

**CABLE SELECTION:**

When selecting the correct cable for any installation the first question will be of fibre type. This is dependent upon the transmission distance and the protocol being adopted. Further on in this section is a key to transmission distances on the main fibre types for 1Gb and 10 Gb Ethernet applications. This key is repeated on each page as a reference.

With the choice of fibre type complete, the selection of cable construction must be made. There are several key questions that must be answered in determining cable selection.

**Fibre Count -**

**How many fibres are required?**

This should take into account future demand and allow an element of redundancy. The cost of installation and associated down time will generally outweigh the cost of additional fibre on day one.

Additionally, good practice should be taken into consideration. A large high fibre count cable carrying the majority of a company's data generates a larger risk than several lower fibre count cables should any cable damage occur. Diversity in routing should also be considered in answering this question.

**Cable Properties –**

**What type of cable is required?**

The prime function of the cable is to provide a safe path for the fibre during and post installation. There are a wide variety of cable types to choose from depending on how and where the cable is to be installed.

A summary of the main construction variants and their intended usage is given below.

**Sheath Options:**

**Universal Cables**

These cables are designed for use both internally and externally. They have a Low Smoke Halogen Free (LSHF) compound sheath that reduces the emission of toxic fumes and reduces the spread of fire.

**Outdoor Cables**

These cables are designed only for external use. They have a Low Density Polyethylene sheath that makes the cable lighter than the equivalent LSHF version. This combined with reduced weight makes Outdoor Cables more suited to the longer pulled runs into which they are generally installed. Outdoor Cables may enter buildings, however they must not pass more than 3m into the building dependant on local regulations.

**Cable Options:**

**Premise Distribution (PDC) Cables**

These cables are based on a 900 µm tight buffered element and are generally installed in the backbone of a building network and direct terminated at a consolidation point. Brand-Rex PDC cables are manufactured in our state of the art UK based factory and consist of up to 24 individual tight buffered elements and distributed strength members. The product is then sheathed with a LSHF compound making it suitable for internal and external applications.

**Breakout and Patch Cables**

To produce the building block for breakout cables, a 900 µm tight buffered element is sheathed with an additional layer of LSHF compound over a layer of aramid yarns. This forms a simplex sub unit that can be used in the production of optical patch cords or used for fibre to the desk (FTTD) applications; additionally it forms the base unit for the breakout cables.

Brand-Rex breakout cables are generally installed within equipment rooms as rack to rack links and are manufactured in our state of the art UK based factory. They consist of up to 24 simplex sub units with additional strength members and an outer LSHF universal sheath.

**Loose Tube Cables**

Loose tube cables provide for higher fibre counts than are commonly available in tight buffer element based products such as PDC and breakout cables. They can generally be installed as building or campus links and are available in a variety of constructions offering different mechanical performance.

The building block of a loose tube cable is a PBT tube that contains up to 24 individually coloured optical fibres suspended in a gel material to provide protection and prevent water ingress. These gel filled loose tubes are used to produce either Unitube or Multi Loose Tube cables.

Brand-Rex loose tube cables are manufactured in our UK based optical facility and are available in 4 standard variants;

1. Duct Grade
2. Rodent Resistant Glass Armoured
3. Direct Burial Grade – Single Sheath
4. Direct Burial Grade – Twin Sheath

All 4 variants are available as either Unitube or Multi Loose tube cable. Unitube products are available with up to 24 fibres and Multi Loose Tube products are available with up to 216 fibres as standard, although higher fibre counts are available on request.

The Unitube products take a single gel filled loose tube and apply the relevant armouring and then either a Universal LSHF sheath or a Polyethylene outdoor sheath. The Multi Loose Tube products take up to 18 gel filled loose tubes and SZ strand them around a glass central strength member before adding the relevant armouring and either a Universal LSHF sheath or a Polyethylene outdoor sheath.