

# Fibre optic cables

For telecommunications





# HITRONIC®

The brand for split-second, flawless and secure data transmission.

## Product overview

- > **Polymer fibre**  
(POF – Polymer Optical Fibre) P980/1000
- > **Plastic-cladded glass fibre**  
(PCF – Polymer Cladded Fibre) K200/230
- > **Glass fibre**  
(GOF – Glass Optical Fibre) E9/125, G50/125 and G62.5/125

## Pioneering industry solutions

Mobile apps, smart grids, TV & video on demand, telemedicine, intelligent vehicles, traffic information systems, Industry 4.0 – the need for high-performance glass fibre cables to create a reliable broadband infrastructure is constantly growing. Whether it is a rewire that requires up to 288 fibres or an extension to the existing backbone network that needs two or more fibres, the Lapp Group is your expert solutions partner in all things related to cable and connection technology.

With HITRONIC®, the Lapp Group offers customised solutions for energy suppliers, utility companies, telecommunication companies, city carrier or mobile network suppliers. The product range includes cables, accessories, pre-assembled cables and complex customised products. What can we do for you?

## Application examples

- FTTa: Fibre to the Antenna > Antenna
- FTTb: Fibre to the Building > Building/  
multi-dwelling unit
- FTTc: Fibre to the Curb/Cabinet > Service area interface/  
street area cabinet
- FTTd: Fibre to the Desk > Workspace
- FTTe: Fibre to the Enclosure > Telecom enclosure
- FTTh: Fibre to the Home > Home
- FTTo: Fibre to the Office > Office

## Even more brand quality

With our SKINTOP®, EPIC®, SILVYN® and FLEXIMARK® brands, we meet the requirements for plug connectors, cable glands, cable guiding systems and marking systems.

We only use top-quality glass fibres from prestigious manufacturers to meet our high demands on quality. Our products are being used in a range of applications, such as tunnel construction, industrial site networking and internal communication networks at energy suppliers. Why not opt for the uncompromising quality made by the Lapp Group as well?

For more information, go to [www.lappgroup.com](http://www.lappgroup.com)

# HITRONIC® HVN OUTDOOR CABLE



## ■ Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small – bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal

## ■ Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

## ■ Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

## ■ Product make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)



### Info

- A-DQ(ZN)B2Y
- Outdoor cable with stranded loose tubes and non-metallic strain relief

## ■ Technical data



### Optical fibre type

Core material: glass  
Cladding material: glass



### Temperature range

Fixed installation: -40°C to +70°C



### Permissible bending radius

Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

# HITRONIC® HVN MINI CABLE



## ■ Benefits

- Suitable for blowing into ducts
- Cable construction successfully tested up to 2051m blowing length
- Compact dimensions
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## ■ Application range

- Backbone-Area, FTTH applications
- Telecommunications network
- WAN applications
- For installations by blowing
- Methods of deployment: for blowing or pulling into ducts

## ■ Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Reduced dimensions
- Halogen-free, low-friction outer sheath
- UV-resistant

## ■ Product make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)



### Info

- A-DQ(ZN)2Y
- Mini outdoor cable designed for installation by air-blowing systems (Micro Ducts)

## ■ Technical data



### Optical fibre type

Core material: glass  
Cladding material: glass



### Temperature range

Fixed installation: -40°C to +70°C



### Permissible bending radius

Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

# HITRONIC® HMDC MICRO CABLE



## ■ Benefits

- Suitable for blowing into micro-ducts
- Cable construction successfully tested up to 1250m blowing length
- Very compact dimensions (between 2mm to 2.5mm diameter)
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

## ■ Application range

- FTTH applications
- House connection
- Telecommunications network
- For installations by blowing
- Methods of deployment: for blowing or pulling into micro ducts

## ■ Product features

- Colour-coded fibres
- High reduced dimensions (cable diameter ≤ 2.5mm)
- Halogen-free, low-friction outer sheath
- UV-resistant

## ■ Product make-up

- Central mini subunit with up to 12 fibres
- Standard with single-mode fibre type G.657.A1 (low macrobending sensitive fibre)
- Aramid yarns as strain relief
- PE outer sheath
- Colour: black (RAL 9005)



### Info

- A-D(ZN)2Y
- Micro special cable designed for installation by air-blowing systems (Micro Ducts)

## ■ Technical data



### Optical fibre type

Core material: glass  
Cladding material: glass



### Temperature range

Fixed installation: -40°C to +80°C  
During installation: -10°C to +50°C



### Permissible bending radius

≥ 25 x outer diameter



### Permissible tensile force

Installation: 200N

# HITRONIC® FIRE



## ■ Benefits

- Ensures that the fibres can still transmit data during and after a fire (according to IEC 60331-25)\*
- Suitable for installation in underground tunnels where fire safety is critical
- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- UV-resistant longitudinally and laterally watertight

## ■ Application range

- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For indoor and outdoor use
- Methods of Deployment: empty plastic pipes, ducts and trays

## ■ Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - Flame-retardant (IEC 60332-3)
  - Low smoke density (IEC 61034-1/2)
  - Circuit integrity (IEC 60331-25); Optical fibre cables
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Flame-retardant and halogen-free outer sheath

## ■ Product make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH inner and outer sheaths
- Colour: black (RAL 9005)



## Info

- A/J-DQ(ZN)BH(SR)H or U-DQ(ZN)BH(SR)H
- Fire-resistant for at least 90 minutes in the event of fire\*
- \* Cable had been tested to withstand 180 min

## ■ Technical data



**Optical fibre type**  
Core material: glass  
Cladding material: glass



**Temperature range**  
Fixed installation: -30°C to +70°C



**Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter



**Permissible tensile force**  
Fixed installation: 1500 N  
Short-term: 2200 N

# HITRONIC® HUN UNIVERSAL CABLE



## ■ Benefits

- Flame retardance makes it suitable for indoor and outdoor installations
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal

## ■ Application range

- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

## ■ Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Flame-retardant and halogen-free outer sheath
- Rodent-protection

## ■ Product make-up

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: dark grey



## Info

- A/J-DQ(ZN)BH or U-DQ(ZN)BH
- Universal cable with central or stranded loose tube and non-metallic strain relief

## ■ Technical data



**Optical fibre type**  
Core material: glass  
Cladding material: glass



**Temperature range**  
Fixed installation: -30°C to +70°C



**Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter



**Permissible tensile force**  
Fixed installation: 1500 N  
Short-term: 2000 N

# HITRONIC® HRH BREAKOUT CABLE



## ■ Benefits

- Suitable for field assembly
- Universal cable for cabling of buildings
- Very easy to install due to compact design, high flexibility, and small bending radii
- Zero electromagnetic interference as the cable contains no metal

## ■ Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

## ■ Product features

- Installation cable with up to 12 Simplex cables
- Flame-retardant and halogen-free
- Mechanically robust

## ■ Product make-up

- 2.1 mm tight-buffered sub-cable with LSZH sheath (identified by numbers)
- Central GRP strength element
- Aramid yarns as strain relief
- LSZH inner and outer sheaths
- Colour: aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1



## Info

- J-V(ZN)HH
- Breakout cable for direct connector assembly

## ■ Technical data



**Optical fibre type**  
Core material: glass  
Cladding material: glass

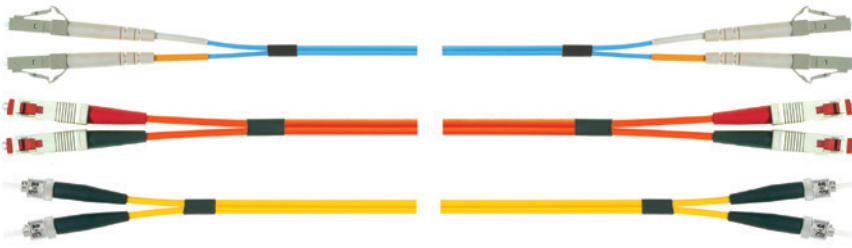


**Temperature range**  
Fixed installation: -20°C to +70°C



**Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

# GOF DUPLEX PATCHCORD



## ■ Benefits

- “Plug & Play” connection between any optical devices
- Non-permanent connections allow for easy change of equipment
- Direct connection between two active optical components
- Zero electromagnetic interference as the cable contains no metal

## ■ Application range

- For indoor use
- LAN connections

## ■ Product features

- Flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules

## ■ Product make-up

- Tight-buffered duplex cable with LSZH outer sheath
- Connector: LC, SC or ST
- Cable colour: violet for multimode OM4, aqua for multimode OM3, orange for multimode OM2 and OM1, yellow for single-mode OS2
- Standard length: 2 m



## Info

- J-VH 2x1G/E
- Pre-terminated tight buffered duplex cable with durable ceramic ferrules

## ■ Technical data



### Optical fibre type

Core material: glass  
Cladding material: glass



### Temperature range

Fixed installation: -20°C to +60°C  
Occasional flexing: -5°C to +50°C



### Permissible bending radius

Static: ≥ 30 mm  
Dynamic: ≥ 40 mm



### Permissible tensile force

Fixed installation: 100 N

# GOF CONNECTOR

## ■ Product features

- Connector sets included all needed parts for assembly

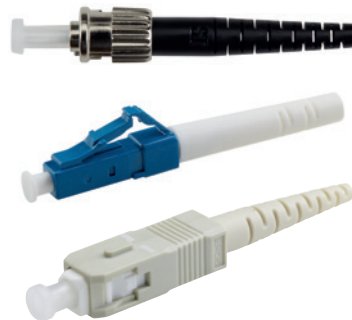
## ■ Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2

## ■ Product make-up

- Ferrule diameter:  
LC: 1.25mm (zirconia)  
SC, ST: 2.5mm (zirconia)
- Can be assembled with cables of 1.7mm-2.1mm diameter

- LC and SC connector sets available in green (single-mode APC), blue (single-mode PC) and grey (multimode)



## ■ Technical data



### Temperature range

Operating  
LC: -40°C to 75°C  
SC: -40°C to 75°C  
ST: -40°C to 85°C  
Humidity 95%  
Flammability UL 94 V-0



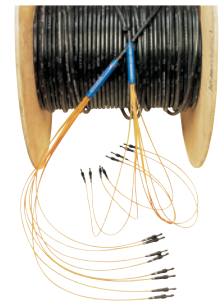
### Permissible tensile force

Tensile load 70N  
Tensile strength after assembly > 100N

## Two different connection types are used with fibre optic cables:

1. **Detachable connections** realised with plug connectors. In this case it is necessary to attach a plug to a glass fibre. This calls for trained personnel and expensive special tools.
2. **Non-detachable connections** created by directly splicing two glass fibres together. To do this requires highly trained personnel and very expensive equipment. If the necessary resources are used only occasionally, the investment is very unlikely to pay for itself.

## The answer: The Lapp fibre trunk system



## ■ Advantages

Using a trunk system offers you the following advantages:

- No costs of special equipment
- No need for highly trained personnel
- Uniform quality thanks to manufacture under laboratory conditions
- Installation is quick, thereby saving costs
- No need to carry out measurements on the cable run, comes with OTDR test certificate
- Fan-out elements also available in IP67

## ■ Requirements

The following data are needed to produce your tailor-made trunk system:

- Length of cable run (effective run +3 to 5 metres reserve on either side)
- Fibre type (SM 9 µm, MM 50 µm or 62.5 µm)
- Number of fibres (2, 4, 6, 8 ... to 48 fibres)
- Plug type (ST, SC, LC ... including mixed)
- Cable type (indoor, outdoor, rodent protection etc.)
- Special type on request



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