Max. 0.22          | Max. 0.23         | NA                      | NA                          |
| Attenuation at 1625 nm | dB/Km | NA                 | Max. 0.25          | Max. 0.25         | NA                      | NA                          |
| Attenuation at 850 nm  | dB/Km | NA                 | NA                 | NA                | Max. 0.6                | Max. 0.7                    |
| Attenuation at 1383 nm | dB/Km | NA                 | Max. 0.32          | NA                | NA                      | NA                          |

### Copper Telecom Cables

DATAFLEX CABLES manufacture Copper Telecom Cables which meets and exceeds all the national and international standards. With its state of the art manufacturing facility and unique ability to cater to specific customer requirements from across the globe, DATAFLEX CABLES is well placed to be your preferred manufacturer.

#### Copper Telecom Cables Product range includes

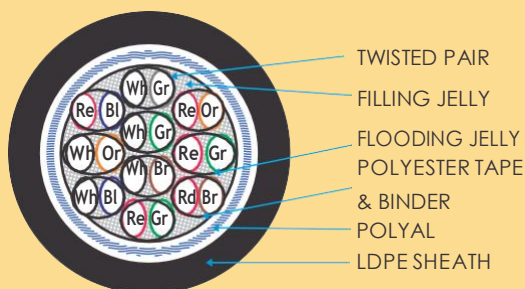
- Dry core / Jelly filled unarmoured cables (Duct)
- Dry core / Jelly filled armoured cable (direct burial)
- Overhead aerial cables (figure of 8)

With its state-of-the-art manufacturing facility, DATAFLEX CABLES cables are set to give you the best quality copper telecom cables. The plant is equipped with world class machineries for manufacturing and testing of telecom cables.

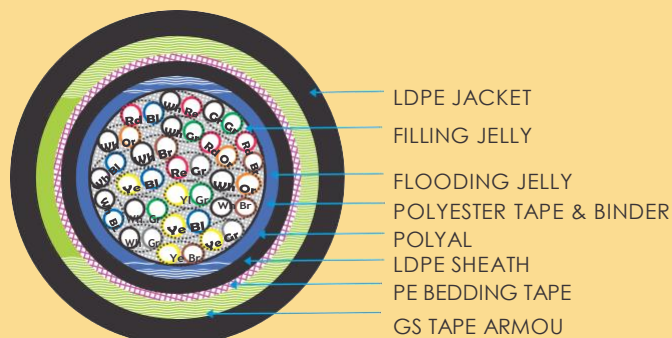
#### Various copper telecom cables available with DATAFLEX CABLES include:

- Jelly filled and Unfilled twisted pair telephone cables
- From 2 pairs to 2400 pairs per cable
- Conductor dia: 0.4 mm; 0.5 mm; 0.63 mm; 0.65 mm, 0.8 mm, 0.9 mm etc
- Foam skin / Solid PE insulated cables
- Armoured (Direct Burial), Unarmoured (Duct) and Self supporting Aerial cables construction
- Railway Signalling and Telecommunication cables.

10 PAIR 0.9 mm UNARMoured JFTC



20 PAIR 0.5 mm ARMoured PIJF CABLE



## Outdoor Cables

Copper telecom cables for outdoor use are basically twisted pair cables. The twisted pairs are laid up, jelly filled with polyethylene sheath. Depending on the design, the cable can be installed in ducts or directly underground.

Where possibilities of mechanical damage are high, it is recommended that armoured cables are used. The armouring can be done either with galvanized steel tape, steel wire or corrugated steel tape.

DATAFLEX CABLES also manufactures and exports large quantity of Aerial & self supporting 'Fig 8' cable with messenger wire / strand to facilitate deployment of cable aurally. We also manufacture cables for indoor applications with PVC / FRLS PVC sheath.

### Copper Telecom Cables



## Typical Technical Data Sheet of Copper Telecom Cable

| Parameters   |   |        |        |        |
|--|---|--------|--------|--------|
| Nominal Conductor Size (mm)  | 0.4   | 0.5    | 0.63   | 0.9    |
| Conductor Resistance (per km in ohms.)   |   |        |        |        |
| Individual   | 135 ± 8   | 86 ± 6 | 58 ± 4 | 28 ± 2 |
| Conductor Resistance Unbalance (%) Individual                                      |   |        |        |        |
| Average  | 3   | 2.5    | 2      | 2      |
|  | 1.5   | 1      | 1      | 1      |
| Conductor Elongation (minimum %)   | 15  | 15     | 18     | 18     |
| Attenuation at 150 kHz (db/km)   |   |        |        |        |
| shall not exceed   | 12  | 8.25   | 6.3    | 4.4    |
| Insulation   | Solid (MDPE/HDPE) / Foam Skin   |        |        |        |
| Spark Test   | 3 KV RMS AC or 4.5 KV DC, 1 Spark per 5 k.m of the insulated conductor      |        |        |        |
| Retraction of Insulation (shall not exceed)  | 2.5 mm after 1 min  |        |        |        |
| Resistance to Compression  | 200 N, 12 V DC  |        |        |        |
| Insulation Resistance at 500V DC for 1 minute                                      | 5000 Mega Ohm-Km or Higher as per customer requirement                      |        |        |        |
| Construction   | 5/10/20 pair units & 50/100 pair super units of sizes: 5 pair to 2400 pairs |        |        |        |
| Filling Compound   | Water Resistant Compound (Petro Jelly)                                      |        |        |        |
| Core wrap  | Polyester tape  |        |        |        |
| Moisture Barrier/Screen  | Poly – Aluminium Tape   |        |        |        |
| Sheath / Jacket  | LDPE  |        |        |        |
| Armouring  | Galvanised Steel Tape / Corrugated Steel Tape / Steel Wire Armoured         |        |        |        |
| Armouring Bedding  | PE Tape   |        |        |        |
| Mutual Capacitance (nF/KM) at 800~1000 Hz  |   |        |        |        |
| Individual   | 52 ± 4.5  |        |        |        |
| Average  | 52 ± 3  |        |        |        |
| Equal Level Far End Cross Talk (dB/Km) at 150 Khz                                  | Better than 67.8 RMS, Indvl. 55   |        |        |        |
|  |   |        |        |        |
| Near End Cross talk (dB/Km) at 150 KHz   | Better than 55 (individual value)   |        |        |        |
| Pairs  | From 2 pairs to 2400 pairs  |        |        |        |
| Pair-pair capacitance unbalance (pF/Km) at 800~1000 Hz                             |   |        |        |        |
| Avg Max  | 50  |        |        |        |
| Ind  | 200   |        |        |        |
| Pair-ground capacitance unbalance (pF/Km) at 800~1000 Hz                           |   |        |        |        |
| Avg  | 750   |        |        |        |
| Max Ind  | 3000  |        |        |        |
| Dielectric Strength of insulation between conductors for 3 secs (in kV)            | 2.4   | 2.4    | 3.5    | 3.5    |
| Dielectric Strength of insulation between shield and conductors for 3 secs (in kV) | 5   | 5      | 10     | 10     |

### Corporate Office

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