

# Tecnikabel

WHERE FUTURE FLOWS



CABLES FOR

**Railway  
Infrastructure**

TRANSPORTATION  
SECTOR

## Introduction

Tecnikabel is a recognised European manufacturer of high-performance special cables designed for the full spectrum of Railway applications. The growth of high-speed rail networks and the increasing congestion of existing lines has made safety the central requirement of the sector, driving targeted investment in signalling systems and rolling stock connectivity.

The rapid expansion of high-speed and mass transit networks has placed unprecedented demands on every component of the railway system. As traffic volumes rise and operational complexity increases, the reliability of signalling, power, and data transmission becomes essential to guaranteeing service continuity and passenger safety. Teknikabel designs and manufactures copper and fibre-optic cables for the full range of railway applications, serving both mass transit and high-speed lines. Our cables are engineered for every installation condition – indoor, outdoor, aerial, direct-buried or in-duct – and qualified for the most demanding scenarios: tunnel environments with LSZH compounds, fire-resistant constructions ensuring uninterrupted operation, and high mechanical stress applications where Arctic temperatures or strong electromagnetic interference become critical factors for long-term durability and operational safety.

## OUR SECTORS



TRANSPORTATION



AUTOMATION



TELECOMMUNICATION



DEFENSE



MARINE OIL & GAS



SUBSEA



BUILDING TECHNOLOGY

In today's technological landscape, many railway applications demand performance and engineering characteristics that exceed standard cable solutions. When off-the-shelf products cannot meet extreme or unconventional requirements, our custom design capability becomes essential. Teknikabel acts as a technical partner, developing and manufacturing highly specialised cables engineered for critical functions and challenging operating environments.

**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 Teknikabel 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. Teknikabel 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. Teknikabel, 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  $-30^{\circ}\text{C}$ , with permanent operating capability as low as  $-62^{\circ}\text{C}$ . 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, Teknikabel contributes significantly to enhancing safety and operational longevity on board ships and offshore structures worldwide.

**Passion flows through our cables.**

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## Symbols index

### ENVIRONMENTAL PROPERTIES



FLAME RETARDANT SINGLE WIRE  
(EN/IEC 60332-1-2, EN 50265-2-1)



FLAME RETARDANT BUNCHED WIRES  
(IEC 60332-3, EN 50305 9.1.2, EN 503059-1,  
EN 50266-2-5, EN 50266-2)



FIRE RESISTANCE  
(IEC 60331, EN50200, EN 50362, BS6387 CWZ)



REDUCED EMISSION OF FUMES AND  
TOXIC GASES (IEC 60754-1; EN  
50267-2-1/2, EN 50305 9.2)



SMOKE DENSITY (EN/IEC 61034-1/2)  
(EN 50268-2; EN 50268-1/2)



LOW ACIDITY AND CORROSIVITY  
OF EVOLVED GASES  
(IEC 60754-2, EN 50267-2-2)



WEATHERING TEST  
RESISTANCE (OUTDOOR)



INDOOR



WATER RESISTANCE



RODENT RESISTANCE



HAZARDOUS AREA



FLEXIBLE INSTALLATION



FULLY DIELECTRIC



DIRECT BURIAL



ANTIBALLISTIC PROTECTION



UV RESISTANT



ARCTIC CABLE



INDOOR/OUTDOOR



REDUCTION FACTOR

### CHEMICAL PROPERTIES



MUD RESISTANCE



MINERAL OIL RESISTANCE



HYDROCARBONS RESISTANCE



PVC VERSION

### MECHANICAL PROPERTIES



MECHANICAL RESISTANCE



REDUCED BENDING RADIUS



WORK AT LOW TEMPERATURE





# FIRE PERFORMANCE

These images are for illustrative purposes.

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.



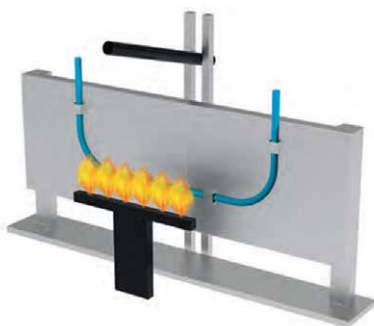
### IEC 60332-3 / EN 50266

#### 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



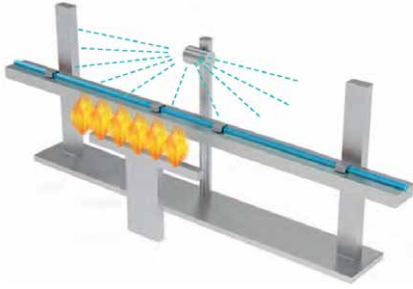
### IEC 60331 / EN 50200

#### 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

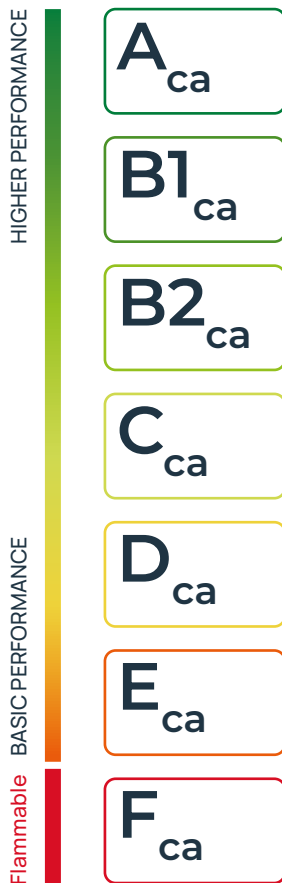
A small quantity of cable is burned. In a furnace, the pH and conductivity combustion gases dissolved in water are measured.

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.

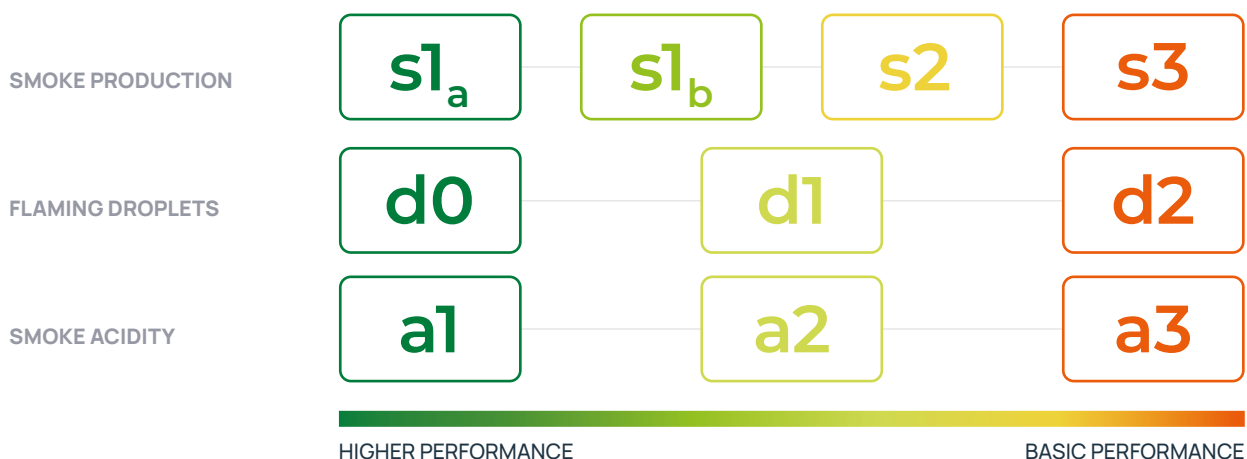
CPR Euroclasses are: A<sub>ca</sub>, B1<sub>ca</sub>, B2<sub>ca</sub>, C<sub>ca</sub>, D<sub>ca</sub>, E<sub>ca</sub>, F<sub>ca</sub>.

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.





# SCMT EUROBALISE TRACKSIDE SUBSYSTEM POINT MACHINE CABLES

# TK-SCMT-SST ENCODER BOA \_X2X0.9 mm



## CPR

B2ca - s1a, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 0.9 mm
<b>Insulation</b>	Coloured Polyethylene
<b>Pair</b>	Two conductors assembled to form a pair
<b>Total Assembling</b>	N° pairs assembled together with eventual filler and tape
<b>Armouring</b>	Corrugated steel tape thermowelded to outer sheath
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound or black Polyethylene

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

### MAIN FEATURES

<b>Test voltage</b>	3000 V DC x 1 minute
<b>Characteristic impedance @ 20 to 50 KHz</b>	130 ± 10 Ω
<b>Mutual capacitance @ 800 Hz</b>	≤ 50 pF/m
<b>Capacitance unbalance</b>	≤ 400 pF/500m
<b>Max attenuation @ 20 to 50 KHz</b>	2 dB/km

### MAIN FEATURES

Formation	Conductor diameter Ø	Resistance of conductor @ 20°C	Insulation resistance @ 20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight PE	Nominal weight LSZH
n° of pairs	mm	Ω/km	GΩxkm	mm	mm	kg/km	
1	0.9	≤ 28.4	≥ 10	1.5	9.5	90	115
2	0.9	≤ 28.4	≥ 10	1.5	12	120	160
4	0.9	≤ 28.4	≥ 10	1.5	14	150	210
10	0.9	≤ 28.4	≥ 10	1.5	18	280	360

# TK-SCMT-SST\_1X2X1.4 mm



## CPR

B2ca - s1a, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 1.4 mm
<b>Insulation</b>	Coloured foam Polyolefin
<b>Assembling</b>	Two conductors assembled to form a pair with eventual filler and tape
<b>Screen and moisture barrier</b>	Aluminium/PE tape thermowelded to inner sheath + drain wire
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free compound or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound or black Polyethylene
<b>Outer diameter</b>	12.8 mm

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2, IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Reduction factor
Oil resistant
PVC version

### MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 12.1 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 10 GΩ x km
<b>Test voltage</b>	3000 V AC x 1 minute
<b>Characteristic impedance</b>	
@ 8.9 KHz	130 Ω
@ 560 KHz	102 Ω
<b>Mutual capacitance @ 800 Hz</b>	≤ 45 pF/m
<b>Capacitance unbalance</b>	≤ 3000 pF/km
<b>Max attenuation</b>	
@ 8.9 KHz	≤ 0.9 dB/km
@ 560 KHz	≤ 5.5 dB/km
<b>Nominal weight</b>	285 kg/km (*) 220 kg/km (**)

# TK-SCMT-SST\_1X2X1.6 mm



## CPR

B2ca - s1a, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 1.6 mm
<b>Insulation</b>	Coloured foam Polyolefin
<b>Assembling</b>	Two conductors assembled to form a pair with filler and tape
<b>Inner sheath</b>	Natural Polyethylene
<b>Screen and moisture barrier</b>	Aluminium/PE tape thermowelded to intermediate sheath + drain wire
<b>Intermediate sheath</b>	Flame retardant, low smoke and halogen-free compound or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Black flame retardant, low smoke and halogen-free compound or black Polyethylene
<b>Outer diameter</b>	16.5 mm

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

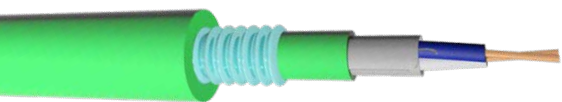
### AVAILABLE ON REQUEST

Filling compound	
UV resistant	
Arctic cables	
Indoor/Outdoor	
Reduction factor	
Oil resistant	
PVC version	

### MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 9.3 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 10 GΩ x km
<b>Test voltage</b>	3000 V AC x 1 minute
<b>Characteristic impedance @ 8.9 KHz</b>	130 Ω
<b>@ 560 KHz</b>	110 Ω
<b>Mutual capacitance @ 800 Hz</b>	≤ 39 pF/m
<b>Capacitance unbalance</b>	≤ 3000 pF/km
<b>Max attenuation @ 8.9 KHz</b>	≤ 0.7 dB/km
<b>@ 560 KHz</b>	≤ 3.8 dB/km
<b>Inductance @ 8.9 KHz</b>	≤ 0.65 µH/m
<b>@ 560 KHz</b>	≤ 0.50 µH/m
<b>Nominal weight</b>	420 kg/km (*) 360 kg/km (**)

# TK-BOA EUROBALISE\_1X2X1.02 mm



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid Bare Copper, 1.02 mm
<b>Insulation</b>	Coloured Polyethylene
<b>Assembling</b>	Two conductors assembled to form a pair with eventual filler and tape
<b>Screen and moisture barrier</b>	Aluminium/PE/tape thermowelded to inner sheath
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free compound or Polyethylene
<b>Armouring</b>	Corrugated steel tape thermowelded to outer sheath
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound or black, Polyethylene
<b>Outer diameter</b>	14 mm

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø

### FIRE PERFORMANCE

(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound	
UV resistant	
Arctic cables	
Indoor/Outdoor	
Oil resistant	
PVC version	
Reduction factor	

### MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 12.1 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 10 GΩ x km
<b>Test voltage</b>	1500 V DC x 1 minute
<b>Characteristic impedance @ 1 MHz</b>	115 Ω
<b>Mutual capacitance @ 800 Hz</b>	44 pF/m
<b>Max attenuation @ 8.8 KHz</b>	≤ 1.7 dB/km
<b>@ 560 KHz</b>	≤ 7.0 dB/km
<b>@ 1000 KHz</b>	≤ 9.5 dB/km
<b>Nominal weight</b>	160 kg/km (*) 220 kg/km (**)

# TK-TX/RX CDB AUDIOFREQUENCY TRACK CIRCUIT



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Stranded bare copper 1.5 or 2.5mm <sup>2</sup> Class2
<b>Insulation</b>	Coloured Polyethylene
<b>Assembling</b>	One two pairs (star quad)
<b>Screen and moisture barrier</b>	Aluminium
<b>Inner sheath</b>	Flame retardant, low smoke and halogen free compound of Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound or black Polyethylene
<b>Outer diameter</b>	16 mm (1 pair 1.5mm <sup>2</sup> ) 16.5 mm (2 pair 1.5mm <sup>2</sup> ) 17.5 mm (2 pair 2.5mm <sup>2</sup> )

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

### MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 12.1 Ω/km (1.5mm <sup>2</sup> ) ≤ 7.4 Ω/km (2.5mm <sup>2</sup> )
<b>Insulation resistance @ 20 °C</b>	≥ 5 GΩ x km
<b>Test voltage</b>	3000 V DC x 1 minute
<b>Characteristic impedance @ 1 KHz</b>	110 Ω
<b>Mutual capacitance @ 800 Hz</b>	≤ 45 pF/m
<b>Capacitance unbalance</b>	≤ 200 pF/250m
<b>Max attenuation @ 4.1 KHz, @ 9.5 KHz</b>	≤ 0.76 dB/km ≤ 1.05 dB/km
<b>Nominal weight</b>	330 kg/km (1 pair 1.5mm <sup>2</sup> ) (*) 400 kg/km (1 pair 1.5mm <sup>2</sup> ) (**) 370 kg/km (2 pair 1.5mm <sup>2</sup> ) (*) 450 kg/km (2 pair 1.5mm <sup>2</sup> ) (**) 410 kg/km (2 pair 2.5mm <sup>2</sup> ) (*) 510 kg/km (2 pair 2.5mm <sup>2</sup> ) (**)
<b>Reduction factor @50÷250 V/km, @ 50 KHz</b>	≤ 0.6

# TK-BALISE CABLE



## CPR

B2ca - s1a, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 1.53 mm
<b>Insulation</b>	Coloured foam Polyethylene
<b>Assembling</b>	Two conductors assembled to form a pair with filler and tape or 4 conductors assembled to form a star quad 1x2x1.53 or 1x4x1.53
<b>Inner sheath</b>	Black Polyethylene
<b>Screen and moisture barrier</b>	Aluminium/PE/tape thermowelded to intermediate sheath + drain wire
<b>Intermediate sheath</b>	Flame retardant, low smoke and halogen-free compound or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Black flame retardant, low smoke and halogen-free compound or black Polyethylene
<b>Outer diameter</b>	17 mm (2x1.53 mm); 17.5 (4x1.5 mm)

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound	
UV resistant	
Arctic cables	
Indoor/Outdoor	
Reduction factor	
Oil resistant	
PVC version	

### MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 9.9 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 10 GΩ x km
<b>Test voltage</b>	2500 V AC x 1 minute
<b>Characteristic impedance @ 8.9 KHz</b>	147 Ω
<b>@ 560 KHz</b>	120 Ω
<b>Mutual capacitance @800 KHz</b>	≤ 43 pF/m
<b>Max attenuation @ 8.9 KHz</b>	0.8 dB/km
<b>@ 560 KHz</b>	4.2 dB/km
<b>Nominal weight</b>	350 kg/km (1 pair) (*) 400 kg/km (1 quad) (*) 420 kg/km (1 pair) (**) 470 kg/km (1 quad) (**)

# TK-CDB AUDIOFREQUENCY MULTIPAIRS\_1.4 mm TRACK CIRCUIT



## CPR

B2ca - s1a, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 1.4 mm Solid bare copper, 0.6 mm (Service pair)
<b>Insulation</b>	Coloured Polyethylene
<b>Assembling</b>	One or two pairs + service pair assembled together
<b>Inner sheath</b>	Polyethylene
<b>Screen and moisture barrier</b>	Aluminium/PE tape thermowelded to intermediate sheath
<b>Intermediate sheath</b>	Flame retardant, low smoke and halogen-free compound or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound or black Polyethylene
<b>Outer diameter</b>	17 mm (1 pair) 21 mm (2 pairs)

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

**FIRE PERFORMANCE**  
(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

**AVAILABLE ON REQUEST**

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

**MAIN FEATURES**

<b>Resistance of conductor @ 20 °C</b>	≤ 12.1 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 5 GΩ × km
<b>Test voltage</b>	3000 V DC × 1 minute
<b>Characteristic impedance @ 1 KHz</b>	110 Ω
<b>Mutual capacitance @ 800 Hz</b>	≤ 45 pF/m
<b>Capacitance unbalance</b>	≤ 400 pF/500m
<b>Max attenuation @ 4.1 KHz @ 9.5 KHz</b>	≤ 0.76 dB/km ≤ 1.05 dB/km
<b>Nominal weight</b>	380 kg/km (1 pair) (*) 500 kg/km (2 pairs) (*) 470 kg/km (1 pair) (**) 580 kg/km (2 pairs) (**)
<b>Reduction factor @50+250 V/km @ 50 KHz</b>	≤ 0.8

# TK-EUROBALISE MULTIPAIRS\_0.9 mm



## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 0.90 mm
<b>Insulation</b>	Coloured Polyethylene
<b>Filling</b>	Waterblock yarn (dry core)
<b>Pair</b>	2 conductors assembled to form a pair
<b>Total Assembling</b>	N° pairs assembled together with eventual filler and tape
<b>Screen and moisture barrier</b>	Aluminium/PE tape thermowelded to outer sheath + drain wire
<b>Inner sheath</b>	Green flame retardant, low smoke and halogen-free compound
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø

## FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant

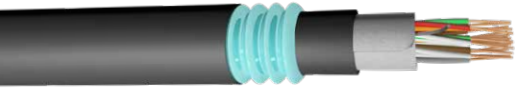
## MAIN FEATURES

<b>Test voltage</b>	1500 V DC x 1 minute
<b>Characteristic impedance @ 1 MHz</b>	125 Ω
<b>Mutual capacitance @ 800 Hz</b>	45 pF/m
<b>Max attenuation @ 8.8 KHz</b>	≤ 1.7 dB/km
<b>@ 100 KHz</b>	≤ 3.1 dB/km
<b>@ 1000 KHz</b>	≤ 10 dB/km

### MAIN FEATURES

Formation	Conductor diameter Ø	Resistance of conductor @20 °C	Insulation resistance @20 °C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight LSZH
n° of pairs	mm	Ω/km	GΩxkm	mm	mm	kg/km
2	0.9	≤ 28.4	≥ 10	1.5	14.0	180
4	0.9	≤ 28.4	≥ 10	1.5	15.0	250
7	0.9	≤ 28.4	≥ 10	1.5	18.0	320
10	0.9	≤ 28.4	≥ 10	1.5	20.0	420

# TK-EUROBALISE MULTIPAIRS\_0.9 mm ARMoured



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 0.90 mm
<b>Insulation</b>	Coloured foam Polyethylene
<b>Filling</b>	Petroleum jelly
<b>Pair</b>	Two conductors assembled to form a pair
<b>Total assembling</b>	N° pairs assembled together with eventual filler and tape
<b>Screen and moisture barrier</b>	Aluminium/PE/tape thermowelded to inner sheath + drain wire
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free compound or Polyethylene
<b>Armouring</b>	Corrugated steel tape thermowelded to outer sheath
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound of black Polyethylene

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## MAIN FEATURES

<b>Test voltage</b>	1500 V DC x 1 minute
<b>Characteristic impedance @ 1 MHz</b>	125 Ω
<b>Mutual capacitance @ 800 Hz</b>	45 pF/m
<b>Max attenuation @ 8.8 KHz</b>	≤ 1.7 dB/km
<b>@ 100 KHz</b>	≤ 3.1 dB/km
<b>@ 1000 KHz</b>	≤ 10 dB/km

## AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

MAIN FEATURES							
Formation	Conductor diameter Ø	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight	
						PE	LSZH
n° of pairs	mm	Ω/km	GΩxkm	mm	mm	kg/km	
2	0.9	≤ 28.4	≥ 10	1.2	15.5	220	240
4	0.9	≤ 28.4	≥ 10	1.2	16.5	270	300
7	0.9	≤ 28.4	≥ 10	1.2	19.0	350	390
10	0.9	≤ 28.4	≥ 10	1.3	21.0	450	510



# TELECOMMUNICATION CABLES

# TK-TELEPHONE MULTIPAIRS\_0.7 mm



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 0.7 mm
<b>Insulation</b>	Coloured Polyethylene
<b>Pair</b>	2 conductors assembled to form a pair
<b>Total Assembling</b>	4 pairs assembled together with eventual filler and tape
<b>Screen</b>	Aluminium tape + drain wire
<b>Armouring</b>	Corrugated steel tape thermowelded to outer sheath
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene
<b>Outer diameter</b>	12.5 mm

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE

(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

### MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 47 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 5 GΩ x km
<b>Test voltage</b>	2000 V AC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 50 pF/m
<b>Capacitance unbalance</b>	≤ 600 pF/500m
<b>Nominal weight</b>	150 kg/km (*) 180 kg/km (**)

# TK-TRAIN DETECTION\_4X1.4 mm



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 1.4 mm
<b>Insulation</b>	Coloured foam Polyolefin
<b>Assembling</b>	4 conductors assembled together to form a star quad
<b>Screen</b>	Corrugated copper tape
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free compound or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound or black Polyethylene
<b>Outer diameter</b>	17.5 mm

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C ÷ +70 °C
<b>Minimum bending radius</b>	15 X Ø

## FIRE PERFORMANCE

(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

## MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 12.1 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 10 GΩ x km
<b>Test voltage</b>	3500 V DC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 41 pF/m
<b>Capacitance unbalance</b>	≤ 250 pF/500m
<b>Max attenuation @ 1 KHz @ 10 KHz</b>	≤ 0.46 dB/km ≤ 0.85 dB/km
<b>Nominal weight</b>	540 kg/km (*)
<b>Nominal weight</b>	630 kg/km (**)
<b>Reduction factor @100+350 V/km @ 50 KHz</b>	≤ 0.3

# TK-CANCABLE\_2X2X1.3 mm<sup>2</sup>



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Stranded bare copper, 1.3 mm <sup>2</sup>
<b>Insulation</b>	Coloured foam Polyolefin
<b>Conductor communication core</b>	Stranded bare copper, 0.5 mm <sup>2</sup>
<b>Insulation communication core</b>	Coloured Polyethylene
<b>Assembling</b>	Two pairs + 1 communication core assembled together + drain wire
<b>Screen</b>	Aluminium or Aluminium/Polyester + drain wire
<b>Armouring</b>	Corrugated steel tape thermowelded to outer sheath
<b>Outer sheath</b>	Black flame retardant, low smoke and halogen-free or Polyethylene
<b>Outer diameter</b>	16 mm

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

## MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 14.2 Ω/km
<b>Resistance unbalance</b>	≤ 3%
<b>Insulation resistance @ 20 °C</b>	≥ 5000 MΩ x km
<b>Test voltage</b>	2000 V DC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 75 pF/m
<b>Max attenuation @ 60 KHz</b>	≤ 0.88 dB/km
<b>Nominal weight</b>	270 kg/km (*) 320 kg/km (**)

# TK-UNBALANCED CURRENT SENSOR\_2X2X0.9 mm



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 0.90 mm
<b>Insulation</b>	Coloured Polyethylene
<b>Pair</b>	2 conductors assembled to form a pair
<b>Pair screen</b>	Aluminium/PE tape + drain wire
<b>Total Assembling</b>	2 pairs assembled together with eventual filler and tape
<b>Screen and moisture barrier</b>	Aluminium/PE tape thermowelded to inner sheath
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Steel wire armour (SWA)
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene
<b>Outer diameter</b>	19 mm

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	20 X Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

## MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 28.4 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 20 GΩ x km
<b>Test voltage</b>	3000 V AC x 10 minute
<b>Characteristic impedance @ 1 KHz</b>	400 Ω
<b>Mutual capacitance @ 800 Hz</b>	≤ 56 pF/m
<b>Max attenuation @ 1 KHz</b>	0.81 dB/km
<b>Nominal weight @ 800 Hz</b>	470 kg/km (*) 530 kg/km (**)

# TK-TELEPHONE MULTIQUADS\_0.7 mm



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 0.7 mm
<b>Insulation</b>	Coloured Polyethylene
<b>Quad</b>	4 conductors assembled together to form a star quad + service quad
<b>Total Assembling</b>	N° star quads assembled with eventual filler and tape
<b>Armouring</b>	Aluminium welded, nominal thickness 1.2mm
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound or black Polyethylene

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	30 x Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

### MAIN FEATURES

<b>Test voltage</b>	4000 V AC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	38.5 pF/m
<b>Capacitance unbalance</b>	180 pF/500m

#### MAIN FEATURES

Formation	Conductor diameter Ø	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight	
						PE	LSZH
n° of pairs	mm	Ω/km	GΩxkm	mm	mm	kg/km	
10	0.7	≤ 47	≥ 10	2	17.5	370	410
20	0.7	≤ 47	≥ 10	2	21	450	600
30	0.7	≤ 47	≥ 10	2.2	23	660	720
40	0.7	≤ 47	≥ 10	2.2	24	770	880
50	0.7	≤ 47	≥ 10	2.2	27.5	930	1010
100	0.7	≤ 47	≥ 10	2.6	38	1600	1750

# TK-TELEPHONE MULTIQUADS\_0.9/1 mm



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 0.9mm/1mm
<b>Insulation</b>	Coloured foam Polyolefin
<b>Quad</b>	4 conductors assembled together to form a star quad + service quad
<b>Total Assembling</b>	N° star quads assembled with eventual filler and tape
<b>Armouring</b>	Aluminium welded, nominal thickness 1.2mm
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free compound or black Polyethylene

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	30 x Ø

### FIRE PERFORMANCE

(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

### MAIN FEATURES

<b>Test voltage</b>	4000 V AC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 33 pF/m (0.9 mm) ≤ 38.5 pF/m (1 mm)
<b>Capacitance unbalance</b>	180 pF/500m

### MAIN FEATURES

Formation	Conductor diameter Ø	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight	
						PE	LSZH
n° of pairs	mm	Ω/km	GΩxkm	mm	mm	kg/km	
20	0.9	≤ 28.4	≥ 10	2.2	24	660	730
30	0.9	≤ 28.4	≥ 10	2.2	27.5	850	940
40	0.9	≤ 28.4	≥ 10	2.4	30.5	1060	1170
50	0.9	≤ 28.4	≥ 10	2.4	33	1270	1380
40	1	≤ 23	≥ 10	2.4	30.5	1150	1270
50	1	≤ 23	≥ 10	2.4	33	1400	1510

# TK-PZB INDUSI AUTOMATIC TRAIN CONTROL\_4X0.75 mm<sup>2</sup>



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Stranded bare copper, 0.75 mm <sup>2</sup>
<b>Insulation</b>	Coloured Polyethylene
<b>Assembling</b>	4 conductors assembled together to form a star quad with eventual filler and tape
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Screen and moisture barrier</b>	Aluminium/PE/tape thermowelded to outer sheath
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene
<b>Outer diameter</b>	14.5 mm

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

## MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 26 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 5 GΩ x km
<b>Test voltage</b>	2500 V AC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 38 pF/m
<b>Nominal weight</b>	180 kg/km (*) 215 kg/km (**)

# TK-ARMoured PZB INDUSI AUTOMATIC TRAIN CONTROL\_4X0.8 mm



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 0.80 mm
<b>Insulation</b>	Coloured Foam Polyolefin
<b>Assembling</b>	4 conductors assembled together to form a star quad with eventual filler and tape
<b>Screen and moisture barrier</b>	Aluminium/PE/tape thermowelded to inner sheath
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene
<b>Outer diameter</b>	15 mm

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	20 x Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Reduction factor
Oil resistant
PVC version

## MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 38 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 5 GΩ x km
<b>Test voltage</b>	2500 V AC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 30 pF/m
<b>Nominal weight</b>	250 kg/km (*) 330 kg/km (**)

# TK-LAN S/FTP CABLE



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

<b>Conductor</b>	Stranded bare copper 23 AWG
<b>Insulation</b>	Coloured Polyolefin
<b>Core identification</b>	1. White - Blue 2. White - Orange 3. White - Green 4. White - Brown
<b>Individual pairs screen</b>	Aluminium/polyester tape
<b>Overall screen</b>	Tinned copper braid
<b>Outer sheath</b>	Flame retardant, low smoke and halogen-free
<b>Outer diameter</b>	8.6 mm

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø
<b>Conductor resistance</b>	≤ 69.5 Ω/km
<b>Nominal capacitance</b>	55 pF/m
<b>Characteristic Impedance</b>	@ 100 MHz: 100 ± 5 Ω

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil Resistant
PVC version
Fire Resistant
Special version for JUMPER application

### ARMoured VERSION

<b>Material</b>	Galvanized steel wire braid (GSWB) - Tinned copper wire braid (TCWB)
<b>Outer diameter</b>	12 mm

Transmission Characteristics Category 6A (IEC 61156-6)													
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	250	500
Maximum Attenuation	dB/100	3.12	5.70	8.89	11.23	12.57	15.75	22.48	28.70	36.13	41.36	46.60	67.89
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	250	500
Minimum Return Loss	dB		23.01	25.00	25.00	25.00	23.33	20.74	18.99	17.35	16.40	15.60	15.60
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	250	500
Minimum NEXT	dB	75.30	66.27	60.30	57.24	55.78	52.88	48.36	45.30	42.45	40.78	39.33	34.82
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	250	500
Minimum PS-NEXT	dB	72.30	63.27	57.30	54.24	52.78	49.88	45.36	42.30	39.45	37.78	36.33	31.82

Transmission Characteristics Category 7 (IEC 61156-6)													
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	300	600
Maximum Attenuation	dB/100	3.02	5.61	8.78	11.12	12.44	15.62	22.32	2.53	35.96	41.20	51.28	75.15
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	300	600
Minimum Return Loss	dB	23.01	25	25	25	23.33	20.74	18.99	17.35	16.40	15.60	15.60	15.60
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	300	600
Minimum NEXT	dB	78	78	78	78	78	78	75.46	72.40	69.55	67.88	65.24	60.73
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	300	600
Minimum PS-NEXT	dB	75	75	75	75	75	75	72.46	69.40	66.55	64.88	62.24	57.73

Transmission Characteristics Category 7A (IEC 61156-6)														
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	300	600	1000
Maximum Attenuation	dB/100	3.01	5.58	8.71	11.00	12.29	15.38	21.58	27.78	34.80	39.70	49.03	70.65	92.89
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	300	600	1000
Minimum Return Loss	dB		23.01	25.00	25.00	25.00	23.33	20.74	18.99	17.35	16.40	15.60	15.60	13.69
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	300	600	1000
Minimum NEXT	dB	78.00	78.00	78.00	78.00	78.00	78.00	78.00	78.00	75.55	73.88	71.24	66.73	63.40
Frequency	MHz	1	4	10	16	20	31.25	62.5	100	155	200	300	600	1000
Minimum PS-NEXT	dB	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	72.55	70.88	68.24	63.73	60.40

# TK-ARMoured 4 PAIRS AWG18



## CPR

B2ca - s1a, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 18 AWG
<b>Insulation</b>	Coloured Polyethylene
<b>Pair</b>	2 conductors assembled to form a pair
<b>Total Assembling</b>	4 pairs assembled together with eventual filler and tape
<b>Screen</b>	Aluminium/Mylar tape + drain wire
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Corrugated steel tape thermowelded to outer sheath
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene
<b>Outer diameter</b>	15 mm

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

### MAIN FEATURES

<b>Resistance of conductor @ 20 °C</b>	≤ 23 Ω/km
<b>Insulation resistance @ 20 °C</b>	≥ 5 GΩ x km
<b>Test voltage</b>	2000 V AC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 50 pF/m
<b>Characteristic Impedance @ 1+100 MHz</b>	100 ± 15 Ω
<b>Nominal attenuation</b>	
@ 1 MHz	2.0 dB/100m
@ 10 MHz	4.0 dB/100m
@ 100 MHz	12.0 dB/100m
<b>Nominal weight</b>	280 kg/km (*)
<b>Nominal weight</b>	320 kg/km (**)



These images are for illustrative purposes.

# SIGNALLING CABLES

# TK-H5 SIGNAL MULTICONDUCTORS - REDUCTION FACTOR



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper
<b>Insulation</b>	Black numbered Polyethylene
<b>Assembling</b>	N° conductors assembled together with eventual filler and tape
<b>Screen and moisture barrier</b>	Aluminium/PE/tape thermowelded to inner sheath
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C ÷ +70 °C
<b>Minimum bending radius</b>	20 X Ø

## FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

## MAIN FEATURES

<b>Test voltage</b>	3500 V DC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 65 pF/m
<b>Reduction factor @ 50-250 V/km @ 50 Hz</b>	≤ 0.3

### MAIN FEATURES

Formation	Conductor diameter Ø	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight	
						PE	LSZH
n° of conductors	mm	Ω/km	GΩxkm	mm	mm	kg/km	
4	1.4	≤ 12.1	≥ 10	1.8	16.7	390	450
8	1.4	≤ 12.1	≥ 10	1.8	19	560	620
12	1.4	≤ 12.1	≥ 10	1.8	22	700	780
20	1.4	≤ 12.1	≥ 10	1.8	26	900	1000
28	1.4	≤ 12.1	≥ 10	1.8	30	1160	1300
4	1.8	≤ 7.41	≥ 10	1.8	15.6	480	530
8	1.8	≤ 7.41	≥ 10	1.8	18	670	740
12	1.8	≤ 7.41	≥ 10	1.8	20	850	930
20	1.8	≤ 7.41	≥ 10	1.8	23.5	1200	1330
28	1.8	≤ 7.41	≥ 10	1.8	26.5	1430	1600

# TK-H5 SIGNAL MULTIQUADS



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper
<b>Insulation</b>	Black numbered Polyethylene
<b>Quad</b>	4 conductors assembled together to form a star quad
<b>Total assembling</b>	N° star quads assembled together with eventual filler and tape
<b>Screen and moisture barrier</b>	Aluminium/PE/tape thermowelded to inner sheath
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	20 X Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version
Reduction factor

## MAIN FEATURES

<b>Test voltage</b>	3500 V DC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 45 pF/m

MAIN FEATURES								
Formation	Conductor diameter Ø	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight		
						PE	LSZH	
n° of quads	mm	Ω/km	GΩxkm	mm	mm	kg/km		
1	0.9	≤ 28.4	≥ 10	1.5	12	190	220	
3	0.9	≤ 28.4	≥ 10	1.5	17	360	400	
5	0.9	≤ 28.4	≥ 10	1.5	19	470	530	
7	0.9	≤ 28.4	≥ 10	1.5	21	570	640	
10	0.9	≤ 28.4	≥ 10	1.8	24	750	850	
14	0.9	≤ 28.4	≥ 10	1.8	27	950	1060	
1	1.4	≤ 12.1	≥ 10	1.8	15	370	400	
3	1.4	≤ 12.1	≥ 10	1.8	21	570	630	
5	1.4	≤ 12.1	≥ 10	1.8	24	830	930	
7	1.4	≤ 12.1	≥ 10	1.8	26	1020	1150	
10	1.4	≤ 12.1	≥ 10	1.8	33	1320	1500	
14	1.4	≤ 12.1	≥ 10	2	37	1550	1750	

# TK-H7 SIGNAL MULTICONDUCTORS - REDUCTION FACTOR



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper, 0.9mm/1.4mm
<b>Insulation</b>	Black numbered Polyethylene
<b>Assembling</b>	N° conductors assembled with eventual filler and tape
<b>Screen</b>	Corrugated copper tape
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	20 X Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## MAIN FEATURES

<b>Test voltage</b>	3500 V DC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 45 pF/m
<b>Max attenuation</b>	
@ 1 KHz	≤ 0.7 dB/km (0.9 mm)
@ 10 KHz	≤ 1.6 dB/km (0.9 mm)
@ 1 KHz	≤ 0.46 dB/km (1.4 mm)
@ 10 KHz	≤ 0.85 dB/km (1.4 mm)
<b>Reduction factor @ 50-250 V/km @ 50 Hz</b>	≤ 0.3

## AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

MAIN FEATURES							
Formation	Conductor diameter Ø	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight	
						PE	LSZH
n° of conductors	mm	Ω/km	GΩxkm	mm	mm	kg/km	
4	0.9	≤ 28.4	≥ 10	1.8	16.5	450	520
12	0.9	≤ 28.4	≥ 10	1.8	21	690	800
20	0.9	≤ 28.4	≥ 10	2	24	900	1020
28	0.9	≤ 28.4	≥ 10	2	27	1080	1500
48	0.9	≤ 28.4	≥ 10	2	31	1420	1700
56	0.9	≤ 28.4	≥ 10	2	33	1560	1900
4	1.4	≤ 12.1	≥ 10	1.8	18	550	630
12	1.4	≤ 12.1	≥ 10	1.8	23.5	900	1020
20	1.4	≤ 12.1	≥ 10	2	27.5	1220	1380
28	1.4	≤ 12.1	≥ 10	2	31.5	1550	1730
48	1.4	≤ 12.1	≥ 10	2	37	2080	2350
56	1.4	≤ 12.1	≥ 10	2	39.5	2350	2670

# TK-H7 SIGNAL MULTIPAIRS - REDUCTION FACTOR



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper
<b>Insulation</b>	Coloured Polyethylene
<b>Pair</b>	2 conductors assembled together to form a pair
<b>Total assembling</b>	N° pairs assembled with eventual filler and tape
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Screen</b>	Corrugated copper tape
<b>Intermediate sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	20 X Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## MAIN FEATURES

<b>Test voltage</b>	2500 V DC x 1 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 55 pF/m
<b>Capacitance unbalance</b>	≤ 650 pF/500m
<b>Max attenuation @ 45 KHz</b>	≤ 2.5 dB/km
<b>Characteristic impedance @ 45 KHz</b>	120 Ω
<b>Reduction factor @ 100–320 V/km, @ 50 Hz</b>	≤ 0.3

## AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version

## MAIN FEATURES

Formation	Conductor nominal section	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight	
						PE	LSZH
n° of pairs	mm²	Ω/km	GΩxkm	mm	mm	kg/km	
2	1	≤ 18.1	≥ 10	1.8	19.2	600	670
3	1	≤ 18.1	≥ 10	1.8	19.8	650	730
4	1	≤ 18.1	≥ 10	1.8	20.8	720	820
7	1	≤ 18.1	≥ 10	1.8	24.5	950	1070
14	1	≤ 18.1	≥ 10	2	31.2	1400	1550
21	1	≤ 18.1	≥ 10	2.2	36.2	1700	1930
28	1	≤ 18.1	≥ 10	2.2	41	2150	2410
4	1.5	≤ 12.1	≥ 10	1.8	22.1	800	860
7	1.5	≤ 12.1	≥ 10	1.8	25	930	1100
14	1.5	≤ 12.1	≥ 10	2	32.5	1500	1670
21	1.5	≤ 12.1	≥ 10	2.2	37.5	1800	2000
28	1.5	≤ 12.1	≥ 10	2.2	43	2220	2500

# TK-CW SIGNAL MULTIQUADS - REDUCTION FACTOR



characteristics

on request

\* Only for PE version    \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper
<b>Insulation</b>	Coloured Polyethylene
<b>Quad</b>	4 conductors assembled together to form a star quad
<b>Total assembling</b>	N° star quads assembled together with eventual filler and tape
<b>Screen and moisture barrier</b>	Aluminium/PE/tape thermowelded to inner sheath
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Concentric screen</b>	One solid copper layer
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	20 X Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## MAIN FEATURES

**Test voltage** 2500 V AC x 1 minute

**Mutual capacitance  
@ 800 Hz**  $\leq 45$  pF/m

**Capacitance unbalance**  $\leq 650$  pF/500m

**Max attenuation  
@ 90 KHz**  $\leq 3.3$  dB/km (0.9 mm)  
 $\leq 2.6$  dB/km (1.4 mm)

**Reduction factor  
@ 50–250 V/km  
@ 50 Hz**  $\leq 0.3$

## AVAILABLE ON REQUEST

Filling compound

UV resistant

Arctic cables

Indoor/Outdoor

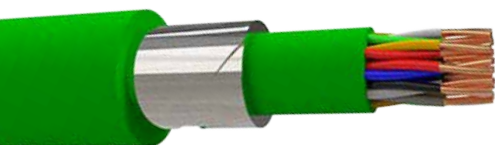
Oil resistant

PVC version

## MAIN FEATURES

Formation	Conductor diameter Ø	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight	
						PE	LSZH
n° of quads	mm	Ω/km	GΩxkm	mm	mm	kg/km	
3	0.9	$\leq 28.4$	$\geq 10$	1.8	21	800	850
5	0.9	$\leq 28.4$	$\geq 10$	1.8	23	1010	1080
10	0.9	$\leq 28.4$	$\geq 10$	2	28	1430	1500
20	0.9	$\leq 28.4$	$\geq 10$	2.2	35	2130	2210
30	0.9	$\leq 28.4$	$\geq 10$	2.2	40	2800	2940
40	0.9	$\leq 28.4$	$\geq 10$	2.5	45	3380	3510
3	1.4	$\leq 12.1$	$\geq 10$	2	25	1350	1410
5	1.4	$\leq 12.1$	$\geq 10$	2	29	1760	1820
10	1.4	$\leq 12.1$	$\geq 10$	2.2	37	2620	2730
20	1.4	$\leq 12.1$	$\geq 10$	2.6	47	4040	4200
30	1.4	$\leq 12.1$	$\geq 10$	3	54	5330	5610
40	1.4	$\leq 12.1$	$\geq 10$	3	61	6550	6900

# TK-445 ZPFU MULTIPAIRS CABLE



## CPR

B2ca - s1a, a1

characteristics



on request



\* Only for LSZH version \*\* Only for PVC version

### CABLE SPECIFICATIONS

<b>Conductors</b>	Solid bare copper 1 mm <sup>2</sup>
<b>Insulation</b>	Coloured polyethylene
<b>Pair</b>	Two conductors assembled to form a pair
<b>Total Assembling</b>	N° pairs assembled together
<b>Inner Sheath</b>	Flame retardant, low smoke and halogen free compound or polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer Sheath</b>	Flame retardant, low smoke and halogen free compound or PVC

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	- 20 X Ø

### FIRE PERFORMANCE

(\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density*</b>	IEC 61034-1/2
<b>Halogen-free*</b>	IEC 60754-1/2
<b>Fumes*</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/outdoor
Fire resistant

### MAIN FEATURES

<b>Test voltage</b>	2500 V AC x 5 minute
<b>Insulation resistance</b>	≥ 5 GΩ x km
<b>Nominal capacitance</b>	≤ 55 nF/km

MAIN FEATURES					
Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal diameter	Nominal weight	
n° of pairs	mm <sup>2</sup>	Ω/km	mm	kg/km	
1	1	≤18.1	11.5	215	
2	1	≤18.1	12.8	265	
4	1	≤18.1	16.2	385	
7	1	≤18.1	19.8	710	
14	1	≤18.1	25	1030	
21	1	≤18.1	28.5	1350	
28	1	≤18.1	31.4	1590	
56	1	≤18.1	38.9	1890	

# TK-445 ZPAU MULTIPAIRS CABLE REDUCTION FACTOR



## CPR

B2ca - s1a, d1, a1

characteristics



on request



\* Only for LSZH version \*\* only for PVC version

### CABLE SPECIFICATIONS

<b>Conductors</b>	Solid bare copper
<b>Insulation</b>	Coloured polyethylene
<b>Pair</b>	Two conductors assembled to form a pair
<b>Total Assembling</b>	N° pairs assembled together
<b>Inner Sheath</b>	Flame retardant, low smoke and halogen free compound or polyethylene
<b>Screen</b>	Corrugated copper tape
<b>Intermediate Sheath</b>	Flame retardant, low smoke and halogen free compound or polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer Sheath</b>	Flame retardant, low smoke and halogen free compound or PVC

### TECHNICAL DATA

<b>Operating temperature</b>	-40 +80° C
<b>Minimum bending radius</b>	- 20 X Ø

### FIRE PERFORMANCE (\* ONLY FOR LSZH VERSION)

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density*</b>	IEC 61034-1/2
<b>Halogen-free*</b>	IEC 60754-1/2
<b>Fumes*</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/outdoor
Fire resistant

### MAIN FEATURES

<b>Test voltage</b>	2500 V AC x 5 minute
<b>Insulation resistance</b>	≥ 5 GΩ x km
<b>Nominal capacitance</b>	≤ 55 nF/km
<b>Reduction factor @50 KHz @50</b>	+250 V/km ≤ 0.3

MAIN FEATURES				
Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal diameter	Nominal weight
n° of pairs	mm <sup>2</sup>	Ω/km	mm	kg/km
1	2.5	≤ 7.41	19	710
4	1	≤ 18.1	20.2	760
7	1	≤ 18.1	23	960
14	1	≤ 18.1	27.8	1400
21	1	≤ 18.1	32.5	1710
28	1	≤ 18.1	35.2	2220

# TK-445 ZC03 MULTIQUAD CABLE REDUCTION FACTOR



## CPR

B2ca - s1a, a1

characteristics



on request



\* Only for LSZH version \*\* Only for PVC version

### CABLE SPECIFICATIONS

<b>Conductors</b>	solid bare copper 1 mm <sup>2</sup>
<b>Insulation</b>	coloured polyethylene
<b>Quad</b>	4 conductors assembled together to form a star quad
<b>Total assembling</b>	n° quads assembled together
<b>Inner sheath</b>	flame retardant, low smoke and halogen free compound or polyethylene
<b>Screen</b>	corrugated copper tape
<b>Intermediate sheath</b>	flame retardant, low smoke and halogen free compound or polyethylene
<b>Armouring</b>	two steel tapes helically applied
<b>Outer sheath</b>	flame retardant, low smoke and halogen free compound or PVC

### TECHNICAL DATA

<b>Operating temperature</b>	-40 +80° C
<b>Minimum bending radius</b>	- 20 X Ø

### FIRE PERFORMANCE (\* ONLY FOR LSZH VERSION)

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density*</b>	IEC 61034-1/2
<b>Halogen-free*</b>	IEC 60754-1/2
<b>Fumes*</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/outdoor
Fire resistant

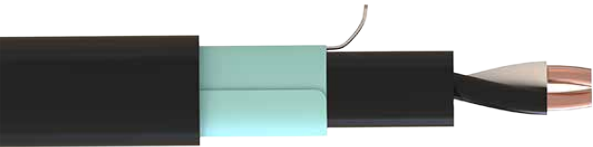
### MAIN FEATURES

<b>Test voltage</b>	3500 V AC x 5 minute
<b>Insulation resistance</b>	≥ 5 GΩ x km
<b>Nominal capacitance</b>	≤ 40 nF/km
<b>Reduction factor @50 KHZ @50</b>	+250 V/km ≤ 0.3

#### MAIN FEATURES

Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal diameter	Nominal weight
(n° of quads)	mm <sup>2</sup>	Ω/km	mm	kg/km
4	1	18.1	26.2	1310

# TK-445 ZPGU MULTIPAIRS CABLE



## CPR

B2ca - s1a, a1

characteristics



on request



\* Only for LSZH version \*\* Only for PVC version

### CABLE SPECIFICATIONS

<b>Conductors</b>	Solid bare copper 1 mm <sup>2</sup>
<b>Insulation</b>	Coloured polyethylene
<b>Pair</b>	Two conductors assembled to form a pair
<b>Total Assembling</b>	N° pairs assembled together
<b>Inner Sheath</b>	Flame retardant, low smoke and halogen free compound or polyethylene
<b>Shield</b>	Aluminium / polyester tape + tinned copper drain wire
<b>Outer Sheath</b>	Flame retardant, low smoke and halogen free compound or PVC

### TECHNICAL DATA

<b>Operating temperature</b>	-40 + +80° C
<b>Minimum bending radius</b>	- 20 x Ø

### FIRE PERFORMANCE (\* ONLY FOR LSZH VERSION)

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density*</b>	IEC 61034-1/2
<b>Halogen-free*</b>	IEC 60754-1/2
<b>Fumes*</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound
UV RESISTANT
Arctic cables
Indoor/outdoor
Oil resistant
PVC

### MAIN FEATURES

<b>Test voltage</b>	2500 V AC x 5 minute
<b>Insulation resistance</b>	≥ 5 GΩ x km
<b>Nominal capacitance</b>	≤ 55 nF/km

MAIN FEATURES				
Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal diameter	Nominal weight
n° of pairs	mm <sup>2</sup>	Ω/km	mm	kg/km
1	1	≤ 18.1	10	98
2	1	≤ 18.1	10.8	135
3	1	≤ 18.1	13.5	190
7	1	≤ 18.1	18.6	310
14	1	≤ 18.1	21.9	545

# TK-K23 MULTIQUAD CABLE



## CPR

B2ca - s1a, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

<b>Conductors</b>	Solid bare copper 0.6/1.0/1.2 mm
<b>Insulation</b>	Coloured polyethylene
<b>Quad</b>	4 conductors assembled together to form a star quad
<b>Total Assembling</b>	N° quads assembled together
<b>Inner Sheath</b>	Flame retardant, low smoke and halogen free compound or polyethylene
<b>Screen</b>	Aluminium/pe tape thermowelded to inner sheath
<b>Inner Sheath</b>	Flame retardant, low smoke and halogen free compound
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer Sheath</b>	Flame retardant, low smoke and halogen free compound

### TECHNICAL DATA

<b>Operating temperature</b>	-40 ÷ +70° C
<b>Minimum bending radius</b>	- 20 X Ø

### FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/outdoor
Oil resistant
PVC

## MAIN FEATURES

**Test voltage** 3000 V DC x 1 minute

**Insulation resistance**  $\geq 5 \text{ G}\Omega \times \text{km}$

**Nominal capacitance**  
 $\leq 67 \text{ nF/km}$  (1 quad)  
 $\leq 62 \text{ nF/km}$  (4pairs)  
 $\leq 57,5 \text{ nF/km}$  (others)

## MAIN FEATURES

Formation	Diameter of conductor	Resistance of conductor @ 20°C	Outer sheath nominal diameter	Nominal weight
n° of pairs/quads	mm	$\Omega/\text{km}$	mm	kg/km
2P-1Q	0.6	$\leq 64$	9.3	160
4P	0.6	$\leq 64$	10.5	180
8P-4Q	0.6	$\leq 64$	12.2	250
2P-1Q	1	$\leq 23$	11	220
4P	1	$\leq 23$	14.3	315
8P-4Q	1	$\leq 23$	17.5	480
14P-7Q	1	$\leq 23$	19.8	635
20P-10Q	1	$\leq 23$	23.2	800
28P-14Q	1	$\leq 23$	26	1060
2P-1Q	1.2	$\leq 16$	12.4	260
4P	1.2	$\leq 16$	15.8	380
8P-4Q	1.2	$\leq 16$	19.1	600
14P-7Q	1.2	$\leq 16$	21.5	760
20P-10Q	1.2	$\leq 16$	24.5	1025
28P-14Q	1.2	$\leq 16$	28.2	1300

# TK-UNARMoured 409 SIGNAL $U_0/U = 450/750$ V



## CPR

B2ca - s1a, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

**Conductor** Solid tinned copper, section from 1 to 6 mm<sup>2</sup>  
Stranded copper, section from 10 to 25 mm<sup>2</sup>  
Extra-flexible copper, section 1.5 mm<sup>2</sup>

**Insulation** Coloured type crosslinked LSZH compound

**Assembling** N° conductors assembled with eventual filler and tape

**Inner sheath** Type crosslinked LSZH

**Outer sheath** Black crosslinked flame retardant,  
low smoke and halogen-free compound

### TECHNICAL DATA

**Operating temperature** -40 °C + +70 °C

**Minimum bending radius** 10 X Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

**Fire propagation** IEC 60332-1-2  
IEC 60332-3-24

**Smoke density** IEC 61034-1/2

**Halogen-free** IEC 60754-1/2

**Fumes** No corrosive and toxic fumes

**AVAILABLE  
ON REQUEST**

Filling compound

UV resistant

Arctic cables

PVC version

**MAIN FEATURES**

**Test voltage** 3000V ACx 10 minutes

MAIN FEATURES						
Formation	Conductor nominal section	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight LSZH
n° of conductors	mm	Ω/km	MΩxkm	mm	mm	kg/km
4	1	≤18.2	≥300	1.4	11.6	110
8	1	≤18.2	≥300	1.6	15	190
16	1	≤18.2	≥300	2	19.5	350
2	2.5	≤7.56	≥250	1.6	13	150
4	2.5	≤7.56	≥250	1.6	14.5	200
2	4	≤4.70	≥200	1.6	13.8	190
3	4	≤4.70	≥200	1.6	14.6	220
2	6	≤3.11	≥200	1.6	15	260
3	6	≤3.11	≥200	1.6	15.5	280
3	10	≤1.84	≥150	2	19	460
3	16	≤1.16	≥150	2	21.5	630
3	25	≤0.734	≥150	2	24.5	900
4	1.5	≤13.70	≥300	1.4	12.6	130
8	1.5	≤13.70	≥300	1.8	16.8	240
16	1.5	≤13.70	≥300	2.5	23	470

# TK-ARMoured 409 SIGNAL U<sub>0</sub>/U = 450/750 V



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version    \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid tinned copper, section from 1 to 6 mm <sup>2</sup> ; Stranded copper, section from 10 to 25 mm <sup>2</sup> ; Extra-flexible copper, section 1.5 mm <sup>2</sup>
<b>Insulation</b>	Coloured type crosslinked LSZH compound
<b>Assembling</b>	N° conductors assembled with eventual filler and tape
<b>Inner sheath</b>	Type crosslinked LSZH compound
<b>Intermediate sheath</b>	Type crosslinked LSZH compound
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Black flame retardant, low smoke and halogen-free compound or black polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Black flame retardant, low smoke and halogen-free or black Polyethylene

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	20 X Ø

### FIRE PERFORMANCE

(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### MAIN FEATURES

<b>Test voltage</b>	3000V ACx 5 minutes
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**AVAILABLE  
ON REQUEST**

Filling compound

UV resistant

Arctic cables

Reduction factor

Oil resistant

PVC version

#### MAIN FEATURES

Formation	Conductor diameter Ø	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight	
						PE	LSZH
n° of conductors	mm	Ω/km	MΩxkm	mm	mm	kg/km	
4	1	≤ 18.2	≥ 300	0.8	16	280	320
8	1	≤ 18.2	≥ 300	0.8	19.5	420	480
16	1	≤ 18.2	≥ 300	0.8	24	620	680
2	2.5	≤ 7.56	≥ 250	0.8	17	360	395
4	2.5	≤ 7.56	≥ 250	0.8	19	410	460
2	4	≤ 4.70	≥ 200	0.8	18.5	395	440
3	4	≤ 4.70	≥ 200	0.8	19	430	480
2	6	≤ 3.11	≥ 200	0.8	19.5	460	510
3	6	≤ 3.11	≥ 200	0.8	20	500	560
3	10	≤ 1.84	≥ 150	0.8	23.5	700	780
3	16	≤ 1.16	≥ 150	0.8	26	940	1020
3	25	≤ 0.73	≥ 150	0.8	29.5	1240	1350
4	1.5	≤ 13.7	≥ 300	0.8	17	320	360
8	1.5	≤ 13.7	≥ 300	0.8	21	490	540
16	1.5	≤ 13.7	≥ 300	0.8	27	800	880

# TK-DIELECTRIC ARMoured 409 SIGNAL $U_0/U = 450/750$ V



## CPR

B2ca - s1a, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

<b>Conductor</b>	Solid tinned copper, section from 1 to 6 mm <sup>2</sup> ; Stranded copper, section from 10 to 25 mm <sup>2</sup> ; extra-flexible copper, section 1.5 mm <sup>2</sup>
<b>Insulation</b>	Coloured type crosslinked LSZH compound
<b>Assembling</b>	N° conductors assembled with eventual filler and tape
<b>Inner sheath</b>	Type crosslinked LSZH compound
<b>Intermediate sheath</b>	Type crosslinked LSZH compound
<b>Armouring</b>	Double layer of glass yarns + glass tape
<b>Outer sheath</b>	Black flame retardant, low smoke and halogen-free compound or black crosslinked LSZH

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## MAIN FEATURES

**Test voltage** 3000V ACx10 minutes

## AVAILABLE ON REQUEST

Filling compound

UV resistant

Arctic cables

Oil resistant

PVC version

## MAIN FEATURES

Formation	Conductor diameter Ø	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight LSZH
n° of conductors	mm <sup>2</sup>	Ω/km	MΩxkm	mm	mm	kg/km
4	1	≤18.2	≥250	1.8	16	275
8	1	≤18.2	≥250	1.8	19.5	405
16	1	≤18.2	≥250	1.8	24	600
2	2.5	≤7.56	≥250	1.8	17	310
4	2.5	≤7.56	≥250	1.8	19	380
2	4	≤4.70	≥250	1.8	18.5	370
3	4	≤4.70	≥250	1.8	19	400
2	6	≤3.11	≥250	1.8	19.5	120
3	6	≤3.11	≥250	1.8	20	480
3	10	≤1.84	≥250	1.8	23.5	640
3	16	≤1.16	≥250	2	26	920
3	25	≤0.73	≥250	2	29.5	1280
4	1.5	≤13.7	≥250	1.8	17	320
8	1.5	≤13.7	≥250	1.8	21	470
16	1.5	≤13.7	≥250	2	27	800

# TK-ARMoured 768 U<sub>0</sub>/U = 2.3/3 kV



## CPR

B2ca - s1a, d1, a1  
Cca-s1b, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

<b>Conductor</b>	Stranded aluminium
<b>Insulation</b>	Coloured type crosslinked LSZH compound
<b>Assembling</b>	N° conductors assembled with eventual filler and tape
<b>Inner sheath</b>	Flame retardant, low smoke and halogen free compound
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Flame retardant, low smoke and halogen free compound

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	- 20 X Ø
<b>Test VOLTAGE</b>	8000 V AC x 5 minute

### FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Filling compound  
UV resistant  
Arctic cables  
Indoor/outdoor  
Oil resistant  
PVC

### MAIN FEATURES

Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal thickness	Outer sheath nominal diameter	Nominal weight
n° of conductors	mm <sup>2</sup>	Ω/km	mm	mm	kg/km
3	16	≤ 1.91	2	32	1500
3	25	≤ 1.2	2.2	34	1800
3	35	≤ 0.868	2.3	37	2100
3	50	≤ 0.641	2.3	39	2500
3	70	≤ 0.443	2.3	44	3100



## CPR

Cca - s1b, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

**Conductor** Stranded bare copper

**Insulation** Coloured type crosslinked LSZH compound

**Assembling** Single core or N° conductors assembled with eventual filler and tape

**Outer sheath** Black flame retardant, low smoke and halogen-free compound or black crosslinked LSZH

### TECHNICAL DATA

**Operating temperature** -40 °C ÷ +70 °C

**Minimum bending radius** 5 x Ø

### FIRE PERFORMANCE

**Fire propagation** IEC 60332-1-2  
IEC 60332-3-24

**Smoke density** IEC 61034-1/2

**Halogen-free** IEC 60754-1/2

**Fumes** No corrosive and toxic fumes

### MAIN FEATURES

**Test voltage** 3000V ACx 5 minutes

### AVAILABLE ON REQUEST

UV resistant

Arctic cables

Oil resistant

PVC version

### MAIN FEATURES

Formation	Conductor nominal section	Resistance of conductor @20 °C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight
n° of conductors	mm <sup>2</sup>	Ω/km	mm	mm	kg/km
1	0.5	39	0.8	2.6	11
1	1	19.5	0.8	2.9	17
1	1.5	13.3	0.8	3.2	22
1	2.5	7.98	0.8	3.8	35
1	4	4.95	0.8	4.5	53
1	6	3.3	0.8	4.8	70
5	0.5	39	1.2	9.2	120
12	0.5	39	1.2	12.8	230
20	0.5	39	1.2	15.7	350
20	1	19.5	1.2	17.8	515

# TK-412 SIGNAL



## CPR

Cca - s1b, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

**Conductor** Stranded bare copper

**Insulation** Coloured type crosslinked LSZH compound

**Assembling** Single core or N° conductors assembled with eventual filler and tape

**Outer sheath** Black flame retardant, low smoke and halogen-free compound or black crosslinked LSZH

### TECHNICAL DATA

**Operating temperature** -40 °C + 70 °C

**Minimum bending radius** 5 x Ø

### FIRE PERFORMANCE

**Fire propagation** IEC 60332-1-2  
IEC 60332-3-24

**Smoke density** IEC 61034-1/2

**Halogen-free** IEC 60754-1/2

**Fumes** No corrosive and toxic fumes

### MAIN FEATURES

**Test voltage** 3000V AC x 5 minutes

### AVAILABLE ON REQUEST

UV resistant

Arctic cables

Oil resistant

PVC version

### MAIN FEATURES

Formation	Conductor nominal section	Resistance of conductor @20 °C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight
n° of conductors	mm <sup>2</sup>	Ω/km	mm	mm	kg/km
1	0.6	32	0.6	2.25	10
1	0.93	20.5	0.7	2.45	15
1	2.5	7.98	0.8	3.75	35
1	4	4.95	0.8	4.2	50
20+1	0.6	32	1.1	13.8	290
6+1	0.93	20.5	1	9.3	170
12+1	0.93	20.5	1.1	12.9	290
20+1	0.93	20.5	1.2	15.4	400
3	2.5	7.98	1	9.7	190
10	2.5	7.98	1.2	16.8	440
10	4	4.95	1.3	18.8	680

# TK-POINT MACHINE



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Conductor</b>	Solid bare copper
<b>Insulation</b>	Black numbered Polyethylene
<b>Assembling</b>	5 conductors assembled with eventual filler and tape
<b>Screen</b>	Corrugated copper tape
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Two steel tapes helically applied
<b>Outer sheath</b>	Green flame retardant, low smoke and halogen-free or black Polyethylene

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	20 x Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## MAIN FEATURES

<b>Test voltage</b>	3500 V AC x 5 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 50 pF/m
<b>Max attenuation @ 1 KHz</b>	≤ 0.44 dB/km (2.5 mm <sup>2</sup> )
<b>@ 10 KHz</b>	≤ 0.81 dB/km (2.5 mm <sup>2</sup> )
<b>@ 1 KHz</b>	≤ 0.41 dB/km (4 mm <sup>2</sup> )
<b>@ 10 KHz</b>	≤ 0.78 dB/km (4 mm <sup>2</sup> )
<b>@ 1 KHz</b>	≤ 0.41 dB/km (6 mm <sup>2</sup> )
<b>@ 10 KHz</b>	≤ 0.78 dB/km (6 mm <sup>2</sup> )
<b>Reduction factor @100-350 v/km @ 50 Hz</b>	≤ 0.3

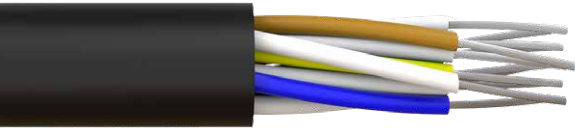
## AVAILABLE ON REQUEST

Arctic cables
Indoor/Outdoor
Reduction factor
Oil resistant
PVC version

## MAIN FEATURES

Formation	Conductor nominal section	Resistance of conductor @20°C	Insulation resistance @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight	
						PE	LSZH
n° of conductors	mm <sup>2</sup>	Ω/km	GΩxkm	mm	mm	kg/km	
5	2.5	≤ 7.41	≥ 10	1.8	20	720	820
5	4	≤ 4.61	≥ 10	1.8	22.5	880	1000
5	6	≤ 3.08	≥ 10	1.8	24	1000	1120

# TK-455 ZUG-ZUT-SUG



## CPR

B2ca - s1a, a1

characteristics



on request



\*Only for LSZH version \*\* Only for PVC version

### CABLE SPECIFICATIONS

<b>Conductors</b>	Stranded tinned copper
<b>Insulation</b>	Coloured PVC or low smoke and halogen free compound
<b>Pair</b>	Two conductors assembled to form a pair
<b>Total assembling</b>	N° pairs assembled (ZUT/ZUG) or multicore (SUG)
<b>Shield</b>	Tinned copper braid (only for ZUT)
<b>Outer sheath</b>	Flame retardant, low smoke and halogen free compound or PVC

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	- 20 X Ø
<b>Test VOLTAGE</b>	2000 V AC x 5 minute

### FIRE PERFORMANCE

(\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Fire resistant</b>	IEC 60331
<b>Smoke density*</b>	IEC 61034-1/2
<b>Halogen-free*</b>	IEC 60754-1/2
<b>Fumes*</b>	No corrosive and toxic fumes

**AVAILABLE  
ON REQUEST**

Filling compound

UV resistant

Arctic cables

Indoor/outdoor

Fire resistant

MAIN FEATURES				
Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal diameter	Nominal weight
<b>ZUG VERSION</b>				
n° of pairs	mm <sup>2</sup>	Ω/km	mm	kg/km
1	1	≤ 20	7	65
3	1	≤ 20	10	118
6	1	≤ 20	12.5	235
12	1	≤ 20	15.8	395
28	0.4	≤ 52.5	15.6	335
<b>ZUT VERSION</b>				
n° of pairs	mm <sup>2</sup>	Ω/km	mm	kg/km
2	1	≤ 20	9.8	135
6	1	≤ 20	13.2	285
12	1	≤ 20	17.2	465
<b>SUG VERSION</b>				
n° of pairs	mm <sup>2</sup>	Ω/km	mm	kg/km
3	1	≤ 20	7.7	78

# TK-446 SPFB SPFU



characteristics



on request



\*Only for LSZH version \*\* Only for PVC version

## CABLE SPECIFICATIONS

<b>Conductors</b>	Stranded bare copper 0.5 mm <sup>2</sup>
<b>Insulation</b>	Coloured or black polyethylene
<b>Total assembling</b>	N° conductors assembled with eventual filler and tape
<b>Inner sheath</b>	Black polyethylene or flame retardant, low smoke and halogen free compound
<b>Armouring</b>	Two steel tapes helically applied (SPFU) or galvanized steel wire braid (SPFB)
<b>Outer sheath</b>	Black PVC or flame retardant, low smoke and halogen free compound

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C ÷ +80 °C
<b>Minimum bending radius</b>	15 x Ø

## FIRE PERFORMANCE

(\* ONLY FOR LSZH VERSION)

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density*</b>	IEC 61034-1/2
<b>Halogen-free*</b>	IEC 60754-1/2
<b>Fumes*</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/outdoor

## MAIN FEATURES

<b>Test voltage</b>	2000 V AC x 5 minute
<b>Characteristics impedance @ 100kHz</b>	120 ± 10 Ohm
<b>Nominal attenuation</b>	≤ 5 dB/km @ 50kHz

MAIN FEATURES				
Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal diameter	Nominal weight
n° of conductors	mm <sup>2</sup>	Ω/km	mm	kg/km
2 - SPFB	0.5	≤ 20	10	105
9 - SPFU	0.5	≤ 20	12.2	260
18 - SPFU	0.5	≤ 20	14.1	370

# TK-466 SCG



characteristics



on request



\*Only for LSZH version \*\* Only for PVC version

## CABLE SPECIFICATIONS

<b>Conductors</b>	Solid or stranded tinned copper
<b>Insulation</b>	Coloured type crosslinked LSZH compound or polyethylene
<b>Total assembling</b>	N° conductors assembled with eventual filler and tape
<b>Outer sheath</b>	Black crosslinked flame retardant low smoke and halogen free compound or PVC

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C ÷ 80 °C
<b>Minimum bending radius</b>	10 X Ø

## FIRE PERFORMANCE

(\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density*</b>	IEC 61034-1/2
<b>Halogen-free*</b>	IEC 60754-1/2
<b>Fumes*</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

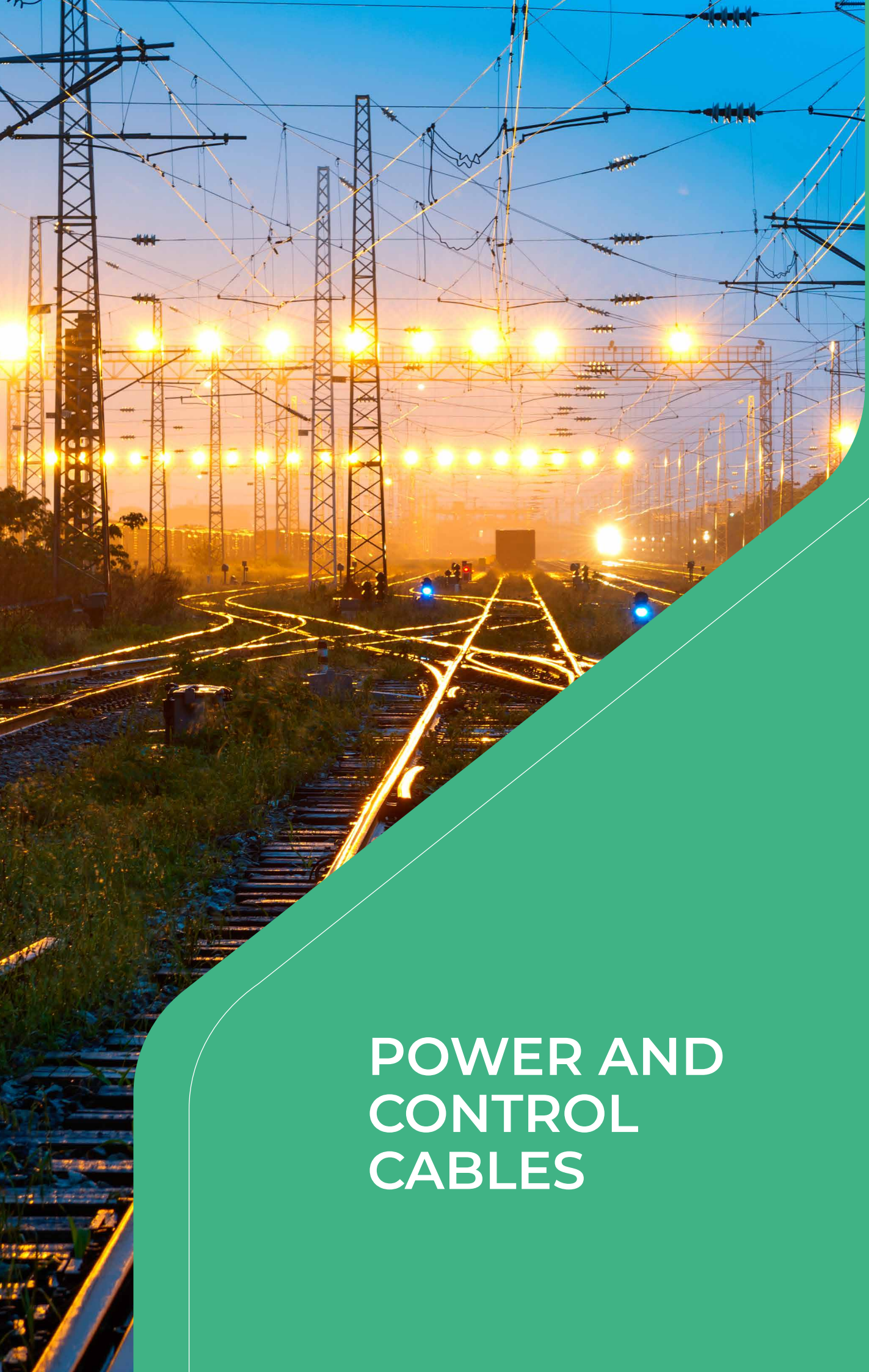
- Filling compound
- UV resistant
- Arctic cables
- Indoor/outdoor
- Oil resistant
- PVC

## MAIN FEATURES

<b>Test voltage</b>	2000 V AC x 5 minute
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### MAIN FEATURES

Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal diameter	Nominal weight
n° of conductors	mm <sup>2</sup>	Ω/km	mm	kg/km
2	2.5	≤7.56	12.9	230
4	2.5	≤7.56	16	345
6	2.5	≤7.56	18.9	485
8	2.5	≤7.56	14.1	370
2	6	≤3.11	17.2	400
4	6	≤3.11	19.9	575
6	6	≤3.11	22.7	810
8	6	≤3.11	24.5	980
4	1	≤3.11	13	210
11	1	≤3.11	20	500
8	1.91	≤10.55	19.7	510
2	2.5	≤7.56	12.2	230
24	2.5	≤7.56	12.2	260



# POWER AND CONTROL CABLES

# TK-CONTROL FOR AUTOMATIC BLOCK



## CPR

B2ca - s1a, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

<b>Conductor</b>	Extra flex 1.5 mm <sup>2</sup> stranded tinned copper
<b>Insulation</b>	Coloured type crosslinked LSZH compound
<b>Pair</b>	Two conductors assembled to form a pair
<b>Individual pairs screen</b>	Aluminium/Polyester tape
<b>Total Assembling</b>	N° pairs assembled together with eventual filler and tape
<b>Overall screen</b>	Tinned copper braid
<b>Inner sheath</b>	Coloured type crosslinked LSZH compound
<b>Outer sheath</b>	Black flame retardant, low smoke and halogen-free compound or black crosslinked LSZH

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +80 °C
<b>Minimum bending radius</b>	10 X Ø

### FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### MAIN FEATURES

<b>Test voltage</b>	3000 V AC x 10 minute
<b>Resistance of conductor</b>	≤ 28.4 Ω
<b>Mutual capacitance @ 800 Hz</b>	≤ 120 pF/m

### AVAILABLE ON REQUEST

UV resistant
Arctic cables
Oil resistant
PVC version

MAIN FEATURES		
Formation	Outer sheath nominal Ø	Nominal weight
n° of pairs	mm	kg/km
2	18	430
4	21.5	580
8	30	1050

# TK-POWER FOR AUTOMATIC BLOCK



## CPR

B2ca - s1a, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

<b>Conductor</b>	Stranded tinned copper, 10 mm <sup>2</sup>
<b>Insulation</b>	Coloured Type crosslinked LSZH compound
<b>Assembling</b>	2 conductors assembled together to form a star quad with eventual filler and tape
<b>Screen</b>	Tinned copper braid
<b>Inner sheath</b>	Type crosslinked LSZH compound
<b>Outer sheath</b>	Black flame retardant, low smoke and halogen-free compound or black crosslinked LSZH
<b>Outer diameter</b>	18.5 mm

### TECHNICAL DATA

<b>Operating temperature</b>	-30 °C ÷ +80 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### MAIN FEATURES

<b>Resistance of conductor @ 20°C</b>	≤ 1.84 Ω/km
<b>Insulation resistance @ 20°C</b>	≥ 155 Ω x km
<b>Test voltage</b>	3000 V AC x 10 minute
<b>Mutual capacitance @ 800 Hz</b>	≤ 150 pF/m
<b>Nominal weight</b>	500 kg/km

### AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil Resistant
PVC version

# TK-SHIELDING H1

characteristics



on request



## CABLE SPECIFICATIONS

<b>Conductors</b>	Stranded bare copper
<b>Fire protection</b>	Mica tape
<b>Insulation</b>	Black numbered type crosslinked LSZH compound
<b>Assembling</b>	N° conductors assembled with eventual filler and tape
<b>Inner layer</b>	Flame retardant, low smoke and halogen free compound
<b>Shield</b>	Two copper tapes helically applied
<b>Outer sheath</b>	Flame retardant, low smoke and halogen free compound

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	- 20 X Ø
<b>Test voltage</b>	3500 V AC x 5 minute

## FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Fire resistant</b>	IEC 60331
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

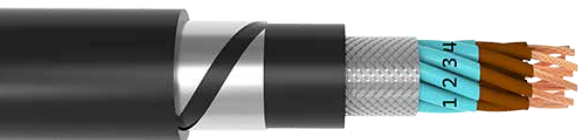
## AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/outdoor
Oil resistant
PVC

## MAIN FEATURES

Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal thickness	Outer sheath nominal diameter	Nominal weight
n° of conductors	mm <sup>2</sup>	Ω/km	mm	mm	kg/km
4	2.5	7.98	1.8	15.8	410
5	2.5	7.98	1.8	16.4	470
7	2.5	7.98	1.8	17.6	550
12	2.5	7.98	1.8	22.2	840

# TK-SINGLE LAYER ARMOURING



characteristics



on request



## CABLE SPECIFICATIONS

<b>Conductors</b>	Stranded bare copper
<b>Fire protection</b>	Mica tape
<b>Insulation</b>	Black numeberd type crosslinked XLPE compound
<b>Assembling</b>	N° conductors assembled with eventual filler and tape
<b>Shield</b>	Tinned copper braid
<b>Inner layer</b>	Flame retardant, low smoke and halogen free compound
<b>Armouring</b>	One steel tape helically applied
<b>Outer sheath</b>	Flame retardant, low smoke and halogen free compound

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	- 20 X Ø
<b>Test voltage</b>	3500 V AC x 5 minute

## FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Fire resistant</b>	IEC 60331
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

Filling compound
UV resistant
Arctic cables
Indoor/outdoor
Oil resistant
PVC

## MAIN FEATURES

Formation	Section	Resistance of conductor @ 20°C	Outer sheath nominal thickness	Outer sheath nominal diameter	Nominal weight
n° of conductors	mm²	Ω/km	mm	mm	kg/km
3	1.5	≤ 13.3	1.8	14.5	320
4	1.5	≤ 13.3	1.8	15.5	370
6	1.5	≤ 13.3	1.8	17.6	475
8	1.5	≤ 13.3	1.8	19.3	570
12	1.5	≤ 13.3	2	23.3	810
16	1.5	≤ 13.3	2	25.3	990
21	1.5	≤ 13.3	2	27.7	1160
5	2.5	≤ 7.98	1.8	18.1	530
5	4	≤ 4.95	1.8	19.8	680
5	6	≤ 3.30	2	22.3	880
5	10	≤ 1.91	2	24.8	1170

# TK-ANTI-THEFT CABLE FOR POINTS HEATING & CDB AUDIOFREQUENCY



## CPR

B2ca, s1a, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

**Conductor** Stranded aluminium from 35 to 185 mm<sup>2</sup> Stranded steel from 25 to 110 mm<sup>2</sup>, Stranded hybrid copper braid from 16 to 215 mm<sup>2</sup>

**Insulation** Coloured type crosslinked LSZH compound

**Assembling** Single core

**Outer sheath** PVC or Black flame retardant, low smoke and halogen-free compound or crosslinked LSZH

### TECHNICAL DATA

**Operating temperature** -40 °C + +70 °C

**Minimum bending radius** 8 × Ø

### FIRE PERFORMANCE

**Fire propagation** IEC 60332-1-2  
IEC 60332-3-24

**Smoke density** IEC 61034-1/2

**Halogen-free** IEC 60754-1/2

**Fumes** No corrosive and toxic fumes

### AVAILABLE ON REQUEST

UV resistant

Arctic cables

Indoor/Outdoor

Oil resistant

MAIN FEATURES - ALUMINIUM					
Formation	section	Resistance of conductor @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight
n° of conductors	mm <sup>2</sup>	Ω/km	mm	mm	kg/km
1	35	≤0.868	1.4	13	240
1	50	≤0.673	1.5	14.5	260
1	120	≤0.263	1.5	20.5	530
1	185	≤0.173	1.8	25.3	790

MAIN FEATURES - STEEL					
Formation	section	Resistance of conductor @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight
n° of conductors	mm <sup>2</sup>	Ω/km	mm	mm	kg/km
1	25	≤6.5	1.4	13.5	340
1	50	≤3	1.6	17.5	6560
1	110	≤1.5	1.8	21	1120

MAIN FEATURES - HYBRID					
Formation	section	Resistance of conductor @20°C	Outer sheath nominal thickness	Outer sheath nominal Ø	Nominal weight
n° of conductors	mm <sup>2</sup>	Ω/km	mm	mm	kg/km
1	16	≤4.5	1.4	11.3	240
1	35	≤0.95	1.4	14.8	490
1	50	≤0.65	1.6	17.5	700
1	120	≤0.37	1.6	22.5	1310
1	135	≤0.18	1.8	24	1600
1	150	≤0.42	2	25	1600
1	170	≤0.148	2	26	1750
1	215	≤0.118	2	29	1930



## CPR

B2ca - s1a, d1, a1  
Cca - s1b,d1,a1

characteristics



on request



### CABLE SPECIFICATIONS

<b>Conductor</b>	Stranded bare or tinned copper from 1 to 400 mm <sup>2</sup>
<b>Insulation</b>	Coloured or numbered type crosslinked LSZH compound
<b>Assembling</b>	Single core or N° conductors assembled with eventual filler and tape
<b>Inner layer</b>	LSZH compound
<b>Screen (optional)</b>	Tinned copper braid
<b>Outer sheath</b>	Black flame retardant, low smoke and halogen-free compound or black crosslinked LSZH

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C ÷ +70 °C
<b>Minimum bending radius</b>	10 X Ø

### FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

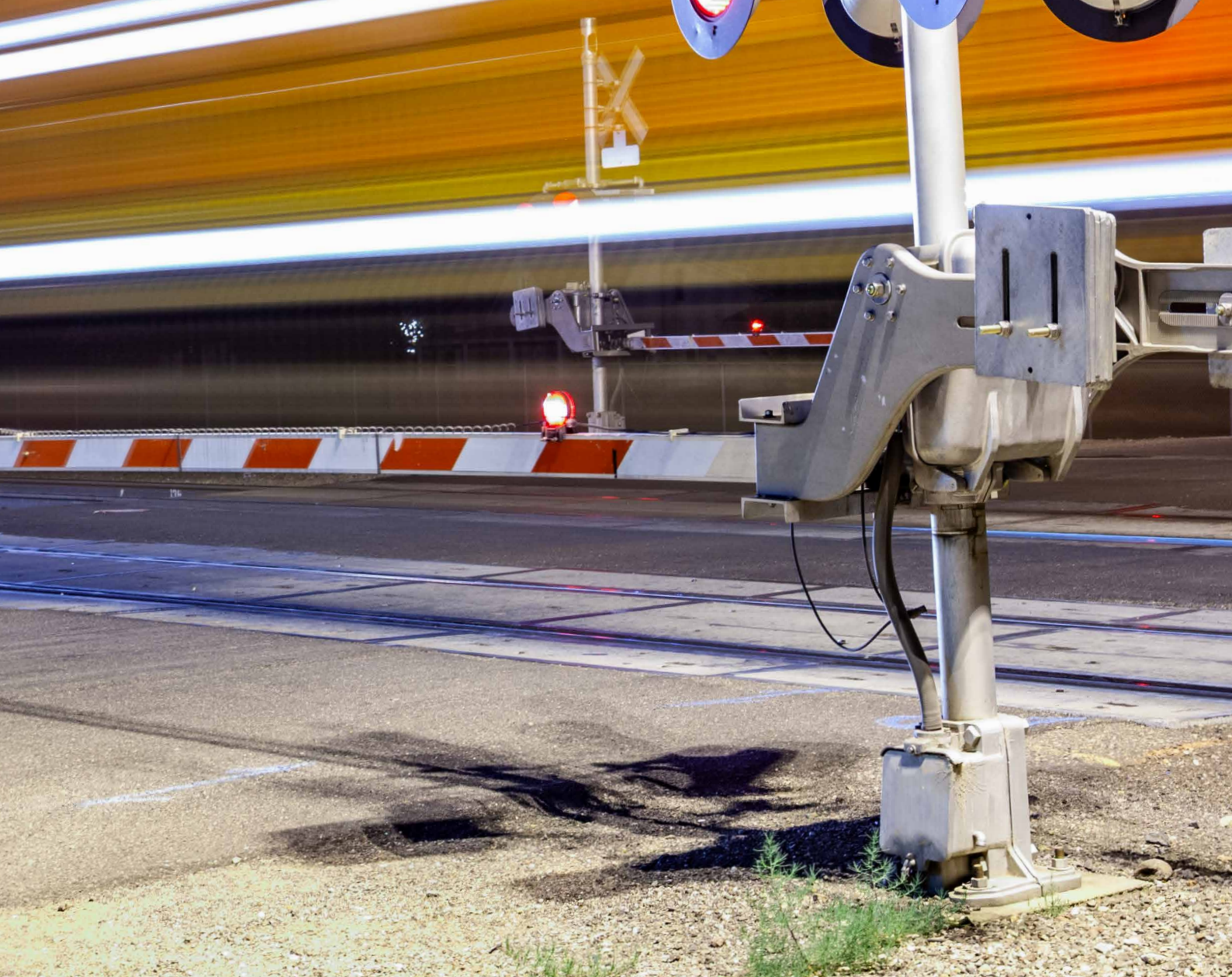
### AVAILABLE ON REQUEST

UV resistant
Arctic cables
Indoor/Outdoor
Oil resistant
PVC version
Fire Resistant



RAILROAD  
CROSSING

2  
TRACKS





# OPTICAL CABLES

# TK-BCA FIBER OPTIC TRAIN DETECTION



## CPR

B2ca - s1a, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

<b>Fiber structure</b>	Tight buffer 900 µm / Semitight buffer 900 µm
<b>Tight colour code</b>	See table C
<b>Assembling</b>	4 + 24 fibers
<b>Protection</b>	Aramidic yarns
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free
<b>Armouring</b>	Corrugated steel tape thermowelded to outer sheath
<b>Outer sheath</b>	Flame retardant, low smoke and halogen-free

All cables are available with all type of fibers.

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +80 °C
<b>Minimum bending radius</b>	10 X Ø

### FIRE PERFORMANCE

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

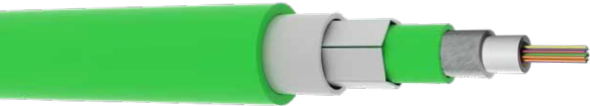
### AVAILABLE ON REQUEST

Water resistant
Polyethylene sheath for direct buried
UV resistant
Arctic cables
Oil resistance

### MAIN FEATURES

No. of fiber	Nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	kg/km	N	N/dm	J
4	11	120	2000	2000	20
8	12	150	2000	2000	20
10	13	175	2500	2000	20
12	13	180	2500	2000	20
24	14	220	3000	2000	20

# TK-DIELECTRIC OPTICAL CABLE FOR SSE



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics 

on request  \* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Fiber structure</b>	Jelly filled loose tube
<b>Fiber colour code</b>	See table A
<b>Loose tube colour</b>	Natural
<b>Assembling</b>	2 + 12 fibers
<b>Strain relief</b>	Aramid/Glass yarns
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Glass flat
<b>Outer sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene, Ø 13.5 mm

All cables are available with all type of fibers.

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø
<b>Nominal weight</b>	230 kg/km

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-22
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Fire resistant
Water resistant
UV resistant
Arctic cables
Oil resistance

# TK-MTB BREAKOUT CABLES - LSZH



characteristics



on request



## CABLE SPECIFICATIONS

<b>Fiber structure</b>	Tight buffer 900 µm / Semitight buffer 900 µm
<b>Tight colour code</b>	White
<b>Strain relief</b>	Aramid yarns
<b>Sub unit Sheath</b>	Numbered flame retardant, low smoke and halogen-free material
<b>Assembling</b>	4 to 24 sub units
<b>Outer Sheath</b>	Flame retardant, low smoke and halogen-free material

All cables are available with all type of fibers.

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø

## FIRE PERFORMANCE

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

## AVAILABLE ON REQUEST

Fire resistant
UV resistant
Polyuretane sheath for dynamic application
Oil resistance

## MAIN FEATURES

No. of fiber	Nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	kg/km	N	N/dm	J
4	6.8	45	500	1000	10
6	8	60	1000	1000	10
8	9.8	90	1500	1000	10
12	12.6	165	2000	1000	10
16	12	150	3000	1000	10
24	15	210	4000	1000	10

# TK-MTBA ARMoured BREAKOUT CABLES - LSZH



## CPR

B2ca - s1a, d1, a1

characteristics



on request



### CABLE SPECIFICATIONS

<b>Fiber structure</b>	Tight buffer 900 µm / Semitight buffer 900 µm
<b>Tight colour code</b>	White
<b>Strain relief</b>	Aramid yarns
<b>Sub unit Sheath</b>	Numbered flame retardant, low smoke and halogen-free material, Ø 2 mm
<b>Assembling</b>	4 to 24 sub units
<b>Inner Sheath</b>	Flame retardant, low smoke and halogen-free material
<b>Armouring</b>	Galvanized steel wire braid (GSWB)
<b>Outer Sheath</b>	Flame retardant, low smoke and halogen-free material

All cables are available with all type of fibers.

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE

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

### AVAILABLE ON REQUEST

Fire resistant
UV resistant
Water resistant
Oil resistant
Polyethylene sheath for direct buried

MAIN FEATURES					
No. of fiber	Nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	kg/km	N	N/dm	J
4	11	180	1000	2000	20
6	12	200	1500	2000	20
8	13.8	230	2000	2000	20
12	16.5	300	2500	2000	20
16	16	280	3500	2000	20
24	19	350	4500	2000	20

# TK-UT9X ARMoured UNITUBE



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version    \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Fiber structure</b>	Jelly filled loose tube
<b>Fiber colour code</b>	See table A
<b>Loose tube colour</b>	Natural
<b>Assembling</b>	2 + 24 fibers
<b>Protection</b>	With or without Aramidic/Glass yarns
<b>Armouring</b>	Corrugated steel tape thermowelded to outer sheath
<b>Outer sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene

All cables are available with all type of fibers.

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø

### FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Fire resistant
Water resistant
UV resistant
Arctic cables
Oil resistance

MAIN FEATURES CST + LSZH SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J

2 + 24	3.5	9	95	750	2500	10
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MAIN FEATURES CST + ARAMIDIC YARNS + LSZH SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J

2 + 24	3.5	9	110	1500	3000	15
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MAIN FEATURES CST + GLASS YARNS + LSZH SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J

2 + 24	3.5	10	140	3000	3500	20
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MAIN FEATURES CST + PE SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J

2 + 24	3.5	9	55	750	2500	10
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MAIN FEATURES CST + ARAMIDIC YARNS + PE SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J

2 + 24	3.5	9	85	1500	3000	15
--------	-----	---	----	------	------	----

MAIN FEATURES CST + GLASS YARNS + PE SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J

2 + 24	3.5	10	100	3000	3500	20
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# TK-UTXD ARMoured UNITUBE DOUBLE SHEATH



characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Fiber structure</b>	Jelly filled loose tube
<b>Fiber colour code</b>	See table A
<b>Loose tube colour</b>	Natural
<b>Assembling</b>	2 + 24 fibers
<b>Strain relief</b>	Aramid/Glass yarns
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Armouring</b>	Galvanized steel wire braid or corrugated and thermowelded steel tape
<b>Outer sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene

All cables are available with all type of fibers.

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	10 X Ø

## FIRE PERFORMANCE (\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

Fire resistant
Water resistant
UV resistant
Arctic cables
Oil resistance

MAIN FEATURES LSZH + GSWB + LSZH SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J
2 + 12	2.8	8.6	100	1500	2500	10
13 + 24	3.5	10	130	1500	2500	10

MAIN FEATURES PE + GSWB + PE SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J
2 + 12	2.8	8.6	70	1500	2500	10
13 + 24	3.5	10	90	1500	2500	10

MAIN FEATURES LSZH + CST + LSZH SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J
2 + 12	2.8	10	125	2000	3000	15
13 + 24	3.5	10.5	145	2000	3000	15

MAIN FEATURES PE + CST + PE SHEATH						
No. of fibers	Loose nominal diameter Ø	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm	mm	kg/km	N	N/dm	J
2 + 12	2.8	10	85	2000	3000	15
13 + 24	3.5	10.5	105	2000	3000	15

# TK-MT9X ARMoured MULTITUBE



## CPR

Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version    \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Fiber structure</b>	Jelly filled loose tube
<b>Fiber colour code</b>	See table A
<b>Loose tube colour</b>	See table B
<b>Assembling</b>	6 ÷ 24 loose tubes/fillers, 12 ÷ 288 fibers
<b>Central element</b>	Fiber reinforced polymer
<b>Protection</b>	With or without Aramidic/Glass yarns
<b>Armouring</b>	Corrugated steel tape thermowelded to outer sheath
<b>Outer sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene

All cables are available with all type of fibers.

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C ÷ +70 °C
<b>Minimum bending radius</b>	10 X Ø

### FIRE PERFORMANCE

(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Fire resistant
Water resistant
UV resistant
Arctic cables
Oil resistance

MAIN FEATURES CST + LSZH SHEATH								
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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	0	11	150	1500	2000	15
96	1.9	8	0	12	170	2000	2500	20
144	1.9	12	0	14.5	230	2000	2500	20
192	1.9	16	0	14.5	230	2000	2000	20
216	1.9	18	0	15.5	260	2000	2000	25
288	1.9	24	0	17.5	350	2000	3000	25

MAIN FEATURES ARAMIDIC + CST + LSZH SHEATH								
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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	0	12	160	2000	2000	15
96	1.9	8	0	13	180	2500	2500	20
144	1.9	12	0	15.5	250	2500	2500	20
192	1.9	16	0	15.5	250	3000	3000	25
216	1.9	18	0	16.5	280	3000	3000	25
288	1.9	24	0	18.5	360	3500	3000	25

# TK-MT9X ARMoured MULTITUBE

MAIN FEATURES GLASS YARNS + CST + LSZH SHEATH								
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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	0	12	170	2500	2000	15
96	1.9	8	0	13	190	3000	2500	20
144	1.9	12	0	15.5	270	2500	2500	20
192	1.9	16	0	15.5	270	3000	3000	25
216	1.9	18	0	15.5	300	3000	3000	25
288	1.9	24	0	17.5	380	3500	3000	25

MAIN FEATURES CST + PE SHEATH								
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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	0	11	120	1500	2000	15
96	1.9	8	0	12	140	2000	2500	20
144	1.9	12	0	14.5	190	2000	2500	20
192	1.9	16	0	14.5	190	2000	2500	20
216	1.9	18	0	15.5	220	2000	3000	25
288	1.9	24	0	17.5	260	2500	3000	25

MAIN FEATURES ARAMIDIC + CST + PE SHEATH								
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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	0	12	130	2000	2000	15
96	1.9	8	0	13	150	2500	2500	20
144	1.9	12	0	15.5	210	2500	2500	20
192	1.9	16	0	15.5	210	3000	3000	25
216	1.9	18	0	16.5	240	3000	3000	25
288	1.9	24	0	18.5	290	3500	3000	25

MAIN FEATURES GLASS YARNS + CST + PE SHEA								
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	12	140	2000	2000	15
24	1.9	2	4	12	140	2000	2000	15
36	1.9	3	3	12	140	2000	2000	15
48	1.9	4	2	12	140	2000	2000	15
60	1.9	5	1	12	140	2000	2000	15
72	1.9	6	0	12	140	2000	2000	15
96	1.9	8	0	13	160	2500	2500	20
144	1.9	12	0	15.5	220	2500	2500	20
192	1.9	16	0	15.5	220	3000	3000	25
216	1.9	18	0	16.5	250	3000	3000	25
288	1.9	24	0	18.5	310	3500	3000	25

# TK-API AIRBAG PROTECTION



Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

## CABLE SPECIFICATIONS

<b>Fiber structure</b>	Jelly filled loose tube
<b>Fiber colour code</b>	See table A
<b>Loose tube color</b>	See table B
<b>Assembling</b>	8 loose tubes/fillers 16 + 96 fibers
<b>Central element</b>	Fiber reinforced polymer
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Mechanical protection</b>	Dielectric layer
<b>Armouring</b>	Anti rodent glass protection
<b>Outer sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene

All cables are available with all type of fibers.

## TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

## FIRE PERFORMANCE

(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

## AVAILABLE ON REQUEST

Fire resistant
UV resistant
Arctic cables
Oil resistance

### MAIN FEATURES LSZH + AIRBAG + GLASS TAPE AND YARNS + LSZH SHEATH

No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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

# TK-MT6X ARMoured MULTITUBE



## CPR

B2ca - s1a, d1, a1  
Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Fiber structure</b>	Jelly filled loose tube
<b>Fiber colour code</b>	See table A
<b>Loose tube color</b>	See table B
<b>Assembling</b>	8 loose tubes/fillers 16 + 96 fibers
<b>Central element</b>	Fiber reinforced polymer
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>Strain relief</b>	Aramid layer
<b>Armouring</b>	Welded and corrugated steel tape (H6)
<b>Anticorrosion protection</b>	Bituminous/Jelly layer
<b>Outer sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene

All cables are available with all type of fibers.

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C + +70 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE

(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Fire resistant
UV resistant
Arctic cables
Oil resistance

### MAIN FEATURES LSZH + ARAMIDIC YARNS + H6 + LSZH SHEATH

No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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 + ARAMIDIC YARNS + H6 + PE SHEATH

No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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

# TK-MTAS MULTITUBE ADSS



## CPR

Cca - s1b, d1, a1

characteristics



on request



\* Only for PE version    \*\* Only for LSZH version

### CABLE SPECIFICATIONS

<b>Fiber structure</b>	Jelly filled loose tube
<b>Fiber colour code</b>	See table A
<b>Loose tube color</b>	See table B
<b>Assembling</b>	6 ÷ 24 loose tubes/fillers 12 ÷ 288 fibers
<b>Central element</b>	Fiber reinforced polymer
<b>Inner sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene
<b>*Antiballistic protection</b>	Aramid tapes or glass flats
<b>Strain relief</b>	Aramid layer
<b>Outer sheath</b>	Flame retardant, low smoke and halogen-free or Polyethylene

All cables are available with all type of fibers.

\* On request

### TECHNICAL DATA

<b>Operating temperature</b>	-40 °C ÷ +70 °C
<b>Minimum bending radius</b>	15 X Ø

### FIRE PERFORMANCE

(\*\*) ONLY FOR LSZH VERSION

<b>Fire propagation</b>	IEC 60332-1-2 IEC 60332-3-24
<b>Smoke density</b>	IEC 61034-1/2
<b>Halogen-free</b>	IEC 60754-1/2
<b>Fumes</b>	No corrosive and toxic fumes

### AVAILABLE ON REQUEST

Fire resistant
Water resistant
UV resistant
Arctic cables
Oil resistance

MAIN FEATURES LSZH + ARAMIDIC YARNS + LSZH SHEATH								
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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 + ARAMIDIC YARNS AND TAPES + LSZH SHEATH								
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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 LSZH + ARAMIDIC YARNS + GLASS FLAT + LSZH SHEATH								
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	15	210	7500	3000	20
24	1.9	2	4	15	210	7500	3000	20
36	1.9	3	3	15	210	7500	3000	20
48	1.9	4	2	15	210	7500	3000	20
60	1.9	5	1	15	210	7500	3000	20
72	1.9	6	0	15	210	7500	3000	20
96	1.9	8	0	16	260	7500	3000	20
144	1.9	12	0	18.5	320	7500	3000	20
192	1.9	16	0	18.5	320	7500	3000	20
216	1.9	18	0	19	360	7500	3000	20
288	1.9	24	0	21	480	7500	3000	20

# TK-MTAS MULTITUBE ADSS

## MAIN FEATURES PE + ARAMIDIC YARNS + PE SHEATH

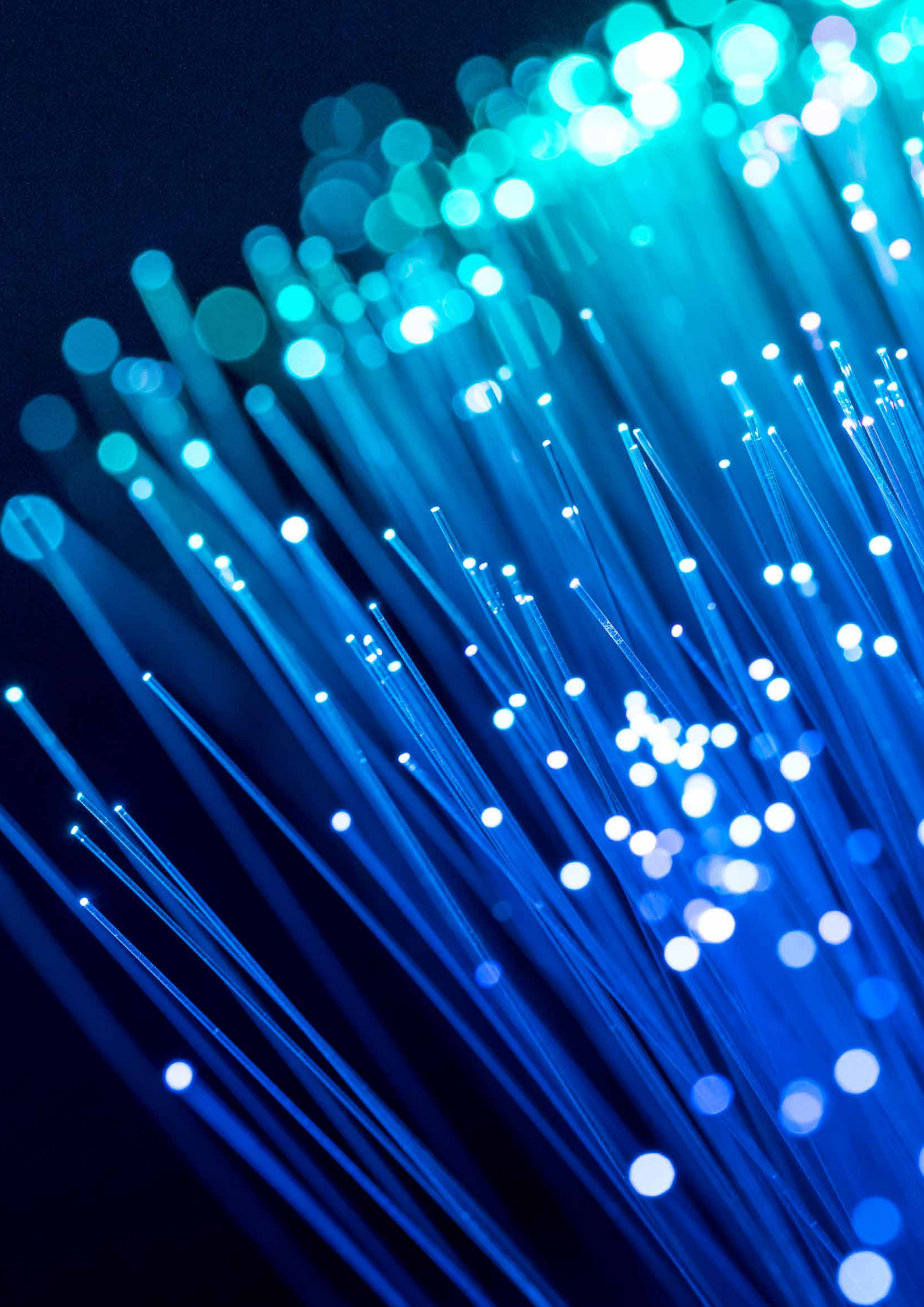
No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal weight	Max pulling force	Max crush	Impact
	mm			mm	kg/km	N	N/dm	J
12	1.9	1	5	13	120	7500	3000	20
24	1.9	2	4	13	120	7500	3000	20
36	1.9	3	3	13	120	7500	3000	20
48	1.9	4	2	13	120	7500	3000	20
60	1.9	5	1	13	120	7500	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

## MAIN FEATURES PE + ARAMIDIC YARNS AND TAPES + PE SHEATH

No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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 + ARAMIDIC YARNS + GLASS FLAT + PE SHEATH

No. of fiber	Loose nominal diameter Ø	No. loose	No. filler	Cable nominal diameter Ø	Nominal 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



## FIBER CHARACTERISTICS

### MULTIMODE FIBER PROPERTIES

	mm62.5-OM1	mm62.5-OM1+	mm50-OM2	mm50-OM3	mm50-OM4	mm50-OM5
<b>Core diameter</b>	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
<b>Core non-circularity</b>	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
<b>Cladding diameter</b>	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
<b>Coating diameter</b>	242 ± 5 μm	242 ± 5 μm	242 ± 5 μm	242 ± 5 μm	242 ± 5 μm	242 ± 5 μm
<b>Cladding non-circularity</b>	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %	≤ 0.7 %
<b>Core/cladding concentricity error</b>	≤ 1 μm	≤ 1 μm	≤ 1 μm	≤ 1 μm	≤ 1 μm	≤ 1 μm
<b>Coating/cladding concentricity error</b>	≤ 10 μm	≤ 10 μm	≤ 6 μm	≤ 6 μm	≤ 6 μm	≤ 6 μm
<b>Numerical Aperture</b>	0.275 ± 0.015	0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
<b>Attenuation @ 850 nm</b>	≤ 3.50 dB/km	≤ 3.50 dB/km	≤ 3.20 dB/km	≤ 3.20 dB/km	≤ 3.20 dB/km	≤ 3.20 dB/km
<b>Attenuation @ 953 nm</b>						≤ 1.50 dB/km
<b>Attenuation @ 1300 nm</b>	≤ 1.00 dB/km	≤ 1.00 dB/km	≤ 1.20 dB/km	≤ 1.20 dB/km	≤ 1.20 dB/km	≤ 1.20 dB/km
<b>Overfilled Modal Bandwidth @ 850 nm</b>	≥ 200 MHz*km	≥ 220 MHz*km	≥ 500 MHz*km	≥ 1500 MHz*km	≥ 3500 MHz*km	≥ 3500 MHz*km
<b>Overfilled Modal Bandwidth @ 953 nm</b>						≥ 1850 MHz*km
<b>Overfilled Modal Bandwidth @ 1300 nm</b>	≥ 500 MHz*km	≥ 800 MHz*km	≥ 500 MHz*km	≥ 500 MHz*km	≥ 500 MHz*km	≥ 500 MHz*km
<b>Effective Modal Bandwidth (EMB) @ 850 nm</b>				≥ 2000 MHz*km	≥ 4700 MHz*km	≥ 4700 MHz*km
<b>Effective Modal Bandwidth (EMB) @ 953 nm</b>						≥ 2470 MHz*km
<b>Fibre capacity 1000BASE-SX</b>	274 m	500 m	600 m	1000 m	1100 m	1100 m
<b>Fibre capacity 10GBASE-SR</b>	33 m	33 m	83 m	300 m	550 m	550 m
<b>Fibre capacity 100GBASE-SR10</b>				140 m	170 m	170 m
<b>Proof test</b>	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa	≥ 0.7 GPa

## SINGLEMODE FIBER PROPERTIES

	SM-LWP ITU-T G.652.D	SM ITU-T G.657. A1	SM ITU-T G.657. A2	SM - 200 $\mu$ m ITU-T G.657. A2	SM NZD ITU-T G.655.D
Mode Field Diameter @ 1310 nm	9.1 $\pm$ 0.4 $\mu$ m	9.1 $\pm$ 0.4 $\mu$ m	8.6 $\pm$ 0.4 $\mu$ m	8.8 $\pm$ 0.4 $\mu$ m	
Mode Field Diameter @ 1550 nm	10.2 $\pm$ 0.5 $\mu$ m	10.2 $\pm$ 0.5 $\mu$ m		9.8 $\pm$ 0.5 $\mu$ m	9.6 $\pm$ 0.4 $\mu$ m
Cladding diameter	125.0 $\pm$ 0.7 $\mu$ m	125.0 $\pm$ 0.7 $\mu$ m	125.0 $\pm$ 0.7 $\mu$ m	125.0 $\pm$ 0.7 $\mu$ m	125.0 $\pm$ 0.7 $\mu$ m
Coating diameter	242 $\pm$ 7 $\mu$ m	242 $\pm$ 7 $\mu$ m	242 $\pm$ 7 $\mu$ m	200 $\pm$ 10 $\mu$ m	242 $\pm$ 7 $\mu$ m
Cladding non-circularity	$\leq$ 0.7 %	$\leq$ 0.7 %	$\leq$ 0.7 %	$\leq$ 0.7 %	$\leq$ 1.0 %
Core/cladding concentricity error	$\leq$ 0.5 $\mu$ m	$\leq$ 0.5 $\mu$ m	$\leq$ 0.5 $\mu$ m	$\leq$ 0.5 $\mu$ m	$\leq$ 0.5 $\mu$ m
Coating/cladding concentricity error	$\leq$ 12 $\mu$ m	$\leq$ 12 $\mu$ m	$\leq$ 12 $\mu$ m	$\leq$ 12 $\mu$ m	$\leq$ 12 $\mu$ m
Cable cut-off wavelength	$\leq$ 1260 nm	$\leq$ 1260 nm	$\leq$ 1260 nm	$\leq$ 1260 nm	$\leq$ 1450 nm
Zero dispersion wavelength ( $\lambda_0$ )	1300-1324 nm	1300-1324 nm	1300-1324 nm	1300-1324 nm	
Dispersion slope ( $S_0$ ) @ ( $\lambda_0$ )	$\leq$ 0.090 ps/(nm <sup>2</sup> *km)	$\leq$ 0.090 ps/(nm <sup>2</sup> *km)	$\leq$ 0.092 ps/(nm <sup>2</sup> *km)	$\leq$ 0.092 ps/(nm <sup>2</sup> *km)	
Chromatic dispersion @ 1285-1330 nm	$\leq$ 3.5 ps/(nm*km)	$\leq$ 3.5 ps/(nm*km)			
Chromatic dispersion @ 1550 nm	$\leq$ 18 ps/(nm*km)	$\leq$ 18 ps/(nm*km)			
Chromatic dispersion @ 1625 nm	$\leq$ 22 ps/(nm*km)	$\leq$ 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	$\leq$ 0.1 ps/ $\sqrt$ km	$\leq$ 0.1 ps/ $\sqrt$ km	$\leq$ 0.1 ps/ $\sqrt$ km	$\leq$ 0.1 ps/ $\sqrt$ km	$\leq$ 0.15 ps/ $\sqrt$ km
Attenuation @ 1310 nm	$\leq$ 0.36 dB/km	$\leq$ 0.36 dB/km	$\leq$ 0.36 dB/km	$\leq$ 0.36 dB/km	
Attenuation @ 1383 nm	$\leq$ 0.36 dB/km	$\leq$ 0.36 dB/km	$\leq$ 0.36 dB/km	$\leq$ 0.36 dB/km	
Attenuation @ 1550 nm	$\leq$ 0.25 dB/km	$\leq$ 0.25 dB/km	$\leq$ 0.25 dB/km	$\leq$ 0.25 dB/km	$\leq$ 0.27 dB/km
Attenuation @ 1625 nm	$\leq$ 0.28 dB/km	$\leq$ 0.28 dB/km	$\leq$ 0.28 dB/km	$\leq$ 0.28 dB/km	$\leq$ 0.30 dB/km
Attenuation with bending					
Mandrel Radius 15mm@1550 10 turns		$\leq$ 0.25 dB	$\leq$ 0.03 dB	$\leq$ 0.25 dB	
Mandrel Radius 15mm@1625 10 turns		$\leq$ 1.0 dB	$\leq$ 0.1 dB	$\leq$ 0.25 dB	
Mandrel Radius 10mm@1550 1 turns		$\leq$ 0.75 dB	$\leq$ 0.1 dB	$\leq$ 0.75 dB	
Mandrel Radius 10mm@1625 1 turns		$\leq$ 1.5 dB	$\leq$ 0.2 dB	$\leq$ 1.5 dB	
Mandrel Radius 7.5mm@1550 1 turns			$\leq$ 0.5 dB		
Mandrel Radius 7.5mm@1625 1 turns			$\leq$ 1.0 dB		
Fibre capacity 1000BASE-LX	5 km	5 km	5 km	5 km	5 km
Fibre capacity 10GBASE-LR	10 km	10 km	10 km	10 km	10 km
Fibre capacity 10GBASE-ER	40 km	40 km	40 km	40 km	40 km
Fibre capacity 100GBASE-LR4	10 km	10 km	10 km	10 km	10 km
Fibre capacity 100GBASE-ER4	40 km	40 km	40 km	40 km	40 km
Proof test	$\geq$ 0.7 GPa	$\geq$ 0.7 GPa	$\geq$ 0.7 GPa	$\geq$ 0.7 GPa	$\geq$ 0.7 GPa

# Tecnikabel

Passion flows through our cables

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