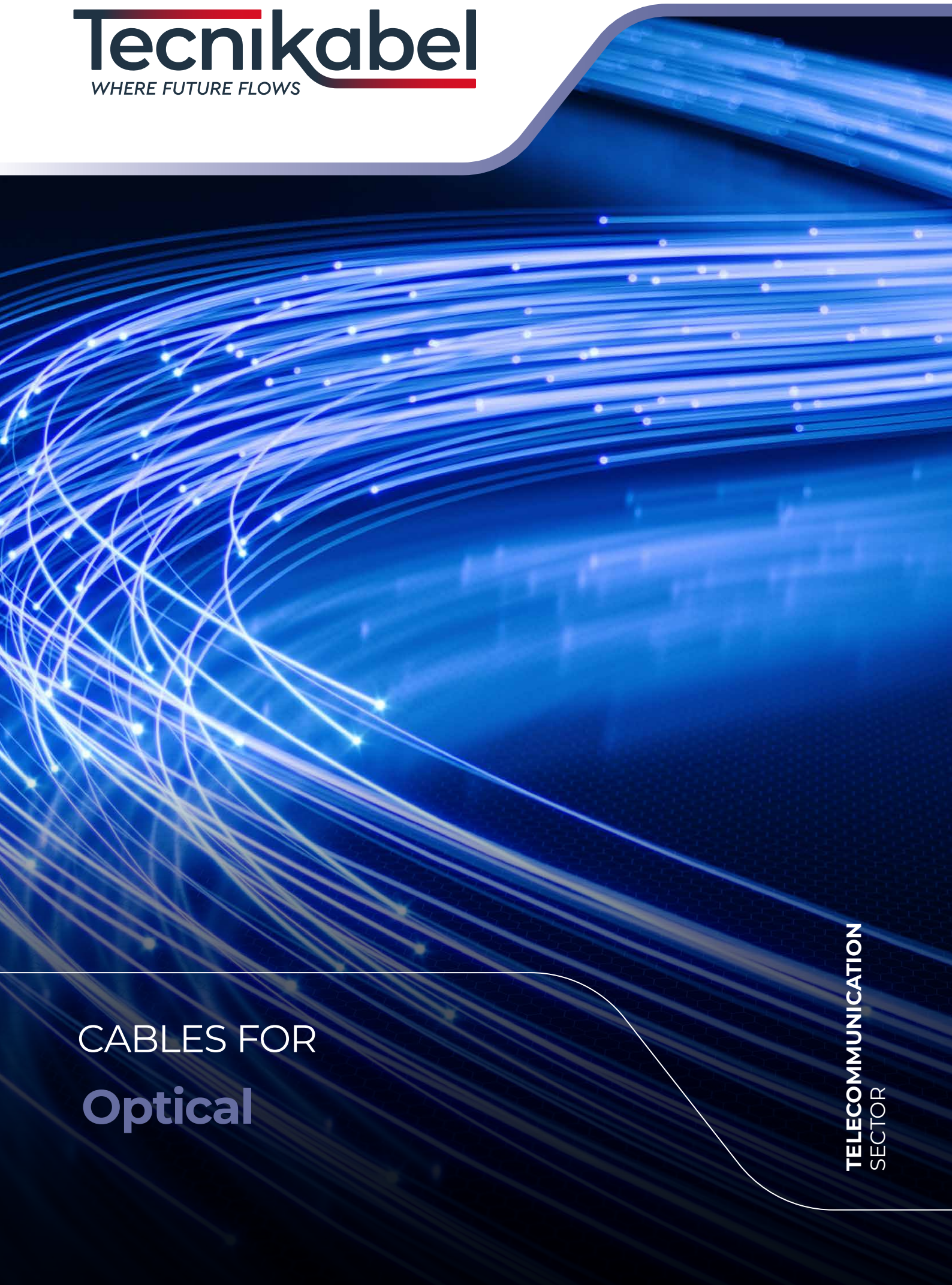
Tecnikabel

WHERE FUTURE FLOWS



CABLES FOR Optical

TELECOMMUNICATION SECTOR

Introduction

Tecnikabel is a European manufacturer specialising in high-performance optical fibre cables, engineered to meet the transmission demands of an increasingly connected world — from metropolitan networks to last-mile access, from industrial environments to critical infrastructure.

The shift from copper to optical fibre is now established across telecommunications, internet services and data transmission. Fibre eliminates electromagnetic interference, extends transmission distances and delivers bandwidth and speeds that copper cannot match. These are not marginal gains — they are the technical foundation of modern connectivity.

Tecnikabel designs and manufactures optical cables qualified for the full range of operating conditions: mechanical stress, flexion, temperature extremes, pressure, moisture and oil exposure. Where safety is paramount, our constructions combine fire resistance with low smoke emission and zero corrosive gas — ensuring circuit integrity and personnel protection in the most demanding scenarios.

OUR SECTORS

Our range covers long-distance and metropolitan applications with varying fibre counts, through to access network solutions — from multi-fibre cables to miniaturised constructions designed to bring optical connectivity directly to private premises.

TRANSPORTATION

AUTOMATION

TELECOMMUNICATION

DEFENSE

MARINE OIL & GAS

SUBSEA

BUILDING TECHNOLOGY

Behind every cable is a rigorous development and validation process: materials research built on thirty years of field experience, production systems engineered for consistency and flexibility, final inspections covering optical, electrical and physical performance, and laboratory testing that replicates the most critical real-world conditions.

Tecnikabel is focused on constant product innovation to get competitive advantages with endless commitment to research and development.

PRODUCTION
Updated production systems, rigorous process controls and skilled operators ensure an efficient, flexible and reliable manufacturing flow. Over nearly half a century of activity, we have engineered and produced more than 26.000 different cable configurations.

FINAL INSPECTIONS
At the end of every production cycle. each cable undergoes full electrical. optical and physical verification to ensure complete compliance with the customer's technical specifications.

LABORATORY TESTS
Our cables are subjected to demanding laboratory tests that replicate critical application conditions. Beyond the standard evaluations required by current regulations, we have developed dedicated equipment for mechanical, environmental, electrical and optical testing to validate performance in extreme scenarios.

MATERIALS RESEARCH AND DEVELOPMENT
With nearly fifty years of experience, we continue to research and develop advanced materials aimed at improving performance, optimising costs and meeting the evolving technical requirements of our customers.

QUALITY SYSTEM
Since 1978, our commitment to Quality has earned Tecnikabel recognition from major American and European authorities. ensuring compliance with the most rigorous international manufacturing and quality standards.

Guaranteed excellence

Tecnikabel's constant commitment to quality has earned recognition from leading American and European authorities. ensuring full compliance with the most demanding international manufacturing and quality standards.

COMPANY MANAGEMENT SYSTEM CERTIFICATION

PRODUCT CERTIFICATION

All cables in this sector are certified:

Reliability you can trust

Safety-driven cable innovation

ADDRESSING NEW HOMOLOGATION REQUIREMENTS: EXTENDED FIRE DURATION

Engineers are continuously designing powerful systems with extensive cabling infrastructures, where high-speed transmission protocols must handle massive volumes of data—including signals and images, These critical communication systems demand maximum stability and peak performance, utilizing both optical fiber and copper cables, Tecnikabel proactively meets the latest offshore and shipbuilding requirements set by homologation bodies. We ensure full-circuit integrity during fire scenarios. complying with IEC 60331 standards for an extended duration of up to 180 minutes. We transform these stringent technical challenges into reliable. future-ready solutions.

GAS-TIGHT RESISTANCE FOR SAFER OPERATIONS IN EXPLOSIVE ENVIRONMENTS

The demand for high-quality data connections between explosive areas and safe zones is growing. Gas-permeable cavities in cables can allow explosive mixtures to migrate to densely populated areas, making strict adherence to technical specifications essential. This need is increasingly important with the expanded use of LNG (Liquefied Natural Gas) for vessel propulsion, storage, and transportation. Tecnikabel, as a co-designer and problem solver, has developed a complete range of copper data cables specifically for such environments. These solutions comply with IEC 60079-14, meeting not only the mechanical, chemical, and thermal requirements for explosive areas but also the critical standards for gas migration. Our cables can therefore be installed in offshore applications without restrictions, providing the optimal solution for safety and reliability.

ENHANCED CABLE PERFORMANCE FOR ARCTIC ENVIRONMENTS

Our cable range is engineered for superior performance in extremely cold conditions. They are suitable for installation at temperatures down to –30 °C, with permanent operating capability as low as –62 °C. The performance of our TKSEA cables in Arctic conditions is validated through cold bend and cold impact tests, in accordance with the North American (Canadian) standard CSA 22/2. Through continuous innovation and proven reliability. Tecnikabel contributes significantly to enhancing safety and operational longevity on board ships and offshore structures worldwide.

Passion flows through our cables.

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MECHANICAL RESISTANCE


REDUCED BENDING RADIUS

These images are for illustrative purposes.

FIRE PERFORMANCE

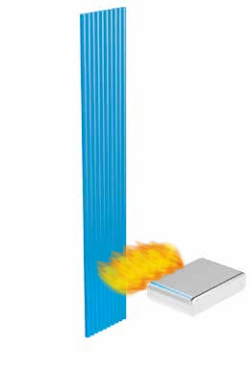
Built and tested for fire safety

International testing norms for fire-resistant cable performance

IEC 60332-1-2 / EN 50265 / BS 4066

FIRE PROPAGATION ON A VERTICAL SINGLE CABLE

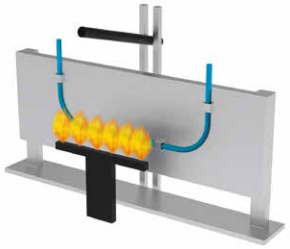
The single cable is mounted vertically and flamed with a Bunsen burner. The flame must extinguish itself. at least 50 mm below the upper fixing clamp. Power of burner, duration and angle of flame application, are described in the reference standards.



IEC 60332-3 / EN 50266

FIRE PROPAGATION ON A VERTICAL CABLES BUNDLE

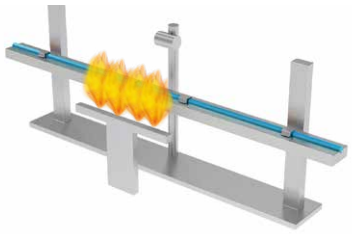
A certain number of cable samples are fixed on a 3.5 m long ladder, and flamed with an appropriate burner. The sample number, the duration of flame application, and the power/temperature of burner are described in the reference standards. After flame application, the visible area of fire damage must not exceed 2.5 m in height from the bottom of the burner.
The volume of tested material define a differentiation in categories:
A F/R Part 3-21 7 l/m
A Part 3-22 7 l/m
B Part 3-23 3.5 l/m
C Part 3-24 1.5 l/m
D Part 3-25 0.5 l/m



IEC 60331 / EN 50200

FIRE RESISTANCE TEST

A sample of cable is horizontally applied supported by metal rings, or in U shape fixed on a fireproof wall. Through using a gas burner the cable is maintained in flame contact for a certain time.
The test and the temperature of burner are described in the reference standards. In U shape test. the fireproof wall is hit every five minutes by a mechanical shock, to simulate a potential collapse during the fire.
The time of fire application, and the temperature of flame are described in the reference standards (typically 750 °C or 830 °C). The optical transmission of the fibers is checked and the change in attenuation is recorded during the test, and 15 minutes after flame extinction.



BS 6387 Category CWZ

FIRE RESISTANCE PROTOCOLS

The full test consists of subjecting the cable to 3 different protocols:
C: a flame with a temperature attack of 950 °C is applied to the cable.
W: a flame with a temperature attack of 650 °C is applied to the cable together with water simulating a sprinkler system.
Z: a flame with a temperature attack of 950 °C is applied to the cable together with mechanical shock.

IEC 61034-1/2 - EN 50268-1/2

MEASUREMENT OF SMOKE DENSITY UNDER DEFINED CONDITIONS

The amount of smoke of a cable burnt in a cubic (3x3x3 m) chamber using a flammable liquid, The light transmittance of the resulting smoke is measured using an optical light meter. The test duration is 40 minutes. Depending on the quantity and composition of the liquid fuel. During the test the light transmittance of the smoke must be 60% minimum.

BS 8434-2 2003 + A2 2009

FIRE RESISTANCE TEST

Test for unprotected small cables for use in emergency circuits. The fire resistance test is carried out according to BS 6387 and BS 8434-2. The test is based on the requirements of BS EN 50200 and includes mechanical shock and water spray. The cable is mounted on a vertical ladder and exposed to a flame of 830 °C. The test duration is 120 minutes.
The cable must continue to operate normally during the test.
The test is considered successful if the cable can supply power to emergency equipment safely for a 120 min duration.

IEC 60754-2 - EN 50267-2-1

TEST ON GASES EVOLVED DURING COMBUSTION OF MATERIALS FROM CABLES – MEASUREMENT OF AMOUNT OF HALOGEN ACID GAS

The cable is burned in a tube with a constant stream of air. The combustion gases are collected in water. The amount of halogen acid gas is measured. The concentration of halogen acid gas must be less than 5 mg/g.

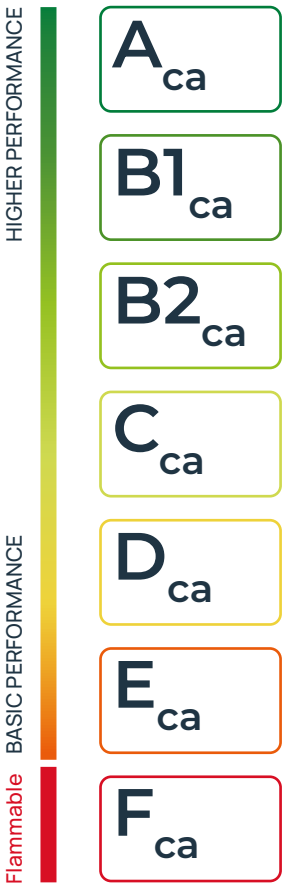
IEC 60754-2 - EN 50267-2-2

TEST ON GASES EVOLVED DURING COMBUSTION OF MATERIALS FROM CABLES – DETERMINATION OF ACIDITY (BY PH MEASUREMENT) AND CONDUCTIVITY

A small quantity of cable is burned. In a furnace, the pH and conductivity combustion gases dissolved in water are measured.
The minimum pH value of the washing water must 4.3, and the maximum conductivity must be 10 µS/mm.

Construction Product Regulation

Our commitment to CPR compliance — Embracing Euroclasses for superior fire safety



Regulation No. 305/2011 (**Construction Products Regulation**, or CPR) of the European Parliament and of the European Council is a regulation of 9 March 2011 that lays down harmonised conditions for the marketing of construction products and replaces Construction Products Directive (89/106/EEC).

The EU regulation is designed to simplify and clarify the existing framework for the placing on the EU market of construction products.

The main objective of the CPR is the removal of technical barriers to trade in order to guarantee the free movement of construction products within the common internal market due to differing product and test standards. approval processes and conformity documents in the various member states.

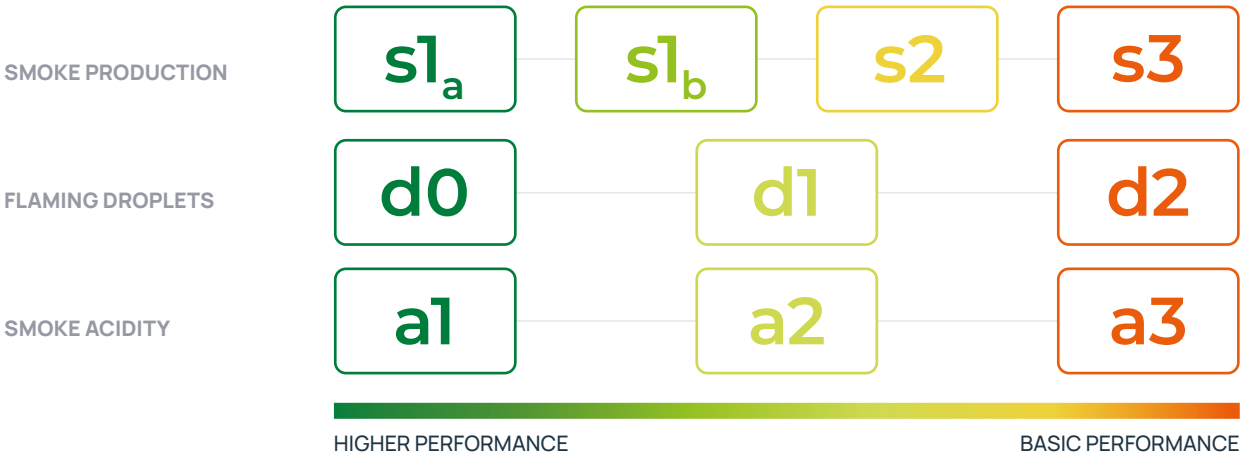
After the transition period. which ended on 1 July 2017, the Construction Products Regulation governs cables intended to be incorporated in construction works (permanent installations) in both buildings and civil engineering.

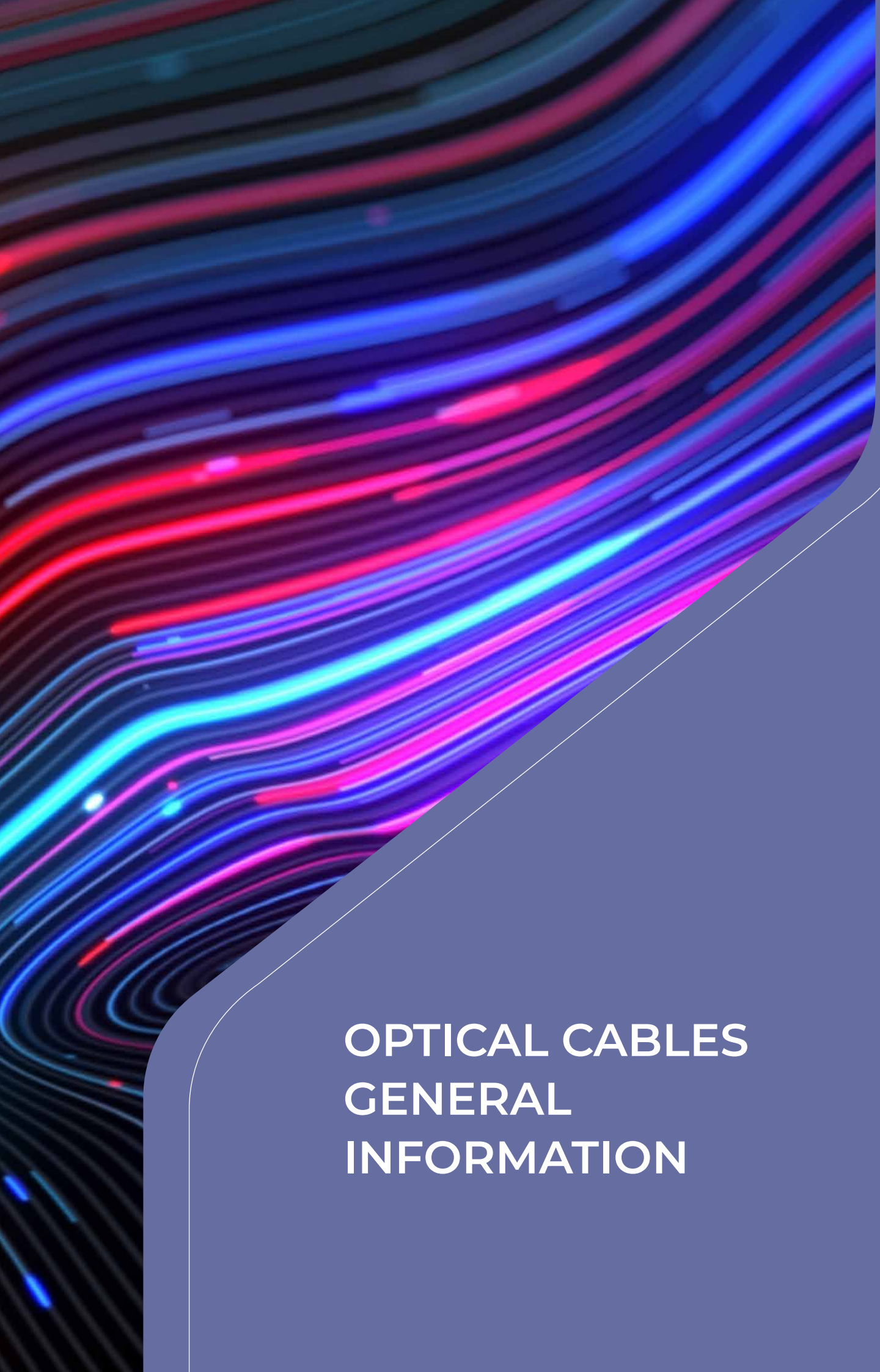
CPR Euroclasses are: A_{ca}. $B1_{ca}$. $B2_{ca}$. C_{ca}. D_{ca}. E_{ca}. F_{ca}.

Currently. European national regulations have defined CPR requirements within the range of Eca to B2ca, tailored to specific building types and fire performance criteria.

Furthermore. there are additional criteria establishing requirements on the amount of smoke produced. the fall of droplets and flamed particles during combustion, and acid content or toxicity of smoke produced.

The DoP (Declaration of Performance) is a document issued by the manufacturer in which all relevant information is recorded: the manufacturer, cable identification, evaluation system used, applicable standard, CPR certification body and performance of the product.
We are committed to adopting Euroclasses, and their relevant DoP, to express the fire performance of our products for the different construction applications. even if incumbent operators' specifications eventually conflict with the CPR Regulations.





These images are for illustrative purposes.

OPTICAL CABLES GENERAL INFORMATION

OPTICAL FIBER CABLES GENERAL INFORMATION

FIBER TYPES

- Singlemode ITU-T G.652D - IEC 60793-2-50 Type B.1.3
- Singlemode ITU-T G.657A1 - IEC 60793-2-50 Type B.1.3 and B.6.A
- Singlemode ITU-T G.657A2 / B2 - IEC 60793-2-50 Type B.1.3 and B.6.A&B
- Singlemode ITU-T G.657A1 / A2 / B2 Type 200 micron
- Singlemode NZD ITU-T G.655E/656 - IEC 60793-2-50 Type B4/B5

- Multimode 62.5/125 OM1 IEC 60793-2-10 Type A1b
- Multimode 50/125 OM2 ITU-T G.651 IEC 60793-2-10 Type A1a.1
- Multimode 50/125 OM3 - ISO/IEC 11801 - IEC 60793-2-10 Type A1a.2
- Multimode 50/125 OM4 - ISO/IEC 11801 - IEC 60793-2-10 Type A1a.3
- Multimode 50/125 OM5 - ISO/IEC 11801 - IEC 60793-2-10 Type A1a.3

STANDARD FIBER COLOUR CODE (TABLE A)

1 - Natural	7 - Violet	13 - Turquoise	19 - Violet with black ring
2 - Red	8 - Orange	14 - Red with black ring	20 - Orange with black ring
3 - Green	9 - Grey	15 - Green with black ring	21 - Grey with black ring
4 - Yellow	10 - White	16 - Yellow with black ring	22 - White with black ring
5 - Brown	11 - Black	17 - Brown with black ring	23 - Pink with black ring
6 - Blue	12 - Pink	18 - Blue with black ring	24 - Turquoise with black ring

*Other colours on request

STANDARD LOOSE TUBE COLOUR CODE (TABLE B)

1 - Red (Pilot)	7 - White	13 - White	19 - White
2 - Green (Directional)	8 - White	14 - White	20 - White
3 - White	9 - White	15 - White	21 - White
4 - White	10 - White	16 - White	22 - White
5 - White	11 - White	17 - White	23 - White
6 - White	12 - White	18 - White	24 - White

*Other colours on request

STANDARD TIGHT COLOUR CODE (TABLE C)

1 – Blue	7 – Red	13 – Blue with black ring	19 – Red with black ring
2 – Orange	8 – Black	14 – Orange with black ring	20 – Natural with black ring
3 – Green	9 – Yellow	15 – Green with black ring	21 – Yellow with black ring
4 – Brown	10 - Violet	16 – Brown with black ring	22 – Violet with black ring
5 – Grey	11 – Pink	17 – Grey with black ring	23 – Pink with black ring
6 – White	12 - Turquoise	18 – White with black ring	24 - Turquoise with black ring

*Other colours on request

FIBER CHARACTERISTICS

SINGLE-MODE FIBER PROPERTIES

	SM-LWP ITU-T G.652.D	SM ITU-T G.657.A1	SM ITU-T G.657.A2	SM 200 µm ITU-T G.657.A1	SM NZD ITU-T G.655.D
Mode Field Diameter @ 1310 nm	9.1 ± 0.4 µm	9.1 ± 0.4 µm	8.6 ± 0.4 µm	8.8 ± 0.4 µm	
Mode Field Diameter @ 1550 nm	10.2 ± 0.5 µm	10.2 ± 0.5 µm		9.8 ± 0.5 µm	9.6 ± 0.4 µm
Cladding diameter	125.0 ± 0.7 µm	125.0 ± 0.7 µm	125.0 ± 0.7 µm	125.0 ± 0.7 µm	125.0 ± 0.7 µm
Coating diameter	242 ± 7 µm	242 ± 7 µm	242 ± 7 µm	200 ± 10 µm	242 ± 7 µm
Cladding non-circularity	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %	≤ 1.0 %
Core/cladding concentricity error	≤ 0.5 µm	≤ 0.5 µm	≤ 0.5 µm	≤ 0.5 µm	≤ 0.5 µm
Coating/cladding concentricity error	≤ 12 µm	≤ 12 µm	≤ 12 µm	≤ 12 µm	≤ 12 µm
Cable cut-off wavelength	≤ 1260 nm	≤ 1260 nm	≤ 1260 nm	≤ 1260 nm	≤ 1450 nm
Zero dispersion wavelength (λo)	1300-1324 nm	1300-1324 nm	1300-1324 nm	1300-1324 nm	
Dispersion slope (So) @ (λo)	≤ 0.090 ps/(nm²*km)	≤ 0.090 ps/(nm²*km)	≤ 0.092 ps/(nm²*km)	≤ 0.092 ps/(nm²*km)	
Chromatic dispersion @ 1285 – 1330 nm	≤ 3.5 ps/(nm*km)	≤ 3.5 ps/(nm*km)			
Chromatic dispersion @ 1550 nm	≤ 18 ps /(nm*km)	≤ 18 ps/(nm*km)			
Chromatic dispersion @ 1625 nm	≤ 22 ps/(nm*km)	≤ 22 ps/(nm*km)			
Chromatic dispersion @ 1530 – 1565 nm					2.0 -6.0 ps/(nm*km)
Chromatic dispersion @ 1565 – 1625 nm					4.5 to 11.2 ps/(nm*km)
PMD Individual Fiber @ 1550 nm	≤ 0.1 ps/√km	≤ 0.1 ps/√km	≤ 0.1 ps/√km	≤ 0.1 ps/√km	≤ 0.15ps/√km
Attenuation @ 1310 nm	≤ 0.36 dB/km	≤ 0.36 dB/km	≤ 0.36 dB/km	≤ 0.36 dB/km	
Attenuation @ 1383nm	≤ 0.36 dB/km	≤ 0.36 dB/km	≤ 0.36 dB/km	≤ 0.36 dB/km	
Attenuation @ 1550 nm	≤ 0.25 dB/km	≤ 0.25 dB/km	≤ 0.25 dB/km	≤ 0.25 dB/km	≤ 0.27 dB/km
Attenuation @ 1625 nm	≤ 0.28 dB/km	≤ 0.28 dB/km	≤ 0.28 dB/km	≤ 0.28 dB/km	≤ 0.30 dB/km
Attenuation with bending					
Mandrel Radius 15mm@1550 10 turns		≤ 0.25 dB	≤ 0.03 dB	≤ 0.25 dB	
Mandrel Radius 15mm@1625 10 turns		≤ 1.0 dB	≤ 0.1 dB	≤ 1.0 dB	
Mandrel Radius 10mm@1550 1 turns		≤ 0.75 dB	≤ 0.1 dB	≤ 0.75 dB	
Mandrel Radius 10mm@1625 1 turns		≤ 1.5 dB	≤ 0.2 dB	≤ 1.5 dB	
Mandrel Radius 7.5mm@1550 1 turns			≤ 0.5 dB		
Mandrel Radius 7.5mm@1625 1 turns			≤ 1.0 dB		
Proof test	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa

MULTIMODE FIBER PROPERTIES

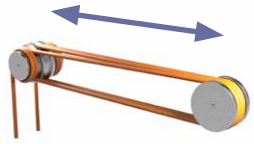
	MM62.5 OM1	MM62.5 OM1+	MM50 0M2	MM50 OM3	MM50 OM4	MM50 OM5
Core diameter	62.5 ± 2.5 µm	62.5 ± 2.5 µm	50 ± 2.5 µm	50 ± 2.5 µm	50 ± 2.5 µm	50 ± 2.5 µm
Core non-circularity	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Cladding diameter	125.0 ± 1.0 µm	125.0 ± 1.0 µm	125.0 ± 1.0 µm	125.0 ± 1.0 µm	125.0 ± 1.0 µm	125.0 ± 1.0 µm
Coating diameter	242 ± 5 µm	242 ± 5 µm	242 ± 5 µm	242 ± 5 µm	242 ± 5 µm	242 ± 5 µm
Cladding non-circularity	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %
Core/cladding concentricity error	≤ 1 µm	≤ 1 µm	≤ 1 µm	≤ 1 µm	≤ 1 µm	≤ 1 µm
Coating/cladding concentricity error	≤ 10 µm	≤ 10 µm	≤ 6 µm	≤ 6 µm	≤ 6 µm	≤ 6 µm
Numerical Aperture	0.275 ± 0.015	0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
Attenuation @ 850 nm	≤ 3.50 dB/km	≤ 3.50 dB/km	≤ 2.80 dB/km	≤ 2.80 dB/km	≤ 2.80 dB/km	≤ 2.80 dB/km
Attenuation @ 953 nm						≤ 1.50 dB/km
Attenuation @ 1300 nm	≤ 1.00 dB/km	≤ 1.00 dB/km	≤ 0.80 dB/km	≤ 0.80 dB/km	≤ 0.80 dB/km	≤ 0.80 dB/km
Overfilled Modal Bandwidth @ 850 nm	≥ 200 MHz*km	≥ 220 MHz*km	≥ 500 MHz*km	≥ 1500 MHz*km	≥ 3500 MHz*km	≥ 3500 MHz*km
Overfilled Modal Bandwidth @ 953 nm						≥ 1850 MHz*km
Overfilled Modal Bandwidth @ 1300 nm	≥ 500 MHz*km	≥ 800 MHz*km	≥ 500 MHz*km	≥ 500 MHz*km	≥ 500 MHz*km	≥ 500 MHz*km
Effective Modal Bandwidth (EMB) @850 nm				≥ 2000 MHz*km	≥ 4700 MHz*km	≥ 4700 MHz*km
Effective Modal Bandwidth (EMB) @953 nm						≥ 2470 MHz*km
Fibre capacity 10GBASE-SR	33 m	33 m	83 m	300 m	550 m	550 m
Fibre capacity 1000BASE-SX	274 m	500 m	600 m	1000 m	1100 m	1100 m
Fibre capacity 40GBASE-SR4/100GBASE-SR10				140 m	170 m	170 m
Proof test	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa

These images are for illustrative purposes.

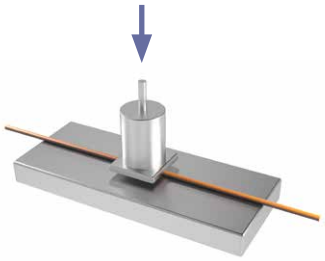
MECHANICAL AND ENVIRONMENTAL TESTS IEC 60794-1-21/22

Built and tested
for fire safety

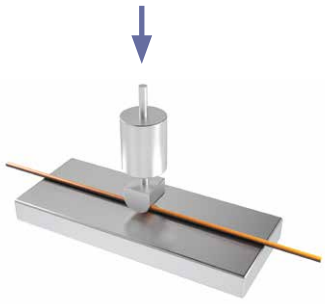
Mechanical
and Environmental Tests



Method E1: Cable Tensile performance.
This measuring method applies to optical fibre cables in order to examine the behaviour of the attenuation and the fibre elongation strain, as a function of the load on a cable which may occur during installation. This method is intended to be non-destructive.
The optical transmission of the fibers is monitored and the change in attenuation is recorded during the test.

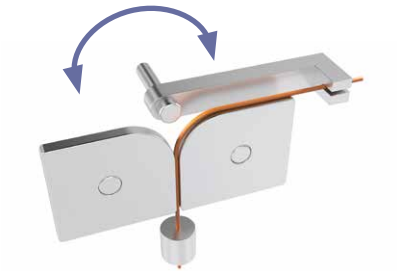


Method E3 : Cable Crush.
The purpose of this test is to determine the ability of an optical fibre cable to withstand crushing.
The apparatus shall allow a sample of cable to be crushed between a flat steel base plate and a movable steel plate which applies the crushing force uniformly over a 100 mm length of the sample. The edges of the movable plate shall be rounded with a radius of about 5 mm.
The optical transmission of the fibers is monitored and the change in attenuation is recorded during the test.



Method E4: Cable Impact.
The purpose of this test is to determine the ability of an optical fibre cable to withstand impact.
When only physical damage is to be evaluated, the length may range from 1m (small diameter) to 5m (for larger diameter cables). Longer lengths may be necessary to permit optical measurements.
To perform this test is important to establish:
- Mass of the weight or drop hammer
- Height of drop
- Number of impacts and their location
- Test temperature

The optical transmission of the fibers is monitored and the change in attenuation is recorded during the test.

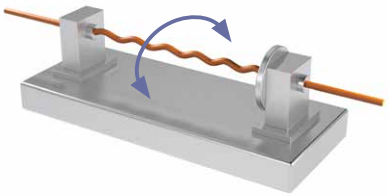


Method E6: Cable Repeated Bending.

This measuring method applies to optical fibre cables in order to examine the The purpose of this test is to determine the ability of an optical fibre cable to withstand repeated bending.
The apparatus shall permit a sample to be bent backwards and forwards through angles +/- of 90° whilst the sample is subjected to a tensile load.
The apparatus shall be capable of cycling, displacing the sample from the vertical position to the extremes positions and returning to the original position.
To perform this test is important to establish:

- Bending radius
- Number of cycles
- Tensile load
- Test temperature

The optical transmission of the fibers is monitored and the change in attenuation is recorded during the test.



Method E7: Cable Torsion test.

This test method is intended to establish the ability of a fibre optic cable to withstand mechanical twisting. The twisting apparatus consists essentially of two cable gripping devices or clamps, one fixed and one that can rotate, supported as appropriate, the distance between them being adjustable.
The sample shall be twisted at an angle of +/- 180° for a certain number of cycles.
To perform this test is important to establish:

- Length of sample
- Number of cycles
- Tensile load
- Test temperature

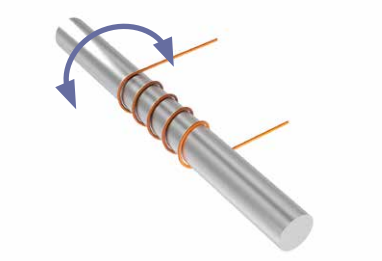
The optical transmission of the fibers is monitored and the change in attenuation is recorded during the test.

Method E8: Cable Flexing test.

The purpose of this test is to determine the ability of an optical fibre cable to withstand repeated flexing in service.
The sample shall be stretched over the pulleys in a S shape end being loaded with a weight. The sample shall be flexed
for a certain number of cycles.
To performing this test is important to establish:

- Diameter of pulleys
- Number of cycles
- Mass of weights
- Test temperature

The optical transmission of the fibers is monitored and the change in attenuation is recorded during the test.



Method E11: Cable bend.

The purpose of this test is to determine the ability of an optical fibre cable to withstand bending around a test mandrel.
A single mandrel shall enable the sample to be wrapped tangentially in a close helix around a test mandrel at a uniform rate with sufficient tension to ensure that the sample contours the mandrel. The sample shall then be unwrapped. A cycle consists of one wrapping and one unwrapping.
To performing this test is important to establish:

- Diameter of mandrel
- Number of cycles
- Number of windings
- Test temperature

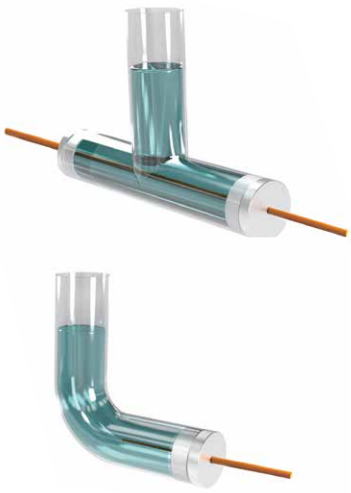
The optical transmission of the fibers is monitored and the change in attenuation is recorded during the test.

Method F1: Temperature cycling.

This measuring method determines the stability behaviour of the attenuation of cables submitted to temperature changes.
This test is used for monitoring cable behaviour in the temperature range which may occur during storage, transportation and usage or to check, in a selected temperature range (usually wider than that required for the above-mentioned case).
Changing temperatures can cause buckling or tensioning of the fibres, resulting from differences between the thermal expansion coefficient from optical fibers and cable strength members.
To performing this test is important to establish:

- Limit of temperature
- Number of temperature cycles
- Time and changing rate of temperature

The optical transmission of the fibers is monitored and the change in attenuation is recorded during the test.

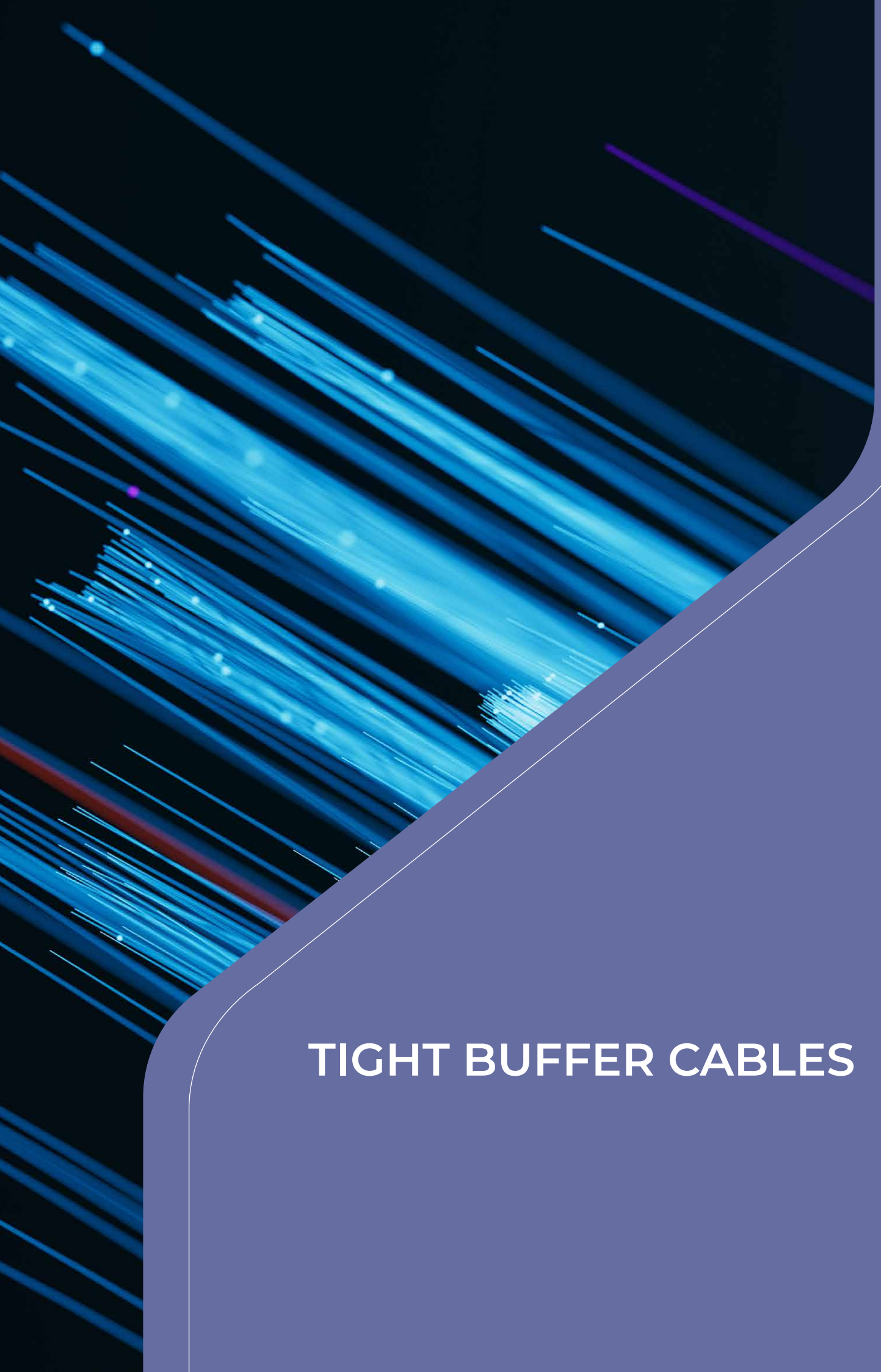


Method F5: Water penetration.

The purpose of this test is to determine the ability of a cable to block water migration along a specified length.
Compliance shall be checked on samples of cable, using one of the two methods:

- F5A: tests for water migration between the outer interstices of the optical core and the outer sheath.
- F5B: tests for water migration over the entire crosssection designed to be water-blocked.

For both methods a 3m long sample and 1m height of water column applied for 24 hours are used.



These images are for illustrative purposes.

TIGHT BUFFER CABLES

TK-SAD SIMPLEX AND DUPLEX CABLES - LSZH

CPR avaiable in CPR version

characteristics

on request

OPTICAL CORE

Fiber Structure	Tight Buffer 600 µm o 900 µm; Semitight Buffer 900 µm
Tight Colour Code	White, Red
Strain relief	Aramid yarns
Outer Sheath	Flame retardant, low smoke and halogen-free material

All cables are available with all type of fibers

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2, IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Polyurethane sheath for dynamic applications

FIELDS OF APPLICATION

TRANSPORTATION | TELECOMMUNICATION | AUTOMATION

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
1	2.0	5	200	250	5
1	3.0	8	200	400	8
2	1.6x3.2	7	300	200	5
2	2.0x4.0	10.5	400	250	5

TK-SAR ARMOURED SIMPLEX CABLES - LSZH

CPR avaiable in CPR version

characteristics

on request

OPTICAL CORE

Fiber Structure	Tight Buffer 600 µm or 900 µm, Semitight Buffer 900 µm
Tight Colour Code	White
Strain relief	Aramid yarns
Inner Sheath	Flame retardant, low smoke and halogen-free material
Armouring	Galvanized steel wire braid (GSWB)
Outer Sheath	Flame retardant low smoke and halogen-free material

All cables are available with all type of fibers

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2, IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Mud resistant
Oil resistant
Hydrocarbons resistant
Polyethylene sheath for direct buried
Fully dielectric
Armouring (with aramidic or glass yarns)

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
1	5.5	40	500	1000	10

Types mentioned here are standard. Other configurations available on request.

TK-MTB BREAKOUT CABLES - LSZH

CPR avaiable in CPR version

characteristics

on request

OPTICAL CORE

Fiber Structure	Tight Buffer 600 µm or 900 µm, Semitight Buffer 900 µm
Tight Colour Code	White
Strain relief	Aramid yarns
Sub unit Sheath	Numbered flame retardant low smoke and halogen-free matereal
Assembling	4 to 24 sub units
Outer sheath	Flame retardant low smoke and halogen-free material

All cables are available with all type of fibers

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2, IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

Fire resistant
UV-Resistant
Polyuretane sheath for dynamic applications

FIELDS OF APPLICATION

TRANSPORTATION | TELECOMMUNICATION | AUTOMATION

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
4	6.8	45	500	1000	10
6	8.0	60	1000	1000	10
8	9.8	90	1500	1000	10
12	12.6	165	2000	1000	10
16	12.0	150	3000	1000	10
24	15.0	210	4000	1000	10

Types mentioned here are standard. Other configurations available on request.

TK-MTBA ARMOURED BREAKOUT CABLES - LSZH

CPR avaiable in CPR version

characteristics

on request

OPTICAL CORE

Fiber Structure	Tight Buffer 900 µm, Semitight Buffer 900 µm
Tight Colour Code	White
Strain relief	Aramid yarns
Sub unit Sheath	Numbered flame retardant, low smoke and halogen-free material Ø 2mm
Assembling	4 to 24 sub units
Inner Sheath	Flame retardant, low smoke and halogen-free material
Armouring	Galvanized steel wire braid (GSWB) or tinned copper wire braid (TCWB)
Outer Sheath	Flame retardant, low smoke and halogen-free material

All cables are available with all type of fibers

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 12 x outer diameter Dynamic: 18 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2, IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

Fire resistant
UV-Resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant
Polyethylene sheath for direct buried
Fully dielectric
Armouring (with aramidic or glass yarns)

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
4	11.0	180	1000	2000	20
6	12.0	200	1500	2000	20
8	13.8	230	2000	2000	20
12	16.5	300	2500	2000	20
16	16.0	280	3500	2000	20
24	19.0	350	4500	2000	20

Types mentioned here are standard. Other configurations available on request.

TK-MTD MULTI TIGHT DISTRIBUTION CABLES - LSZH

CPR avaiable in CPR version

characteristics

on request

OPTICAL CORE

Fiber Structure	Tight Buffer 900 µm Semitight Buffer 900 µm
Tight Colour Code	See table C
Assembling	2 to 24 fibers
Strain relief	Aramid/Glass yarns
Inner Sheath*	Flame retardant, low smoke and halogen-free material
Assembling	48 (4x12 inner sheath*) 96 fibers (8x12 inner sheath*)
Outer Sheath	Flame retardant, low smoke and halogen-free material

*Inner Sheath for 48/96 fibers

All cables are available with all type of fibers

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2, IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Water resistant
Rodent resistant

FIELDS OF APPLICATION

TRANSPORTATION | TELECOMMUNICATION | AUTOMATION

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
2	4.8	20	500	2000	5
4	5.2	25	500	2000	5
6	6.0	30	500	2000	5
8	6.2	35	500	2000	5
12	6.7	45	750	2000	5
16	7.7	55	750	2000	5
24	8.5	70	1000	2000	5
48 (4×12)	19.0	300	3000	3000	15
96 (8×12)	26.5	630	5000	3000	15

Types mentioned here are standard. Other configurations available on request.

TK-MTDA ARMOURED MULTI TIGHT DISTRIBUTION CABLES - LSZH

CPR avaiable in CPR version

characteristics

on request

OPTICAL CORE

Fiber Structure	Tight Buffer 900 µm / Semitight Buffer 900 µm
Tight Colour Code	See table C
Assembling	4 to 24 fibers
Protection	Glass yarns
Inner Sheath	Flame retardant, low smoke and halogen-free material
Armouring	Galvanized steel wire braid (GSWB) or tinned copper wire braid (TCWB)
Outer Sheath	Flame retardant, low smoke and halogen-free material

All cables are available with all type of fibers

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2, IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant
Polyethylene sheath for direct buried
Fully dielectric

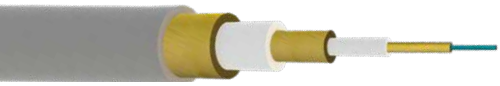
FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
4	8.5	100	1000	2000	25
8	9.4	115	1000	2000	25
12	10.3	140	1500	2000	25
24	12.1	180	2000	2000	25

Types mentioned here are standard. Other configurations available on request.

TK-PB SINGLE PICO BREAKOUT FTTH CABLES - LSZH



CPR avaiable in CPR version

characteristics

OPTICAL CORE

Fiber Structure	Optical fiber 250 µm
Strain Relief	Aramid yarns
Sub unit Sheath	Flame retardant, low smoke and halogen-free material Ø 0.9 mm
Strain Relief	Aramid yarns
Outer Sheath	Flame retardant, low smoke and halogen-freematerial - ø 2.6 mm

OPTICAL CORE OUTDOOR

Fiber Structure	Optical fiber 250 µm
Strain Relief	Aramid yarns
Sub unit Sheath	Flame retardant, low smoke and halogen-free material Ø 0.9 mm
Strain Relief	Aramid yarns
Inner Sheath	Flame retardant, low smoke and halogen-free material
Strain Relief	Aramid yarns
Outer Sheath	Flame retardant, low smoke and halogen-free material - Ø 4.5 mm

TECHNICAL DATA

Operating temperature range	-10°C to + 60°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2, IEC 60332-3-25 Cat. D
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

FIELDS OF APPLICATION

TELECOMMUNICATION

TK-PB MULTI PICO BREAKOUT FTTH CABLES - LSZH

CPR avaiable in CPR version

characteristics

on request

OPTICAL CORE

Fiber Structure	Optical fiber 250 µm
Strain Relief	Aramid yarns
Sub unit Sheath	Flame retardant, low smoke and halogen-free material Ø 0.9 mm
Assembling	4 to 36 fibers
Outer Sheath	Flame retardant, low smoke and halogen-free material

TECHNICAL DATA

Operating temperature range	-10°C to + 60°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2, IEC 60332-3-25 Cat. D
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

FIELDS OF APPLICATION

TELECOMMUNICATION

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
4	3.0	16	400	500	3
4	4.0	20	400	500	3
8	5.0	28	400	500	3
12	6.0	30	500	500	5
16	7.0	50	500	500	5
24	8.0	67	500	500	5
36	9.5	95	500	500	5

Types mentioned here are standard. Other configurations available on request.

TK-TAT TACTICAL CABLES

characteristics

on request

OPTICAL CORE

Fiber Structure	Tight Buffer 900 µm
Tight Colour Code	See table C
Assembling	2 to 12 fibers
Strain Relief	Aramid yarns
Outer Sheath	Soft polyurethane

All cables are available with all type of fibers

TECHNICAL DATA

Operating temperature range	-40°C to + 80°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 5 x outer diameter Dynamic: 8 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2

ON REQUEST

Water resistant

FIELDS OF APPLICATION

AUTOMATION | MARINE OIL & GAS | TELECOMMUNICATION

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
2	5.0	25	1500	4000	15
4	5.5	30	1500	4000	15
6	6.0	35	1500	4000	15
8	7.2	45	2000	4000	15
12	8.5	60	2000	4000	15

Types mentioned here are standard. Other configurations available on request.

TK-FLX CHAIN CABLES

CPR avaiable in CPR version

characteristics

on request

OPTICAL CORE

Fiber Structure	Optical fiber 900 µm Semitight Buffer 900 µm
Tight Colour Code	White
Strain Relief	Aramid yarns
Sub unit Sheath	Numbered flame retardant, low smoke and halogen-free material Ø 2 mm
Assembling	2 to 12 sub unit
Armouring	Aramid yarns braid
Outer Sheath	Flame retardant, halogen-free Polyurethan material

All cables are available with all type of fibers

TECHNICAL DATA

Operating temperature range	-40°C to + 80°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 5 x outer diameter Dynamic: 10 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2
Halogen-free	IEC 60754-1/2

FIELDS OF APPLICATION

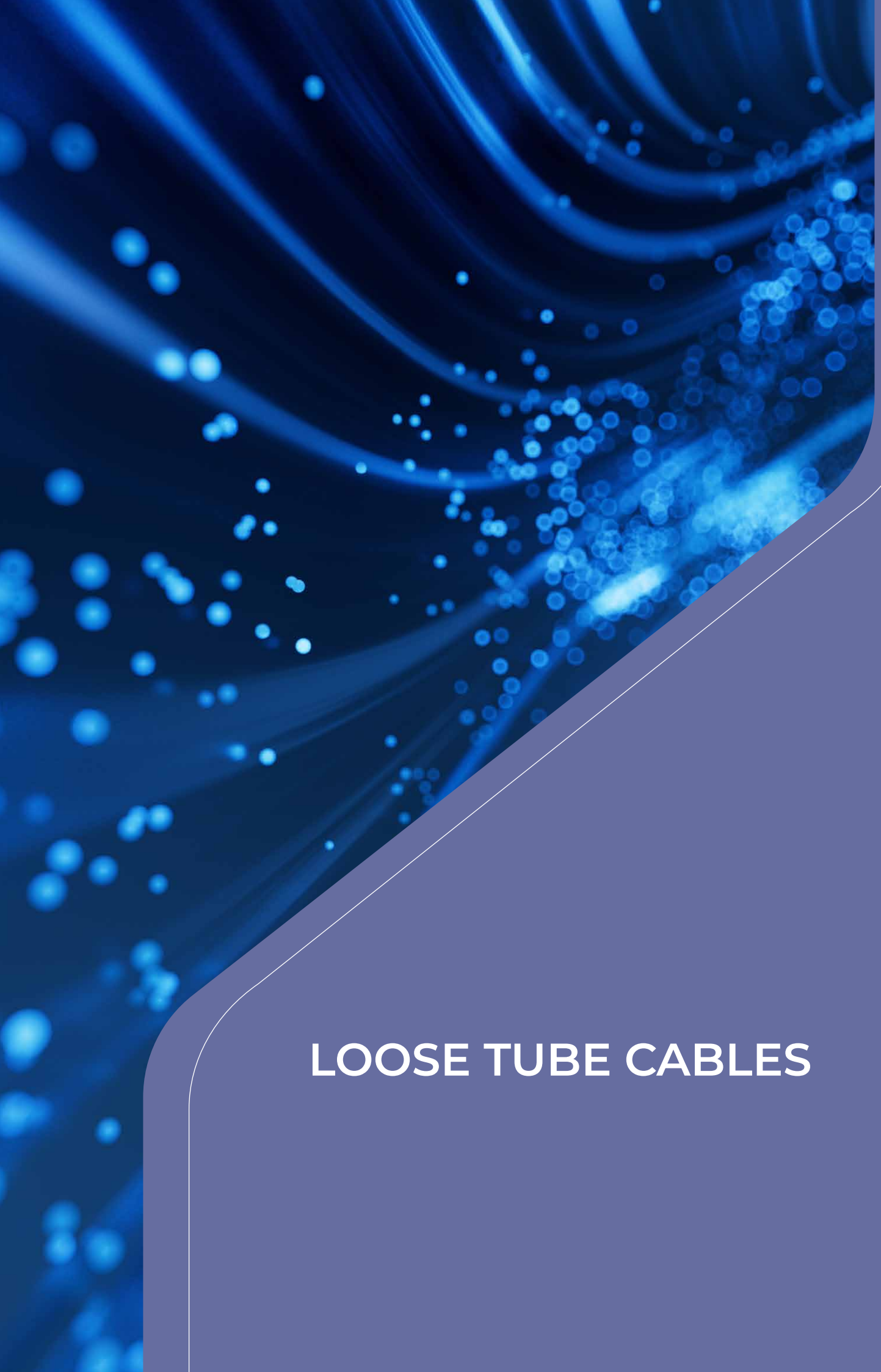
TELECOMMUNICATION

ON REQUEST

UV - Resistant

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
2	8.0	60	1000	2000	10
4	8.5	65	1500	2000	10
6	10.5	95	2000	2000	10
12	14.5	155	3000	2000	10

Types mentioned here are standard. Other configurations available on request.



LOOSE TUBE CABLES

These images are for illustrative purposes.

TK-DP DROP CABLES - LSZH

characteristics

on request

OPTICAL CORE

Fiber Structure	Optical fiber 250 µm
Fiber Colour Code	Red, Green
Reinforce	Steel wire
Assembling	1 to 2 fibers
Outer Sheath	Flame retardant, low smoke and halogen-free material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-25°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE

Fire propagation	IEC 60332-1-2 IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Mud resistant
Oil resistant
Hydrocarbons resistant
Fully dielectric

FIELDS OF APPLICATION

MARINE OIL & GAS | TELECOMMUNICATION

MAIN FEATURES					
No. of Fiber	Nominal Diameter	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	Kg/Km	N	N/dm	J
1	1.6 x 2.3	8	150	1000	5
1	1.6 x 2	6	150	500	3
2	1.6 x 2.3	8	150	1000	5

Types mentioned here are standard. Other configurations available on request.

TK-VBBX UNITUBE CABLES

CPR avaiable in CPR version

characteristics

on request

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	Natural
Assembling	1 to 24 fibers
Outer Sheath	Polyethylene material UV-Resistant

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 80°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

ON REQUEST

LSZH Sheath for indoor installation

FIELDS OF APPLICATION

TELECOMMUNICATION

MAIN FEATURES					
No. of Fiber	**Nominal Diameter**	**Nom. Weight**	**Max pulling Force**	**Max Crush**	**Impact**
	mm	**Kg/Km**	**N**	**N/dm**	**J**
1 to 12	2.8	3.8	12	100	3
13 to 24	3.0	4	15	100	3

Types mentioned here are standard. Other configurations available on request.

TK-UTX UNITUBE DIELECTRIC CABLES

CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	Natural
Protection	Aramid/Glass yarns
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE
(ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

TK-UTX UNITUBE DIELECTRIC CABLES

MAIN FEATURES ARAMID YARNS + LSZH SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 12	2.8	6.4	40	1500	2000	10
13 to 24	3.5	6.9	50	1500	2000	10

MAIN FEATURES GLASS YARNS + LSZH SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 12	2.8	7.0	55	2500	2000	10
13 to 24	3.5	8.0	65	2500	2000	10

MAIN FEATURES ARAMID YARNS + PE SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 12	2.8	6.4	35	1500	2000	10
13 to 24	3.5	6.9	45	1500	2000	10

MAIN FEATURES GLASS YARNS + PE SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 12	2.8	7.0	45	2500	2000	10
13 to 24	3.5	8.0	55	2500	2000	10

Types mentioned here are standard. Other configurations available on request.

TK-UT9X ARMOURED UNITUBE CABLES

CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	Natural
Assembling	2 to 24 fibers
Protection	With or without Aramid/Glass yarns
Armouring	Corrugated and thermowelded steel tape (CST)
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE
(ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

TK-UT9X ARMOURED UNITUBE CABLES

MAIN FEATURES CST + LSZH SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 24	3.5	9.0	95	750	2500	10

MAIN FEATURES CST + ARAMID YARNS + LSZH SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 24	3.5	9.0	110	1500	3000	15

MAIN FEATURES CST + GLASS YARNS + LSZH SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 24	3.5	10	140	3000	3500	20

MAIN FEATURES CST + PE SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 24	3.5	9.0	55	750	2500	10

MAIN FEATURES CST + ARAMID YARNS + PE SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 24	3.5	9.0	85	1500	3000	15

MAIN FEATURES CST + GLASS YARNS + PE SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 24	3.5	10	100	3000	3500	20

Types mentioned here are standard. Other configurations available on request.

TK-UTXD ARMOURED UNITUBE DOUBLE SHEATH CABLES

CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	Natural
Assembling	2 to 24 fibers
Strain relief	Aramid/Glass yarns
Inner Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material
Armouring	Galvanized steel wire braid (GSWB) or corrugated and thermowelded steel tape (CST)
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 20 x outer diameter

FIRE PERFORMANCE (ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-22 Cat. A
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant
Fully dielectric Bronze braid for installation in hazardous areas

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

TK-UTXD ARMOURED UNITUBE DOUBLE SHEATH CABLES

MAIN FEATURES LSZH + GSWB + LSZH SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 12	2.8	8.6	100	1500	2500	10
13 to 24	3.5	10	130	1500	2500	10

MAIN FEATURES PE + GSWB + PE SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 12	2.8	8.6	70	1500	2500	10
13 to 24	3.5	10	90	1500	2500	10

MAIN FEATURES LSZH + CST + LSZH SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 12	2.8	10	35	2000	3000	15
13 to 24	3.5	10.5	105	2000	3000	15

MAIN FEATURES PE + CST + PE SHEATH						
No. of Fiber	Nominal Diameter loose	Nominal Diameter cable	Nom. Weight	Max pulling Force	Max Crush	Impact
	mm	mm	Kg/Km	N	N/dm	J
2 to 12	2.8	10	85	2000	3000	15
13 to 24	3.5	10.5	105	2000	3000	15

Types mentioned here are standard. Other configurations available on request.

TK-ABI AIRBLOWN MICROCABLES

CPR avaiable in CPR version

characteristics

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	See table B
Assembling	5 to 12 loose tubes/fillers 12 to 288 fibers
Central element	Fiber reinforced polymer or galvanized steel wire
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-30°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE (ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-25 Cat. D
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

FIELDS OF APPLICATION

TELECOMMUNICATION

MAIN FEATURES LSZH SHEATH									
No. of Fiber	No. of fiber each loose	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling	Max crush	Impact
		mm			mm	kg/km	N	N/dm	J
12	12	1.9	1	4	7.2	55	1000	1000	3
12	12	1.8	1	5	7.3	60	1000	1000	3
24	12	1.9	2	3	7.2	55	1000	1000	3
24	12	1.8	2	4	7.3	60	1000	1000	3
36	12	1.9	3	2	7.2	55	1000	1000	3
36	12	1.8	3	3	7.3	60	1000	1000	3
48	12	1.9	4	1	7.2	55	1000	1000	3
48	12	1.8	4	2	7.3	60	1000	1000	3
60	12	1.9	5	/	7.2	55	1000	1000	3
60	12	1.8	5	1	7.3	60	1000	1000	3
72	12	1.8	6	/	7.3	60	1000	1000	3
96	12	1.7	8	/	7.5	60	1000	1000	3
96*	24	2.0	4	2	7.5	65	1000	1000	3
120*	24	2.0	5	1	7.5	65	1000	1000	3
144*	24	2.0	6	/	7.5	65	1000	1000	3
192*	24	2.0	8	/	8.5	70	1000	1000	3

* 200µm OF

MAIN FEATURES PE SHEATH									
No. of Fiber	No. of fiber each loose	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling	Max crush	Impact
		mm			mm	kg/km	N	N/dm	J
12	12	1.9	1	4	6.3	35	1000	1000	3
12	12	1.8	1	5	6.3	40	1000	1000	3
24	12	1.9	2	3	6.3	35	1000	1000	3
24	12	1.8	2	4	6.3	40	1000	1000	3
36	12	1.9	3	2	6.3	35	1000	1000	3
36	12	1.8	3	3	6.3	40	1000	1000	3
48	12	1.9	4	1	6.3	35	1000	1000	3
48	12	1.8	4	2	6.3	40	1000	1000	3
60	12	1.9	5	/	6.3	35	1000	1000	3
60	12	1.8	5	/	6.3	40	1000	1000	3
72	12	1.8	6	/	6.3	40	1000	1000	3
96	12	1.8	8	/	7.5	50	1000	1000	3
96	24	2.2	4	2	7.5	65	1000	1000	3
120	24	2.2	5	1	7.5	65	1000	1000	3
144	24	2.2	6	/	7.5	65	1000	1000	3
192*	24	1.8	8	/	7.5	50	1000	1000	3
288*	36	2.0	8	/	8	70	1000	1000	3
396*	36	2.0	11	/	11	80	1000	1000	3
432	36	2.0	12	/	11.2	100	1000	1000	3

* 200µm OF

TK-MTX MULTITUBE DIELECTRIC CABLES

CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	See table B
Assembling	6 to 24 loose tubes/fillers 12 to 288 fibers
Central element	fiber reinforced polymer
Protection	Aramid/Glass yarns
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE (ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2, IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

MAIN FEATURES ARAMID YARNS + LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	9	80	1500	1500	15
24	1.9	2	4	9	80	1500	1500	15
36	1.9	3	3	9	80	1500	1500	15
48	1.9	4	2	9	80	1500	1500	15
60	1.9	5	1	9	80	1500	1500	15
72	1.9	6	/	9	80	1500	1500	15
96	1.9	8	/	10	95	2000	2000	20
144	1.9	12	/	13	150	2500	2000	20
192	1.9	16	/	13	150	2500	2000	20
216	1.9	18	/	13.5	160	2500	2000	20
288	1.9	24	/	15	180	3000	3000	25

MAIN FEATURES GLASS YARNS + LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	9.5	90	2500	2000	15
24	1.9	2	4	9.5	90	2500	2000	15
36	1.9	3	3	9.5	90	2500	2000	15
48	1.9	4	2	9.5	90	2500	2000	15
60	1.9	5	1	9.5	90	2500	2000	15
72	1.9	6	/	9.5	90	2500	2000	15
96	1.9	8	/	10.5	105	3000	3000	20
144	1.9	12	/	13.5	160	3500	3000	20
192	1.9	16	/	13.5	160	3500	3000	20
216	1.9	18	/	14	170	3500	3000	20
288	1.9	24	/	15.5	190	4000	4000	25

Types mentioned here are standard. Other configurations available on request.

MAIN FEATURES ARAMID YARNS + PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	9	70	1500	1500	15
24	1.9	2	4	9	70	1500	1500	15
36	1.9	3	3	9	70	1500	1500	15
48	1.9	4	2	9	70	1500	1500	15
60	1.9	5	1	9	70	1500	1500	15
72	1.9	6	/	9	70	1500	1500	15
96	1.9	8	/	10	80	2000	2000	20
144	1.9	12	/	13	120	2500	2000	20
192	1.9	16	/	13	120	2500	2000	20
216	1.9	18	/	13.5	130	2500	2000	20
288	1.9	24	/	15	150	3000	3000	25

MAIN FEATURES GLASS YARNS + LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	9.5	75	2500	2000	15
24	1.9	2	4	9.5	75	2500	2000	15
36	1.9	3	3	9.5	75	2500	2000	15
48	1.9	4	2	9.5	75	2500	2000	15
60	1.9	5	1	9.5	75	2500	2000	15
72	1.9	6	/	9.5	75	2500	2000	15
96	1.9	8	/	10.5	85	3000	3000	20
144	1.9	12	/	13.5	130	3500	3000	20
192	1.9	16	/	13.5	130	3500	3000	20
216	1.9	18	/	14	140	3500	3000	20
288	1.9	24	/	15.5	160	4000	4000	25

Types mentioned here are standard. Other configurations available on request.

TK-MT9X ARMOURED MULTITUBE CABLES

CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	See table B
Assembling	6 to 24 loose tubes/fillers 12 to 288 fibers
Central element	fiber reinforced polymer
Protection	Aramid/Glass yarns
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE (ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

TK-MT9X ARMOURED MULTITUBE CABLES

MAIN FEATURES CST+LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	11	150	1500	2000	15
24	1.9	2	4	11	150	1500	2000	15
36	1.9	3	3	11	150	1500	2000	15
48	1.9	4	2	11	150	1500	2000	15
60	1.9	5	1	11	150	1500	2000	15
72	1.9	6	/	11	150	1500	2000	15
96	1.9	8	/	12	170	2000	2500	20
144	1.9	12	/	14.5	230	2000	2500	20
192	1.9	16	/	14.5	230	2000	2000	20
216	1.9	18	/	15.5	260	2000	2000	25
288	1.9	24	/	17.5	350	2500	3000	25

MAIN FEATURES ARAMID+CST +LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	160	2000	2000	15
24	1.9	2	4	12	160	2000	2000	15
36	1.9	3	3	12	160	2000	2000	15
48	1.9	4	2	12	160	2000	2000	15
60	1.9	5	1	12	160	2000	2000	15
72	1.9	6	/	12	160	2000	2000	15
96	1.9	8	/	13	180	2500	2500	20
144	1.9	12	/	15.5	250	2500	2500	20
192	1.9	16	/	15.5	250	3000	3000	25
216	1.9	18	/	16.5	280	3000	3000	25
288	1.9	24	/	18.5	360	3500	3000	25

Types mentioned here are standard. Other configurations available on request.

TK-MT9X ARMOURED MULTITUBE CABLES

MAIN FEATURES GLASS YARNS + CST +LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	170	2500	2000	15
24	1.9	2	4	12	170	2500	2000	15
36	1.9	3	3	12	170	2500	2000	15
48	1.9	4	2	12	170	2500	2000	15
60	1.9	5	1	12	170	2500	2000	15
72	1.9	6	/	12	170	2500	2000	15
96	1.9	8	/	13	190	3000	2500	20
144	1.9	12	/	15.5	270	2500	2500	20
192	1.9	16	/	15.5	270	3000	3000	25
216	1.9	18	/	15.5	300	3000	3000	25
288	1.9	24	/	15.5	300	3000	3000	25

MAIN FEATURES CST + PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	11	120	1500	2000	15
24	1.9	2	4	11	120	1500	2000	15
36	1.9	3	3	11	120	1500	2000	15
48	1.9	4	2	11	120	1500	2000	15
60	1.9	5	1	11	120	1500	2000	15
72	1.9	6	/	11	120	1500	2000	15
96	1.9	8	/	12	140	2000	2500	20
144	1.9	12	/	14.5	190	2000	2500	20
192	1.9	16	/	14.5	190	2000	2000	20
216	1.9	18	/	15.5	220	2000	2000	25
288	1.9	24	/	17.5	260	2500	3000	25

Types mentioned here are standard. Other configurations available on request.

TK-MT9X ARMOURED MULTITUBE CABLES

MAIN FEATURES ARAMID+CST + PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	130	2000	2000	15
24	1.9	2	4	12	130	2000	2000	15
36	1.9	3	3	12	130	2000	2000	15
48	1.9	4	2	12	130	2000	2000	15
60	1.9	5	1	12	130	2000	2000	15
72	1.9	6	/	12	130	2000	2000	15
96	1.9	8	/	13	150	2500	2500	20
144	1.9	12	/	15.5	210	2500	2500	20
192	1.9	16	/	15.5	210	3000	3000	25
216	1.9	18	/	16.5	240	3000	3000	25
288	1.9	24	/	18.5	290	3500	3000	25

MAIN FEATURES GLASS YARNS+CST + PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	140	2500	2000	15
24	1.9	2	4	12	140	2500	2000	15
36	1.9	3	3	12	140	2500	2000	15
48	1.9	4	2	12	140	2500	2000	15
60	1.9	5	1	12	140	2500	2000	15
72	1.9	6	/	12	140	2500	2000	15
96	1.9	8	/	13	160	3000	2500	20
144	1.9	12	/	15.5	220	2000	2500	20
192	1.9	16	/	15.5	220	3000	3000	25
216	1.9	18	/	16.5	250	3000	3000	25
288	1.9	24	/	18.5	310	3500	3000	25

Types mentioned here are standard. Other configurations available on request.

TK-MTXD DIELECTRIC MULTITUBE DOUBLE SHEATH CABLES

CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	See table B
Assembling	6 to 24 loose tubes/fillers 12 to 288 fibers
Central element	Fiber reinforced polymer
Inner Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material
Protection	Aramid/Glass yarns
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE (ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

TK-MTXD DIELECTRIC MULTITUBE DOUBLE SHEATH CABLES

MAIN FEATURES LSZH+ARAMID YARNS +LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	11.5	130	1500	2500	15
24	1.9	2	4	11.5	130	1500	2500	15
36	1.9	3	3	11.5	130	1500	2500	15
48	1.9	4	2	11.5	130	1500	2500	15
60	1.9	5	1	11.5	130	1500	2500	15
72	1.9	6	0	11.5	130	1500	2500	15
96	1.9	8	0	12.5	170	2000	3000	20
144	1.9	12	0	15	210	2500	3000	25
192	1.9	16	0	15	210	2500	3000	25
216	1.9	18	0	15.5	240	2500	3000	25
288	1.9	24	0	17.5	320	3000	3500	30

MAIN FEATURES LSZH+GLASS YARNS +LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	150	2500	3000	20
24	1.9	2	4	12	150	2500	3000	20
36	1.9	3	3	12	150	2500	3000	20
48	1.9	4	2	12	150	2500	3000	20
60	1.9	5	1	12	150	2500	3000	20
72	1.9	6	0	12	150	2500	3000	20
96	1.9	8	0	13.5	190	3000	3000	25
144	1.9	12	0	16	250	3500	3000	25
192	1.9	16	0	16	250	3500	3000	25
216	1.9	18	0	16.5	280	3500	3500	30
288	1.9	24	0	18.5	350	4000	4000	30

Types mentioned here are standard. Other configurations available on request.

TK-MTXD DIELECTRIC MULTITUBE DOUBLE SHEATH CABLES

MAIN FEATURES PE+ARAMID YARNS +PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	11.5	90	1500	2500	15
24	1.9	2	4	11.5	90	1500	2500	15
36	1.9	3	3	11.5	90	1500	2500	15
48	1.9	4	2	11.5	90	1500	2500	15
60	1.9	5	1	11.5	90	1500	2500	15
72	1.9	6	0	11.5	90	1500	2500	15
96	1.9	8	0	12.5	110	2000	3000	20
144	1.9	12	0	15	170	2500	3000	25
192	1.9	16	0	15	180	2500	3000	25
216	1.9	18	0	15.5	190	2500	3000	25
288	1.9	24	0	17.5	250	3000	3500	30

MAIN FEATURES PE+GLASS YARNS +PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	110	2500	3000	20
24	1.9	2	4	12	110	2500	3000	20
36	1.9	3	3	12	110	2500	3000	20
48	1.9	4	2	12	110	2500	3000	20
60	1.9	5	1	12	110	2500	3000	20
72	1.9	6	0	12	110	2500	3000	20
96	1.9	8	0	13.5	140	3000	3000	25
144	1.9	12	0	16	200	3500	3000	25
192	1.9	16	0	16	210	3500	3000	25
216	1.9	18	0	16.5	220	3500	3500	30
288	1.9	24	0	18.5	275	4000	4000	30

Types mentioned here are standard. Other configurations available on request.

TK-MTAX ARMOURED MULTITUBE DOUBLE SHEATH CABLES

CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	See table B
Assembling	6 to 12 loose tubes/fillers 12 to 144 fibers
Central element	Fiber reinforced polymer
Inner Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material
Armouring	Galvanized steel tapes (GSTA) / Galvanized steel wires braid (GSWB) / Steel wires armoured (SWA) / Corrugated and thermowelded steel tape (CST)
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 20 x outer diameter

FIRE PERFORMANCE (ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-22 Cat. A
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant
Bronze braid for installation in hazardous area

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

TK-MTAX ARMOURED MULTITUBE DOUBLE SHEATH CABLES

MAIN FEATURES LSZH+GSWB+LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	190	2000	2000	10
24	1.9	2	4	12	190	2000	2000	10
36	1.9	3	3	12	190	2000	2000	10
48	1.9	4	2	12	190	2000	2000	10
60	1.9	5	1	12	190	2000	2000	10
72	1.9	6	0	12	190	2000	2000	10
96	1.9	8	0	13	205	2000	2000	10
144	1.9	12	0	15.5	300	2000	2000	10
192	1.9	16	0	15.5	300	2000	2000	10
216	1.9	18	0	16.5	330	2500	2500	15
288	1.9	24	0	18.0	390	2500	2500	15

MAIN FEATURES LSZH+SWA+LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	13.5	350	3000	3000	20
24	1.9	2	4	13.5	350	3000	3000	20
36	1.9	3	3	13.5	350	3000	3000	20
48	1.9	4	2	13.5	350	3000	3000	20
60	1.9	5	1	13.5	350	3000	3000	20
72	1.9	6	0	13.5	350	3000	3000	20
96	1.9	8	0	15	400	4000	3000	25
144	1.9	12	0	17	460	5000	3000	25
192	1.9	16	0	17	460	5000	3000	25
216	1.9	18	0	18	500	5000	3000	25
288	1.9	24	0	19.5	580	5000	3000	25

Types mentioned here are standard. Other configurations available on request.

TK-MTAX ARMOURED MULTITUBE DOUBLE SHEATH CABLES

MAIN FEATURES LSZH+GSTA+LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	200	2000	2500	10
24	1.9	2	4	12	200	2000	2500	10
36	1.9	3	3	12	200	2000	2500	10
48	1.9	4	2	12	200	2000	2500	10
60	1.9	5	1	12	200	2000	2500	10
72	1.9	6	0	12	200	2000	2500	10
96	1.9	8	0	13	225	2000	2500	10
144	1.9	12	0	15.5	320	2000	2500	10
192	1.9	16	0	15.5	320	2000	2500	10
216	1.9	18	0	16.5	360	2500	2500	15
288	1.9	24	0	18.0	420	2500	2500	15

MAIN FEATURES LSZH+CST+LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	13.5	190	2000	3000	15
24	1.9	2	4	13.5	190	2000	3000	15
36	1.9	3	3	13.5	190	2000	3000	15
48	1.9	4	2	13.5	190	2000	3000	15
60	1.9	5	1	13.5	190	2000	3000	15
72	1.9	6	0	13.5	190	2000	3000	15
96	1.9	8	0	15	205	2000	3000	20
144	1.9	12	0	17	300	2000	3000	20
192	1.9	16	0	17	300	2000	3000	20
216	1.9	18	0	18	330	2500	3000	20
288	1.9	24	0	19.5	390	2500	3000	20

Types mentioned here are standard. Other configurations available on request.

TK-MTAX ARMOURED MULTITUBE DOUBLE SHEATH CABLES

MAIN FEATURES PE+GSWB+PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	155	2000	2000	10
24	1.9	2	4	12	155	2000	2000	10
36	1.9	3	3	12	155	2000	2000	10
48	1.9	4	2	12	155	2000	2000	10
60	1.9	5	1	12	155	2000	2000	10
72	1.9	6	0	12	155	2000	2000	10
96	1.9	8	0	13	170	2000	2000	10
144	1.9	12	0	15.5	240	2000	2000	10
192	1.9	16	0	15.5	240	2000	2000	10
216	1.9	18	0	16.5	270	2500	2500	15
288	1.9	24	0	18.0	320	2500	2500	15

MAIN FEATURES PE+SWA+PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	13.5	280	3000	3000	20
24	1.9	2	4	13.5	280	3000	3000	20
36	1.9	3	3	13.5	280	3000	3000	20
48	1.9	4	2	13.5	280	3000	3000	20
60	1.9	5	1	13.5	280	3000	3000	20
72	1.9	6	0	13.5	280	3000	3000	20
96	1.9	8	0	15	340	4000	3000	25
144	1.9	12	0	17	400	5000	3000	25
192	1.9	16	0	17	400	5000	3000	25
216	1.9	18	0	18	430	5000	3000	25
288	1.9	24	0	19.5	500	5000	3000	25

Types mentioned here are standard. Other configurations available on request.

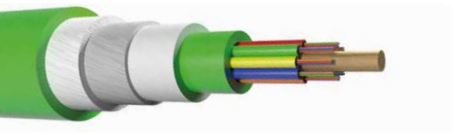
TK-MTAX ARMOURED MULTITUBE DOUBLE SHEATH CABLES

MAIN FEATURES PE+GSTA+PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	165	2000	2500	10
24	1.9	2	4	12	165	2000	2500	10
36	1.9	3	3	12	165	2000	2500	10
48	1.9	4	2	12	165	2000	2500	10
60	1.9	5	1	12	165	2000	2500	10
72	1.9	6	0	12	165	2000	2500	10
96	1.9	8	0	13	190	2000	2500	10
144	1.9	12	0	15.5	260	2000	2500	10
192	1.9	16	0	15.5	260	2000	2500	10
216	1.9	18	0	16.5	300	2500	2500	15
288	1.9	24	0	18.0	350	2500	2500	15

MAIN FEATURES PE+CST+PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	13.5	155	2000	3000	15
24	1.9	2	4	13.5	155	2000	3000	15
36	1.9	3	3	13.5	155	2000	3000	15
48	1.9	4	2	13.5	155	2000	3000	15
60	1.9	5	1	13.5	155	2000	3000	15
72	1.9	6	0	13.5	155	2000	3000	15
96	1.9	8	0	15	170	2000	3000	20
144	1.9	12	0	17	240	2000	3000	20
192	1.9	16	0	17	240	2000	3000	20
216	1.9	18	0	18	270	2500	3000	20
288	1.9	24	0	19.5	320	2500	3000	20

Types mentioned here are standard. Other configurations available on request.

TK-API AIRBAG PROTECTION CABLES



CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	See table B
Assembling	8 loose tubes/fillers 16 to 96 fibers
Central element	Fiber reinforced polymer
Inner Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material
Mechanical protection	Dielectric layer
Armouring	Anti rodent Glass protection
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 15 x outer diameter Dynamic: 20 x outer diameter

FIRE PERFORMANCE
(ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

TK-API AIRBAG PROTECTION CABLES

MAIN FEATURES LSZH+AIRBAG+GLASS TAPE AND YARNS+LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
16	1.8	4	4	18	290	3000	10000	30
32	1.8	8	0	18	290	3000	10000	30
48	1.8	6	2	20	345	3000	10000	30
64	1.8	8	0	20	345	3000	10000	30
96	1.8	8	0	20	345	3000	10000	30

MAIN FEATURES PE + AIRBAG + GLASS TAPE AND YARNS + PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
16	1.8	4	4	18	235	3000	10000	30
32	1.8	8	0	18	235	3000	10000	30
48	1.8	6	2	20	280	3000	10000	30
64	1.8	8	0	20	280	3000	10000	30
96	1.8	8	0	20	280	3000	10000	30

Types mentioned here are standard. Other configurations available on request.

TK-MT6X ARMOURED MULTITUBE CABLES

CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	See table B
Assembling	8 loose tubes/fillers 16 to 96 fibers
Central element	Fiber reinforced polymer
Inner Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material
Strain Relief	Aramid yarns
Armouring	Welded and corrugated steel tape (H6)
Anticorrosion Protection	Bituminous/jelly layer
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 15 x outer diameter Dynamic: 20 x outer diameter

FIRE PERFORMANCE (ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant
Mud resistant
Oil resistant
Hydrocarbons resistant

FIELDS OF APPLICATION

TRANSPORTATION | MARINE OIL & GAS | TELECOMMUNICATION

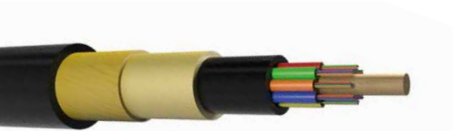
TK-MT6X ARMOURED MULTITUBE CABLES

MAIN FEATURES LSZH+ARAMID YARNS+H6+LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
16	1.8	4	4	20	460	3000	10000	30
32	1.8	8	0	20	460	3000	10000	30
48	1.8	6	2	20	460	3000	10000	30
64	1.8	8	0	20	460	3000	10000	30
96	1.8	8	0	20	460	3000	10000	30

MAIN FEATURES PE+ARAMID YARNS+H6+PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
16	1.8	4	4	20	380	3000	10000	30
32	1.8	8	0	20	380	3000	10000	30
48	1.8	6	2	20	380	3000	10000	30
64	1.8	8	0	20	380	3000	10000	30
96	1.8	8	0	20	380	3000	10000	30

Types mentioned here are standard. Other configurations available on request.

TK-MTAS MULTITUBE ADSS CABLES



CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	See table B
Assembling	6 to 24 loose tubes/fillers 12 to 288 fibers
Central element	Fiber reinforced polymer
Inner Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material
***Antibalistic protection**	Aramid tapes or glass flats
Strain Relief	Aramid yarns
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE (ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant

FIELDS OF APPLICATION

TRANSPORTATION TELECOMMUNICATION

TK-MTAS MULTITUBE ADSS CABLES

MAIN FEATURES LSZH+ARAMID YARNS+LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	13	160	7500	3000	20
24	1.9	2	4	13	160	7500	3000	20
36	1.9	3	3	13	160	7500	3000	20
48	1.9	4	2	13	190	7500	3000	20
60	1.9	5	1	13	160	7500	3000	20
72	1.9	6	0	13	160	7500	3000	20
96	1.9	8	0	14	200	7500	3000	20
144	1.9	12	0	16.5	240	7500	3000	20
192	1.9	16	0	16.5	240	7500	3000	20
216	1.9	18	0	17	280	7500	3000	20
288	1.9	24	0	19	370	7500	3000	20

MAIN FEATURES LSZH+ARAMID YARNS AND TAPES +LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	15	190	7500	3000	20
24	1.9	2	4	15	190	7500	3000	20
36	1.9	3	3	15	190	7500	3000	20
48	1.9	4	2	15	190	7500	3000	20
60	1.9	5	1	15	190	7500	3000	20
72	1.9	6	0	15	190	7500	3000	20
96	1.9	8	0	16	230	7500	3000	20
144	1.9	12	0	18.5	280	7500	3000	20
192	1.9	16	0	18.5	280	7500	3000	20
216	1.9	18	0	19	320	7500	3000	20
288	1.9	24	0	21	420	7500	3000	20

Types mentioned here are standard. Other configurations available on request.

TK-MTAS MULTITUBE ADSS CABLES

MAIN FEATURES LSZH + ARAMID YARNS + GLASS FLAT + LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	15	190	7500	3000	20
24	1.9	2	4	15	190	7500	3000	20
36	1.9	3	3	15	190	7500	3000	20
48	1.9	4	2	15	190	7500	3000	20
60	1.9	5	1	15	190	7500	3000	20
72	1.9	6	0	15	190	7500	3000	20
96	1.9	8	0	16	230	7500	3000	20
144	1.9	12	0	18.5	280	7500	3000	20
192	1.9	16	0	18.5	280	7500	3000	20
216	1.9	18	0	19	320	7500	3000	20
288	1.9	24	0	21	420	7500	3000	20

MAIN FEATURES PE+ARAMID YARNS+PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	13	120	7500	3000	20
24	1.9	2	4	13	120	7500	3000	20
36	1.9	3	3	13	120	7500	3000	20
48	1.9	4	2	13	120	7500	3000	20
60	1.9	5	1	13	120	7500	3000	20
72	1.9	6	0	13	120	7500	3000	20
96	1.9	8	0	14	140	7500	3000	20
144	1.9	12	0	16.5	200	7500	3000	20
192	1.9	16	0	16.5	200	7500	3000	20
216	1.9	18	0	17	230	7500	3000	20
288	1.9	24	0	19	290	7500	3000	20

Types mentioned here are standard. Other configurations available on request.

TK-MTAS MULTITUBE ADSS CABLES

MAIN FEATURES PE + ARAMID YARNS AND TAPES + PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	15	150	7500	3000	20
24	1.9	2	4	15	150	7500	3000	20
36	1.9	3	3	15	150	7500	3000	20
48	1.9	4	2	15	150	7500	3000	20
60	1.9	5	1	15	150	7500	3000	20
72	1.9	6	0	15	150	7500	3000	20
96	1.9	8	0	16	160	7500	3000	20
144	1.9	12	0	18.5	240	7500	3000	20
192	1.9	16	0	18.5	240	7500	3000	20
216	1.9	18	0	19	270	7500	3000	20
288	1.9	24	0	21	330	7500	3000	20

MAIN FEATURES PE+ARAMID YARNS+GLASS FLAT + PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	15	170	7500	3000	20
24	1.9	2	4	15	170	7500	3000	20
36	1.9	3	3	15	170	7500	3000	20
48	1.9	4	2	15	170	7500	3000	20
60	1.9	5	1	15	170	7500	3000	20
72	1.9	6	0	15	170	7500	3000	20
96	1.9	8	0	16	190	7500	3000	20
144	1.9	12	0	18.5	260	7500	3000	20
192	1.9	16	0	18.5	260	7500	3000	20
216	1.9	18	0	19	310	7500	3000	20
288	1.9	24	0	21	380	7500	3000	20

Types mentioned here are standard. Other configurations available on request.

TK-MTS8 MULTITUBE SELF SUPPORTING CABLES

CPR avaiable in CPR version

characteristics

on request

* Only for LSZH version ** Only for PE version

OPTICAL CORE

Fiber Structure	Jelly filled loose tube
Fiber Colour Code	See table A
Loose tube Colour	See table B
Assembling	6 to 24 loose tubes/fillers 12 to 288 fibers
Central element	Fiber reinforced polymer or galvanized steel wire
Metallic suspension	Galvanized steel wire 7x1.7 mm
Outer Sheath	Flame retardant, low smoke and halogen-free or Polyethylene material

All cables are available with all type of fibers.

TECHNICAL DATA

Operating temperature range	-40°C to + 70°C
Installation temperature	-10°C to + 50°C
Minimum bending radius	Static: 10 x outer diameter Dynamic: 15 x outer diameter

FIRE PERFORMANCE
(ONLY FOR LSZH VERSION)

Fire propagation	IEC 60332-1-2 IEC 60332-3-24 Cat. C
Halogen-free	IEC 60754-1/2
Smoke density	IEC 61034-1/2
Fumes	No corrosive and toxic fumes

ON REQUEST

UV-Resistant
Fire resistant
Water resistant

FIELDS OF APPLICATION

TRANSPORTATION TELECOMMUNICATION

TK-MTS8 MULTITUBE SELF SUPPORTING CABLES

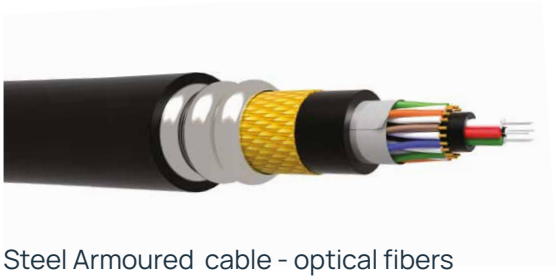
MAIN FEATURES S8 LSZH SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	18x9	255	6000	2000	15
24	1.9	2	4	18x9	255	6000	2000	15
36	1.9	3	3	18x9	255	6000	2000	15
48	1.9	4	2	18x9	255	6000	2000	15
60	1.9	5	1	18x9	255	6000	2000	15
72	1.9	6	0	18x9	255	6000	2000	15
96	1.9	8	0	19x10	270	6000	2000	15
144	1.9	12	0	22x13	320	6000	2000	15
192	1.9	16	0	22x13	320	6000	2000	15
216	1.9	18	0	23x14	335	6000	2000	15
288	1.9	24	0	24x15	360	6000	2000	15

MAIN FEATURES S8 PE SHEATH								
No. of Fiber	Nominal Diameter loose	No. Loose	No. Filler	Nominal Diameter cable	Nom. Weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	18x9	230	6000	2000	15
24	1.9	2	4	18x9	230	6000	2000	15
36	1.9	3	3	18x9	230	6000	2000	15
48	1.9	4	2	18x9	230	6000	2000	15
60	1.9	5	1	18x9	230	6000	2000	15
72	1.9	6	0	18x9	230	6000	2000	15
96	1.9	8	0	19x10	240	6000	2000	15
144	1.9	12	0	22x13	280	6000	2000	15
192	1.9	16	0	22x13	280	6000	2000	15
216	1.9	18	0	23x14	300	6000	2000	15
288	1.9	24	0	24x15	320	6000	2000	15

Types mentioned here are standard. Other configurations available on request.

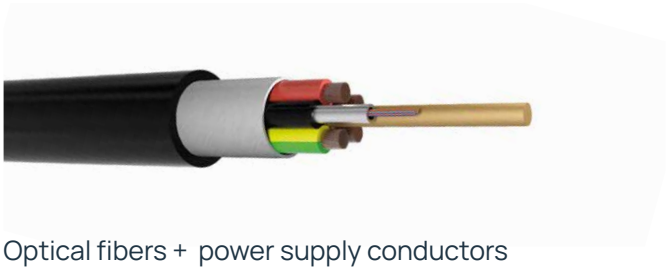
HYBRID CABLES

Hybrid cables are made by optical fibers together with copper conductors.
These cables are generally used for data / signal transmission and power supply.
These cables can be used for different applications.

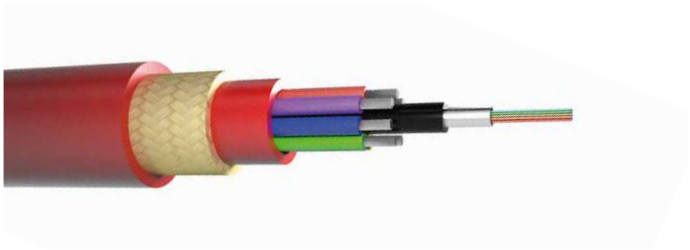


Steel Armoured cable - optical fibers
+ data transmission copper pairs

MARINE OIL & GAS



Optical fibers + power supply conductors



SSLT optical fibers + signaling conductors

Optical Fiber + Pairs Data Transmission + Coax
+ Power Supply Conductors

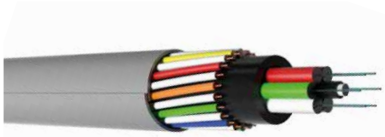
TELECOMMUNICATION

2 optical fibers + 2 power supply conductors

AUTOMATION

ADDITIONAL OPTIONS

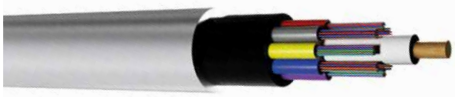
SSLT (STAINLESS STEEL LOOSE TUBE)
Stainless steel tube containing a number from 2 to 96 optical fibers with pressure tightness characteristics, particularly suitable to underwater installation up to a depth of 4000 meters (400 bar).
The steel type is such as to be suitable for installation in aggressive environments such as sewers pipes and industrial discharges.



THERMOWELDED ALUMINIUM TAPE
The Aluminium tape thermowelded to the outer sheath is able to guarantee to the cable a light and efficient moisture barrier.
Typical thickness 0.15 - 0.20 mm.

LEAD SHEATH
Lead sheath is able to guarantee a perfect tightness to the cable on which it is applied and a maximum durability over time. Typical thickness 1.5 - 2.0 mm.

POLYAMMIDE SHEATH
This type of sheath grants to the cable resistance to termites and vermin protection.
Typical thickness 0.5 - 1.0 mm.



ALUMINIUM SHEATH
Aluminium sheath is able to guarantee a perfect tightness to the cable on which it is applied, but lighter than lead version. Typical thickness 1.0 - 1.2 mm.

Tecnikabel

Passion flows through our cables

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