

Telecom Cables

For current and future generations



Prysmian
Group

Linking
the Future

CONNECTING THE WORLD. TODAY AND IN THE FUTURE

Prysmian Group is world leader in the energy and telecom cables and systems industry.

With 140 years' experience, the Group is strongly positioned in high-tech markets and offers the widest possible range of products, services, technologies and know-how.

140
YEARS OF
EXPERIENCE

25
R&D CENTRES
AROUND
THE WORLD



We specialise in underground and submarine cables and systems for power transmission and distribution, special cables for applications in many different industries, and medium and low voltage cables for the construction and infrastructure sectors.



For the telecommunications industry, the Group is the world's largest provider of cutting-edge cables and accessories for voice, video and data transmission, offering a comprehensive range of optical fibres, optical and copper cables and connectivity systems.



We are committed to environmental responsibility in our production processes, the protection of the global environment, and the responsible management of relations with the local communities in which we work.



For us, innovation means meeting the needs of our customers and communities by understanding their business drivers as quickly as they do. To do that, our team of over 900 Research & Development professionals is constantly looking to the future, predicting and identifying emerging trends in each of our industries and sectors. Acting on this intelligence from 25 R&D centres around the world, we're constantly close to our customers in their own local markets.

Draka

Our commercial brands

Prysmian Group operates with three strong cable brands: Draka, Prysmian and General Cable. Draka cables are used in the low-voltage energy, industrial and telecom markets.

Prysmian

Prysmian cables and systems are used in high voltage energy and energy distribution networks, but there are also Prysmian Telecom connectivity products.

General Cable

For every application a future-proof solution



FIXED AND MOBILE NETWORK OPERATORS
Prysmian Group is connected with the main operators in the world supplying various copper telecom, optical fibre cables and connectivity solutions.



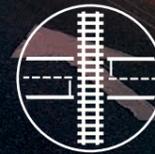
DARK FIBRE AND INTERCONNECT OPERATORS
A broad portfolio of long haul and front haul Fibre optic cable solutions with standard and special fibres. For this market segment we produce ultra high fibre count cables in loose tube or Flexribbon.



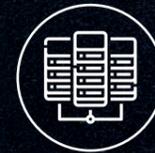
FIBRE-TO-THE-HOME
With smart cabling systems/solutions, such as Ecoslim, RetractaNet and Verticasa, significant reductions in the total installation costs can be achieved.



INDUSTRIAL NETWORKS
'Smart Industry' or Industry 4.0 requires fast reliable connections. Prysmian Group has a sophisticated portfolio for industrial networks. Guaranteed and super fast.



ROAD AND RAIL INFRASTRUCTURE
Our telecom cable package fits in perfectly with our low-voltage and medium-voltage cable portfolio and is approved by rail and road authorities.



DATA CENTERS
Prysmian Group offers the perfect solution for simple cable management with single- & multimode fibre optic cables with BendBrightXS or multi-core Cat. cabling.

Connecting the world with Prysmian Group cables and solutions

THE WORLD IS IN THE MIDST OF A DATA EXPLOSION.

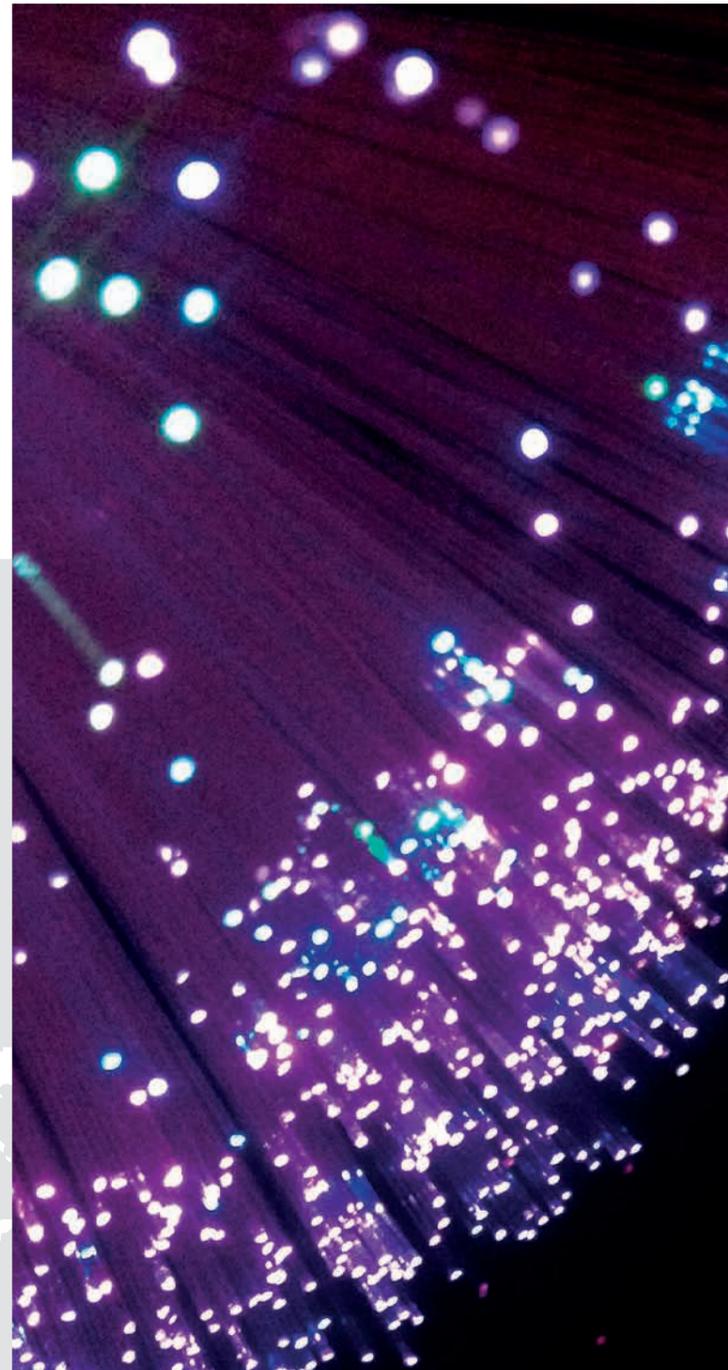
Prysmian Group offers an extensive range of optical and copper cables for every surroundings. We supply different cable densities, types of fibre optic and mechanical constructions. Depending on the specific applications, we offer a tailor-made solution.

In addition to cables, we also offer a full range of products for passive connectivity. With these connectivity products we offer a complete passive telecom cable infrastructure for indoor and outside Plant applications.

A separate catalogue is available for our connectivity products and solutions. In this catalogue we focus on the different cable solutions for all applications.

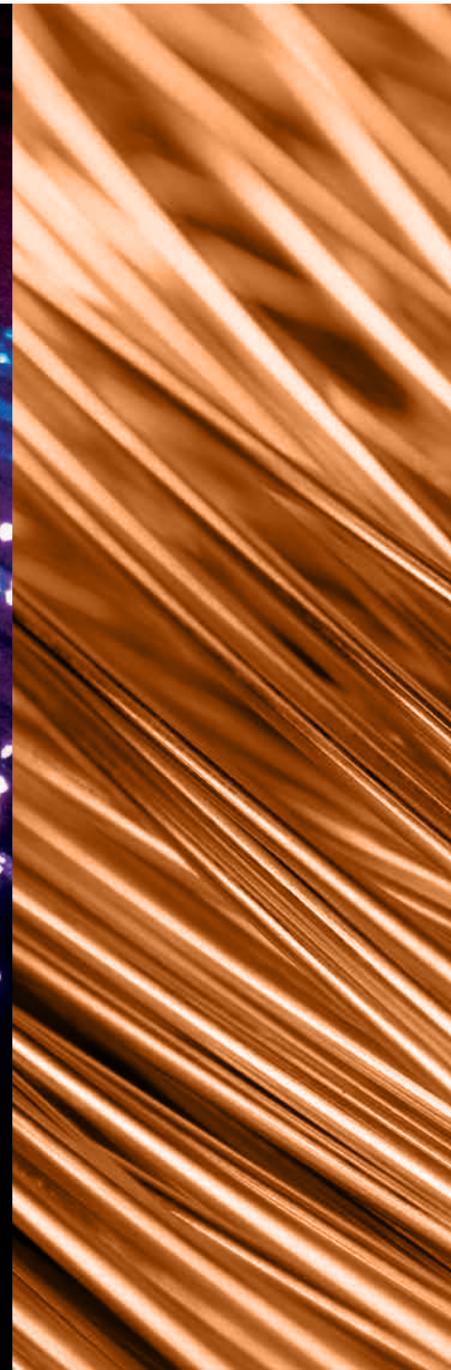


Digital version brochure



Fibre optic cables

A comprehensive portfolio of cables with our own quality fibres for every application and environment.



Copper cables

Telecom quad copper cables and CATV trunk cables for expanding and maintaining copper and coaxial network structures.



Connectivity cables

Bundles, prefab & flexduct cable solutions make the perfect combination with our fibre optic cables, creating extra value.

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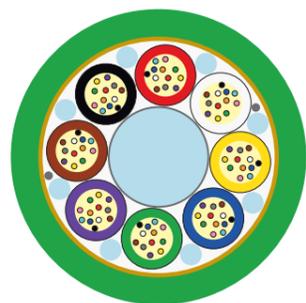
FIBRE OPTIC CABLES

Prysmian Group offers the most extensive range of optical fibres and fibre optic cables, produced in European factories. From standard applications to challenging environments, from single to multimode to specialty fibres. We offer innovative fibre cabling technology that delivers information wherever and whenever it's required fast.

LRE XS Sirocco 6.5

Stranded loose tube mini cables for use in ducts.

- Secondary coating: The fibres are, uniquely identified by a different colour, placed inside 'loose tubes' made of high tensile strength thermoplastic compound.
- Gel compound: The tubes are fully filled with a non-toxic and dermatological safe gel compound.
- Central Strength Member (CSM): The central element consists of FRP (Fibre Reinforced Plastic), with a water-swellable layer.
- Cable core: The required number of tubes (and dummy elements) are stranded (SZ method) around the central element.
- Strength members: Under the outer sheath 2 aramid yarns are applied, serving as ripcord and as strengthening yarns.
- Fillers: between stranded tubes and sheath to improve mechanical characteristics.
- Outer sheath: PE.



Cable Application: This loose tube dielectric optical cable is designed for outdoor installation in ducts and micro ducts by blowing or pulling techniques.

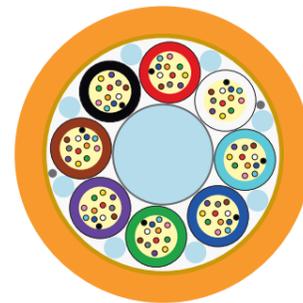
Technical data

| | | |
|--------------------------|---------|---|
| No. of Fibres | | 12, 24, 48, 96 |
| Datasheet reference | - | TC04896-en |
| Design | - | nx12f |
| Cable Diameter – Ø | mm | 5,8 (up to 72f), 6,5 (96f) |
| Cable Weight | kg / km | 27 (up to 72f), 42 (96f) |
| Tensile strength | N | 350N (up to 72f), 500N (96f) |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -15 to +40 Transport & Storage -40 to +70 Operation -40 to +60 |
| Optical characteristics | | C17 , C24 |
| Packing | | Plastic or Plywood Drum |
| Standard Delivery Length | | Standard delivery lengths are 4 km, 6 km, 12 km |

LRE XS Sirocco 7.9

Stranded loose tube mini cables for use in ducts.

- Secondary coating: The fibres are, uniquely identified by a different colour, placed inside loose tubes made of high tensile strength thermoplastic.
- Gel compound: The tubes are fully filled with a non-toxic and dermatological safe gel compound.
- Central Strength Member (CSM): The central element consists of FRP (Fibre Reinforced Plastic), with a water-swellable layer.
- Cable core: The required number of tubes (and dummy elements) are stranded (SZ method) around the central element.
- Fillers: between stranded tubes and sheath to improve mechanical characteristics.
- Outer sheath: HDPE, with 2 ripcords underneath.



Cable Application: This loose tube dielectric optical cable is designed for outdoor installation in ducts and micro ducts by blowing or pulling techniques.

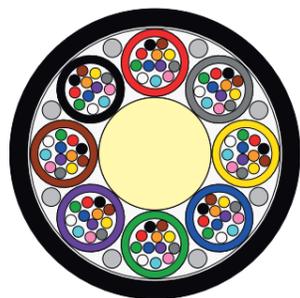
Technical data

| | | |
|--------------------------|---------|---|
| No. of Fibres | | 144, 192 |
| Datasheet reference | - | TV00927 v01 |
| Design | - | nx24f |
| Cable Diameter – Ø | mm | 6,9 (144f), 7,9 (192f) |
| Cable Weight | kg / km | 38 (144f), 56 (192f) |
| Tensile strength | N | 300N/1000N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -15 to +40 Transport & Storage -40 to +70 Operation -40 to +60 |
| Optical characteristics | | C17 , C24 |
| Packing | | Plastic or Plywood Drum |
| Standard Delivery Length | | Standard delivery lengths are 4 km, 6 km, 12 km |

LRE-XXS Sirocco 5.8

Loose Tube Optical Minicables for use in Ducts.

- Central Strength Member (CSM): glass fibre reinforced plastic rod (FRP).
- Loose Tube: thermoplastic material, containing optical fibres and filled with a suitable water tightness compound.
- Filler Elements: thermoplastic rods, where needed.
- Stranding: loose tubes (and fillers), SZ stranded around the CSM.
- Longitudinal Water Tightness: dry core with water swellable elements.
- Peripheral Strength Elements: aramid yarns.
- Outer Sheath: PE, two ripcords beneath.



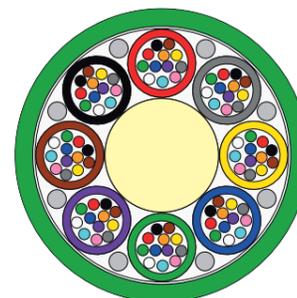
Cable Application: This loose tube dielectric optical cable is designed for outdoor installation in ducts and microducts by blowing or pulling techniques.

| Technical data | | |
|--------------------------|---------|---|
| No. of Fibres | | 12, 24, 48, 72, 96 |
| Datasheet reference | - | TV01655 v3 |
| Design | - | nx12f |
| Cable Diameter – Ø | mm | 4,9 (up to 48f), 5,8 (96f) |
| Cable Weight | kg / km | 22 (up to 48f), 31 (96f) |
| Tensile strength | N | 500N (up to 48f), 1000N (96f) |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -15 to +40 Transport & Storage -40 to +70 Operation -30 to +60 |
| Optical characteristics | | C17 , C24 |
| Packing | | Plastic or Plywood Drum |
| Standard Delivery Length | | Standard delivery lengths are 4 km, 6 km, 12 km |

LRE-XSS Sirocco HD 6.9

Loose Tube Optical Minicables for use in Ducts.

- Central Strength Member (CSM): glass fibre reinforced plastic rod (FRP).
- Loose Tube: thermoplastic material, containing optical fibres and filled with a suitable water tightness compound.
- Filler Elements: thermoplastic rods, where needed.
- Stranding: loose tubes (and fillers), SZ stranded around the CSM.
- Longitudinal Water Tightness: dry core with water swellable elements.
- Peripheral Strength Elements: aramid yarns.
- Outer Sheath: PE, two ripcords beneath.



Cable Application: This loose tube dielectric optical cable is designed for outdoor installation in ducts and microducts by blowing or pulling techniques.

| Technical data | | |
|--------------------------|---------|---|
| No. of Fibres | | 144, 192 |
| Datasheet reference | - | TV01656 |
| Design | - | nx24f |
| Cable Diameter – Ø | mm | 5,8 (144f), 6,9 (192f) |
| Cable Weight | kg / km | 32 (144f), 48 (192f) |
| Tensile strength | N | 750N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -15 to +40 Transport & Storage -40 to +70 Operation -30 to +60 |
| Optical characteristics | | C50 , C49 , C35 |
| Packing | | Plastic or Plywood Drum |
| Standard Delivery Length | | Standard delivery lengths are 4 km, 6 km, 12 km |

Sirocco HD Sirocco HD 4.6

Micro Duct Optical Cable with Pico Tubes.

- Central Strength Member (CSM): glass fibres reinforced plastic rod (GRP).
- Tubes: thermoplastic material containing 12 or 24 optical fibres and filled with a suitable water tightness compound.
- Stranding: loose tubes (and fillers), SZ stranded around the CSM.
- Longitudinal Water Tightness: water swellable elements (dry core).
- Outer Sheath: HDPE, UV resistant, 1 red ripcord beneath.



Cable Application: This dielectric optical cable is designed for blowing installation technique.

| Technical data | | |
|--------------------------|---------|--|
| No. of Fibres | | 96, 192, 288, 576 |
| Datasheet reference | - | TV04123-6923 |
| Design | - | nx12f, nx24f |
| Cable Diameter – Ø | mm | 4,6 (96f), 5,8 (192f), 7,4 (288f), 9,5 (576f) |
| Cable Weight | kg / km | 20 (96f), 35 (192f), 51 (288f), 85 (576f) |
| Tensile strength | N | 500N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -5 to +40 Transport & Storage -40 to +70 Operation -25 to +60 |
| Optical characteristics | | C50 , C49 , C35 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery lengths are 4 km, 6 km, 12 km |

Sirocco Extreme Sirocco Extreme

Outdoor microduct optical fibre cable.

- Central Strength Member (CSM): glass fibres reinforced plastic rod (GRP).
- Tubes: thermoplastic material containing 24 optical fibres and filled with a suitable water tightness compound.
- Stranding: loose tubes (and fillers), SZ stranded around the CSM.
- Longitudinal Water Tightness: water swellable elements (dry core).
- Outer Sheath: HDPE, UV resistant, 2 ripcords beneath.



Cable Application: These outdoor SiroccoExtreme microduct optical fibre cables are optimized for installation by blowing into microducts and protected microducts. Please refer to our Installation Guides, please ask to our sales office.

| Technical data | | |
|--------------------------|---------|--|
| No. of Fibres | | 144, 192, 288 and 576 |
| Datasheet reference | - | TV04965 / V2.6924 |
| Design | - | nx24f |
| Cable Diameter – Ø | mm | 4,5 (144f), 5,1(192f), 6,7 (288f), 8,2 (576f) |
| Cable Weight | kg / km | 20 (144f), 35(192f), 45 (288f), 66 (576f) |
| Tensile strength | N | 500N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -5 to +40 Transport & Storage -40 to +70 Operation -30 to +60 |
| Optical characteristics | | C51 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery lengths are 4 km, 6 km, 12 km |

Stranded Flextube Sirocco Flextube

Micro duct Flextube® cable

- Central Strength Member (CSM): glass fibres reinforced plastic material (GRP), overshooting when needed.
- Micro-modules: thermoplastic material containing 12 optical fibres and filled with a suitable water tightness compound with easy stripability.
- Stranding: flex tubes, SZ stranded around the CSM.
- Longitudinal Water Tightness: water swellable materials (dry core).
- Peripheral Strength Member: aramid yarns.
- Outer Sheath: HDPE, one ripcord beneath.



Cable Application: This cable is designed for duct installation.

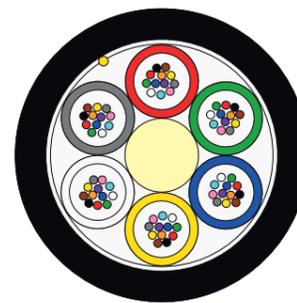
Technical data

| | | |
|--------------------------|---------|---|
| No. of Fibres | | 48,72, 96 |
| Datasheet reference | - | TTC02747 v01 |
| Design | - | nx8, nx12 |
| Cable Diameter – Ø | mm | 5,5 (48f), 5,9 (72f), 6,2 (96f) |
| Cable Weight | kg / km | 26 (48f), 29 (72f), 35 (96f) |
| Tensile strength | N | 210/700N |
| Minimum Bending Radius | mm | without tension 30x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -40 to +70 Operation -30 to +70 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 4 km |

Sirocco PA Sirocco PA

Outdoor microduct optical fibre cable PA sheathed.

- Central Strength Member (CSM): glass fibres reinforced plastic material (FRP).
- Loose Tube: thermoplastic material containing 12 optical fibres and filled with a suitable water tightness compound.
- Filler Elements: thermoplastic rods, when needed.
- Stranding: loose tubes, SZ stranded around the CSM.
- Peripheral elements: aramid yarns.
- Longitudinal Water Tightness: water swellable materials (dry core).
- Outer Sheath: black or orange PA, with a ripcord under it.



Cable Application: These outdoor SiroccoExtreme microduct optical fibre cables are optimized for installation by blowing into microducts and protected microducts. Please refer to our Installation Guides, please ask to our sales office.

Technical data

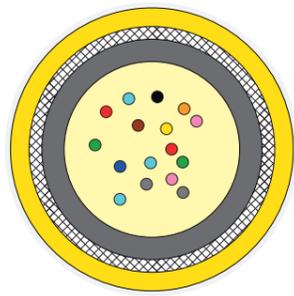
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|--------------------------|---------|--|
| No. of Fibres | | 12-72, 96 |
| Datasheet reference | - | TV05276 A-DQ(ZN)4Y |
| Design | - | nx12f |
| Cable Diameter – Ø | mm | 5,5 (12-72f), 5,8 (96f) |
| Cable Weight | kg / km | 27 (12-72f), 33 (96f) |
| Tensile strength | N | 1000N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -5 to +55 Transport & Storage -30 to +70 Operation -25 to +70 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 4 km |

JN-URE25

Sirocco URE 25

Uni tube mini cables for use in micro ducts.

- Loose Tube: thermoplastic material, containing up to 12 fibres and filled with a suitable gel compound.
- Water Tightness: fully watertight construction.
- Strength members: aramid yarns are applied in the cable.
- Outer sheath: high-density polyethylene compound, halogen free.



Cable Application: This uni tube dielectric optical cable is designed for outdoor installation in ducts and micro ducts by blowing techniques.

Technical data

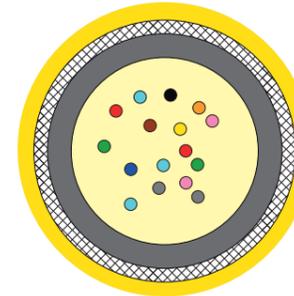
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 4, 6, 8, 12 |
| Datasheet reference | - | TV01761 v1 |
| Design | - | 1xn |
| Cable Diameter – Ø | mm | 2,5 |
| Cable Weight | kg / km | 5,7 |
| Tensile strength | N | 150N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -40 to +70 Operation -20 to +60 |
| Optical characteristics | | C24 |
| Packing | | Plywood drum |
| Standard Delivery Length | | Standard delivery length 6 km |

JN-URE29

Sirocco URE 29

Uni tube mini cables for use in micro ducts.

- Loose Tube: thermoplastic material, containing up to 24 fibres and filled with a suitable gel compound. In case of 24 fibres they are grouped with a colored yarn in 12-fibre groups.
- Water Tightness: fully watertight construction.
- Strength members: aramide yarns are applied in the cable.
- Outer sheath: high-density polyethylene compound, halogen free.



Cable Application: This uni tube dielectric optical cable is designed for outdoor installation in ducts and micro ducts by blowing techniques.

Technical data

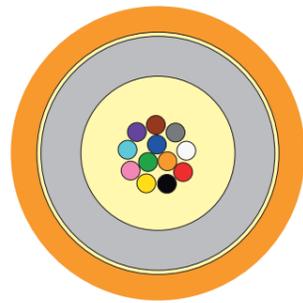
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 12, 24 |
| Datasheet reference | - | TV01762 v1 |
| Design | - | 1xn |
| Cable Diameter – Ø | mm | 2,9 |
| Cable Weight | kg / km | 7,5 |
| Tensile strength | N | 250N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -40 to +70 Operation -20 to +60 |
| Optical characteristics | | C35 |
| Packing | | Plywood drum |
| Standard Delivery Length | | Standard delivery length 6 km |

JN-URE39

Sirocco URE 39

Unitube Mini Cables for use in Ducts.

- Loose Tube: thermoplastic material filled with a suitable water tightness compound. The fibres are uniquely identified by a different colour and grouped in 12 fibre groups with a coloured yarn.
- Strength members: are applied in the cable.
- Outer sheath: consists of a special high-density polyethylene compound.



Cable Application: This loose tube dielectric optical cable is designed for outdoor installation in ducts and microducts by blowing techniques.

Technical data

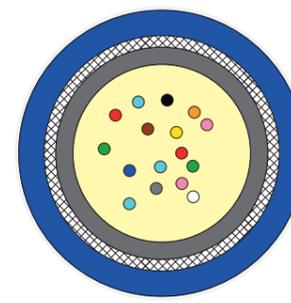
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 2, 4, 6, 8, 12, 24 |
| Datasheet reference | - | JN-MM-URE39 |
| Design | - | 1xn |
| Cable Diameter – Ø | mm | 3,9 |
| Cable Weight | kg / km | 12,5 |
| Tensile strength | N | 150N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -40 to +70 Operation -20 to +60 |
| Optical characteristics | | C17 , C24 , C31 , C32 , C39 |
| Packing | | Plastic or Plywood Drum |
| Standard Delivery Length | | Standard delivery length 6 km |

JN-URE42

Sirocco URE 42

Unitube Mini Cables for use in Ducts.

- Fibre unit: Every fibre is uniquely identified by a fibre colour. Each fibre unit consists of 12 fibres, identified by a coloured binder yarn.
- Loose Tube: Thermoplastic material filled with a suitable water tightness compound.
- Strength members: aramid yarns are applied in the cable.
- Outer sheath: HDPE.



Cable Application: This loose tube dielectric optical cable is designed for outdoor installation in ducts and microducts by blowing techniques.

Technical data

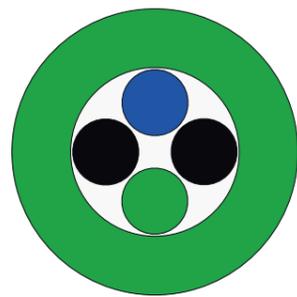
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 48 |
| Datasheet reference | - | TB14092 v3 |
| Design | - | 1xn |
| Cable Diameter – Ø | mm | 4.2 |
| Cable Weight | kg / km | 15 |
| Tensile strength | N | 250N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -40 to +70 Operation -20 to +60 |
| Optical characteristics | | C17 |
| Packing | | Plastic or Plywood Drum |
| Standard Delivery Length | | Standard delivery length 2 km or 4 km |

Blown fibre

Pico-TX

BB-XS Pico-TX Cable for Use in Microducts.

- Buffer: All fibres are grouped together in an easy strippable natural coating.
- Outer sheath: Low friction thermoplastic compound, easy strippable.



Cable Application: This Pico-TX optical cable is designed for blowing in 2.5 to 3.5 mm inner diameter microducts and for preinstallation in ducts, used in OSP networks access part of the network.

Technical data

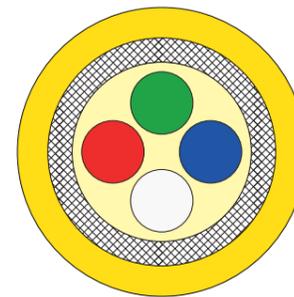
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 2, 4 |
| Datasheet reference | - | TV01609 v3 |
| Design | - | 1xn |
| Cable Diameter – Ø | mm | 1,1 |
| Cable Weight | kg / km | 1,1 |
| Tensile strength | N | 20N |
| Minimum Bending Radius | mm | Without Tension ≥ 50 mm, Under Maximum Tension ≥ 50 mm |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -10 to +50 Operation -20 to +60 |
| Optical characteristics | | C24 |
| Packing | | Plywood drum |
| Standard Delivery Length | | Standard delivery 2 km, 4 km or 6 km |

JN-TRX 100

Unitube TRX

Unitube cable for installation in micro ducts.

- Optical fibre: All fibres are grouped together in an easy strippable natural coating.
- Strength members: aramid yarns are applied in the cable.
- Outer sheath: consists of a high e-modulus thermoplastic material.



Cable Application: This dielectric optical cable is designed for outdoor installation in micro ducts by blowing or pulling techniques.

Technical data

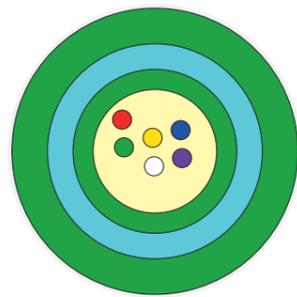
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 2, 4, 6 |
| Datasheet reference | - | JN-TRX100 |
| Design | - | 1xn |
| Cable Diameter – Ø | mm | 1,8 ± 0,2 (2&4f), 2,0 ± 0,2(6f) |
| Cable Weight | kg / km | 3 (2&4f), 3,7 (6f) |
| Tensile strength | N | 150N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -15 to +40 Transport & Storage -40 to +70 Operation -30 to +60 |
| Optical characteristics | | C17 , C24 |
| Packing | | Plastic or Plywood Drum |
| Standard Delivery Length | | Standard delivery length is 2 km and 4 km |

URE-DB

FttH DB drop

FTTH Subscriber Drop Cable for Direct Buried Installation.

- Loose Tube: Thermoplastic material filled with a suitable water tightness compound. The fibres are uniquely identified by a different colour. For fibre counts above 12, the fibres are grouped in 12 fibre groups and bundled with a coloured yarn.
- Strength members: Water blocking glass fibre elements are applied in the cable.
- Outer sheath: UV resistant HDPE compound.



Cable Application: This unitube dielectric optical cable is designed for direct buried installation, surrounded by sand. As a result of temperature changing, especially when used above ground, Fibres and gel may be pushed out of the cable. Connectivity materials should be able to accommodate that or Prysmian may offer other cable designs for such above ground applications.

Technical data

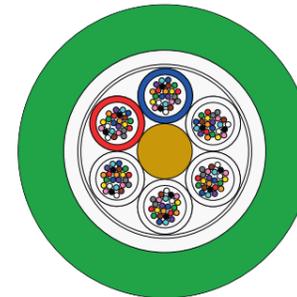
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 2, 4, 6, 8, 12, 24, 48 |
| Datasheet reference | - | TC01666 |
| Design | - | 1xn |
| Cable Diameter – Ø | mm | 5,5 (2, 4f), 5,8 (6,8,12f), 6,6 (24f), 7,3(48f) |
| Cable Weight | kg / km | 27 (2, 4f), 29 (6,8,12f), 35 (24f), 51 (48f) |
| Tensile strength | N | 500/800N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -10 to +50 Operation -20 to +60 |
| Optical characteristics | | C17 , C24 |
| Packing | | Plastic or Plywood Drum |
| Standard Delivery Length | | Standard delivery length 4 km or 6 km |

I/O Duct cable

Road infra

Indoor/Outdoor Duct optical cable.

- Central Strength Member (CSM): glass fibres reinforced plastic rod (FRP), with plastic oversheathing when needed. Peripheral Strength Member: glass yarns.
- Loose Tubes: thermoplastic material, containing up to 12 optical fibres and filled with a suitable water tightness compound.
- Fibres: For fibre characteristics see attached sheet.
- Filler Elements: PE thermoplastic rods, where needed.
- Stranding: loose tubes and (fillers), SZ stranded around the CSM.
- Cable core: a swellable tape is applied over the stranding.
- Outer Sheath: Flame Retardant low halogen.



Cable Application: This dielectric optical cable is designed for duct installation technique.

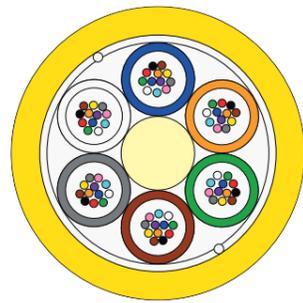
Technical data

| | | |
|--------------------------|---------|---|
| No. of Fibres | | 8, 24, 48, 72, 96, 144 |
| Datasheet reference | - | TDS4227_RO A-DQ(ZN)BH |
| Design | - | nx8 |
| Cable Diameter – Ø | mm | 11.0 (8-48f), 13.2 (72f) 15.5 (96f) 16.0 (144f) |
| Cable Weight | kg / km | 115 (8-48f), 160 (72f) 208 (96f) 215 (144f) |
| Tensile strength | N | 2500/4500N |
| Minimum Bending Radius | mm | without tension 10x cable Ø, under max tension 15x cable Ø |
| Temperature Range | °C | Installation -10 to +70 Transport & Storage -30 to +70 Operation -30 to +70 |
| Optical characteristics | | C06 , C34 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 4 km or 6 km |

Duct optical cable Railway

Outdoor dielectric duct optical cable.

- Central Strength Member (CSM): glass fibres reinforced plastic material (GRP) overshooting when needed.
- Loose Tubes: thermoplastic material containing optical fibres and filled with a suitable water tightness compound.
- Filler Elements: PE thermoplastic rods, where needed.
- Stranding: loose tubes, SZ stranded around the CSM.
- Longitudinal Water Tightness: water swellable materials (dry core).
- Outer Sheath: Yellow HDPE, 2 ripcords beneath.



Cable Application: This optical cable is designed for duct installation by blowing technique.

| Technical data | | |
|--------------------------|---------|--|
| No. of Fibres | | 24, 48, 96 |
| Datasheet reference | - | TC05444 A-DQ2Y |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 10.8 (24 & 48f), 12.3 (96f) |
| Cable Weight | kg / km | 95 (24 & 48f), 117 (96f) |
| Tensile strength | N | 900/2500N |
| Minimum Bending Radius | mm | without tension 10x cable Ø, under max tension 15x cable Ø |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -40 to +70 Operation -30 to +70 |
| Optical characteristics | | C17 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 4 km or 6 km |

Duct optical cable PE/PA

Outdoor dielectric duct optical cable with PE/PA sheath.

- Central Strength Member (CSM): glass fibres reinforced plastic material (GRP) overshooting when needed.
- Loose Tubes: thermoplastic material containing up to 12 optical fibres and filled with a suitable water tightness compound.
- Filler Elements: thermoplastic rods, where needed.
- Stranding: loose tubes, SZ stranded around the CSM.
- Longitudinal Water Tightness: water swellable materials (dry core).
- Inner Sheath: MDPE black coloured, two ripcords beneath.
- Outer Sheath: PA orange coloured.



Cable Application: The cables are suitable for duct installation techniques.

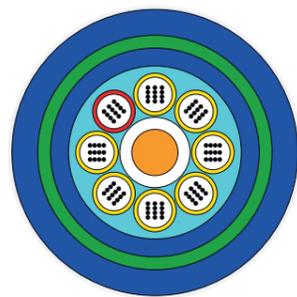
| Technical data | | |
|--------------------------|---------|---|
| No. of Fibres | | 24, 48 |
| Datasheet reference | - | TC05504 |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 13 |
| Cable Weight | kg / km | 140 |
| Tensile strength | N | 1200/1800N |
| Minimum Bending Radius | mm | Under Maximum Tension: 288mm, Without Tension: 170mm |
| Temperature Range | °C | Installation -40 to +70 Transport & Storage -40 to +70 Operation -30 to +70 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 2 km, 4 km or 5 km |

Firetuf®

Firetuf OFC-LT-CST

Fire Resistant Universal Stranded Loose Tube Cable.

- Loose Tubes: thermoplastic material containing optical fibres and filled with a suitable water tightness compound.
- Steel tape armoured, fire resistant, cable, double LSZH sheathed.



Cable Application: Installation in tunnels and subways where there are requirements for reaction to fire Difficult installation environments where fire safety is a primary concern For conditions with risk of severe rodent attacks.

| Technical data | | |
|--------------------------|---------|--|
| No. of Fibres | | 24, 36, 28, 60, 72, 96, 144 |
| Datasheet reference | - | Firetuf OFC-LT-CST |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 18.4 (24-72), 19.7 (96f) 22.5 (144f) |
| Cable Weight | kg / km | 385 (24-72), 438 (96f) 568 (144f) |
| Tensile strength | N | 900/2700N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -0 to +50 Transport & Storage -40 to +80 Operation -40 to +70 |
| Optical characteristics | | C06 |
| Packing | | Prywood or wooden drum |
| Standard Delivery Length | | Standard delivery length 2 km, 4 km or 6 km |

Duct FlexTube® cable

Flextube

Duct dielectric optical mini Flextube® cable.

- Micro-module: Thin wall tubing (FlexTube®), filled with a suitable water tightness: dry core with swellable elements.
- Protection / reinforcement yarns.
- Strength members: glass fibre reinforced plastic material.
- Outer Sheath: HDPE.



Cable Application: This mini Flextube dielectric optical cable is designed for outdoor installation in duct by pulling, jetting or floating technics. Mainly used for distribution and access network. The FlexTube® design provides easier storage & faster installation. Finger access to the fibres : no specific tools to open the FlexTube®.

| Technical data | | |
|--------------------------|---------|--|
| No. of Fibres | | 12, 48, 72, 96, 144, 216, 288 |
| Datasheet reference | - | TS00004 v2 |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 6 (12f), 8 (48f), 10 (72f), 11.2 (96f), 11.5 (144f), 12.8 (216f), 13.8 (288f) |
| Cable Weight | kg / km | 30 (12f), 45 (48f), 70 (72f), 85 (96f), 90 (144f), 115 (216f), 130 (288f) |
| Tensile strength | N | 80-270N |
| Minimum Bending Radius | mm | without tension 10x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -5 to +40 Transport & Storage -40 to +70 Operation -30 to +60 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 4 km |

Armoured Duct cable Steel tape Duct cable

Direct Buried optical cable.

- Central Strength Member (CSM): glass fibres reinforced plastic material (GRP), overheating when needed.
- Loose Tubes: thermoplastic material containing up to 12 optical fibres and filled with a suitable water tightness compound. Filler Elements: thermoplastic rods, where needed.
- Stranding: loose tubes, SZ stranded around the CSM.
- Longitudinal Water Tightness: flooding compound (filled core).
- Peripheral Strength Member: aramid yarns.
- Armour: both sides copolymer coated corrugated steel tape with overlap.
Steel thickness: 0.15 mm. 2 ripcords beneath the tape.
- Inner Sheath: PE, 2 ripcords beneath.
- Outer Sheath: HDPE.



Cable Application: This dielectric optical cable is designed for duct or direct buried installation technique.

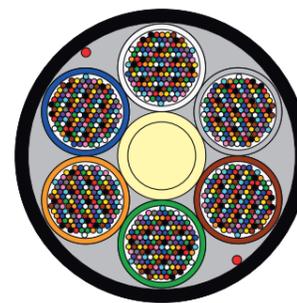
Technical data

| | | |
|--------------------------|---------|---|
| No. of Fibres | | 4-24, 12, 24, 36, 48, 60, 72, 96 |
| Datasheet reference | - | TV04661 |
| Design | - | nx4, nx12 |
| Cable Diameter – Ø | mm | 14.2 (4-24f), 15.3 (12-72f), 16.5 (96f) |
| Cable Weight | kg / km | 196 (4-24f), 227 (12-72f), 267 (96f) |
| Tensile strength | N | 900/2700N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -30 to +50 Transport & Storage -40 to +70 Operation -30 to +70 |
| Optical characteristics | | C06 , C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 2 km or 4 km |

Flexribbon cable Flexribbon MassLink™

MassLink™ with FlexRibbon™ Technology Ultra compact ribbon design.

- Extremely flexible ribbons can be rolled up for high packing densities or laid flat for ribbon splicing.
- 12 Fibre ribbons are compatible with mass fusion heat strippers, cleavers, and splice machines.
- Uses standard 250 µm coated bend-insensitive Fibre (ITU G657. A1 or A2).
- Uses full dry water blocking technology in the tubes and cable core for easy closure preparation and termination.
- Tested in accordance with ICEA 640 and with relevant EIA/ TIA-455 series FOTPs for Fibre optic cables.



Cable Application: MassLink™ with FlexRibbon™ Technology provides a compact outside plant cable design that contains 864 bend insensitive Fibres for access or data center applications. By using FlexRibbon technology, ribbons are rolled up and packed together in small diameter 144 Fibre sub units. While FlexRibbon™ provides high packing density, these 250 µm Fibre ribbons still provide the advantages of mass fusion splicing.

Technical data

| | | |
|--------------------------|---------|---|
| No. of Fibres | | 864 |
| Datasheet reference | - | 500A_DS109-864 |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 21,9 |
| Cable Weight | kg / km | 300 |
| Tensile strength | N | 800/2700 |
| Minimum Bending Radius | mm | Dynamic 20 x Cable OD Static 10 x Cable OD |
| Temperature Range | °C | Installation -30 to +60 Transport & Storage -40 to +70 Operation -30 to +70 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 2 km or 4 km |

ADSS Aerial ADSS short span

A-DQ(ZN)2Y ADSS OPTICAL CABLE.

- Central Strength Member (CSM): glass fibres reinforced plastic material (GRP) overheating when needed.
- Loose Tubes: thermoplastic material containing up to 12 optical fibres and filled with a suitable water tightness compound.
- Filler Elements: thermoplastic rods, where needed.
- Stranding: loose tubes, SZ stranded around the CSM.
- Longitudinal Water Tightness: water swellable materials (dry core).
- Peripheral Strength Member: aramid yarns.
- Outer Sheath: HDPE, 2 ripcord beneath.



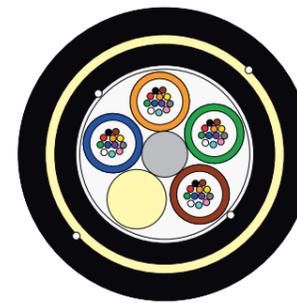
Cable Application: The cables are suitable for aerial installation, with 53 - 125 meter span and 1.0% installation sag. The cables withstand the additional loads generated by wind and ice in the following environmental conditions:

| Technical data | | |
|--------------------------|---------|---|
| No. of Fibres | | 12, 24, 36, 48, 60, 72, 96, 144 |
| Datasheet reference | - | TV04641-en v00 |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 11,1 (12-72f), 11,7 (96f), 14,7 (144f) |
| Cable Weight | kg / km | 96 (12-72f), 110 (96f), 175 (144f) |
| Tensile strength | N | 2.7/4.2kN |
| Minimum Bending Radius | mm | without tension 10x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -10 to +70 Transport & Storage -40 to +70 Operation -40 to +70 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 2 km, 4 km or 6 km |

ADSS Aerial ADSS long span

A-DQ2Y(ZN)2Y ADSS OPTICAL CABLE.

- Central Strength Member (CSM): glass Fibres reinforced plastic material (GRP).
- Tubes: thermoplastic material containing optical Fibres.
- Longitudinal Water Tightness: water swellable materials (dry core).
- Inner Sheath: PE, 2 ripcords beneath.
- Peripheral Strength Member: aramid yarns.
- Outer Sheath: HDPE, 2 ripcords beneath.



Cable Application: The cables are suitable for aerial installation, with 250 meters span and 2.0% installation sag. The cables withstand the additional loads generated by wind and ice in the following environmental conditions: temperature -10°C, wind speed 19m/s, ice radial thickness 18 mm. The use of Spiral Preformed fittings is recommended, in order to achieve the mentioned performance.

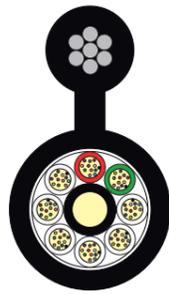
| Technical data | | |
|--------------------------|---------|---|
| No. of Fibres | | 12, 24, 36, 48, 60 |
| Datasheet reference | - | TV02192-en v00 |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 13,9 |
| Cable Weight | kg / km | 160 |
| Tensile strength | N | 12.8kN |
| Minimum Bending Radius | mm | without tension 30x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -10 to +60 Transport & Storage -40 to +70 Operation -40 to +70 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 2 km, 4 km or 6 km |

Fig-8 Aerial steel wire

Fig-8 Aerial

Loose Tube Figure 8 Cable.

- Central Strength Member (CSM): glass Fibre reinforced plastic rod (FRP), with plastic oversheathing when needed.
- Loose Tube: thermoplastic material, containing up to 12 Fibres and filled with a suitable water tightness compound.
- Filler Elements: thermoplastic rods, where needed.
- Stranding: loose tubes (and fillers), SZ stranded around the CSM.
- Longitudinal Water Tightness: dry core with water swellable elements.
- Outer Sheath: HDPE, 2 ripcords beneath. Web: nominal dimensions: height: 3.0 mm, width 2.5 mm.
- Suspension Strand: 7 galvanized steel wires, nominal wire diameter: 1.4 mm, nominal diameter over PE covered steel strand: 7.2 mm.



Cable Application: Figure 8 cable is used for cost effective aerial installations. These cables are easily installed in concrete or wooden poles by attaching the steel messenger directly to it. It is a quite cheap design and installation hardware is also very economical.

Technical data

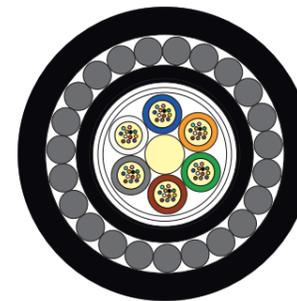
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 12, 24, 36, 48, 60, 72, 96, 144 |
| Datasheet reference | - | Fig8LT09S2c Fig8LT03S0c_en |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 12x21 (12-72f), 13,5x22.5 (96f), 17x26 (144f) |
| Cable Weight | kg / km | 170 (12-72f), 200 (96f), 270 (144f) |
| Tensile strength | N | 3000N |
| Minimum Bending Radius | mm | without tension 10x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -40 to +70 Operation -40 to +70 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 4 km |

ALPA®

Steelwire ALPA

Steel Wire Armoured ALPA® Optical Cable.

- Central strength member (CSM): glass fibre reinforced plastic material (FRP) with or without over-sheathing.
- Tube: thermoplastic material, containing up to 12 optical fibres and filled with a suitable water tightness compound.
- Stranding: the required number of elements (tubes or fillers) are SZ stranded around the central strength member.
- Core covering: waterblocking elements are applied over the cable (dry core).
- Moisture Barrier: Aluminium copolymer tape longitudinally folded - 1st Inner Sheath: HDPE jacket - 2nd Inner Sheath: Polyamide jacket.
- Armour: Galvanized steel wire (SWA).
- Outer Sheath: Afumex® Low smoke, zero halogen, flame Retardant and Heat & Oil and UV resistant.



Cable Application: The cable is specially designed for harsh environments. The multilayer inner sheath ALPA®: Aluminium/HDPE/PA (nylon) withstands aggressive constituents and fluids that might occur on (petro)chemical plants. The cable which is low smoke, halogen free and flame-retardant, is suitable for installation under and above ground. - The ALPA® design provides anti-termite protection of the cable - The steel wire armour provides rodent protection - The outer sheath is flame retardant compound to Heat & Oil and UV. - Flame Retardant according to IEC 60332-1 - Flame Retardant according to IEC 60332-3-22 (cat A).

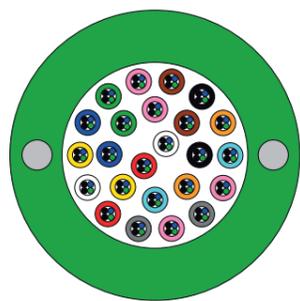
Technical data

| | | |
|--------------------------|---------|---|
| No. of Fibres | | 6, 12, 24, 48 |
| Datasheet reference | - | TC02563 v00 |
| Design | - | nx6 |
| Cable Diameter – Ø | mm | 18 |
| Cable Weight | kg / km | 515 |
| Tensile strength | N | 7000N |
| Minimum Bending Radius | mm | without tension 20x cable Ø, under max tension 25x cable Ø |
| Temperature Range | °C | Installation -10 to +70 Transport & Storage -30 to +70 Operation -30 to +70 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 2 km or 4 km |

RetractaNet RetractaNet 12 / 24 / 48

FTTH outdoor optical fibre cable, BendBright® XS mid span easy tapping 100m.

- module: dry buffered element, housing the single-mode optical fibres. Easy strippable. Two additional dummy glass fibres.
- Strength members: glass fibre reinforced plastic material.
- Outer Sheath: HDPE. 2 longitudinal coloured stripes in the plan of the strength members.



Cable Application: Outdoor installation in ducts. Easy selection and possibility of removing more than 100m* of a single fibre for mid span access without necessity to dispose of an over-length of cable. Modules may be further pushed over around 10m* (*= typical length depending on the real installation topology).

| Technical data | | |
|--------------------------|---------|---|
| No. of Fibres | | 12x2, 24x2, 48x2 |
| Datasheet reference | - | TC02293 |
| Design | - | nx2 |
| Cable Diameter – Ø | mm | 15 (24-48f), 18 (96f) |
| Cable Weight | kg / km | 140 (24-48f), 215 (96f) |
| Tensile strength | N | 1000/2000N |
| Minimum Bending Radius | mm | without tension 10x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -10 to +50 Operation -20 to +60 |
| Optical characteristics | | C24 |
| Packing | | Plastic or wooden drum |
| Standard Delivery Length | | Standard delivery length 2 km or 4 km |

Shotgun resistant Railway ADSS

ADSS Double sheath Optical cable (Shotgun Protected) 350m span.

- Central Strength Member (CSM): glass Fibres reinforced plastic material (GRP).
- Filler Elements: PE thermoplastic rods, where needed.
- Stranding: loose tubes, SZ stranded around the CSM.
- Longitudinal Water Tightness: water swellable materials (dry core). Inner Sheath: PE, 2 ripcords beneath.
- Shotgun Protection: flat GRP, 12÷72, 0.75±0.3 mm thickness 96÷144, 1.0 mm thickness.
- Peripheral Strength Member: aramid yarns, >80000 Tex.
- Inner Sheath: PE, 2 ripcords beneath.
- Outer Sheath: HDPE, 2 ripcords beneath.



Cable Application: the cables are suitable for aerial installation The use a set of protection rods and helical dead end is recommended, in order to achieve the mentioned performance.

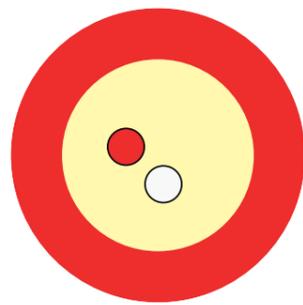
| Technical data | | |
|--------------------------|---------|--|
| No. of Fibres | | 12 to 72, 96 -144 |
| Datasheet reference | - | TDS7544-R2_R0 v6 |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 15.9 (12-72f), 18.5 (96 - 144f) |
| Cable Weight | kg / km | 220 (12-72f), 300 (96-144f) |
| Tensile strength | N | 12000/23000N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -40 to +60 Operation -25 to +60 |
| Optical characteristics | | C17 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 2 km or 4 km |

Pre-installed 6mm tube

Picotube

DB microduct 6/3.5 mm with cable 2x singlemode.

- One cable with two singlemode ITU-T G.657A1 or A2 fibres is factory installed in a direct buried type microduct with outer diameter 6 mm and inner diameter 3.5 mm.
- Two singlemode ITU-T G.657A1 or A2 fibres and two strengthening elements are contained within a layer of buffering material. The outer sheath is an easy strippable, low friction thermoplastic.
- The thick-walled microduct is designed for direct burying and has superior retracting and blowing characteristics.



Cable Application: The PicoTube pre-installed DB 6/3.5 mm microducts are used in the access part of OSP FttH networks.

Technical data

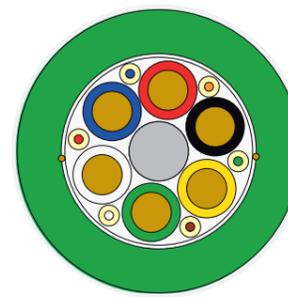
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 2 |
| Datasheet reference | - | OP553-03 |
| Design | - | n in 6/3.5mm DB duct |
| Cable Diameter – Ø | mm | 6 |
| Cable Weight | kg / km | 19,5 |
| Tensile strength | N | 250N |
| Minimum Bending Radius | mm | 120 mm radius |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -10 to +50 Operation -20 to +60 |
| Optical characteristics | | C17 , C24 |
| Packing | | Plywood/Plastic drum |
| Standard Delivery Length | | Standard delivery length 1 km to 4 km |

Hybrid cable

Hybrid optical cable

Hybrid optical cable for antenna with copper wires.

- Central Strength Member (CSM): glass fibres reinforced plastic material (GRP).
- Filler Elements BendBright: optical fibres individually protected with an tight buffer or 2f(6f) tubes.
- Power Conductor: PE insulated - 6 round flexible copper conductors (class 5), with section 1.0 mm², voltage rating < 500V.
- Stranding: copper conductors and fillers, SZ stranded around the CSM.
- Longitudinal Water Tightness: water swellable materials (dry core).
- Outer Sheath: Green PE, 2 ripcords beneath.



Cable Application: This hybrid optical cable is designed for blowing installation technique.

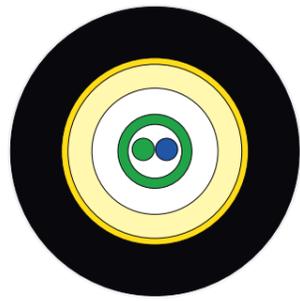
Technical data

| | | |
|--------------------------|---------|--|
| No. of Fibres | | 6, 12, 36 |
| Datasheet reference | - | TC05080-en |
| Design | - | nx1, 2 or 6 |
| Cable Diameter – Ø | mm | 7,7 |
| Cable Weight | kg / km | 100 |
| Tensile strength | N | 2000n |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -5 to +40 Transport & Storage -20 to +50 Operation -20 to +50 |
| Optical characteristics | | C17 , C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 1000 or 2000 mtr |

I/O Drop cable Indoor/outdoor drop

FttX Bare Fibre Indoor/Outdoor Drop Cable.

- Micro-module: coloured thin wall tubing, housing the optical fibres. Without any gel.
- Reinforcement and protection: dielectric yarns.
- Outer sheath: Black or White LSZH-FR material, UV resistant.



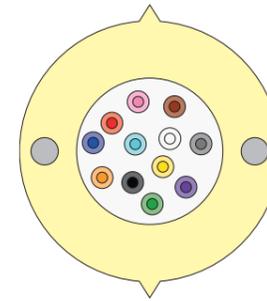
Cable Application: Versatile customer drop cable for indoor and outdoor installation in ducts, cable trays, direct buried, on walls or aerial over short spans.

| Technical data | | |
|--------------------------|---------|---|
| No. of Fibres | | 2 |
| Datasheet reference | - | TC05550-en |
| Design | - | 1xn |
| Cable Diameter – Ø | mm | 4 |
| Cable Weight | kg / km | 16 |
| Tensile strength | N | 300N |
| Minimum Bending Radius | mm | Without Tension: 25mm, Under Maximum Tension: 50mm |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -10 to +50 Operation -20 to +60 |
| Optical characteristics | | C17 , C24 |
| Packing | | Plywood/wooden drum |
| Standard Delivery Length | | Standard delivery length up to 6 km |

Verticasa Verticasa indoor

FTTH Indoor-Outdoor Riser Facade Cable.

- Modules: 0.9 mm easy stripping modules with 2 or 4 fibres.
- Outer Sheath: Flame retardant, UV resistant LSOH, 2 glass fibres reinforced plastic material (GRP) embedded, disposed at 180°.
- Dielectric: The cable does not contain metallic elements.



Cable Application: This dielectric optical cable is designed for indoor installation technique.

| Technical data | | |
|--------------------------|---------|---|
| No. of Fibres | | 12, 24, 48, 192 |
| Datasheet reference | - | TV04488 |
| Design | - | nx2. nx4 |
| Cable Diameter – Ø | mm | 8,5 (6x2f), 10 (12x2f), 12 (24x2f, 48x4f) |
| Cable Weight | kg / km | 65 (6x2f), 86 (12x2f), 141 (24x2f, 48x4f) |
| Tensile strength | N | 300N |
| Minimum Bending Radius | mm | without tension 10x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -10 to +60 Operation -10 to +60 |
| Optical characteristics | | C24 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 1 km or 2 km |

Verticasa

Verticasa Facade

FTTH Indoor-Outdoor Riser Facade Cable.

- Micro-module: Thin wall tubing, housing the optical fibres, without any gel.
- Longitudinal Water Tightness: dry core with water swellable elements (yarns and tape with min. overlap 4mm).
- Outer Sheath: UV LSZH material black colored.
- Two lines in positive relief located at 90° from the RSM, in order to position the cable opening window.



Cable Application: Indoor installation on cable tray, in corridors, shafts or aerial installation with 15m span. Easy selection and removal of a tube for tapping and connection at the floor. The fully dry flexible micro-modules provide easier storage & faster installation and access to the fibres with specific tools and without further cleaning. The minimum strip-ability of the modules is 30 cm.

Technical data

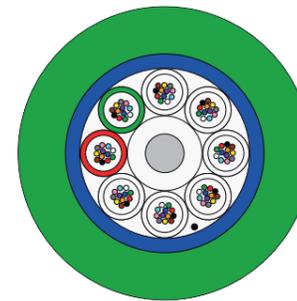
| | | |
|--------------------------|---------|---|
| No. of Fibres | | 12, 24, 24, 48, 48, 96 |
| Datasheet reference | - | TC06279 |
| Design | - | nx1, nx2, nx4 |
| Cable Diameter – Ø | mm | 11,5 |
| Cable Weight | kg / km | 130 |
| Tensile strength | N | 300N |
| Minimum Bending Radius | mm | without tension 10x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -40 to +70 Transport & Storage -40 to +70 Operation -40 to +70 |
| Optical characteristics | | C17 |
| Packing | | Woorden drum |
| Standard Delivery Length | | Standard delivery length 1 km or 2 km |

VDE: U-DQH

Universal Loose tube CPR Cca

Universal Stranded Loose Tube Non-Metallic Gel-Filled Cca UCFIBRE™ Cable.

- Central strength member Ø2.5 mm FRP rod.
- Loose tube For ≤ 144 fibres, Ø2.3 mm gel-filled loose tubes, with 12 fibres each For > 144 fibres, Ø2.8 mm gel-filled loose tubes, with 24 fibres each.
- Water blocking: The core is water blocked using swellable tape and tread.
- CPR Class rating Cca-s1-d1-a1
- Polyester ripcord for easy slitting of the sheath
- Sheath 1.5 mm FireRes® sheath, halogen free, flame retardant, UV stabilised.



Cable Application: Universal indoor/outdoor cable for LAN, MAN and WAN backbones With its FireRes® LSHF-FR sheathing this cable is ideal for mixed indoor and limited outdoor installation. It is equally suited for installation in ducts and on trays. This innovative cable is Class-Cca approved, highly flame retardant with gel-filled tubes and water-blocked characteristics.

Technical data

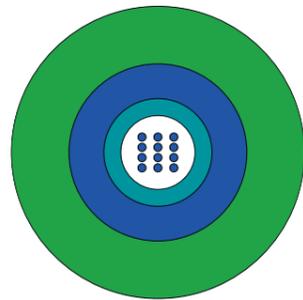
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|--------------------------|---------|---|
| No. of Fibres | | 12, 24, 36, 48, 72, 96, 144, 288 |
| Datasheet reference | - | N10a |
| Design | - | nx12 |
| Cable Diameter – Ø | mm | 10.4 (12-72f), 11.8 (96f), 15.0 (144f), 18.0 (288f) |
| Cable Weight | kg / km | 95 (12f), 98 (24f), 103 (36f), 105 (48f), 115 (72f), 145 (96f), 240 (144f), 330 (288f) |
| Tensile strength | N | 600/1800 |
| Minimum Bending Radius | mm | Minimum Installation bending radius (loaded) [mm] 208 (12-72f), 236 (96f), 300 (144f), 360 (288f). Minimum radius (unloaded) [mm] 104 (12-72f), 118 (96f), 150 (144f), 180 (288f) |
| Temperature Range | °C | Installation -40 to +70 Transport & Storage -40 to +70 Operation -30 to +60 |
| Optical characteristics | | C31 , C32 , C39 , C17 , C24 |
| Packing | | Plywood/wooden drum |
| Standard Delivery Length | | Standard delivery length up to 6 km |

VDE: U-DQ(ZN)BH

Universal I/O Central Loose Tube CPR Cca

Universal Central Tube Non-Metallic Gel-Filled Cca UCFIBRE™ Cable.

- Loose tube ø2.8 mm gel-filled loose tube with 2 – 24 fibres.
- Strength member & water-blocking glass yarns
- CPR Class rating Cca-s1a-d1-a1
- Glass yarn dielectric armouring and FireRes® sheath.
- Sheath 1.5 mm FireRes® sheath, halogen free, flame retardant, UV stabilised



Cable Application: This cable can be used for LAN and WAN backbones, telecom access lines, fibre to business and fibre to the building drop connections as well as fibre to the home drop and access connections. With its FireRes® LSHF-FR sheathing this cable is ideal for indoor and limited outdoor installations. This cable features a high tensile strength and a degree of rodent protection, effective in many cases. It is equally suited for installation in ducts and on trays.

Technical data

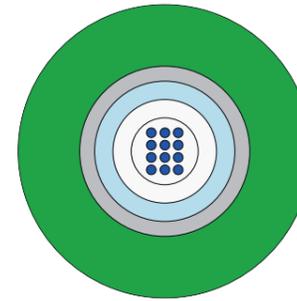
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| No. of Fibres | | 2, 6, 8, 12, 16, 24 |
| Datasheet reference | - | E22 |
| Design | - | n |
| Cable Diameter – Ø | mm | 7.5 |
| Cable Weight | kg / km | 73 |
| Tensile strength | N | 1000/3000 |
| Minimum Bending Radius | mm | Minimum Installation bending radius loaded (installation) R=146mm. Minimum radius unloaded (permanent) R=73 mm |
| Temperature Range | °C | Installation -20 to +60 Transport & Storage -40 to +70 Operation -40 to +70 |
| Optical characteristics | | C31 , C32 , C39 , C25 , C17 |
| Packing | | Plywood/wooden drum |
| Standard Delivery Length | | Standard delivery length up to 4 km |

VDE: U-DQ(ZN)BH

Tunnel cable CPR B2ca

Universal Central Tube Non-Metallic Gel-Filled B2ca UCFIBRE™ Cable.

- Ind/Out metal-free, dielectric glass yarn armouring , gel-filled, water-blocked central tube cable
- Loose tube Ø2.8 mm gel-filled loose tube for 2-24 Fibres
- CPR Class rating B2ca-s1a-d1-a1
- Strength member & Water-blocking Glass yarns
- Dielectric glass yarn armouring
- Sheath 1.5 mm, FireRes® sheath, UV stabilised



Cable Application: This unitube cable can be used for LAN and WAN backbones, telecom access lines, fibre to business and fibre to the building drop connections; as well as fibre to the home drop and access connections. Non-metallic unitube cable is with gel-filled tubes and water-blocked design. With its FireRes® sheathing this cable is ideal for indoor installations. It is CPR Class B2ca cable with very high flame retardant performance. It is glass yarn dielectric armoured for rodent resistance. The cable is water-blocked and well suited for installation in ducts and on trays indoor and limited outdoor use in ducts.

Technical data

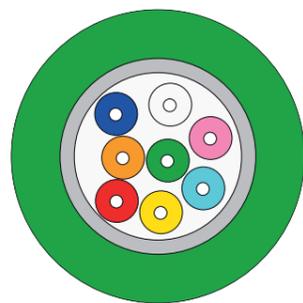
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|--------------------------|---------|---|
| No. of Fibres | | 4, 6, 8, 12, 24 |
| Datasheet reference | - | E25 |
| Design | - | n |
| Cable Diameter – Ø | mm | 7.5 |
| Cable Weight | kg / km | 73 |
| Tensile strength | N | 1000/3000 |
| Minimum Bending Radius | mm | Min. permanent bending radius (unloaded) =75 mm (> -20C temperatures). Min. installation bending radius (loaded) = 150 mm |
| Temperature Range | °C | Installation -20 to +60 Transport & Storage -40 to +70 Operation -40 to +70 |
| Optical characteristics | | C31 , C32 , C39 , C17 , C24 |
| Packing | | Plywood drum |
| Standard Delivery Length | | Standard delivery length 2 km or 4 km |

J-V(ZN)H

Indoor mini Breakout/Distribution CPR Cca cable

Distribution Cable, tight buffered Cca UCFIBRE™ cable.

- This cable contain ES9 tight buffered fibres
- Typical cable applications include: LAN and WAN backbones, central office interconnections, backbones in data centres, and many other.
- CPR Class rating Cca-s1a-d1-a1
- This cable features high flame retardance with 1.5mm FireRes® sheath.
- The cable features aramid yarns for ease of installation and is well suited for installation in ducts and on trays.
- The cable features UV stabilised, water and moisture resistant FireRes® sheathing, the cable is thus well suited for shorter outdoor runs.



Cable Application: This distribution or mini breakout cable with FireRes® sheath can be used for many indoor applications. Typical cable applications include: LAN and WAN backbones, central office interconnections, backbones in data centres, and many other. This cable features high flame retardance with CPR Cca approval.

Technical data

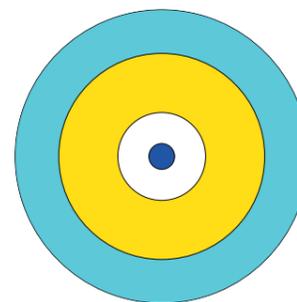
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|--------------------------|---------|---|
| No. of Fibres | | 2, 4, 6, 8, 12, 16, 24 |
| Datasheet reference | - | D39 |
| Design | - | 1xn |
| Cable Diameter – Ø | mm | 5.3(2f), 5.7(4f), 6.1(6f), 6.8(8f) 7.2(12f) 7.8(16f) 8.6(24f) |
| Cable Weight | kg / km | 35(2f), 42(4f), 47(6f), 53(8f) 62(12f) 70(16f) 80(24f) |
| Tensile strength | N | 280/5600N (2-12), 340/680N(16f), 400/800N(24f) |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -20 to +60 Transport & Storage -40 to +70 Operation -20 to +70 |
| Optical characteristics | | C17 , C24 , C31 , C32 , C39 , C25 , C38 |
| Packing | | Plywood drum |
| Standard Delivery Length | | Standard delivery length 2 km |

Patchcord

Simplex 2.0 cord

Simplex Ø2.0 mm B2ca UCFIBRE™ Cord.

- Interconnect cabling.
- Patch cord cable, very well suited for mounting of small form factor connectors.
- Internal wiring Standard.



Cable Application: Assembly B2ca-s1a-d1-a1 cable with 1 ES9 tight buffered fibre, aramid yarn, FireRes® sheath. VDE: JV(ZN)H 1

Technical data

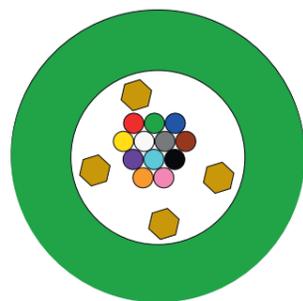
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|--------------------------|---------|---|
| No. of Fibres | | 1 |
| Datasheet reference | - | D10d |
| Design | - | n |
| Cable Diameter – Ø | mm | 2.0 |
| Cable Weight | kg / km | 4,5 |
| Tensile strength | N | 75/150N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -40 to +70 Transport & Storage -40 to +70 Operation -40 to +70 |
| Optical characteristics | | C31 , C32 , C39 , C25 , C38 |
| Packing | | Plywood drum |
| Standard Delivery Length | | Standard delivery length 2 km |

Datacenter single module

Datacenter single B2ca cable

Patch Cord Style 3.0 mm Data Centre B2ca Cable.

- \varnothing 3.0 mm, Class-B2ca-s1a-d1-a1 MPO patch cord cable with 12 fibres for data centers.
- Strength member Ultra high modulus Aramid yarns.
- Sheath 0.55 mm, FireRes[®] halogen free, flame resistant thermoplastic sheathing compound acc. to EN 50290-2-27, UV stabilised.



Cable Application: The intended application for this cable is MPO patch cords for data centres. Fits to multi fibre connectors such as MPO[®] and MTP[®] connectors according to IEC 61754-7-1.

Technical data

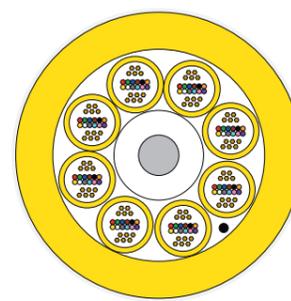
| | | |
|--------------------------------|--------------|---|
| No. of Fibres | | 8,12 |
| Datasheet reference | - | M12 |
| Design | - | n |
| Cable Diameter – \varnothing | mm | 3.0 mm \pm 0.15 mm |
| Cable Weight | kg / km | 9 |
| Tensile strength | N | 150/400 |
| Minimum Bending Radius | mm | Min. Bending radius – permanent/unloaded = 30 mm. Min. Bending radius – installation/loaded =60 mm |
| Temperature Range | $^{\circ}$ C | Installation -0 to +50 Transport & Storage -40 to +70 Operation -0 to +50 |
| Optical characteristics | | C31 , C32 , C39 , C25 , C38 |
| Packing | | Plywood drum |
| Standard Delivery Length | | Standard delivery length 2 km or 4 km |

Datacenter multi module

Datacenter multi Cca cable

Trunk Style Cca Data Centre Cable.

- Up to 144-fibre MPO cable for data centres with \varnothing 2.0 mm & 12 fibres sub-units, Cca-s1a-d1-a1.
- Strength member Ultra-high modulus Aramid yarns.
- Unit sheath Halogen free, flame resistant thermoplastic sheathing compound acc. to EN 50290-2-27, UV stabilised.
- Unit identification Colour of unit sheath is the same as the outer sheath. The units are identified by numbers of 1 to 12 as required.
- Central strength member FRP rod with covering as required.
- Wrapping Tape.
- Sheath 1.7 mm FireRes[®] halogen free, flame retardant thermoplastic sheathing compound acc. to EN 50290-2-27, UV stabilised.



Cable Application: The intended application for this cable is as trunk net cable inside data centres and central offices. Fits 12 way multi fibre connectors according to IEC 61754-7-1 such as the MPO[®] and MTP[®] connectors without the need for a fan-out gland.

Technical data

| | | |
|--------------------------------|--------------|---|
| No. of Fibres | | 24, 36, 48, 72, 96, 144 |
| Datasheet reference | - | M14 |
| Design | - | nx12 |
| Cable Diameter – \varnothing | mm | 9.0 (24-48f), 9.6 (72f), 10.4 (96f), 13.6 (144f) |
| Cable Weight | kg / km | 82 (24-48f), 122 (72f), 153 (96f), 202 (144f) |
| Tensile strength | N | 400/600 (24-48f), 750/1100 (72-144f) |
| Minimum Bending Radius | mm | Min. Bending radius – permanent/unloaded = 90 (24-48f), 96 (72f), 110 (96f), 136 (144f) mm. Min. Bending radius – installation/loaded =180 (24-48), 192 (72f), 220 (96f), 272 (144f) mm |
| Temperature Range | $^{\circ}$ C | Installation -10 to +70 Transport & Storage -40 to +70 Operation -10 to +70 |
| Optical characteristics | | C31 , C32 , C39 , C25 , C38 |
| Packing | | Plywood drum |
| Standard Delivery Length | | Standard delivery length 2 km or 4 km |

INDEX COPPER CABLES

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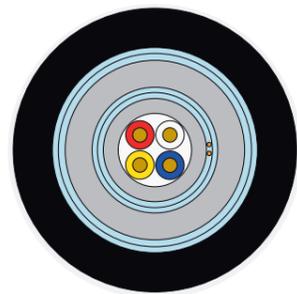
COPPER CABLES

Prysmian Group offers a variety of copper telecom cables for long and short distances, produced in European factories. From underground, aerial to central office / indoor cabling with a CPR rating.

LQ-EEMM
HPEW 1x4x0.5 DB

Solid PE Insulated cable HPEW 1x4x0.5 mm.

- Conductor: annealed solid wire copper, nominal diameter 0,5mm. Each conductor is insulated with a layer of solid polyethylene.
- One quad of our insulated conductors are twisted together to form a compact and symmetrical quad.
- Water blocking: 1 Water swellable yarn inside the quad + 2 Water swellable yarns around the quad.
- Wrapping tape: One layer of water swellable tape, Drain wires: Two tinned copper wires 0.4 mm
- Two aluminium tapes are applied: ALU/PE tape with an aluminium thickness of 150 µm. This tape is applied longitudinally with an overlap and is bonded to the intermediate sheath. An intermediate sheath of high density polyethylene is between the two aluminium tapes.
- Inner sheath: Polyethylene compound. Natural colour, Outer sheath: High density polyethylene.



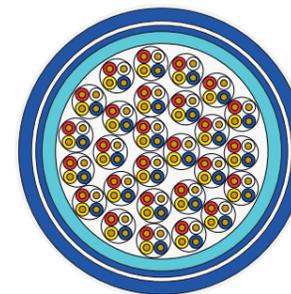
Cable Application: This cable is designed for outdoor installation.

| Technical data | | |
|----------------------------|---------|--|
| No of quads | | 1 |
| Datasheet reference | - | LQ-EEMM 1Q0.5 Bk / Version 1 |
| Design | - | 1x4 |
| Nominal conductor diameter | | 0,5 |
| Cable Diameter – Ø | mm | 10,8 |
| Cable Weight | kg / km | 104 |
| Pulling force | N | 80 |
| Minimum Bending Radius | mm | Repeated bending min. 10xD, cable bend Min. 7,5 xD |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1000 mtr |

LQ-DBME
HPEW 6-50x4x0.5 DB

Copper Concentric Cable - AquaBlock® filled.

- Each conductor consists of a solid wire of pure annealed copper, nominal diameter 0,5mm. Each conductor is insulated with a layer of foam-skin polyethylene compound.
- Four insulated conductors are twisted together to form a compact and symmetrical quad. The quad is whipped with a yarn. The required number of quads are stranded into concentric layers to form a compact cable core.
- Filling: At regular intervals watertight plugs of AquaBlock® compound are applied.
- Core covering: The core consists of at least one layer of non hygroscopic tape and one layer of swellable tape, applied hellically or longitudinally with an overlap.
- Moisture barrier: The cable is completely covered with an aluminium foil, coated on one side, applied longitudinally with an overlap. The aluminium foil is bonded to the inner sheath. Under the aluminium foil two tinned copper wires are applied.
- The cable is completely covered with an aluminium foil, coated on one side, applied longitudinally with an overlap. The aluminium foil is bonded to the outer sheath.
- Inner/outer sheath: PE.



Cable Application: The cable with AquaBlock® compound guarantees a longitudinally watertight cable. This design with a low degree of filling has very little influence on the transmission (high frequency) characteristics and comparable with unfilled cable types. The flexibility of this design is considerably better than with a jelly filled cable. During installation the cable is clean and dry. The cable is suitable for ISDN / ADSL networks. The double ALU/PE construction with smooth and hard sheaths makes the cable suitable for direct burying.

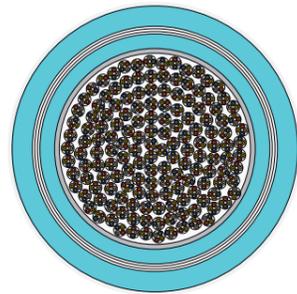
| Technical data | | |
|----------------------------|---------|--|
| No of quads | | 6, 12, 25, 50 |
| Datasheet reference | - | Rf.100 250309AG |
| Design | - | nx4 |
| Nominal conductor diameter | | 0,5 |
| Cable Diameter – Ø | mm | 15.4 (6x4), 18.0 (12x4), 21.7 (25x4), 26.3 (50x4) |
| Cable Weight | kg / km | 210 (6x4), 294 (12x4), 457 (25x4), 741 (50x4) |
| Pulling force | N | 315 (6x4), 475 (12x4), 845 (25x4), 1640 (50x4) |
| Minimum Bending Radius | mm | Repeated bending min. 10xD, cable bend Min. 7,5 xD |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1000 mtr |

LQ-DBMTE

GPEW 10-450x4x0.5 armoured

Copper concentric cable, Aquablock® filled, steel tape armoured.

- Each conductor consists of a solid wire of pure annealed copper, nominal diameter 0,5mm. Each conductor is insulated with a layer of foam-skin polyethylene compound.
- Four insulated conductors are twisted together to form a compact and symmetrical quad. The quad is whipped with a yarn. The required number of quads are stranded into concentric layers to form a compact cable core.
- Filling: At regular intervals watertight plugs of Aquablock® compound are applied.
- Core covering: The core consists of at least one layer of non hygroscopic tape and one layer of swellable tape, applied hellically or longitudinally with an overlap.
- Moisture barrier: The cable is completely covered with an aluminium foil, coated on one side and applied longitudinally with an overlap. The aluminium foil is bonded to the sheath.
- Armour: The armour consists of two layers of galvanized steel tape.
- inner/outer sheath: PE.



Cable Application: The cable with Aquablock® compound guarantees a longitudinally watertight cable. This design with a low degree of filling has very little influence on the transmission (high frequency) characteristics and comparable with unfilled cable types. The flexibility of the design is considerably better than a jelly filled cable. During installation the cable is clean and dry. The cable is suitable for ADSL networks, The armoured cable can be direct buried in the ground without any additional measures.

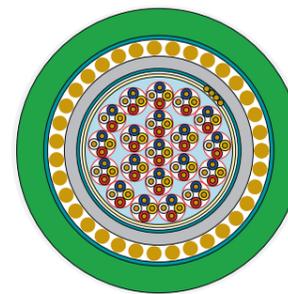
| Technical data | | |
|---------------------------|---------|--|
| No of quads | | 10, 15, 20, 30, 50, 100, 150, 450x4 |
| Datasheet reference | - | TB080237 |
| Design | - | nx4 |
| Nomial conductor diameter | | 0,5 |
| Cable Diameter – Ø | mm | 17,2 (10x4), 18.6 (15x4), 19.9 (20x4) 22.3 (30x4), 27.7 (50x4), 35.1 (100x4), 40 (150x4), 65.4 (450x4) |
| Cable Weight | kg / km | 370 (10x4), 446 (15x4), 517 (20x4), 664 (30x4), 952 (50x4), 1581 (100x4), 2142 (150x4), 5628 (450x4) |
| Pulling force | N | |
| Minimum Bending Radius | mm | Repeated bending min. 10xD, cable bend Min. 7,5 xD |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length 10-100x4= 500 or 1000 mtr, 150-450x4 = 500 mtr |

LQ-DBMDTE

EMC rail 10-30x4x0.8 armoured

Copper Concentric Cable - AquaBlock® filled, Copper wires/Steeltape armoured, PE outer sheath.

- Each conductor consists of a solid wire with a diameter of 0.8 mm and is uniformly insulated with a layer of foam-skin polyethylene compound.
- Four insulated conductors are twisted together to form a compact and symmetrical quad. The required number of quads are stranded into concentric layers to form a compact cable core.
- Filling: At regular intervals watertight plugs of Aquablock® compound are applied.
- Core covering: The core consists of at least one layer of non hygroscopic tape and one layer of swellable tape, applied hellically or longitudinally with an overlap.
- Moisture barrier: The cable is completely covered with an aluminium foil, coated on one side, applied longitudinally with an overlap. The aluminium foil is bonded to the inner sheath. Under the aluminium foil two tinned copper wires are applied.
- Bedding : Over the inner sheath a bedding layer of semi-conductive tape is applied
 - Armour wire : The armour consists of one layer of round solid commercially pure annealed copper wires with a covering of 50%
 - Armour tape : The armour consists of two layers of galvanizes steel tape
- inner/outer sheath: PE.



Cable Application: This cable is designed for outdoor installation allong railway lines. The design with copper wires improves the EMC characteristics. This design also replaces the PIWY cable construction and is suitable for connections with the existing networks.

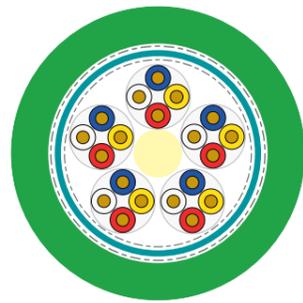
| Technical data | | |
|---------------------------|---------|--|
| No of quads | | 10, 20, 30, 50 |
| Datasheet reference | - | TB090192 |
| Design | - | nx4 |
| Nomial conductor diameter | | 0,8 |
| Cable Diameter – Ø | mm | 25.2 (10x4), 29.7 (20x4), 33.9 (30x4), 41.1 (50x4) |
| Cable Weight | kg / km | 970 (10x4), 1350 (20x4), 1735 (30x4), 2450 (50x4) |
| Pulling force | N | |
| Minimum Bending Radius | mm | Repeated bending min. 10xD, cable bend Min. 7,5 xD |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1000 mtr |

LQ-ESE

Road infra 1-25x4x0.8 unarmoured

Copper Concentric Cable - Metallic screened – PE sheathed.

- Each conductor consists of a solid wire of commercially pure annealed copper. Each conductor is uniformly insulated with solid polyethylene compound. Nominal conductor diameter 0.8 mm.
- Four insulated conductors are twisted together to form a compact and symmetrical quad. The quad is whipped with a yarn. The required number of quads are stranded into concentric layers to form a compact cable core.
- The core consists of at least one layer of non hygroscopic tape and one layer of swellable tape, applied helically or longitudinally with an overlap.
- The cable is completely covered with two layers of aluminium tape and a layer of non-hygroscopic tape, applied helically with an overlap. Under the aluminium tape a copper tinned wire is applied.
- The outer sheath consists of polyethylene compound.



Cable Application: This cable is designed for outdoor installation in ducts.

Technical data

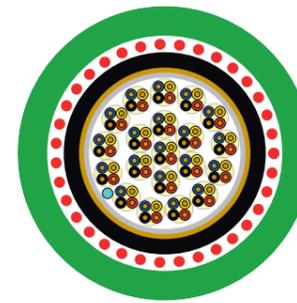
| | | |
|---------------------------|---------|--|
| No of quads | | 1, 5, 15, 25 |
| Datasheet reference | - | TB11209 |
| Design | - | nx4 |
| Nomial conductor diameter | | 0,8 |
| Cable Diameter – Ø | mm | 7.3 (1x4), 12.3 (5x4), 8.2 (15x4), 19.7 (25x4) |
| Cable Weight | kg / km | 180 (5x4) |
| Pulling force | N | |
| Minimum Bending Radius | mm | Repeated bending min. 10xD, cable bend Min. 7,5 xD |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1500 mtr |

LQ-ESEWV

Road infra 5-25x4x0.8 armoured

Copper Concentric Cable - Metallic screened - Steel wire armoured – PE inner sheath – PVC outer sheath.

- Each conductor consists of a solid wire of commercially pure annealed copper. Each conductor is uniformly insulated with solid polyethylene compound. Nominal conductor diameter 0.8 mm.
- Four insulated conductors are twisted together to form a compact and symmetrical quad. The quad is whipped with a yarn. The required number of quads are stranded into concentric layers to form a compact cable core.
- The core consists of at least one layer of non hygroscopic tape and one layer of swellable tape, applied helically or longitudinally with an overlap.
- The cable is completely covered with two layers of aluminium tape and a layer of non-hygroscopic tape, applied helically with an overlap.
- The armour consists of one layer of galvanized round steelwires
- The inner sheath consists of polyethylene compound (Black). The outer sheath consists of polyvinylchloride compound (green RAL 6018).



Cable Application: Polyethylene insulated cables for both instrumentation and telecommunication applications with overall screens and optionally incorporating various armoring and sheathing constructions. The screen provides protection from electromagnetic radiation coming from nearby electrical equipment, power lines, lightning strikes, transformers etcetera. A drain wire is complied to electrically connect shields and to connect all the shields to the common ground. The steel wire armour and the polyethylene outer sheath make the cable suitable for installation under and above ground.

Technical data

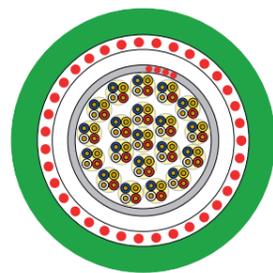
| | | |
|---------------------------|---------|--|
| No of quads | | 5, 10, 15, 25 |
| Datasheet reference | - | Rf.100 250309AG |
| Design | - | nx4 |
| Nomial conductor diameter | | 0,8 |
| Cable Diameter – Ø | mm | 19.3 (5x4), 23 (10x4), 25.2 (15x4), 29.2 (25x4) |
| Cable Weight | kg / km | 610 (5x4), 848 (10x4), 1037 (15x4), 1404 (25x4) |
| Pulling force | N | 2825 (5x4), 3600 (10x4), 4000 (15x4), 4660 (25x4) |
| Minimum Bending Radius | mm | Repeated bending min. 10xD, cable bend Min. 7,5 xD |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1500 mtr |

LQ-EBMWV

DLWD 5-50x4x0.8 armoured

Copper Concentric Cable - AquaBlock® filled – Steel wire Armoured – PVC outer sheath.

- Each conductor consists of a solid wire of commercially pure annealed copper. Each conductor is uniformly insulated with solid polyethylene compound. Nominal conductor diameter 0.8 mm.
- Four insulated conductors are twisted together to form a compact and symmetrical quad. The quad is whipped with a yarn. The required number of quads are stranded into concentric layers to form a compact cable core.
- Filling : At regular intervals watertight plugs of AquaBlock® compound are applied. The cable is provided with a fault location conductor (red). At regular intervals the insulation is partly removed from the conductor. The fault location conductor is located in the first quad of the outer layer.
- The core consists of at least one layer of non hygroscopic tape and one layer of swellable tape, applied helically or longitudinally with an overlap.
- The armour consists of one layer of galvanized round steelwires with a covering of 50% and a swellable tape is applied helically or longitudinally with an overlap.
- The cable is completely covered with an aluminium foil, coated on one side, applied longitudinally with an overlap. The aluminium foil is bonded to the sheath Under the aluminium foil four tinned copper wires are applied.
- The inner sheath consists of polyethylene compound (natural or black). The outer sheath consists of polyvinylchloride compound (green RAL 6018).



Cable Application: The cable with AquaBlock® compound guarantees a longitudinally watertight cable. This design with a low degree of filling has very little influence on the transmission (high frequency) characteristics and comparable with unfilled cable types. The flexibility of this design is considerably better than with a jelly filled cable. During installation the cable is clean and dry. The steel wire armour and polyvinylchloride outer sheath make the cable suitable for installation under and above ground.

Technical data

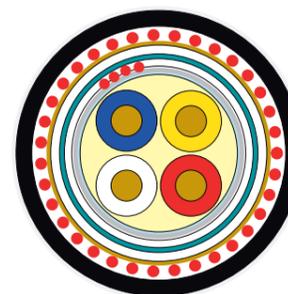
| | | |
|----------------------------|---------|--|
| No of quads | | 5, 10, 15, 25, 50 |
| Datasheet reference | - | Rf.100 140408AG |
| Design | - | nx4 |
| Nominal conductor diameter | | 0,8 |
| Cable Diameter – Ø | mm | 18.2 (5x4), 22.4 (10x4), 24.8 (15x4), 29.9 (25x4), 39.1 (50x4) |
| Cable Weight | kg / km | 575 (5x4), 825 (10x4), 1025 (15x4), 1595 (25x4), (50x4) |
| Pulling force | N | 4200 (5x4), 5700 (10x4), 6300 (15x4), 11000 (25x4), 16000 (50x4) |
| Minimum Bending Radius | mm | Repeated bending min. 10xD, cable bend Min. 7,5 xD |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1500 mtr |

LQ-EBEMQE

Norm 92 1x4x0.5 armoured

Copper Concentric Cable - Waterblocking compound - Steelwire Armoured.

- Each conductor consists of a solid wire of commercially pure annealed copper. Each conductor is uniformly insulated with solid polyethylene compound. Nominal conductor diameter 0.5 mm.
- Four insulated conductors are twisted together to form a compact and symmetrical quad. The quad is whipped with a yarn.
- Filling: At regular intervals watertight plugs of Aquablock® compound are applied
- Core covering: The core consists of at least one layer of non hygroscopic tape and one layer of swellable tape, applied helically or longitudinally with an overlap.
- Moisture barrier: The cable is completely covered with an aluminium foil, coated on one side and applied longitudinally with an overlap. The aluminium foil is bonded to the sheath. Under the aluminium foil four tinned copper wires are applied.
- The armour consists of one layer of galvanized round steelwires with a covering of 50%. Under the steelwires a foam tape is applied helically or longitudinally with an overlap.
- inner(2x)/outer sheath: PE.



Cable Application: The cable with AquaBlock compound guarantees a longitudinally watertight cable. This design with a low degree of filling has very little influence on the transmission (high frequency) characteristics and comparable with unfilled cable types. The flexibility of this design is considerably better than with a jelly filled cable. During installation the cable is clean and dry. The steel wire armour and the polyethylene outer sheath make the cable suitable for installation under and above ground.

Technical data

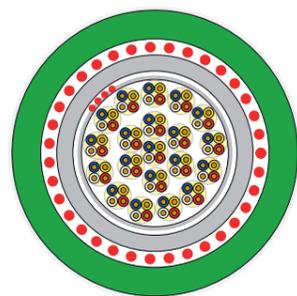
| | | |
|----------------------------|---------|--|
| No of quads | | 1 |
| Datasheet reference | - | Rf.100 140408AG |
| Design | - | 1x4 |
| Nominal conductor diameter | | 0,5 |
| Cable Diameter – Ø | mm | 12,5 |
| Cable Weight | kg / km | 220 |
| Pulling force | N | 1200 |
| Minimum Bending Radius | mm | Repeated bending min. 10xD, cable bend Min. 7,5 xD |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1000 mtr |

LQ-EBMQE

Norm 92 6-50x4x0.5 armoured

Copper Concentric Cable – Waterblocking compound – Steel Wire Armour – PE outer sheath.

- Each conductor consists of a solid wire of commercially pure annealed copper. Each conductor is uniformly insulated with solid polyethylene compound. Nominal conductor diameter 0.5 mm.
- Four insulated conductors are twisted together to form a compact and symmetrical quad. The quad is whipped with a yarn. The required number of quads are stranded into concentric layers to form a compact cable core.
- Filling: At regular intervals watertight plugs of AquaBlock® compound are applied. The cable is provided with a fault location conductor (red). At regular intervals the insulation is partly removed. A fault location conductor is located in the first quad of the outer layer.
- Core covering: The core consists of at least one layer of non hygroscopic tape and one layer of swellable tape, applied helically or longitudinally with an overlap.
- Moisture barrier: The cable is completely covered with an aluminium foil, coated on one side and applied longitudinally with an overlap. The aluminium foil is bonded to the sheath. Under the aluminium foil four tinned copper wires are applied.
- The armour consists of one layer of galvanized round steelwires with a covering of 50%. Under the steelwires a foam tape is applied helically or longitudinally with an overlap.
- inner/outer sheath: PE.



Cable Application: The cable with AquaBlock® compound guarantees a longitudinally watertight cable. This design with a low degree of filling has very little influence on the transmission (high frequency) characteristics and comparable with unfilled cable types. The flexibility of this design is considerably better than with a jelly filled cable. During installation the cable is clean and dry. The steel wire armour and the polyethylene outer sheath make the cable suitable for installation under and above ground.

Technical data

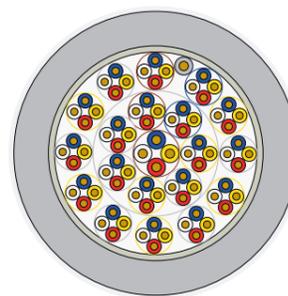
| | | |
|----------------------------|---------|--|
| No of quads | | 6, 12, 15, 25, 50 |
| Datasheet reference | - | TB12201 |
| Design | - | nx4 |
| Nominal conductor diameter | | 0,5 |
| Cable Diameter – Ø | mm | 16.7 (6x4), 20.3 (12x4), 21.8 (15x4), 25.4 (25x4), 32.3 (50x4) |
| Cable Weight | kg / km | 310 (6x4), 445 (12x4), 510 (15x4), 695 (25x4), 1140 (50x4) |
| Pulling force | N | |
| Minimum Bending Radius | mm | Repeated bending min. 10xD, cable bend Min. 7,5 xD |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1000 mtr |

LQ-E(Gm)G

Norm 88 20x4x0.5 Dca

20x4x0.5 mm + 1x0.8 mm PE insulation, fire barrier, LSZH Outer Sheath CPR Dca.

- Each conductor consists of a solid wire of commercially pure annealed copper. Each conductor is uniformly insulated with solid polyethylene compound. Nominal conductor diameter 0.5 mm.
- Four insulated conductors are twisted together to form a compact and symmetrical quad.
- The earth wire consists of a copper wire with a nominal conductor diameter of 0.8 mm. Earth wire is uniformly insulated with solid polyethylene compound (Grey).
- The required number of quads are stranded into concentric layers (1+7+12+1 earth wire) to form a compact cable core. The quad is whipped with a colored thread.
- The core consists of at least one layer of non hygroscopic tape (polyester tape or similar material), applied helically with an overlap.
- Fire barrier: Tape or tapes. Ripcord Under the outer sheath a ripcord is applied.
- Outer sheath Grey (RAL 7032), Halogen free, flame resistant thermoplastic sheathing compound according to EN 50290-2-27.



Cable Application: Special designed for telephony, according to Norm 88 (KPN) and CPR class Dca.

Technical data

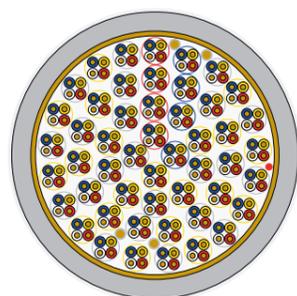
| | | |
|----------------------------|---------|--|
| No of quads | | 20 |
| Datasheet reference | - | TDT 2455 |
| Design | - | nx4 |
| Nominal conductor diameter | | 0,5 |
| Cable Diameter – Ø | mm | 19.2 |
| Cable Weight | kg / km | 411 |
| Pulling force | N | |
| Minimum Bending Radius | mm | Admissible bending radius ≥ 15 x outer cable diameter |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1000 mtr |

LQ-E(Gm)G

Norm 88 BB 50x4x0.5 Dca

50x4x0.5 mm + 4x0.8 mm PE insulation, fire barrier, LSZH Outer Sheath CPR Dca.

- Each conductor consists of a solid wire of commercially pure annealed copper. Each conductor is uniformly insulated with solid polyethylene compound. Nominal conductor diameter 0.5 mm.
- Four insulated conductors are twisted together to form a compact and symmetrical quad. The quad is whipped with a colored thread.
- The earth wire consists of a copper wire with a nominal conductor diameter of 0.8 mm. Earth wire is uniformly insulated with solid polyethylene compound (Grey).
- The required number of quads are stranded into concentric layers (4+10+15+21+4 earth wires) to form a compact cable core. The quad is whipped with a colored thread.
- The core consists of at least one layer of non hygroscopic tape (polyester tape or similar material), applied helically with an overlap.
- Fire barrier: Tape or tapes. Ripcord Under the outer sheath a ripcord is applied.
- Outer sheath Grey (RAL 7032), Halogen free, flame resistant thermoplastic sheathing compound according to EN 50290-2-28.



Cable Application: Special designed for telephony, according to Norm 88 (KPN) and CPR class Dca.

Technical data

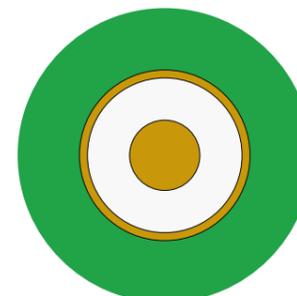
| | | |
|---------------------------|---------|---|
| No of quads | | 50 |
| Datasheet reference | - | TDT 2351 |
| Design | - | nx4 |
| Nomial conductor diameter | | 0,5 |
| Cable Diameter – Ø | mm | 28.6 |
| Cable Weight | kg / km | 854 |
| Pulling force | N | |
| Minimum Bending Radius | mm | Admissible bending radius ≥ 15 x outer cable diameter |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -30 to +70 Operation -30 to +0 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 1000 mtr |

CATV Trunk cable

Coax 3 & 6

CT 33 S (3.3/13.5) / CT 17 S (F) (1.7/7.0).

- Inner conductor is a bare copper wire.
- Insulation: gas injected foam PE.
- Outer conductor is for C3 a welded copper tube. For C6 copper foil with overlap.
- PE Sheath.



Cable Application: CATV cables are used in trunk lines of CATV and broadband networks between head-end and subscriber termination point. They are suitable for direct buried and duct laying.

Technical data

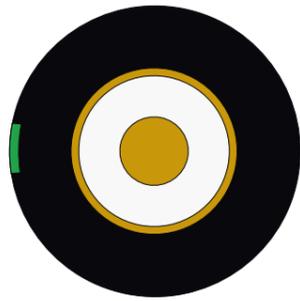
| | | |
|---------------------------|---------|--|
| No of quads | | N.A. |
| Datasheet reference | - | Coax3_CT_33_S_GN or CT17S f PE GN |
| Design | - | n |
| Nomial conductor diameter | | 3,3 (C3), 1,7 (C6) |
| Cable Diameter – Ø | mm | 18,25 (C3), 10,25 (C6) |
| Cable Weight | kg / km | 330 (C3), 125 (C6) |
| Pulling force | N | 1000 (C3), 600 (C6) |
| Minimum Bending Radius | mm | Without load 20 x D (D= outer diameter), with load 40 x D (D= outer diameter) |
| Temperature Range | °C | Installation -5 to +50 Transport & Storage -40 to +70 Operation -40 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 500 mtr (C3), 1000 mtr (C6) |

CATV Trunk cable

Coax 3 & 6 Cca

CT 33 S HF Cca (3.3/13.5) / CT 17 S (F) HF Cca (1.7/7.0).

- Inner conductor is a bare copper wire.
- Insulation: gas injected foam PE.
- Outer conductor is for C3 a welded copper tube. For C6 copper foil with overlap.
- HFFR sheath, black with one extruded green stripe.
- CPR Class Cca.



Cable Application: CATV cables are used in trunk lines of CATV and broadband networks between head-end and subscriber termination point. The HF-version is intended to be used in-house in cases where long reach and an advanced performance of reaction to fire is needed.

Technical data

| | | |
|---------------------------|---------|---|
| No of quads | | N.A. |
| Datasheet reference | - | Coax3 CT33S HF 33 Cca, CT17S f HF Cca 20170927 |
| Design | - | n |
| Nomial conductor diameter | | 3,3 (C3), 1,7 (C6) |
| Cable Diameter – Ø | mm | 18,25 (C3), 10,25 (C6) |
| Cable Weight | kg / km | 326 (C3), 120 (C6) |
| Pulling force | N | 1000 (C3), 600 (C6) |
| Minimum Bending Radius | mm | Without loead 20 x D (D= outer diameter), with load 40 x D (D= outer diameter) |
| Temperature Range | °C | Installation -5 to +60 Transport & Storage -20 to +60 Operation -20 to +60 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 500 mtr |

INDEX CONNECTIVITY CABLES

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CONN ECTIVITY CABLES

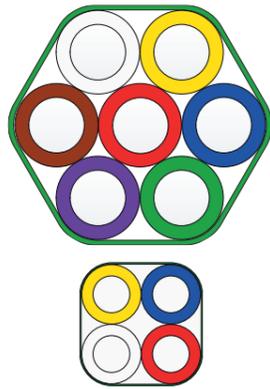
Prismian Group offer a supportive portfolio of connectivity cables, designed for specific aerial, indoor and underground applications. This portfolio of connectivity cables fits perfectly with specific cable solutions, mentioned in this catalogue.

EaseNetXS microducts

EaseNetXS DB microduct bundle 14mm, 7mm

EaseNetXS bundles with 14/10 or 7/4 microducts for DB application in the feeder part of an OSP network.

- Superior characteristics for blowing cables in microducts.
- High pressure resistant.
- Blowing parameters stable for > 15 years.
- Designed for direct buried installation.
- No closures needed for branching or jointing of microducts.
- Short installation time.
- Minimum number of additional components.



Cable Application: The EaseNetXS bundles of thick-walled microducts are designed for direct burying and have superior blowing characteristics to assure the very best blowing performance. Without the need for a protective duct, EaseNetXS microducts can be branched off easily. A further benefit is that instead of complex microduct management boxes, this solution uses simple direct buried type connectors to branch off microducts into the distribution & drop part of the network. The branched microduct is suitable for direct-buried application.

Technical data

| | | |
|--------------------------------|---------|---|
| No. tubes/ducts | | 1,2,3,4,5,7 (14/10), 1,4,7,12 (7/4) |
| Datasheet reference | - | OP635-04 |
| Design | - | nx14/10, nx7/4 |
| Diameter – Ø | mm | 15x30 (2x14/10), 44 (7x14/10), 23 (7x7/4), 30 (12x7/4), |
| Weight | kg / km | 72 (1x14/10, 191 (2x14/10, 286 (3x14/10), 450 (5x14/10). 615 (7x14/10). 209 (7x7/4), 355 (12x7/4) |
| Tensile strength/Pulling force | N | "14/10: 2x: 2000 N 3x: 3000 N 4x: 4000 N 5x: 5000 N 7x: 7000 N. 7/4: 7x: 2450N, 12x: 4200 N" |
| Minimum Bending Radius | mm | At installation : > 20 x O.D. Installed: > 20 x O.D. |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -10 to +50 Operation -20 to +60 |
| Packing | | Wooden drum |
| Standard Delivery Length | | 14/10: 1400 mtr (2x), 2000 mtr (3x), 700 mtr (7x) 7/4: 1850 mtr (7x), 1750 mtr (12x) |

EaseNetXS Ecoslim

EaseNetXS Ecoslim DB microduct bundle 10mm

EaseNetXS bundles with 10/7 microducts for DB application in the feeder part of an OSP network.

- Superior characteristics for blowing cables in microducts, ribbed inner surface.
- High pressure resistant.
- Blowing distance of >1200m in combination with Prysmian Sirocco HD 96F cable.
- Designed for direct buried installation.
- No closures needed for branching or jointing of microducts.
- Short installation time.
- Minimum number of additional components.



Cable Application: The EaseNetXS bundles of thick-walled microducts are designed for direct burying and have superior blowing characteristics to assure the very best blowing performance. Without the need for a protective duct, EaseNetXS microducts can be branched off easily. A further benefit is that instead of complex microduct management boxes, this solution uses simple direct buried type connectors to branch off microducts into the distribution & drop part of the network. The branched microduct is suitable for direct-buried application. The black Ecoslim microducts are made of re-used material. This will help reducing the carbon footprint.

Technical data

| | | |
|--------------------------------|---------|---|
| No. tubes/ducts | | 2,3,7 |
| Datasheet reference | - | OP643-05 |
| Design | - | nx10/7 |
| Diameter – Ø | mm | 2x: 21,5 x 11,5 mm, 3x: 21,5 x 20,2 mm, 7x: 31,5 x 29 mm |
| Weight | kg / km | 105 (2x), 175 (3x), 375 (7x) |
| Tensile strength/Pulling force | N | 2x: 1000 N 3x: 1500 N 7x: 3500 N |
| Minimum Bending Radius | mm | During installation : > 20 x O.D. Installed: > 20 x O.D. |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -40 to +60 Operation -40 to +60 |
| Packing | | Wooden drum |
| Standard Delivery Length | | 5400 mtr (2x), 3800 mtr (3x), 1700 mtr (7x) |

EaseNetXS ALPA EaseNetXS ALPA microduct bundle

EaseNetXS microduct cable with 7 microducts 12/8 mm Flame retardant protective sheath.

- Superior characteristics for blowing cables in microducts.
- High pressure resistant.
- Blowing parameters stable for > 15 years.
- Duct, direct buried, indoor and outdoor above ground installation.
- Flame retardant, Zero halogen, low smoke.
- Short installation time.
- Minimum number of additional components.



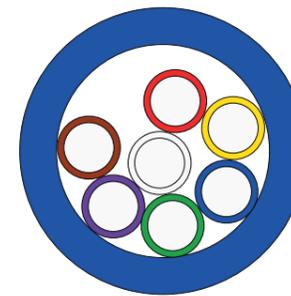
Cable Application: The core of the product is an EaseNetXS bundle of HDPE thick-walled 12mm microducts designed for superior blowing characteristics to assure the very best blowing performance. The EaseNetXS bundle is protected by a flame retardant inner sheath, an aluminum moisture barrier tape and a low smoke zero halogen (LSZH) flame retardant, UV stabilized outer sheath. The product is suitable for duct and direct-buried, indoor and outdoor above ground installation. For outdoor above ground application special strain relief components have to be installed.

| Technical data | | |
|--------------------------------|---------|--|
| No. tubes/ducts | | 7 |
| Datasheet reference | - | OP546-01 |
| Design | - | nx12/8 |
| Diameter – Ø | mm | 37.2 |
| Weight | kg / km | 1110 |
| Tensile strength/Pulling force | N | >2200 |
| Minimum Bending Radius | mm | At installation : > 20 x O.D. Installed: > 20 x O.D. |
| Temperature Range | °C | Installation -10 to +50. Transport & Storage -10 to +50 Operation -20 to +60 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Delivery length is 1000 mtr |

Prefab ducts Pre-installed microducts

JNXS OSP Pre-installed microducts in ECO duct.

- Robust, having high crush resistance. No damage to the microduct system when installing in a trench.
- Usable in every thinkable environment; for example rocky, wet or sandy soils.
- Superior characteristics for jetting cable into the microducts. Even under difficult circumstances very long blowing distances can be achieved.
- Special grade HDPE plastic, having low friction coefficient.
- Smooth and flexible blowing of cable. No complex tooling is needed to blow.
- Jetting parameters stay stable over long period of time (> 15 years), additional cables can still be installed.



Cable Application: Highly reliable, robust protective ducts with pre-installed high pressure resistant microducts with superior blowing capabilities. Prysmian protective ducts with pre-installed microducts are a part of the complete blowing system: JNXS, which has been designed with expansion in mind and compatibility with existing technologies. The technique is based on laying ducts first and afterwards blowing-in optical fibre cables. The JNXS system is flexibility - it allows customers to choose what they need, when they want it, and where they need it, ensuring the optimum in costs and fibreinfrastructure.

| Technical data | | |
|--------------------------------|---------|--|
| No. tubes/ducts | | 1x16+(2x4/3), 1x40+(24x4/3), 1x40+(7x7/5.5), 1x40+(10x7/5.5), 1x40+(4x12/9.6) |
| Datasheet reference | - | OP549-02 / OP631-01 |
| Design | - | outerduct 16 or 40mm + innerducts 4/3, 7/5,5 or 12/9.6 |
| Diameter – Ø | mm | 16, 40 |
| Weight | kg / km | 16x2.9 mm+2x 4/3 mm 127, 40x3.7 mm+24x 4/3 mm 556, 40x3.7 mm+7x 7/5.5 mm 619, 40x3.7 mm+10x 7/5.5 mm 699, 40x3.7 mm+4x 12/9.6 mm 562 |
| Tensile strength/Pulling force | N | 700 (16x2.9 mm)/2500 (40x3.7 mm) |
| Minimum Bending Radius | mm | At installation: ≥20x outer diameter Installed: ≥20x outer diameter |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -30 to +70 Operation -20 to +60 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Delivery length is 900 or 950 mtr |

Prefab ALPA

Pre-installed ALPA microducts

Pre-installed microducts ALPA®.

- ALPA® sheath: Aluminium-polyethylene laminated foil, HDPE sheath and Polyamide skin.
- Resistant to organic and inorganic chemicals. Robust, having a high crush resistance. No damage to the microduct system when installing in a trench.
- Usable in every thinkable environment; for example rocky, wet or sandy soils.
- Superior characteristics for jetting cable into the microducts. Even under difficult circumstances very long blowing distances can be achieved.
- Jetting parameters stay stable over long period of time (> 15 years), additional cables can still be installed.
- Special grade HDPE plastic, having low friction coefficient.



Cable Application: The ALPA® sheathed protective duct is used in buried OSP networks where soil contamination is to be expected. The ALPA® sheath offers protection against oil and chemicals. This highly reliable, robust protective duct is pre-installed with high pressure resistant microducts with superior blowing capabilities. Prysmian protective ducts with pre-installed microducts are a part of the complete blowing system: JNXS, which has been designed with expansion in mind and compatibility with existing technologies. The technique is based on laying ducts first and afterwards blowing-in optical fibre cables. The JNXS system is flexibility - it allows customers to choose what they need, when they want it, and where they need it, ensuring the optimum in costs and fibreinfrastructure.

Technical data

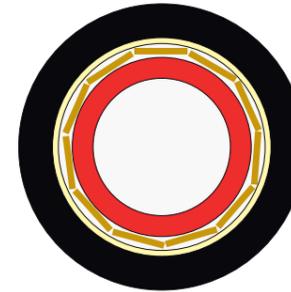
| | | |
|--------------------------------|---------|---|
| No. tubes/ducts | | 1x40+(7x7/5.5), 1x40+(10x7/5.5), 1x40+(5x10/8), 1x50+(7x10/8) |
| Datasheet reference | - | OP561-02 |
| Design | - | outerduct 40 or 50 + innerducts 7/5,5 or 10/8 |
| Diameter - Ø | mm | 44,4, 54,4 |
| Weight | kg / km | 40x3.7 mm+7x 7/5.5 mm, 40x3.7 mm+10 x7/5.5 mm, 40x3.7 mm+5x 10/8 mm, 50x4.6 mm+7x 10/8 mm |
| Tensile strength/Pulling force | N | 2500 (40x3.7 mm)/4000 (50x4.6 mm) |
| Minimum Bending Radius | mm | At installation: ≥20x outer diameter Installed: ≥20x outer diameter |
| Temperature Range | °C | Installation -10 to +50. Transport & Storage -30 to +70. Operation -20 to +60 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Delivery length 500 (50mm), 900 (40mm) |

Aerial tube cable

ADSSD Railway microduct

Metal-free Aerial/Ground Microduct (ADSSD).

- Microduct: intended for protection of an optical microcable to be installed further.
- Reinforcement Layer (1st): one layer of flat FRP elements.
- Reinforcement Layer (2nd): aramid yarns.
- Outer Sheath: HDPE, two ripcords beneath.



Cable Application: Metal-free aerial/ground Microduct, suitable for aerial and underground installation, either in ducts or directly buried, allowing further installation of a microcable.

Technical data

| | | |
|--------------------------------|---------|---|
| No. tubes/ducts | | 1 |
| Datasheet reference | - | TC05011 v1 |
| Design | - | nx12/8 |
| Diameter - Ø | mm | 18,5 |
| Weight | kg / km | 240 |
| Tensile strength/Pulling force | N | 10000N |
| Minimum Bending Radius | mm | without tension 15x cable Ø, under max tension 20x cable Ø |
| Temperature Range | °C | Installation -10 to +50 Transport & Storage -30 to +70 Operation -30 to +70 |
| Packing | | Wooden drum |
| Standard Delivery Length | | Standard delivery length is 4 km |

Prefab Flexduct

Pre-installed Flexduct

Indoor flexible ducts with pre-installed microducts.

- Robust, having high crush resistance.
- No damage to the microduct system when installing in a building.
- Usable in every thinkable indoor environment.
- Superior characteristics for jetting cable into the microducts.
- Microducts: Special grade flame retardant, low smoke, zero halogen plastic, having low friction coefficient. Flexduct: Special grade polyamide for excellent protection.
- Jetting parameters stay stable over long period of time (> 15 years), additional cables can still be installed.
- Flexible, easy to instal.



Cable Application: Highly reliable, robust protective flexible ducts with pre-installed high pressure resistant microducts with superior blowing capabilities. The flexible ducts are made of a special grade polyamide, offering excellent protection: • mechanical protection, • flame retardancy • chemical resistance. The application area is indoor, typically for high-rise buildings.

Technical data

| | | |
|--------------------------------|---------|--|
| No. tubes/ducts | | 1,2,6,12,24 (4/3), 2,3,7,10 (7/5.5), 1,5,10 (10/8) |
| Datasheet reference | - | WM504-02 |
| Design | - | N12, N17, N23, N29, N36 |
| Diameter – Ø | mm | 15.8(N12), 21,2 (N17), 28.5(N23), 34.5 (N29), 42.5 (N36) |
| Weight | kg / km | N12 + 1x 4/3 mm 2,2, N12+2x 4/3 mm 2,4, N17 6x 4/3 mm 9,0, N23 12x 4/3 mm 16, N29 24x 4/3 mm 12,8, N17+2x 7/5.5 mm 8,8, N17+3x 7/5.5 mm 10,2, N23+7x 7/5.5 mm 19,8, N29+10x 7/5.5 mm 13,7, N17+1x 10/8 mm 8,7, N29+5x 10/8 mm 13,5, N36+7x 10/8 mm 10,5 |
| Tensile strength/Pulling force | N | N12 + 1x 4/3 mm 45, N12+2x 4/3 mm 90, N17 6x 4/3 mm 270, N23 12x 4/3 mm 540, N29 24x 4/3 mm 1080, N17+2x 7/5.5 mm 240, N17+3x 7/5.5 mm 360, N23+7x 7/5.5 mm 840, N29+10x 7/5.5 mm 1200, N17+1x 10/8 mm 220, N29+5x 10/8 mm 1100, N36+7x 10/8 mm 1540 |
| Minimum Bending Radius | mm | 250mm |
| Temperature Range | °C | Installation -10 to +50. Transport & Storage -10 to +10. Operation -20 to +60 |
| Packing | | N12+1x 4/3 mm 50 m/coil ø70 cm, N12+2x 4/3 mm 50 m/coil ø70 cm, N17+6x 4/3 mm 100 m/coil ø70 cm, N23+12x 4/3 mm 100 m/coil ø70 cm, N29+24x 4/3 mm 50 m/coil ø70 cm, N17+2x 7/5.5 mm 100 m/coil ø70 cm, N17+3x 7/5.5 mm 100 m/coil ø70 cm, N23+7x 7/5.5 mm 100 m/coil ø70 cm, N29+10x 7/5.5 mm 50 m/coil ø70 cm, N17+1x 10/8 mm 100 m/coil ø70 cm, N29+5x 10/8 mm 50 m/coil ø70 cm, N36+7x 10/8 mm 30 m/coil ø70 cm |

Applicable Standards

- IEC/EN 60793-2-50 Category B-652.D
- ITU-T Recommendation G.652.D
- EN 50 173-1: Category OS2 and OS1a
- ISO / IEC 11801: Category OS2 and OS1a

| Optical properties | | | |
|--|--------------------|---------------------------|-------------|
| Attribute | Measurement method | Units | Limits |
| Mode field diameter at 1310 nm | IEC/EN 60793-1-45 | µm | 9.0 ± 0.4 |
| Mode field diameter at 1550 nm | | µm | 10.1 ± 0.5 |
| Chromatic Dispersion coefficient: In the interval 1285 nm – 1330 nm | IEC/EN 60793-1-42 | ps/km • nm | ≤ 3 |
| At 1550 nm | | ps/km • nm | ≤ 18.0 |
| At 1625 nm | | ps/km • nm | ≤ 22.0 |
| Zero Dispersion Wavelength, λ ₀ | | nm | 1300 - 1324 |
| Zero Dispersion Slope | | ps/(nm ² • km) | ≤ 0.092 |
| Cut-off Wavelength | IEC/EN 60793-1-44 | λ _{cc} nm | ≤ 1260 * |
| Polarisation Mode Dispersion (PMD) coefficient | IEC/EN 60793-1-48 | ps/√km | ≤ 0.1 |
| PMDQ Link Design Value (computed with Q=0.01%, N=20) | IEC/EN 60794-3 | ps/√km | ≤ 0.06 |

* guaranteed value according to the ITU-T (ATM G650) method

| Attenuation | | | |
|---|--------------------|-------|----------|
| Attribute | Measurement method | Units | Limits |
| Maximum attenuation value of cable at 1310 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.36 |
| Maximum attenuation value of cable at 1383 nm** | IEC/EN 60793-1-40 | dB/km | ≤ 0.36 |
| Maximum attenuation value of cable at 1460 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.26 |
| Maximum attenuation value of cable at 1550 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.23 |
| Maximum attenuation value of cable at 1625 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.25 |
| Max. attenuation change in the interval 1285 - 1330 nm (ref. 1310 nm) | | dB/km | ≤ 0.03 |
| Max. attenuation change in the interval 1525 - 1575 nm (ref. 1550 nm) | | dB/km | ≤ 0.02 |
| Local discontinuity at 1310 and 1550 nm | IEC/EN 60793-1-40 | dB | ≤ ± 0.05 |

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

| Attenuation variation vs Bending | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| 100 Turns on a R = 25 mm mandrel at 1310 & 1550 nm | IEC/EN 60793-1-47 | dB | ≤ 0.05 |
| 100 Turns on a R = 30 mm mandrel at 1625 nm | IEC/EN 60793-1-47 | dB | ≤ 0.05 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1550 nm | IEC/EN 60793-1-22 | - | 1.468 |
| 1625 nm | IEC/EN 60793-1-22 | - | 1.468 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | - | dB | -79.4 |
| 1550 nm | - | dB | -81.7 |
| 1625 nm | - | dB | -82.5 |

| Geometrical properties | | | |
|---|--------------------|-------|-------------|
| Attribute | Measurement method | Units | Limits |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 0.7 |
| Cladding non-Circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Core-Cladding Concentricity Error | IEC/EN 60793-1-20 | µm | ≤ 0.5 |
| Coating diameter - ColorLock®XS and Natural | IEC/EN 60793-1-21 | µm | 245 ± 10 |
| Coating non-Circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding Concentricity Error | IEC/EN 60793-1-21 | µm | ≤ 12 |

| Mechanical properties | | | |
|--|--------------------|-------|-------------------------------------|
| Attribute | Measurement method | Units | Limits |
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (average) | IEC/EN 60793-1-32 | N | 1 ≤ F _{average.strip} ≤ 3 |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak.strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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Applicable Standards

- IEC / EN 60793-2-50 Category B-657.A1 and B-652.D
- ITU-T Recommendation G.657.A1 and G.652.D
- EN 50173-1: Category OS2 and OS1a
- ISO/IEC 11801: Category OS2 and OS1a

| Optical properties | | | |
|--|--------------------|--|---------------------------|
| Attribute | Measurement method | Units | Limits |
| Mode field diameter at 1310 nm Mode field diameter at 1550 nm | IEC/EN 60793-1-45 | µm µm | 9.0 ± 0.4 10.1 ± 0.5 |
| Chromatic Dispersion coefficient: In the interval 1285 nm – 1330 nm At 1550 nm At 1625 nm | IEC/EN 60793-1-42 | ps/km • nm ps/km • nm ps/km • nm | ≤ 3 ≤ 18.0 ≤ 22.0 |
| Zero Dispersion Wavelength, λ ₀ | | nm | 1300 - 1324 |
| Zero Dispersion Slope | | ps/(nm ² • km) | ≤ 0.092 |
| Cut-off Wavelength | IEC/EN 60793-1-44 | λ _{cc} nm | ≤ 1260 * |
| Polarisation Mode Dispersion (PMD) coefficient | IEC/EN 60793-1-48 | ps/√km | ≤ 0.1 |
| PMDQ Link Design Value (computed with Q=0.01%, N=20) | IEC/EN 60794-3 | ps/√km | ≤ 0.06 |

* guaranteed value according to the ITU-T (ATM G650) method

| Attenuation | | | |
|--|--------------------|-------|---------|
| Attribute | Measurement method | Units | Limits |
| Maximum attenuation value of cable in the interval 1310nm–1625nm** | IEC/EN 60793-1-40 | dB/km | ≤ 0.39 |
| Maximum attenuation value of cable at 1550 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.22 |
| Local discontinuity at 1310 and 1550 nm | IEC/EN 60793-1-40 | dB | max 0.1 |

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

| Attenuation variation vs Bending | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| 100 turns on a mandrel R = 30 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.05 |
| 10 turns on a mandrel R = 15 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.25 |
| 10 turns on a mandrel R = 15 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.0 |
| 1 turn on a mandrel R = 10 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.75 |
| 1 turn on a mandrel R = 10 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.5 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1550 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1625 nm | IEC/EN 60793-1-22 | - | 1.468 |

| Rayleigh Backscatter coefficient (1ns pulse width) | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | - | dB | -79.4 |
| 1550 nm | - | dB | -81.7 |
| 1625 nm | - | dB | -82.5 |

| Geometrical properties | | | |
|---|--------------------|-------|-------------|
| Attribute | Measurement method | Units | Limits |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 0.7 |
| Cladding non-circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Core-cladding concentricity error | IEC/EN 60793-1-20 | µm | ≤ 0.5 |
| Coating diameter – ColorLock®XS and natural | IEC/EN 60793-1-21 | µm | 245 ± 10 |
| Coating non-circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding concentricity error | IEC/EN 60793-1-21 | µm | ≤ 12 |

| Mechanical properties | | | |
|--|--------------------|-------|-------------------------------------|
| Attribute | Measurement method | Units | Limits |
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (average) | IEC/EN 60793-1-32 | N | 1 ≤ F _{average.strip} ≤ 3 |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak.strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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C24 PROPERTIES OF CABLE WITH BENDBRIGHT™ XS SINGLE-MODE FIBRE

BENDBRIGHT™

Applicable Standards

- IEC / EN 60793-2-50 Category B-657.A2 and B-652.D
- ITU-T Recommendation G.657.A2
- ITU-T Recommendation G.652.D
- EN 50 173-1: Category OS2 and OS1a
- ISO / IEC 11801: Category OS2 and OS1a

| Optical properties | | | |
|--|--------------------|---------------------------|-------------|
| Attribute | Measurement method | Units | Limits |
| Mode field diameter at 1310 nm | IEC/EN 60793-1-45 | µm | 8.8 ± 0.4 |
| Mode field diameter at 1550 nm | | µm | 9.8 ± 0.5 |
| Chromatic Dispersion coefficient: In the interval 1285 nm – 1330 nm | IEC/EN 60793-1-42 | ps/km • nm | ≤ 3.7 |
| At 1550 nm | | ps/km • nm | ≤ 18.5 |
| At 1625 nm | | ps/km • nm | ≤ 23.0 |
| Zero Dispersion Wavelength, λ ₀ | | nm | 1300 - 1324 |
| Zero Dispersion Slope | | ps/(nm ² • km) | ≤ 0.092 |
| Cut-off Wavelength | IEC/EN 60793-1-44 | λ _{cc} nm | ≤ 1260 * |
| Polarisation Mode Dispersion (PMD) coefficient | IEC/EN 60793-1-48 | ps/√km | ≤ 0.1 |
| PMDQ Link Design Value (computed with Q=0.01%, N=20) | IEC/EN 60794-3 | ps/√km | ≤ 0.06 |

* guaranteed value according to the ITU-T (ATM G650) method

| Attenuation | | | |
|---|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| Maximum attenuation value of cable at 1310 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.36 |
| Maximum attenuation value of cable at 1383 nm** | IEC/EN 60793-1-40 | dB/km | ≤ 0.38 |
| Maximum attenuation value of cable at 1550 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.23 |
| Maximum attenuation value of cable at 1625 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.25 |
| Local discontinuity at 1310 and 1550 nm | IEC/EN 60793-1-40 | dB | ± 0.05 |

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

| Attenuation variation vs Bending | | | |
|---|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| 10 turns on a mandrel R = 15 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.03 |
| 10 turns on a mandrel R = 15 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.2 |
| 1 turn on a mandrel R = 7.5 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.5 |
| 1 turn on a mandrel R = 7.5 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.0 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1550 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1625 nm | IEC/EN 60793-1-22 | - | 1.468 |

| Rayleigh Backscatter coefficient (1ns pulse width) | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | - | dB | -79.1 |
| 1550 nm | - | dB | -81.4 |
| 1625 nm | - | dB | -82.2 |

| Geometrical properties | | | |
|---|--------------------|-------|-------------|
| Attribute | Measurement method | Units | Limits |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 0.7 |
| Cladding non-Circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Core-Cladding Concentricity Error | IEC/EN 60793-1-20 | µm | ≤ 0.5 |
| Coating diameter - ColorLock®XS and Natural | IEC/EN 60793-1-21 | µm | 245 ± 10 |
| Coating non-Circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding Concentricity Error | IEC/EN 60793-1-21 | µm | ≤ 12 |

| Mechanical properties | | | |
|--|--------------------|-------|-------------------------------------|
| Attribute | Measurement method | Units | Limits |
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (average) | IEC/EN 60793-1-32 | N | 1 ≤ F _{average.strip} ≤ 3 |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak.strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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Applicable Standards

- IEC / EN 60793-2-50 Category B-657.A2 and B-652.D
- ITU-T Recommendation G.657.A2
- ITU-T Recommendation G.652.D
- EN 50173-1: Category OS2 and OS1a
- ISO/IEC 11801: Category OS2 and OS1a

| Optical properties | | | |
|--|--------------------|---------------------------|-------------|
| Attribute | Measurement method | Units | Limits |
| Mode field diameter at 1310 nm | IEC/EN 60793-1-45 | µm | 8.8 ± 0.4 |
| Mode field diameter at 1550 nm | | µm | 9.8 ± 0.5 |
| Chromatic Dispersion coefficient: In the interval 1285 nm – 1330 nm | IEC/EN 60793-1-42 | ps/km • nm | ≤ 3.7 |
| At 1550 nm | | ps/km • nm | ≤ 18.5 |
| At 1625 nm | | ps/km • nm | ≤ 23.0 |
| Zero Dispersion Wavelength, λ ₀ | | nm | 1300 - 1324 |
| Zero Dispersion Slope | | ps/(nm ² • km) | ≤ 0.092 |
| Cut-off Wavelength | IEC/EN 60793-1-44 | λ _{cc} nm | ≤ 1260 * |
| Polarisation Mode Dispersion (PMD) coefficient | IEC/EN 60793-1-48 | ps/√km | ≤ 0.1 |
| PMDQ Link Design Value (computed with Q=0.01%, N=20) | IEC/EN 60794-3 | ps/√km | ≤ 0.06 |

* guaranteed value according to the ITU-T (ATM G650) method

| Attenuation | | | |
|---|--------------------|-------|---------|
| Attribute | Measurement method | Units | Limits |
| Maximum attenuation value of cable at 1310 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.38 |
| Maximum attenuation value of cable at 1383 nm** | IEC/EN 60793-1-40 | dB/km | ≤ 0.38 |
| Maximum attenuation value of cable at 1550 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.23 |
| Maximum attenuation value of cable at 1625 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.25 |
| Local discontinuity at 1310 and 1550 nm | IEC/EN 60793-1-40 | dB | max 0.1 |

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

| Attenuation variation vs Bending | | | |
|---|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| 10 turns on a mandrel R = 15 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.03 |
| 10 turns on a mandrel R = 15 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.2 |
| 1 turn on a mandrel R = 7.5 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.5 |
| 1 turn on a mandrel R = 7.5 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.0 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1550 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1625 nm | IEC/EN 60793-1-22 | - | 1.468 |

| Rayleigh Backscatter coefficient (1ns pulse width) | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | - | dB | -79.1 |
| 1550 nm | - | dB | -81.4 |
| 1625 nm | - | dB | -82.2 |

| Geometrical properties | | | |
|---|--------------------|-------|-------------|
| Attribute | Measurement method | Units | Limits |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 0.4 |
| Cladding non-Circularity | IEC/EN 60793-1-20 | % | ≤ 0.3 |
| Core-Cladding Concentricity Error | IEC/EN 60793-1-20 | µm | ≤ 0.3 |
| Coating diameter - ColorLock®XS and Natural | IEC/EN 60793-1-21 | µm | 242 ± 5 |
| Coating non-Circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding Concentricity Error | IEC/EN 60793-1-21 | µm | ≤ 12 |

| Mechanical properties | | | |
|--|--------------------|-------|-------------------------------------|
| Attribute | Measurement method | Units | Limits |
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak,strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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Applicable Standards

- IEC / EN 60793-2-10: type A1-OM3
- TIA/EIA-492 AAAF (formerly AAAC)
- ITU-T G.651.1
- ISO/IEC 11801: Category OM3
- ANSI/TIA/EIA-568.3-D

Attenuation

| Attribute | Measurement method | Units | Limits |
|------------------------|--------------------|-------|--------|
| Attenuation at 850 nm | IEC 60793-1-40 | dB/km | ≤ 3.0 |
| Attenuation at 1300 nm | IEC 60793-1-40 | dB/km | ≤ 1.0 |

Optical Specifications (Bare Fibre)

| Attribute | Measurement method | Units | Limits |
|--|--------------------|-------|---------------|
| Attenuation at 850 nm | IEC 60793-1-40 | dB/km | ≤ 2.5 |
| Attenuation at 1300 nm | IEC 60793-1-40 | dB/km | ≤ 0.7 |
| Attenuation Difference btw 1380 nm and 1300 nm | IEC 60793-1-40 | dB/km | ≤ 3.0 |
| Point Discontinuity at 850 nm and 1300 nm | IEC 60793-1-40 | dB | ≤ 0.1 |
| Numerical Aperture | IEC 60793-1-43 | - | 0.200 ± 0.015 |

Bending Loss

| Attribute | Measurement method | Units | Limits |
|---|--------------------|-------|---------------|
| Mandrel Radius = 7.5 mm, 2 turns at 850 / 1300 nm | IEC 60793-1-40 | dB | ≤ 0.2 / ≤ 0.5 |
| Mandrel Radius = 15 mm, 2 turns at 850 / 1300 nm | IEC 60793-1-40 | dB | ≤ 0.1 / ≤ 0.3 |

Bandwidth

| Attribute | Measurement method | Units | Limits |
|--|--------------------|----------|--------|
| Overfilled Launch Modal Bandwidth (OFL) at 850 nm | IEC 60793-1-41 | MHz • km | ≥ 1500 |
| Overfilled Launch Modal Bandwidth (OFL) at 1300 nm | IEC 60793-1-41 | MHz • km | ≥ 500 |
| Effective Modal Bandwidth (EMB) at 850 nm | IEC 60793-1-49 | MHz • km | ≥ 2000 |

Multimode System Reach

| IEEE Standard | Units | Transmission Distance |
|---------------|-------|-----------------------|
| 10GBASE-SR | m | 300 |
| 40GBASE-SR4 | m | 140* |
| 100GBASE-SR10 | m | 140* |
| 100GBASE-SR4 | m | 70 |

* Indicated link distances require total connector loss ≤ 1.0 dB, and VCSEL spectral bandwidth of ≤ 0.45 nm

Geometrical properties

| Attribute | Measurement method | Units | Limits |
|--------------------------------------|--------------------|-------|-------------|
| Core diameter | IEC/EN 60793-1-20 | µm | 50 ± 2.5 |
| Core non-Circularity | IEC/EN 60793-1-20 | % | ≤ 5 |
| Core-Cladding Concentricity error | IEC/EN 60793-1-20 | µm | ≤ 1 |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 1.0 |
| Cladding non-Circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Cladding diameter – uncoloured | IEC/EN 60793-1-21 | µm | 242 ± 7 |
| Cladding diameter – coloured | IEC/EN 60793-1-21 | µm | 250 ± 15 |
| Coating non-Circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding Concentricity error | IEC/EN 60793-1-21 | µm | ≤ 10 |

Mechanical properties

| Attribute | Measurement method | Units | Limits |
|--|--------------------|-------|-------------------------------------|
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (average) | IEC/EN 60793-1-32 | N | 1 ≤ F _{average.strip} ≤ 3 |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak.strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

Group index of refraction

| Attribute | Measurement method | Units | Values |
|--|--------------------|-------|--------|
| Typical Group index of refraction at 850 nm | IEC 60793-1-22 | - | 1.482 |
| Typical Group index of refraction at 1300 nm | IEC 60793-1-22 | - | 1.477 |

All measurements in accordance with ITU-T G650 recommendations

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Applicable Standards

- IEC / EN 60793-2-10: type A1-OM4
- TIA/EIA-492 AAAF (formerly 492 AAAD)
- ITU-T G.651.1
- ISO/IEC 11801: Category OM4
- ANSI/TIA/EIA-568.3-D

Cabled Fibre Attenuation

| Attribute | Measurement method | Units | Limits |
|------------------------|--------------------|-------|--------|
| Attenuation at 850 nm | IEC 60793-1-40 | dB/km | ≤ 3.0 |
| Attenuation at 1300 nm | IEC 60793-1-40 | dB/km | ≤ 1.0 |

Optical Specifications (Bare Fibre)

| Attribute | Measurement method | Units | Limits |
|--|--------------------|-------|---------------|
| Attenuation at 850 nm | IEC 60793-1-40 | dB/km | ≤ 2.5 |
| Attenuation at 1300 nm | IEC 60793-1-40 | dB/km | ≤ 0.7 |
| Attenuation Difference btw 1380 nm and 1300 nm | IEC 60793-1-40 | dB/km | ≤ 3.0 |
| Point Discontinuity at 850 nm and 1300 nm | IEC 60793-1-40 | dB | ≤ 0.1 |
| Numerical Aperture | IEC 60793-1-43 | - | 0.200 ± 0.015 |

Bending Loss

| Attribute | Measurement method | Units | Limits |
|---|--------------------|-------|---------------|
| Mandrel Radius = 7.5 mm, 2 turns at 850 / 1300 nm | IEC 60793-1-40 | dB | ≤ 0.2 / ≤ 0.5 |
| Mandrel Radius = 15 mm, 2 turns at 850 / 1300 nm | IEC 60793-1-40 | dB | ≤ 0.1 / ≤ 0.3 |

Bandwidth

| Attribute | Measurement method | Units | Limits |
|--|--------------------|----------|--------|
| Overfilled Launch Modal Bandwidth (OFL) at 850 nm | IEC 60793-1-41 | MHz • km | ≥ 3500 |
| Overfilled Launch Modal Bandwidth (OFL) at 1300 nm | IEC 60793-1-41 | MHz • km | ≥ 500 |
| Effective Modal Bandwidth (EMB) at 850 nm | IEC 60793-1-49 | MHz • km | ≥ 4700 |

Multimode System Reach

| IEEE Standard | Units | Transmission Distance |
|----------------|-------|-----------------------|
| 10GBASE-SR | m | 550* |
| 40GBASE-SR4 | m | 190* |
| 25GBASE-SR | m | 100 |
| 100GBASE-SR4 | m | 100 |
| 400GBASE-SR4.2 | m | 100 |
| 40G-BiDi | m | 150 |
| 100G-BiDi | m | 100 |
| 40G SWDM4 | m | 350 |
| 100G SWDM4 | m | 100 |

* Indicated link distances require total connector loss ≤ 1.0 dB, and VCSEL spectral bandwidth of ≤ 0.45 nm

Geometrical properties

| Attribute | Measurement method | Units | Limits |
|--------------------------------------|--------------------|-------|-------------|
| Core diameter | IEC/EN 60793-1-20 | µm | 50 ± 2.5 |
| Core non-Circularity | IEC/EN 60793-1-20 | % | ≤ 5 |
| Core-Cladding Concentricity error | IEC/EN 60793-1-20 | µm | ≤ 1 |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 1.0 |
| Cladding non-Circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Cladding diameter – uncoloured | IEC/EN 60793-1-21 | µm | 242 ± 7 |
| Cladding diameter – coloured | IEC/EN 60793-1-21 | µm | 250 ± 15 |
| Coating non-Circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding Concentricity error | IEC/EN 60793-1-21 | µm | ≤ 10 |

Mechanical properties

| Attribute | Measurement method | Units | Limits |
|--|--------------------|-------|-------------------------------------|
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (average) | IEC/EN 60793-1-32 | N | 1 ≤ F _{average.strip} ≤ 3 |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak.strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

Group index of refraction

| Attribute | Measurement method | Units | Values |
|--|--------------------|-------|--------|
| Typical Group index of refraction at 850 nm | IEC 60793-1-22 | - | 1.482 |
| Typical Group index of refraction at 1300 nm | IEC 60793-1-22 | - | 1.477 |

All measurements in accordance with ITU-T G650 recommendations

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C35 PROPERTIES OF CABLE WITH BENDBRIGHT™ XS 200 µm SINGLE-MODE FIBRE

BENDBRIGHT™

Applicable Standards

- IEC / EN 60793-2-50 Category B-657.A2 and B-657.B2
- ITU Recommendation G.657.A2 and G.657.B2
- ITU-T Recommendation G.652.D
- EN 50 173-1: Category OS2 and OS1a
- ISO/IEC 11801: Category OS2 and OS1a

| Optical properties | | | |
|--|--------------------|---------------------------|-------------|
| Attribute | Measurement method | Units | Limits |
| Mode field diameter at 1310 nm | IEC/EN 60793-1-45 | µm | 8.8 ± 0.4 |
| Mode field diameter at 1550 nm | | µm | 9.8 ± 0.5 |
| Chromatic Dispersion coefficient: In the interval 1285 nm – 1330 nm | IEC/EN 60793-1-42 | ps/km • nm | ≤ 3.7 |
| At 1550 nm | | ps/km • nm | ≤ 18.5 |
| At 1625 nm | | ps/km • nm | ≤ 23.0 |
| Zero Dispersion Wavelength, λ ₀ | | nm | 1300 - 1324 |
| Zero Dispersion Slope | | ps/(nm ² • km) | ≤ 0.092 |
| Cut-off Wavelength | IEC/EN 60793-1-44 | λ _{cc} nm | ≤ 1260 * |
| Polarisation Mode Dispersion (PMD) coefficient | IEC/EN 60793-1-48 | ps/√km | ≤ 0.1 |
| PMDQ Link Design Value (computed with Q=0.01%, N=20) | IEC/EN 60794-3 | ps/√km | ≤ 0.06 |

* guaranteed value according to the ITU-T (ATM G650) method

| Attenuation | | | |
|---|--------------------|-------|----------|
| Attribute | Measurement method | Units | Limits |
| Maximum attenuation value of cable at 1310 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.38 |
| Maximum attenuation value of cable at 1383 nm** | IEC/EN 60793-1-40 | dB/km | ≤ 0.38 |
| Maximum attenuation value of cable at 1550 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.23 |
| Maximum attenuation value of cable at 1625 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.25 |
| Local discontinuity at 1310 and 1550 nm | IEC/EN 60793-1-40 | dB | max. 0.1 |

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

| Attenuation variation vs Bending | | | |
|---|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| 10 turns on a mandrel R = 15 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.03 |
| 10 turns on a mandrel R = 15 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.2 |
| 1 turn on a mandrel R = 7.5 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.5 |
| 1 turn on a mandrel R = 7.5 mm, @1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.0 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1550 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1625 nm | IEC/EN 60793-1-22 | - | 1.468 |

| Rayleigh Backscatter coefficient (1ns pulse width) | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | - | dB | -79.1 |
| 1550 nm | - | dB | -81.4 |
| 1625 nm | - | dB | -82.2 |

| Geometrical properties | | | |
|---|--------------------|-------|-------------|
| Attribute | Measurement method | Units | Limits |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 0.7 |
| Cladding non-circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Core-cladding concentricity error | IEC/EN 60793-1-20 | µm | ≤ 0.5 |
| Coating diameter – ColorLock®XS and natural | IEC/EN 60793-1-21 | µm | 200 ± 10 |
| Coating non-circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding concentricity error | IEC/EN 60793-1-21 | µm | ≤ 10 |

| Mechanical properties | | | |
|--|--------------------|-------|-------------------------------------|
| Attribute | Measurement method | Units | Limits |
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak,strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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Applicable Standards

- IEC / EN 60793-2-50 Category B-657.A1 and B-652.D
- ITU-T Recommendation G.657.A1 and G.652.D
- EN 50 173-1: cat. OS2 and OS1a
- ISO/IEC 11801: cat. OS2 and OS1a

| Optical properties | | | |
|--|--------------------|--|---------------------------|
| Attribute | Measurement method | Units | Limits |
| Mode field diameter at 1310 nm Mode field diameter at 1550 nm | IEC/EN 60793-1-45 | µm µm | 9.0 ± 0.4 10.1 ± 0.5 |
| Chromatic Dispersion coefficient: In the interval 1285 nm – 1330 nm At 1550 nm At 1625 nm | IEC/EN 60793-1-42 | ps/km • nm ps/km • nm ps/km • nm | ≤ 3 ≤ 18.0 ≤ 22.0 |
| Zero Dispersion Wavelength, λ ₀ | | nm | 1300 - 1324 |
| Zero Dispersion Slope | | ps/(nm ² • km) | ≤ 0.092 |
| Cut-off Wavelength | IEC/EN 60793-1-44 | λ _{cc} nm | ≤ 1260 * |
| Polarisation Mode Dispersion (PMD) coefficient | IEC/EN 60793-1-48 | ps/√km | ≤ 0.1 |
| PMDQ Link Design Value (computed with Q=0.01%, N=20) | IEC/EN 60794-3 | ps/√km | ≤ 0.06 |

* guaranteed value according to the ITU-T (ATM G650) method

| Attenuation | | | |
|---|--------------------|-------|----------|
| Attribute | Measurement method | Units | Limits |
| Maximum attenuation value of cable in the interval 1310 nm – 1625 nm** | IEC/EN 60793-1-40 | dB/km | ≤ 0.39 |
| Maximum attenuation value of cable at 1550 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.25 |
| Local discontinuity at 1310 and 1550 nm | IEC/EN 60793-1-40 | dB | max. 0.1 |

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

| Attenuation variation vs Bending | | | |
|---|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| 100 turns on a mandrel R = 25 mm at 1310 & 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.02 |
| 100 turns on a mandrel R = 30 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.05 |
| 10 turns on a mandrel R = 15 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.25 |
| 10 turns on a mandrel R = 15 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.0 |
| 1 turn on a mandrel R = 10 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.75 |
| 1 turn on a mandrel R = 10 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.5 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1550 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1625 nm | IEC/EN 60793-1-22 | - | 1.468 |

| Rayleigh Backscatter coefficient (1ns pulse width) | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | - | dB | -79.4 |
| 1550 nm | - | dB | -81.7 |
| 1625 nm | - | dB | -82.5 |

| Geometrical properties | | | |
|---|--------------------|-------|-------------|
| Attribute | Measurement method | Units | Limits |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 0.4 |
| Cladding non-circularity | IEC/EN 60793-1-20 | % | ≤ 0.3 |
| Core-cladding concentricity error | IEC/EN 60793-1-20 | µm | ≤ 0.3 |
| Coating diameter – ColorLock®XS and natural | IEC/EN 60793-1-21 | µm | 242 ± 5 |
| Coating non-circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding concentricity error | IEC/EN 60793-1-21 | µm | ≤ 12 |

| Mechanical properties | | | |
|--|--------------------|-------|-------------------------------------|
| Attribute | Measurement method | Units | Limits |
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (average) | IEC/EN 60793-1-32 | N | 1 ≤ F _{average.strip} ≤ 3 |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak.strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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Applicable Standards

- IEC / EN 60793-2-10: type A1-OM5
- TIA/EIA-492 AAAF (formerly AAAE)
- ITU-T G.651.1
- ISO/IEC 11801: Category OM5
- ANSI/TIA/EIA-568.3-D

Cabled Fibre Attenuation

| Attribute | Measurement method | Units | Limits |
|------------------------|--------------------|-------|--------|
| Attenuation at 850 nm | IEC 60793-1-40 | dB/km | ≤ 3.0 |
| Attenuation at 953 nm | IEC 60793-1-40 | dB/km | ≤ 2.3 |
| Attenuation at 1300 nm | IEC 60793-1-40 | dB/km | ≤ 1.0 |

Optical Specifications (Bare Fibre)

| Attribute | Measurement method | Units | Limits |
|--|--------------------|-------|---------------|
| Attenuation at 850 nm | IEC 60793-1-40 | dB/km | ≤ 2.5 |
| Attenuation at 953 nm | IEC 60793-1-40 | dB/km | ≤ 1.8 |
| Attenuation at 1300 nm | IEC 60793-1-40 | dB/km | ≤ 0.7 |
| Attenuation Difference btw 1380 nm and 1300 nm | IEC 60793-1-40 | dB/km | ≤ 3.0 |
| Point Discontinuity at 850 nm and 1300 nm | IEC 60793-1-40 | dB | ≤ 0.1 |
| Numerical Aperture | IEC 60793-1-43 | - | 0.200 ± 0.015 |

Bending Loss

| Attribute | Measurement method | Units | Limits |
|---|--------------------|-------|---------------|
| Mandrel Radius = 7.5 mm, 2 turns at 850 / 1300 nm | IEC 60793-1-40 | dB | ≤ 0.2 / ≤ 0.5 |
| Mandrel Radius = 15 mm, 2 turns at 850 / 1300 nm | IEC 60793-1-40 | dB | ≤ 0.1 / ≤ 0.3 |

Bandwidth

| Attribute | Measurement method | Units | Limits |
|--|--------------------|----------|--------|
| Overfilled Launch Modal Bandwidth (OFL) at 850 nm | IEC 60793-1-41 | MHz • km | ≥ 3500 |
| Overfilled Launch Modal Bandwidth (OFL) at 953 nm | IEC 60793-1-41 | MHz • km | ≥ 1850 |
| Overfilled Launch Modal Bandwidth (OFL) at 1300 nm | IEC 60793-1-41 | MHz • km | ≥ 500 |
| Effective Modal Bandwidth (EMB) at 850 nm | IEC 60793-1-49 | MHz • km | ≥ 4700 |
| Effective Modal Bandwidth (EMB) at 953 nm | IEC 60793-1-49 | MHz • km | ≥ 2470 |

Group index of refraction

| Attribute | Measurement method | Units | Values |
|--|--------------------|-------|--------|
| Typical Group index of refraction at 850 nm | IEC 60793-1-22 | - | 1.482 |
| Typical Group index of refraction at 1300 nm | IEC 60793-1-22 | - | 1.477 |

Multimode System Reach

| IEEE Standard | Units | Transmission Distance |
|----------------|-------|-----------------------|
| 10GBASE-SR | m | 550* |
| 40GBASE-SR4 | m | 190* |
| 25GBASE-SR | m | 100 |
| 100GBASE-SR4 | m | 100 |
| 400GBASE-SR4.2 | m | 150 |
| 40G-BiDi | m | 200 |
| 100G-BiDi | m | 150 |
| 40G SWDM4 | m | 440 |
| 100G SWDM4 | m | 150 |

* Indicated link distances require total connector loss ≤ 1.0 dB, and VCSEL spectral bandwidth of ≤ 0.45 nm

Geometrical properties

| Attribute | Measurement method | Units | Limits |
|--------------------------------------|--------------------|-------|-------------|
| Core diameter | IEC/EN 60793-1-20 | µm | 50 ± 2.5 |
| Core non-Circularity | IEC/EN 60793-1-20 | % | ≤ 5 |
| Core-Cladding Concentricity error | IEC/EN 60793-1-20 | µm | ≤ 1 |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 1.0 |
| Cladding non-Circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Cladding diameter – uncoloured | IEC/EN 60793-1-21 | µm | 242 ± 7 |
| Cladding diameter – coloured | IEC/EN 60793-1-21 | µm | 250 ± 15 |
| Coating non-Circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding Concentricity error | IEC/EN 60793-1-21 | µm | ≤ 10 |

Mechanical properties

| Attribute | Measurement method | Units | Limits |
|--|--------------------|-------|-------------------------------------|
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (average) | IEC/EN 60793-1-32 | N | 1 ≤ F _{average.strip} ≤ 3 |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak.strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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C49 PROPERTIES OF CABLE WITH BENDBRIGHT™ A2 200 µm SINGLE-MODE FIBRE

BENDBRIGHT™

Applicable Standards

- IEC / EN 60793-2-50 Category B-657.A2 and B-652.D
- ITU-T Recommendation G.657.A2
- ITU-T Recommendation G.652.D
- EN 50 173-1: Category OS2 and OS1a
- ISO/IEC 11801: Category OS2 and OS1a

| Optical properties | | | |
|--|--------------------|--|-------------------------|
| Attribute | Measurement method | Units | Limits |
| Mode field diameter at 1310 nm Mode field diameter at 1550 nm | IEC/EN 60793-1-45 | µm µm | 9.0 ± 0.4 10.1 ± 0.5 |
| Chromatic Dispersion coefficient: In the interval 1285 nm – 1330 nm At 1550 nm At 1625 nm | IEC/EN 60793-1-42 | ps/km • nm ps/km • nm ps/km • nm | ≤ 3.5 ≤ 18 ≤ 22 |
| Zero Dispersion Wavelength, λ ₀ | | nm | 1300 - 1324 |
| Zero Dispersion Slope | | ps/(nm ² • km) | ≤ 0.092 |
| Cut-off Wavelength | IEC/EN 60793-1-44 | λ _{cc} nm | ≤ 1260 * |
| Polarisation Mode Dispersion (PMD) coefficient | IEC/EN 60793-1-48 | ps/√km | ≤ 0.1 |
| PMDQ Link Design Value (computed with Q=0.01%, N=20) | IEC/EN 60794-3 | ps/√km | ≤ 0.06 |

* guaranteed value according to the ITU-T (ATM G650) method

| Attenuation | | | |
|---|--------------------|-------|----------|
| Attribute | Measurement method | Units | Limits |
| Maximum attenuation value of cable at 1310 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.36 |
| Maximum attenuation value of cable at 1383 nm** | IEC/EN 60793-1-40 | dB/km | ≤ 0.38 |
| Maximum attenuation value of cable at 1550 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.23 |
| Maximum attenuation value of cable at 1625 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.25 |
| Local discontinuity at 1310 and 1550 nm | IEC/EN 60793-1-40 | dB | max. 0.1 |

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

| Attenuation variation vs Bending | | | |
|---|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| 10 turns on a mandrel R = 15 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.03 |
| 10 turns on a mandrel R = 15 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.2 |
| 1 turn on a mandrel R = 7.5 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.5 |
| 1 turn on a mandrel R = 7.5 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.0 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1550 nm | IEC/EN 60793-1-22 | - | 1.468 |

| Rayleigh Backscatter coefficient (1ns pulse width) | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | - | dB | -77 |
| 1550 nm | - | dB | -82 |

| Geometrical properties | | | |
|---|--------------------|-------|-------------|
| Attribute | Measurement method | Units | Limits |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 0.7 |
| Cladding non-circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Core-cladding concentricity error | IEC/EN 60793-1-20 | µm | ≤ 0.5 |
| Coating diameter – ColorLock®XS and natural | IEC/EN 60793-1-21 | µm | 200 ± 10 |
| Coating non-circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding concentricity error | IEC/EN 60793-1-21 | µm | ≤ 10 |

| Mechanical properties | | | |
|--|--------------------|-------|--------------------------------------|
| Attribute | Measurement method | Units | Limits |
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 1.2 ≤ F _{peak, strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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C50 PROPERTIES OF CABLE WITH BENDBRIGHT™ A1 200 µm SINGLE-MODE FIBRE

BENDBRIGHT™

Applicable Standards

- IEC / EN 60793-2-50 Category B-657.A1 and B-652.D
- ITU-T Recommendation G.657.A1 and G.652.D
- EN 50 173-1: Category OS2 and OS1a
- ISO/IEC 11801: Category OS2 and OS1a

| Optical properties | | | |
|--|--------------------|--|-------------------------|
| Attribute | Measurement method | Units | Limits |
| Mode field diameter at 1310 nm Mode field diameter at 1550 nm | IEC/EN 60793-1-45 | µm µm | 9.0 ± 0.4 10.1 ± 0.5 |
| Chromatic Dispersion coefficient: In the interval 1285 nm – 1330 nm At 1550 nm At 1625 nm | IEC/EN 60793-1-42 | ps/km • nm ps/km • nm ps/km • nm | ≤ 3 ≤ 18 ≤ 22 |
| Zero Dispersion Wavelength, λ ₀ | | nm | 1300 - 1324 |
| Zero Dispersion Slope | | ps/(nm ² • km) | ≤ 0.092 |
| Cut-off Wavelength | IEC/EN 60793-1-44 | λ _{cc} nm | ≤ 1260 * |
| Polarisation Mode Dispersion (PMD) coefficient | IEC/EN 60793-1-48 | ps/√km | ≤ 0.1 |
| PMDQ Link Design Value (computed with Q=0.01%, N=20) | IEC/EN 60794-3 | ps/√km | ≤ 0.06 |

* guaranteed value according to the ITU-T (ATM G650) method

| Attenuation | | | |
|---|--------------------|-------|----------|
| Attribute | Measurement method | Units | Limits |
| Maximum attenuation value of cable at 1310 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.36 |
| Maximum attenuation value of cable at 1383 nm** | IEC/EN 60793-1-40 | dB/km | ≤ 0.38 |
| Maximum attenuation value of cable at 1550 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.23 |
| Maximum attenuation value of cable at 1625 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.25 |
| Local discontinuity at 1310 and 1550 nm | IEC/EN 60793-1-40 | dB | max. 0.1 |

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

| Attenuation variation vs Bending | | | |
|---|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| 100 turns on a mandrel R = 25 mm at 1310 & 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.02 |
| 100 turns on a mandrel R = 30 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.05 |
| 10 turns on a mandrel R = 15 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.25 |
| 10 turns on a mandrel R = 15 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.0 |
| 1 turn on a mandrel R = 10 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.75 |
| 1 turn on a mandrel R = 10 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.5 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1550 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1625 nm | IEC/EN 60793-1-22 | - | 1.468 |

| Rayleigh Backscatter coefficient (1ns pulse width) | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | - | dB | -79.4 |
| 1550 nm | - | dB | -81.7 |
| 1625 nm | - | dB | -82.5 |

| Geometrical properties | | | |
|---|--------------------|-------|-------------|
| Attribute | Measurement method | Units | Limits |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 0.7 |
| Cladding non-circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Core-cladding concentricity error | IEC/EN 60793-1-20 | µm | ≤ 0.5 |
| Coating diameter – ColorLock®XS and natural | IEC/EN 60793-1-21 | µm | 200 ± 10 |
| Coating non-circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding concentricity error | IEC/EN 60793-1-21 | µm | ≤ 10 |

| Mechanical properties | | | |
|--|--------------------|-------|---------------------------------------|
| Attribute | Measurement method | Units | Limits |
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (average) | IEC/EN 60793-1-32 | N | 0.8 ≤ F _{average, strip} ≤ 3 |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 0.8 ≤ F _{peak, strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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Applicable Standards

- IEC / EN 60793-2-50 Category B-657.A1 and B-652.D
- ITU-T Recommendation G.657.A1 and G.652.D
- EN 50 173-1: Category OS2 and OS1a
- ISO/IEC 11801: Category OS2 and OS1a

| Optical properties | | | |
|--|--------------------|---------------------------|-------------|
| Attribute | Measurement method | Units | Limits |
| Mode field diameter at 1310 nm | IEC/EN 60793-1-45 | µm | 8.8 ± 0.4 |
| Mode field diameter at 1550 nm | | µm | 9.8 ± 0.5 |
| Chromatic Dispersion coefficient: In the interval 1285 nm – 1330 nm | IEC/EN 60793-1-42 | ps/km • nm | ≤ 3.7 |
| At 1550 nm | | ps/km • nm | ≤ 18.5 |
| At 1625 nm | | ps/km • nm | ≤ 23.0 |
| Zero Dispersion Wavelength, λ ₀ | | nm | 1300 - 1324 |
| Zero Dispersion Slope | | ps/(nm ² • km) | ≤ 0.092 |
| Cut-off Wavelength | IEC/EN 60793-1-44 | λ _{cc} nm | ≤ 1260 * |
| Polarisation Mode Dispersion (PMD) coefficient | IEC/EN 60793-1-48 | ps/√km | ≤ 0.1 |
| PMDQ Link Design Value (computed with Q=0.01%, N=20) | IEC/EN 60794-3 | ps/√km | ≤ 0.06 |

* guaranteed value according to the ITU-T (ATM G650) method

| Attenuation | | | |
|---|--------------------|-------|----------|
| Attribute | Measurement method | Units | Limits |
| Maximum attenuation value of cable at 1310 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.38 |
| Maximum attenuation value of cable at 1383 nm** | IEC/EN 60793-1-40 | dB/km | ≤ 0.38 |
| Maximum attenuation value of cable at 1550 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.23 |
| Maximum attenuation value of cable at 1625 nm | IEC/EN 60793-1-40 | dB/km | ≤ 0.25 |
| Local discontinuity at 1310 and 1550 nm | IEC/EN 60793-1-40 | dB | max. 0.1 |

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

| Attenuation variation vs Bending | | | |
|---|--------------------|-------|--------|
| Attribute | Measurement method | Units | Limits |
| 10 turns on a mandrel R = 15 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.03 |
| 10 turns on a mandrel R = 15 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.1 |
| 1 turn on a mandrel R = 10 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 0.2 |
| 1 turn on a mandrel R = 7.5 mm at 1550nm | IEC/EN 60793-1-47 | dB | ≤ 0.5 |
| 1 turn on a mandrel R = 7.5 mm at 1625nm | IEC/EN 60793-1-47 | dB | ≤ 1.0 |

| Group index of refraction | | | |
|---------------------------|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1550 nm | IEC/EN 60793-1-22 | - | 1.467 |
| 1625 nm | IEC/EN 60793-1-22 | - | 1.468 |

| Rayleigh Backscatter coefficient (1ns pulse width) | | | |
|--|--------------------|-------|--------|
| Attribute | Measurement method | Units | Values |
| 1310 nm | - | dB | -79.1 |
| 1550 nm | - | dB | -81.4 |
| 1625 nm | - | dB | -82.2 |

| Geometrical properties | | | |
|---|--------------------|-------|-------------|
| Attribute | Measurement method | Units | Limits |
| Cladding diameter | IEC/EN 60793-1-20 | µm | 125.0 ± 0.7 |
| Cladding non-circularity | IEC/EN 60793-1-20 | % | ≤ 0.7 |
| Core-cladding concentricity error | IEC/EN 60793-1-20 | µm | ≤ 0.5 |
| Coating diameter – ColorLock®XS and natural | IEC/EN 60793-1-21 | µm | 180 ± 10 |
| Coating non-circularity | IEC/EN 60793-1-21 | % | ≤ 5 |
| Coating-Cladding concentricity error | IEC/EN 60793-1-21 | µm | ≤ 10 |

| Mechanical properties | | | |
|--|--------------------|-------|---------------------------------------|
| Attribute | Measurement method | Units | Limits |
| Proof stress level | IEC/EN 60793-1-30 | GPa | ≥ 0.7 (≈ 1%) |
| Strip force (average) | IEC/EN 60793-1-32 | N | 0.6 ≤ F _{average, strip} ≤ 3 |
| Strip force (peak) | IEC/EN 60793-1-32 | N | 0.6 ≤ F _{peak, strip} ≤ 8.9 |
| Dynamic Fatigue Resistance aged and unaged | IEC/EN 60793-1-33 | - | n _d ≥ 20 |

All measurements in accordance with ITU-T G650 recommendations

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COLOUR CODING OPTICAL FIBRE CABLES

Valid for Fibres and tubes.

| EIA/TIA colours | | | | | | | | | | | | |
|-----------------|------|--------|-------|-------|------|-------|-----|-------|--------|--------|------|------|
| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Color | blue | orange | green | brown | grey | white | red | black | yellow | violet | pink | aqua |
| | | | | | | | | | | | | |

| European (VDE) colours | | | | | | | | | | | | |
|------------------------|-----|-------|------|--------|-------|------|-------|--------|------|-------|--------|------|
| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Color | red | green | blue | yellow | white | grey | brown | violet | aqua | black | orange | pink |
| | | | | | | | | | | | | |

| NL colours | | | | | | | | | | | | |
|------------|-----|-------|--------|------|-------|--------|-------|-------|--------|------|------|------|
| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Color | red | white | yellow | blue | green | violet | brown | black | orange | aqua | pink | grey |
| | | | | | | | | | | | | |

| BE colours | | | | | | | | | | | | |
|------------|-------|-------|-----|--------|--------|-------|------|--------|------|-------|------|------|
| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Color | black | brown | red | orange | yellow | green | blue | violet | grey | white | aqua | pink |
| | | | | | | | | | | | | |

Other colour coding on request.





**CONNECTING
THE WORLD.
TODAY
AND IN THE
FUTURE**

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