# sohome

# IT infrastructure vendor & systems integrator

sohome

**SOHOME AS**
Grimstadvegen 93
NO-5252 Søreldgrend
Norway

Tel.: +47 55 31 27 00
e-mail: salg@sohome.no
website: www.sohome.no


**Sohome is a vendor and system integrator for maritime and offshore as well as onshore projects. Sohome create innovative and reliable solutions that comply with the high demand of product quality needed for these areas. We have a great focus on securing your network using fire retardant and fire resistant DNV GL approved cables.**

## Specialized within IT infrastucture for Maritime Solutions

Sohome has specialized within IT infrastructure for maritime solutions.
In cooperation with DNV GL Sohome has taken the steps to make sure the products follow international standards such as ISO/IEC 11801 for cabling and NORSOK's standards. Solutions have been delivered to vessels and rigs which operates in harsh environments varying from storm to extreme temperatures, vibrations and saltwater. Reference list includes projects such as Kronprins Haakon research vessel, Johan Sverdrup, Edvard Grieg, Aasta Hansteen and Goliat as well as ships from Vard, Kleven and Havyard shipyards.

## Maritime LAN

Sohome is one of the major integrators in the maritime segment in Norway

- Part of the group who developed the first ISO/IEC 11801 Standard
- Experience from all the steps within IT cabling from Cat. 3-5-6-7, fibre optic multimode and single mode
- Developed the brand BERGEN CABLING which consists of DNV/GL approved Cat6A/Cat7 cables and solutions
- Developed the first market solution Cat7 and single mode fibres in a hybrid cable which is DNV GL approved
- Versatile cables for a number of applications, e.g. structured cabling, CCTV, POE, entertainment

Kronprins Haakon Research Vessel

Johan Sverdrup

## Services & Solutions

Sohome can offer the following:

- Design Maritime LAN – Using DNV GL approved solutions Sohome can design maritime LAN in every kind of vessel. It includes drawings and cable pulling list for the installer
- Project Management – design of complete solutions including active equipment together with partners. Sohome can be the customers' representative in purchasing products or deliver a complete package
- Training Centre – training for installers in Maritime LAN and fibre optics. Training can be arranged in Bergen or on site
- Documentation and installation – Sohome offers installation, testing and documentation of the network with its partners worldwide, onshore and offshore
- Offshore cables – The complete range of offshore cables from Draka, e.g. QFCI, AICI, BFOU
- Hook-up Solution – outdoor quick connect fibre optic solution between rigs to easily share/extend the network
- Fibre optic products – Cables, connectors, pigtails, patchcords, patchpanels, outlets
- Cabinets/UPS/Cameras – Cabinets from Rittal, marine UPS from Eaton.

**Bergen Cabling**
the best from
**two** worlds
in **one** single
solution

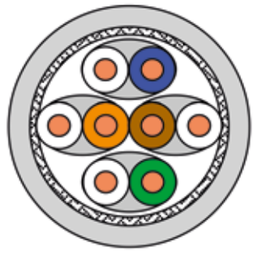

DNV-approved.

Environmentally friendly.

From SOhome,
Bergen, NORWAY.

www.sohome.no

# Bergen Cabling DNV GL & BV approved Maritime LAN S/FTP Cat.7 cable



## Application

Generic Data transmission. This cable is a **Cat7 S/FTP** cable meant for use as installation/horizontal cable in tougher electrical and mechanical environment, including ships and offshore units. The cable is tested up to 900 MHz and will give good margin for application like 10 Gigabit Ethernet at a bandwidth up to 500 MHz..

## Standards

EN 50173-1; EN 50288-4-1
ISO/IEC 11801; IEC 61156-5
Det Norske Veritas (DNV) spesification No. 262.1-010028

## Fire rating

LSHF-FR(SHF1) : IEC 60754-2; IEC 61034, IEC 60332-3-24

## Construction

| | |
|---|---|
| Conductor | Solid copper wire, ⌀ 0.56 mm (AWG 23) |
| Insulation | foamskin PE, ⌀ 1.4 mm |
| Twisting | 2 cores to the pair |
| Pair screen | Al-laminated plastic foil |
| Cable lay up | 4 pairs (PiMF) to the core |
| Screen | copper braid, tinned |
| Sheath | Oil resistant, Fire retardant and halogen free LSHF-FR (SHF1). |

## Chemical resistance

Mineral oils IRM 902 (IEC60811-2-1) : 7 days/23°C
4 hours/70°C
Diesel - IRM 903 (IEC60811-2-1) : 7 days/23°C
4 hours/70°C

## Technical Data

| Description | Variant | Colour | Outer diameter (D) mm | Delivery form | Weight kg/km | BC No. |
|---|---|---|---|---|---|---|
| Maritime LAN Cat.7 S/FTP 4x2/0.56 | LSHF-FR(SHF1) | Grey RAL7035 | 7,8 | Reel 500m EuroPallet 6000m | 67 | 10-001 |

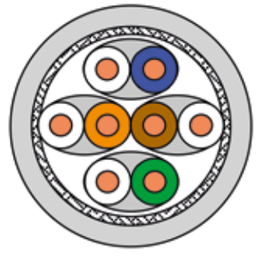
## Certification

DNV GL approved for Maritime and Offshore. Certificate NO: TAE0000009





# Bergen Cabling DNV GL approved Maritime LAN S/FTP Cat.6A cable



## Application

Generic Data transmission. This cable is a **Cat6A S/FTP** cable meant for use as installation/horizontal cable in tougher electrical and mechanical environment, including ships and offshore units. The cable is tested up to 500 MHz and will give good margin for application like 10 Gigabit Ethernet at a bandwidth up to 500 MHz.

## Standards

EN 50173-1; EN 50288-10-1
ISO/IEC 11801; IEC 61156-5
Det Norske Veritas (DNV GL) approved.

## Fire rating

LSHF-FR(SHF1) : IEC 60754-2; IEC 61034, IEC 60332-3-22, IEC 60332-3-24

## Construction

| | |
|---|---|
| Conductor | Solid copper wire, ⌀ 0.56 mm (AWG 23) |
| Insulation | Foamskin PE, ⌀ 1.4 mm |
| Twisting | 2 cores to the pair |
| Pair screen | Al-laminated plastic foil |
| Cable lay up | 4 pairs (PiMF) to the core |
| Screen | Copper braid, tinned |
| Sheath | Oil resistant, Fire retardant and halogen free LSHF-FR (SHF1). |

## Chemical resistance

Mineral oils IRM 902 (IEC60811-2-1) : 7 days/23°C
4 hours/70°C
Diesel - IRM 903 (IEC60811-2-1) : 7 days/23°C
4 hours/70°C

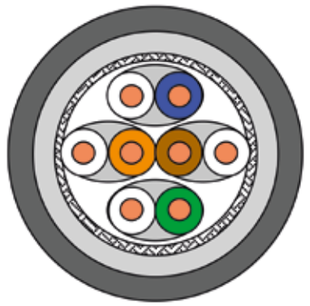
## Technical Data

| Description | Variant | Colour | Outer diameter (D) mm | Delivery form | Weight kg/km | BC No. |
|---|---|---|---|---|---|---|
| Maritime LAN Cat.6A S/FTP 4x2/0.56 | LSHF-FR(SHF1) | Grey RAL7035 | 7,6 | Reel 500m EuroPallet 6000m | 60 | 10-021 |

## Certification

DNV GL approved for Maritime and Offshore. Certificate No: TAE00002HN

# Bergen Cabling Maritime LAN S/FTP Cat.7 MUD cable



## Application

Generic Data transmission. This cable is a **Cat7 S/FTP** cable is based on our **DNV GL certified BC-10-001 Bergen Cabling Maritime LAN Cat7 S/FTP cable**, but with an additional fire retardant, halogen-free, low smoke MUD protecting outer jacket. This cable is meant for use as installation/horisontal cable in tougher electrical and mechanical environment, including ships and offshore units.

## Standards

EN 50173-1; EN 50288-4-1
ISO/IEC 11801; IEC 61156-5

## Fire rating

Inner sheath: LSHF-FR (SHF1) : IEC 60754-2; IEC 61034, IEC 60332-3-24
MUD protecting outer sheath : IEC 60754-2; IEC 61034, IEC 60332-3-24

## Construction

| | |
|---|---|
| Conductor | Solid copper wire, ⌀ 0.56 mm (AWG 23) |
| Insulation | foamskin PE, ⌀ 1.4 mm |
| Twisting | 2 cores to the pair |
| Pair screen | Al-laminated plastic foil |
| Cable lay up | 4 pairs (PiMF) to the core |
| Screen | copper braid, tinned |
| Sheath 1 | Oil resistant, Fire retardant and halogen free LSHF-FR (SHF1). |
| Sheath 2 | MUD protecting |

## Chemical resistance

Mineral oils IRM 902 (IEC60811-2-1) : - 7 days/100°C
Diesel - IRM 903 (IEC60811-2-1) : - 7 days/100°C

## Technical data

| Part no. | Description | Colour | Outer diameter | Fire load | | Weight |
|---|---|---|---|---|---|---|
| | | | mm | MJ/km | kWh/m | kg/km |
| BC-10-005 | Bergen Cabling Maritime LAN S/FTP Cat7 MUD cable | Dark Grey RAL7024 | 9,8 | *) | *) | 100 |

## Certification

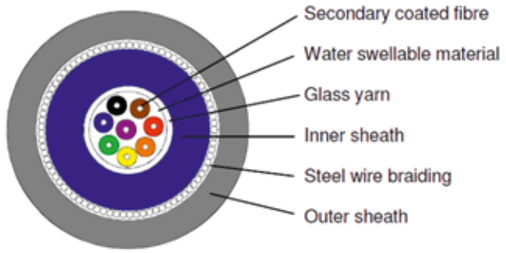
The base construction(exclusive the extra MUD sheath) is certified by DNV GL (certificate NO TAE0000009).





# Bergen Cabling Maritime LAN AICI Fiber


Optical cable for industrial environments. The cable is suitable for both indoor and outdoor installation. Continiuous submergence in water is not recommended. The outer sheath is made from black UV-stabilized and weather resistant material which is SHF1 classified, and may be exposed for shorter periods to fluids such as diesel and mineral oils. The resistance to these fluids is according to IEC60811-2-1. The cable is reinforced with a steel wire braiding between the two sheaths. Strength elements of glass yarn around the cable core allow easy installation of long lengths. The 0.9 mm tight buffer is easy to strip allowing fast and reliable splicing and connector mounting. Each fibre is colour coded for easy identification. The outer sheath is marked to show fibre type and cable type.




## Weight and dimentions

| Number of fibres | Secondary coating [mm] | Outer diameter [mm] | Weight [kg/km] | Tensile strength* [Inst./oper.] [N] |
|---|---|---|---|---|
| 4 | 0.9 | 8.2 | 90 | 700/250 |
| 8 | 0.9 | 9.4 | 125 | 800/350 |
| 12 | 0.9 | 10.3 | 145 | 1200/500 |

## Certification

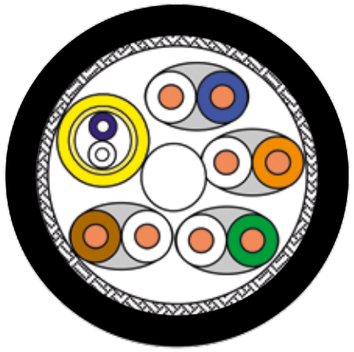
DNV GL approved, certificate number TAE000000C

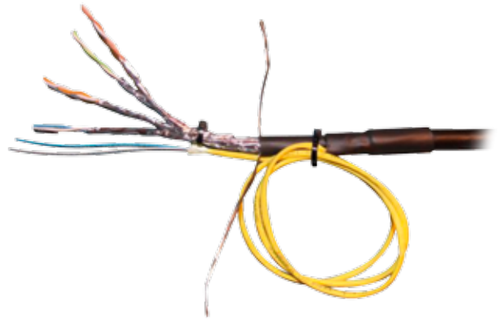
## Cable properties

| | | | |
|---|---|---|---|
| ***Tensile strength** (IEC 60794-1-2E1) | | **Temperature window** | |
| Max tensile load during installation | See above | Operation | -40°C to +70°C |
| Max tensile load during operation | See above | Installation | -10°C to +70°C |
| | | Storage | -40°C to +70°C |
| **Crush** (IEC 60794-1-2E3) | 2000 N/10cm | **Water tightness*** (IEC 60794-1-2F5B) | < 3 m/24 hours |
| **Impact** (IEC 60794-1-2E4) | 1 impacts, 25J | **Fire and smoke classifications** | |
| **Torsion** (IEC 60794-1-2E7) | ± 1 turn/1m | IEC 60332-1 | |
| | | IEC 60332-3-22 (Cat. A) | |
| **Cable bending** | | IEC 60332-3-24 (Cat. C) | |
| Minimum bending diameter | 15x outer diameter | IEC 61034 | |
| Cable bend (IEC 60794-1-2E11) | <0.5 dB/ ± 5 turn | IEC 60754-1 | |
| Flexibility (IEC 60794-1-2E8) | 1000 cycles | IEC 60754-2 | |
| | | **Chemical reistance** | |
| | | Mineral oils IRM 902 (IEC60811-2-1) | - 7 days/23°C<br>- 4 hours/70°C |
| | | Diesel - IRM 903 (IEC60811-2-1) | - 7 days/23°C<br>- 4 hours/70°C |

*) – Steel wire braiding is not watertight.

# Bergen Cabling DNV GL approved Maritime LAN
# Hybrid cable S/FTP Cat.7 + 2 OS2 single mode fibres





## Application

Generic Data transmission. This cable is a **Cat7 S/FTP** cable meant for use as installation/horizontal cable in tougher electrical and mechanical environment, including ships and offshore units. The cable is tested up to 900 MHz and will give good margin for application like 10 Gigabit Ethernet at a bandwidth up to 500 MHz.
Singlemode fiber 2 fiber cable with aramid yarns strength, fulfills ITU G.657 A2, G.657 B2 as well as G.652.A-B-C and D

## Standards

EN 50173-1; EN 50288-4-1
ISO/IEC 11801 Class F and OS2,

IEC 60793-2-50, B6 a and b
IEC 60793-1-xx (See separate datasheet)

## Fire rating

| | |
|---|---|
| LSHF-FR(SHF1) | : IEC 60754-2; IEC 61034, IEC 60332-3-24 |
| Fibre cable OS2 LSHF-FR | : IEC 60332-3-24 (3C) |

## Technical Data

| Description | Variant | Colour | Outer diameter (D) mm | Delivery form | Weight kg/km | BC No. |
|---|---|---|---|---|---|---|
| Maritime LAN Cat.7 S/FTP 4x2/0.56 + 2 OS2 fibres | LSHF-FR(SHF1) | Black | 9,2 | Reel 500m | 92 | 10-003 |

## Certification

DNV GL approved for Maritime and Offshore. Certificate NO: TAE000000A





# Bergen Cabling DNV approved Maritime LAN
# Hybrid cable S/FTP Cat.7 + 2 OS2 single mode fibres with MUD sheet

## Application

Generic Data transmission. This cable is a **Cat7 S/FTP** cable meant for use as installation/horizontal cable in tougher electrical and mechanical environment, including ships and offshore units. The cable has an additional fire retardant, halogen-free low smoke MUD protected outer sheet. The cable is tested up to 900 MHz and will give good margin for application like 10 Gigabit Ethernet at a bandwidth up to 500 MHz.
Singlemode 2 fiber cable with aramid yarns strength , fulfills the new ITU G.657 A2, G.657 B2 as well as G.652.A-B-C and D

## Standards

EN 50173-1; EN 50288-4-1
ISO/IEC 11801 Class F and OS2,
Det Norske Veritas (DNV) spesification No. 262.1-010028
IEC 60793-2-50, B6 a and b
IEC 60793-1-xx (See separate datasheet for fiber part below)

## Fire rating

| | |
|---|---|
| Inner sheet: LSHF-FR (SHF1) : | IEC 60754-1 and 2; IEC 61034, IEC 60332-3-24 |
| MUD protection outer sheet: | IEC 60754-1, IEC 61034, IEC 60332-3-24 |

## Technical Data

| Description | Variant | Colour | Outer diameter (D) mm | Delivery form | Weight kg/km | | BC Part No. |
|---|---|---|---|---|---|---|---|
| Maritime LAN Cat.7 S/FTP 4x2/0.56 | MUD protected | Dark Grey | 11,2 | Reel 500m | 138 | | 10-004 |

## Certification

The base construction (exclusive the extra MUD sheet) is certified by DNV GL

## Cat. 7 4x2x23/1 AWG S/FTP LSZH-SHF2 Fire Resistant

**Part Number:** **9MGF009xxx**

**Applications:** Offshore installations, Maritime Environment, Optimized for IEEE 802.3at PoE+, High bandwidth digital applications with low BER, Ships, High speed & Light craft, Data transmission during fire

**General Construction:** Four individually foil-shielded twisted pairs with solid conductors, cabled together, braid shielded and outer jacketed.

The cable design and structure comply with the circuit integrity performance during a fire of the relevant requirements of IEC 60331-23 and allows data transmission during the fire.

The cable is certified by DNV / DNV-GL FILE NO. E-TAE00000U3.

**Outer Jacket Material:** XL-HFFR
**Outer Diameter:** 8.5 mm nom.
**Weight:** 84 kg/km

**Detailed Construction:**
Each conductor is wrapped with a special fire-resistant tape that serves as a flame barrier.
For more details regarding transmission properties during fire as well as the test procedure used, please go to >>Support>>White Papers on our website - www.teldor.com

| | |
|---|---|
| **Conductor Material:** | Annealed Bare Copper |
| **Conductor Size:** | 23 AWG |
| **Conductor Construction:** | Solid |
| **Insulation Material:** | PO + Fire Resistant Tape |
| **Insulation O.D.:** | 1.2 mm nom. |
| **Conductor unit identification:** | Solid/stripe |
| **Conductor Color Code:** | White/Blue, White/Orange, White/Green, White/Brown |
| **Ind. Shield Material:** | Aluminum/Polyester Foil |
| **Ind. Shield Design:** | Helically applied Aluminum foil, 100% coverage |
| **Conductor unit lay-up:** | Pairs |
| **Overall Shield Design:** | Braid |
| **Overall Braid Shield:** | Yes |
| **Overall Braid Material:** | Annealed Tinned Copper |
| **Braid Coverage:** | 55 % nom. |
| **Overall Drain-wire Material:** | Annealed Tinned Copper |
| **Overall Drain-wire size:** | 0.41 mm |
| **Overall Drain-wire Construction:** | Solid |
| **Outer Jacket Color:** | See TELDOR Jacket Code |
| **Marking:** | Per request, Teldor Standard |

### Standards

| | |
|---|---|
| **Applicable Standards:** | DNV-GL certified, IEC 60092-359, IEC 60092-350, IEC 60811-2-1, IEC 61156-5, ISO/IEC 11801, TIA/EIA-568, ASTM G154, RoHS-2 2011/65/EU |
| **Flamability Rating:** | IEC 60331-23, IEC 60332-1, IEC 60332-3 , IEC 60754-1/2, IEC 61034-1/2, UL 1581 VW-1 |



## FIRE RESISTANT QFCI F101

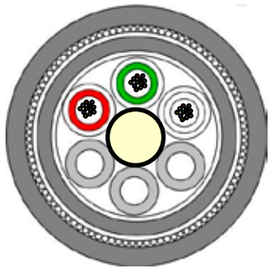
# QFCI

**Indoor and outdoor.**
**Fire resistant**
**Flame retardant halogen-free**
**Loose tube**

**NEK TS 606:2016 Code F101[2)]**

Optical cable for indoor and outdoor use in vital communication and emergency systems that need to be operational during fire. The cable has a design that ensures operation for more than 3 hours in fires up to 1000ºC.
The unique design features eXtended Fire Resistant properties (XFR) which secure operation during fire test with bending and impact from hammer shock. In addition, also with water spray and water jet (BS 8491[1)]) during and directly after the fire. The cable is halogen free and flame retardant to protect against secondary damage to electronic equipment during and after fire. Outer sheath is made from black UV-stabilized and weather resistant material and may be exposed for shorter periods to fluids such as diesel and mineral oils. The resistance to these fluids is according to IEC60811-404. The cable is reinforced with a steel wire braiding. The fibres are protected in jelly filled loose tubes stranded around a FRP central strength member to ensure optimum performance and long life. Each fibre and loose tube is colour coded for easy identification during splicing and termination. The outer sheath is marked to show fibre type and cable type.

[1)] Simulating water fire fighting jet
[2)] Code F1 in the NEK TS 606:2009



1. FRP-central strength member
2. Fiber in filled tubes
3. Wrapping
4. Inner LSHF sheath
5. Galvanized steel wire braid(GSWB)
6. Outer sheath(SHF1)

### Weight and dimensions

| Number of fibres | Number of fibres in each tube | Number of tubes + fillers | Loose tube diameter (mm) | Outer diameter (mm) | Weight (kg/km) | Heat release (MJ/km) |
|---|---|---|---|---|---|---|
| 4 | 4 | 1+5 | 2,2 | 13,5 | 230 | 1500 |
| 8 | 8 | 1+5 | 2,2 | 13,5 | 230 | 1500 |
| 12 | 12 | 1+5 | 2,2 | 13,5 | 230 | 1500 |
| 24 | 12 | 2+4 | 2,2 | 13,5 | 230 | 1500 |
| 36 | 12 | 3+3 | 2,2 | 13,5 | 230 | 1500 |
| 48 | 12 | 4+2 | 2,2 | 13,5 | 230 | 1500 |
| 60 | 12 | 5+1 | 2,2 | 13,5 | 230 | 1500 |
| 72 | 12 | 6+0 | 2,2 | 13,5 | 230 | 1500 |

Other fibre counts are available on request.

### Cable properties

| | | | |
|---|---|---|---|
| **Tensile strength** (IEC 60794-1-21, E1) | | **Chemical resistance** | |
| Max tensile load during installation | 1500 N | Mineral oils IRM 902 (IEC60811-404) | - 7 days/23°C<br>- 4 hours/70°C |
| Max tensile load during operation | 500 N | Diesel - IRM 903 (IEC60811-404) | - 7 days/23°C<br>- 4 hours/70°C |
| **Crush** (IEC 60794-1-21, E3) | 3000 N/10cm | **Fire and smoke classifications*)** | |
| **Impact** (IEC 60794-1-21, E4) | 30J | IEC 60331-25 (750°C, 90 minutes) | <1.0 dB excess loss |
| **Torsion** (IEC 60794-1-21, E7) | ±1 turn/1m | Upgraded IEC 60331-25 (1000°C, 3 hours) | <1.5 dB excess loss |
| **Cable bending** | | IEC 60331-1(830°C, 120 minutes incl. hammer | <1,5 dB excess loss |
| Minimum bending diameter | 250 mm | shock, followed by water jet acc. to BS 8491:2008) | |
| Cable bend (IEC 60794-1-21, E11) | <0.1dB/ ±5 turn | IEC 60331-2 (830°C, 90 minutes incl. hammer | <1,5 dB excess loss |
| | | shock) followed by water spray acc. to EN 50200 | |
| Temperature window(IEC 60794-1-22, F1) | | IEC 60331-2 (830°C, 90 minutes incl. hammer shock) | <1,5 dB excess loss |
| Operation | -40°C to +70°C | IEC 61034 | |
| Installation | -10°C to +70°C | IEC 60332-3-22 (Cat. A) | |
| Storage | -40°C to +70°C | IEC 60332-3-24 (Cat. C) | |
| | | IEC 60754-1 | |
| | | IEC 60754-2 | |

*)-These are examples of tests performed.





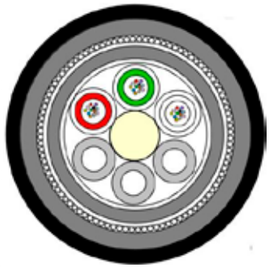
## FIRE RESISTANT QFCI MUD PROTECTED

# QFCI MUD

**Indoor and outdoor.**
**Fire resistant**
**Flame retardant halogen-free**
**Loose tube**

Optical cable for indoor and outdoor use in vital communication and emergency systems that need to be operational during fire. The cable has a design that ensures operation for more than 3 hours in fires up to 1000ºC.
The unique design features eXtended Fire Resistant properties(XFR) which secure operation during fire test with bending and impact from hammer shock. In addition also with water spray and water jet(BS 8491[1)]) during and directly after the fire. The cable is halogen free and flame retardant to protect against secondary damage to electronic equipment during and after fire. Outer sheath is made from black UV-stabilized and weather resistant material and may be exposed for shorter periods to fluids such as diesel and mineral oils. The resistance to these fluids is according to IEC60811-404. The cable is reinforced with a steel wire braiding. The fibres are protected in jelly filled loose tubes stranded around a central strength member to ensure optimum performance and long life. Each fibre and loose tube is colour coded for easy identification during splicing and termination. An additional outer sheath is added for improved oil- and MUD protection. The outer sheath is marked to show fibre type and cable type.

[1)] Simulating water fire fighting jet



1. FRP-central strength member
2. Fiber in filled tubes
3. Wrapping
4. Inner LSHF sheath
5. Galvanized steel wire braid(GSWB)
6. Inner sheath (SHF1)
7. Outer sheath(MUD)

### Weight and dimensions

| Number of fibres | Number of fibres in each tube | Number of tubes + fillers | Loose tube diameter (mm) | Outer diameter (mm) | Weight (kg/km) | Heat release (MJ/km) |
|---|---|---|---|---|---|---|
| 4 | 4 | 1+5 | 2,2 | 15,5 | 330 | 2000 |
| 8 | 8 | 1+5 | 2,2 | 15,5 | 330 | 2000 |
| 12 | 12 | 1+5 | 2,2 | 15,5 | 330 | 2000 |
| 24 | 12 | 2+4 | 2,2 | 15,5 | 330 | 2000 |
| 36 | 12 | 3+3 | 2,2 | 15,5 | 330 | 2000 |
| 48 | 12 | 4+0 | 2,2 | 15,5 | 330 | 2000 |
| 60 | 12 | 5+1 | 2,2 | 15,5 | 330 | 2000 |
| 72 | 12 | 6+0 | 2,2 | 15,5 | 330 | 2000 |

Other fibre counts are available on request.

### Cable properties

| | | | |
|---|---|---|---|
| **Tensile strength** (IEC 60794-1-21,E1) | | **Chemical resistance** | |
| Max tensile load during installation | 1500 N | Mineral oils IRM 902 (IEC60811-404) | - 7 days/100°C |
| Max tensile load during operation | 500 N | Diesel - IRM 903 (IEC60811-404) | - 7 days/100°C |
| **Crush** (IEC 60794-1-21,E3) | 3000 N/10cm | **Fire and smoke classifications*)** | |
| **Impact** (IEC 60794-1-21,E4) | 30J | IEC 60331-25 (750°C, 90 minutes) | <1.0 dB excess loss |
| **Torsion** (IEC 60794-1-21,E7) | ±1 turn/1m | Upgraded IEC 60331-25 (1000°C, 3 hours) | <1.5 dB excess loss |
| **Cable bending** | | IEC 60331-1(830°C, 120 minutes incl. hammer | <1,5 dB excess loss |
| Minimum bending diameter | 250 mm | shock, followed by water jet acc. to BS 8491:2008) | |
| Cable bend (IEC 60794-1-21, E11) | <0.1dB/ ±5 turn | IEC 60331-2 (830°C, 90 minutes incl. hammer | <1,5 dB excess loss |
| | | shock) followed by water spray acc. to EN 50200 | |
| Temperature window(IEC60794-1-22, F1) | | IEC 60331-2 (830°C, 90 minutes incl. hammer shock) | <1,5 dB excess loss |
| Operation | -40°C to +70°C | IEC 61034 | |
| Installation | -10°C to +70°C | IEC 60332-3-22 (Cat. A) | |
| Storage | -40°C to +70°C | IEC 60332-3-24 (Cat. C) | |
| | | IEC 60754-1 | |

*)-These are examples of tests performed.

## Armoured HALOGEN FREE POWER CABLE for marine applications

## LSM-HF 1,8/3 kV EMC and TEMAR PHFX-A 1,8/3 kV EMC


| | |
|---|---|
| **Application** | Power cable for fixed installations. Good mechanical and electrical protection. Designed to fulfill the requirements for cabling on ships. |
| **STANDARDS** | |
| **Construction** | IEC 60092-353 and IEC 60092-350 |
| **Materials** | IEC 60228 (conductor), IEC 60092-360 (insulation and sheath) |
| **Flame retardance** | IEC 60332-3-22 (cat A) and IEC 60332-1-2 |
| **Halogen free properties** | IEC 60754-1 and -2 |
| **Low smoke emission** | IEC 61034-1 and -2 |
| **Tests** | IEC 60092-353 |
| **Choice and installation** | IEC 60092-352 |
| **CHARACTERISTICS** | |
| **Rated voltage** | 1,8/3 (3,6) kV |
| **Conductor temperature** | Maximum +90℃ |
| **Ambient temperature** | Minimum -15℃ (Installation) |
| **DESIGN** | |
| **Conductor** | Compacted and annealed round copper conductor (class 2)<br>or stranded flexible round copper conductor (class 5)<br>-max dc-resistance at +20 ℃ i.a.w. IEC 60228 class 2 or 5 (see table 1-2) |
| **Insulation** | Extruded halogen free XLPE, i.a.w. IEC 60092-360<br>- nominal thickness i.a.w. IEC 60092-353 (see table 1-2) |
| **Laying up** | Insulated conductors are laid up together<br>- wrapping with suitable tape |
| **Inner covering** | Extruded halogen free polyolefine |
| **Screen EMC** | Copper laminated plastic tape<br>- 100% optical coverage |
| **Armour** | Braid of plain copper wires, coverage according to IEC 60092-353<br>- nominal wire diameter in Table 1-2<br>- total area 25-40 mm² |
| **Sheath** | Extruded red halogen free polyolefine, SHF1 i.a.w. IEC 60092-360<br>- nominal thickness i.a.w. IEC 60092-353 (see table 1-2) |





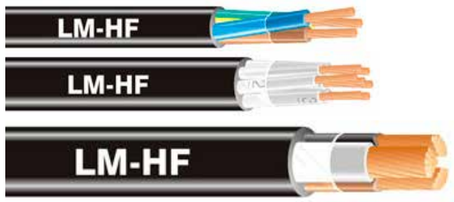
## FIRE RESISTANT HALOGEN FREE POWER AND CONTROL CABLE for marine applications

## LM-FRHF 0,6/1 kV AND TEMAR PHFX-UFR 0,6/1 kV


| | |
|---|---|
| **APPLICATION** | Power and control cable for fixed installations. Designed to maintain operation during fire and to fulfill the requirements for cabling in ships. Used for safety, alarm and other critical systems. |
| **STANDARDS** | |
| **Construction** | IEC 60092-353 and IEC 60092-350 |
| **Materials** | IEC 60228 (conductor), IEC 60092-360 (insulation and sheath) |
| **Fire resistance** | IEC 60331-1 or IEC 60331-21 |
| **Flame retardance** | IEC 60332-3-22 (cat A) and IEC 60332-1-2 |
| **Halogen free properties** | IEC 60754-1 and -2 |
| **Low smoke emission** | IEC 61034-1 and -2 |
| **Tests** | IEC 60092-353 |
| **Choice and installation** | IEC 60092-352 |
| **CHARACTERISTICS** | |
| **Rated voltage** | 0,6/1 (1,2) kV |
| **Conductor temperature** | Maximum +90℃ |
| **Ambient temperature** | Minimum -15℃ (Installation) |
| **DESIGN** | |
| **Conductor** | Round stranded plain copper conductor 1,5 to 16 mm²<br>Round compacted plain, annealed copper conductor 25 to 300 mm²<br>Sector shaped plain, annealed conductors in 3-4 core cables 50 to 300 mm²<br>- max dc-resistance at +20 ℃: IEC 60228 class 2 (see tables 1-3) |
| **Wrapping** | Mica tape with overlap as fire resistant layer |
| **Insulation** | Extruded halogen free XLPE, i.a.w. IEC 60092-360<br>- nominal thickness i.a.w. IEC 60092-353 (see tables 1-3) |
| **Laying up** | Insulated conductors are laid up together<br>- wrapping with suitable tape |
| **Sheath** | Extruded orange halogen free polyolefine, SHF1 i.a.w. IEC 60092-360<br>- nominal thickness i.a.w. IEC 60092-353 (see tables 1-3) |

## HALOGEN FREE POWER AND CONTROL CABLE for marine applications

## LM-HF 0,6/1 kV and TEMAR PHFX-U 0,6/1 kV




| | |
|---|---|
| **APPLICATION** | Power and control cable for fixed installations. Designed to fulfill requirements for cabling on ships. |
| **STANDARDS** | |
| **Construction** | IEC 60092-353 and IEC 60092-350 |
| **Materials** | IEC 60228 (conductor), IEC 60092-360 (insulation and sheath) |
| **Flame retardance** | IEC 60332-3-22 (cat A) and IEC 60332-1-2 |
| **Halogen free properties** | IEC 60754-1 and -2 |
| **Low smoke emission** | IEC 61034-1 and -2 |
| **Tests** | IEC 60092-353 |
| **Choice and installation** | IEC 60092-352 |
| **CHARACTERISTICS** | |
| **Rated voltage** | 0,6/1 (1,2) kV |
| **Conductor temperature** | Maximum +90℃ |
| **Ambient temperature** | Minimum -15℃ (Installation) |
| **DESIGN** | |
| **Conductor** | Round stranded plain copper conductor 1,5 to 16 mm²<br>Round compacted plain copper conductor 25 to 300 mm²<br>Sector shaped plain copper conductors in 3-4 core cables 35 to 300 mm²<br>- max dc-resistance at +20 ℃ i.a.w. IEC 60228 class 2 (see tables 1-3) |
| **Insulation** | Extruded halogen free XLPE, i.a.w. IEC 60092-360<br>- nominal thickness i.a.w. IEC 60092-353 (see tables 1-3) |
| **Laying up** | Insulated conductors are laid up together<br>- wrapping with suitable tape |
| **Sheath** | Extruded black halogen free polyolefine, SHF1 i.a.w. IEC 60092-360<br>- nominal thickness i.a.w. IEC 60092-353 (see tables 1-3) |





## FIRE RESISTANT HALOGEN FREE POWER AND CONTROL CABLE for marine applications

## LSM-FRHF 0,6/1 kV AND TEMAR PHFX-AFR 0,6/1 kV


| | |
|---|---|
| **APPLICATION** | Power and control cable for fixed installations. Designed to maintain operation during fire and to fulfill the requirements for cabling in ships. Used for safety, alarm and other critical systems. |
| **STANDARDS** | |
| **Construction** | IEC 60092-353 and IEC 60092-350 |
| **Materials** | IEC 60228 (conductor), IEC 60092-360 (insulation and sheath) |
| **Fire resistance** | IEC 60331-1 or IEC 60331-21 |
| **Flame retardance** | IEC 60332-3-22 (cat A) and IEC 60332-1-2 |
| **Halogen free properties** | IEC 60754-1 and -2 |
| **Low smoke emission** | IEC 61034-1 and -2 |
| **Tests** | IEC 60092-353 |
| **Choice and installation** | IEC 60092-352 |
| **CHARACTERISTICS** | |
| **Rated voltage** | 0,6/1 (1,2) kV |
| **Conductor temperature** | Maximum +90℃ |
| **Ambient temperature** | Minimum -15℃ (Installation) |
| **DESIGN** | |
| **Conductor** | Round stranded plain copper conductor 1,5 to 16 mm²<br>Round compacted plain copper conductor 25 to 300 mm²<br>Sector shaped plain conductors in 3-4 core cables 50 to 150 mm²<br>- max dc-resistance at +20 ℃ i.a.w. IEC 60228 class 2 (see tables 1-3) |
| **Wrapping** | Mica tape with overlap as fire resistant layer |
| **Insulation** | Extruded halogen free XLPE i.a.w. IEC 60092-360<br>- nominal thickness i.a.w. IEC 60092-353 (see tables 1-3) |
| **Laying up** | Insulated conductors are laid up together<br>- inner covering extruded or lapped with suitable tape |
| **Screen (only in EMC-version)** | In EMC-marked version to improve electrical protection<br>- copper laminated plastic tape, 100% optical coverage |
| **Armour** | Braid of copper wires, coverage according to IEC 60092-353<br>- wire diameter i.a.w. IEC 60092-353 (see tables 1-3) |
| **Sheath** | Extruded orange halogen free polyolefine, SHF1 i.a.w. IEC 60092-360<br>- nominal thickness i.a.w. IEC 60092-353 (see tables 1-3) |

## SHIPLINE FR, BXOI(i) 250V INSTRUMENTATION CABLE


**Fire resistant and flame retardant halogen-free instrumentation cable. Braided. Individual pair shielded.**

# BXOI(I) 250V

**MGT/HFXLPE/TCWB/PO**

**Operating temperature : 90°C**
**Operating Voltage : 250V**

**Standards applied**

| | |
|---|---|
| IEC 60092-376 | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-351 | - Insulation |
| IEC 60092-359 | - Sheath |
| IEC 60332-1 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60331-21 | - Fire Resistant |
| IEC 600754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |

**Application**

Armoured fire resistant cable for fixed installation in ships where cable protection is required. Recommended for instrumentation, communication, control, alarm, emergency and critical systems. Can be installed and operated both indoors and outdoors.

**Construction**

| | Code Letter | |
|---|---|---|
| **Conductor** | | Annealed stranded circular copper, IEC 60228 class 2 |
| **Insulation** | **B** | Mica-tape + HFXLPE, IEC 60092-351 (HFXLPE) |
| **Pair / Triple / Quad twisting** | | Numbered white cores are twisted together and wrapped with polyester tape. Pairs/Quads are laid up and individually shielded by aluminium backed polyester tape with tinned copper drain wire. Each pair/quad is wrapped with polyester tape to prevent electrical contact with adjacent pairs/quads. Pairs/quads are identified by numbers printed on the insulated cores. |
| **Lay up / Shielding** | | Individually shielded pairs are laid up in concentric layers and wrapped with a PETP tape. |
| **Inner covering** | **X** | PET tape |
| **Armour/screen** | **O** | Tinned copper wire braid |
| **Tape over armour/screen** | | Additional tape may be applied |
| **Outer sheath** | **I** | Flame retardant halogen-free thermoplastic compound, SHF1 |
| **Marking text** | | "meter" "år" DRAKA 01 BXOI(i) 250V 2 PAIR 0,75 mm2 IEC 60092-376 IEC 60331-21 IEC60332-3-22 ShipLine |
| **Manufacturing unit** | | DRAKA 01 = Draka Norsk Kabel, DRAKA 02 = Draka Kabel BV Amsterdam, DRAKA 03 = Draka Kabel BV Emmen |
| **Outer sheath colour** | | Green |

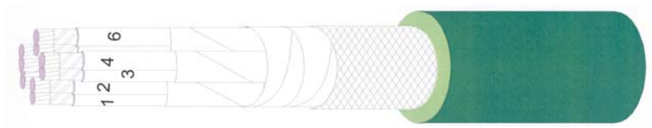
**Core identification instrumentation cables**

| The pairs have the following number identification according to IEC 60092-376 | Core no. |
|---|---|
| Pair no.1 | 1 - 2 |
| Pair no. 2 | 3 - 4 |
| Pair no. 3 | 5 - 6 |
| Pair no. 4 | 7 - 8 |
| Pair no. 5 | etc - etc |
| The two pair cable may also be built up as a star quad | 1 - 3 - 2 - 4 |





## SHIPLINE FR, BXOI 250V INSTRUMENTATION CABLE




**Fire resistant and flame retardant halogen-free instrumentation cable. Braided**

# BXOI 250V

**MGT/HFXLPE/TCWB/PO**

**Operating temperature : 90°C**
**Operating Voltage : 250V**

**Standards applied**

| | |
|---|---|
| IEC 60092-376 | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-351 | - Insulation |
| IEC 60092-359 | - Sheath |
| IEC 60332-1 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60331-21 | - Fire Resistant |
| IEC 600754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |

**Application**

Armoured fire resistant cable for fixed installation in ships where cable protection is required. Recommended for instrumentation, communication, control, alarm, emergency and critical systems. Can be installed and operated both indoors and outdoors.

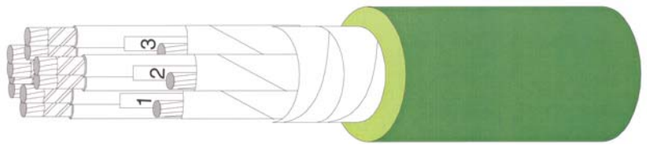
**Construction**

| | Code Letter | |
|---|---|---|
| **Conductor** | | Annealed stranded circular copper, IEC 60228 class 2 |
| **Insulation** | **B** | Mica-tape + HFXLPE, IEC 60092-351 (HFXLPE) |
| **Pair / Triple / Quad twisting** | | Numbered cores twisted together and wrapped with polyester tape. Pairs are twisted together and wrapped with polyester tape. The pairs are twisted with different lay length to reduce mutual interference. Pairs are identified by numbered tape. |
| **Inner covering** | **X** | PET tape |
| **Armour/screen** | **O** | Tinned annealed copper wire braid |
| **Tape over armour/screen** | | Additional tape may be applied |
| **Outer sheath** | **I** | Flame retardant halogen-free thermoplastic compound, SHF1 |
| **Marking text** | | E.g. "meter" "år" DRAKA 01 BXOI 250V 10 PAIR 0,75 mm2 IEC 60092-376 IEC 60331-21 IEC 60332-3-22 ShipLine |
| **Manufacturing unit** | | DRAKA 01 = Draka Norsk Kabel, DRAKA 02 = Draka Kabel BV Amsterdam, DRAKA 03 = Draka Kabel BV Emmen |
| **Outer sheath colour** | | Green |

**Core identification instrumentation cables**

| The pairs have the following number identification according to IEC 60092-376 | Core no. |
|---|---|
| Pair no.1 | 1 - 2 |
| Pair no. 2 | 3 - 4 |
| Pair no. 3 | 5 - 6 |
| Pair no. 4 | 7 - 8 |
| Pair no. 5 | etc - etc |
| The two pair cable may also be built up as a star quad | 1 - 3 - 2 - 4 |

## SHIPLINE FR, BI(i) 250V INSTRUMENTATION CABLE




**Fire resistant and flame retardant halogen-free instrumentation cable. Unbraided. Individual pair shielded.**

# BI(I) 250V

**MGT/HFXLPE/PO**

**Operating temperature : 90°C**
**Operating Voltage : 250V**

**Standards applied**

| | |
|---|---|
| IEC 60092-376 | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-351 | - Insulation |
| IEC 60092-359 | - Sheath |
| IEC 60332-1 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60331-21 | - Fire Resistant |
| IEC 600754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |

**Application**

Unarmoured fire resistant cable for fixed installation in ships where cable protection is not required. Recommended for instrumentation, communication, control, alarm, emergency and critical systems. Can be installed and operated both indoors and outdoors.

**Construction**

| | Code Letter | |
|---|---|---|
| **Conductor** | | Annealed stranded circular copper, IEC 60228 class 2 |
| **Insulation** | **B** | Mica-tape + HFXLPE, IEC 60092-351 (HFXLPE) |
| **Pair / Triple / Quad twisting** | | Color coded cores twisted together and wrapped with polyester tape. Pairs/Triples are laid up and individually shielded by aluminium backed polyester tape with tinned copper drain wire. Each pair/triple is wrapped with polyester tape to prevent electrical contact with adjacent pairs/triples. Pairs/triples are identified by numbered tape or by numbers printed directly on the insulated conductors. |
| **Lay up / Shielding** | | Individually shielded pairs are laid up in concentric layers and wrapped with a PETP tape. |
| **Inner covering** | | No inner covering. (Additional tapes may be applied) |
| **Armour/screen** | | No armour |
| **Outer sheath** | **I** | Flame retardant halogen-free thermoplastic compound, SHF1 |
| **Marking text** | | E.g. "meter" "år" DRAKA 01 BI(i) 250V 14 PAIR 0,75 mm2 IEC 60092-376 IEC 60331-21 IEC 60332-3-22 ShipLine |
| **Manufacturing unit** | | DRAKA 01 = Draka Norsk Kabel, DRAKA 02 = Draka Kabel BV Amsterdam, DRAKA 03 = Draka Kabel BV Emmen |
| **Outer sheath colour** | | Green |

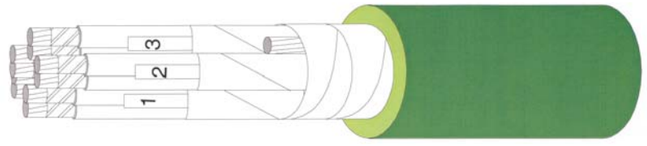
**Core identification instrumentation cables**

| The pairs have the following number identification according to IEC 60092-376 | Core no. |
|---|---|
| Pair no.1 | 1 - 2 |
| Pair no. 2 | 3 - 4 |
| Pair no. 3 | 5 - 6 |
| Pair no. 4 | 7 - 8 |
| Pair no. 5 | etc - etc |
| The two pair cable may also be built up as a star quad | 1 - 3 - 2 – 4 |
| Triple no. 1 | 1-2-3 |
| Triple no. 2 | 4-5-6 |
| Triple no. 3 | 7-8-9 |
| Triple no. 4 | etc. - etc. |





## SHIPLINE FR, BI(c) 250V INSTRUMENTATION CABLE




**Fire resistant and flame retardant halogen-free instrumentation cable. Unbraided. Shielded**

# BI(c) 250V

**MGT/HFXLPE/PO**

**Operating temperature : 90°C**
**Operating Voltage : 250V**

**Standards applied**

| | |
|---|---|
| IEC 60092-376 | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-351 | - Insulation |
| IEC 60092-359 | - Sheath |
| IEC 60332-1 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60331-21 | - Fire Resistant |
| IEC 600754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |

**Application**

Unarmoured fire resistant cable for fixed installation in ships where cable protection is not required. Recommended for instrumentation, communication, control, alarm, emergency and critical systems. Can be installed and operated both indoors and outdoors.

**Construction**

| | Code Letter | |
|---|---|---|
| **Conductor** | | Annealed stranded circular copper, IEC 60228 class 2 |
| **Insulation** | **B** | Mica-tape + HFXLPE, IEC 60092-351 (HFXLPE) |
| **Pair / Triple / Quad twisting** | | Numbered cores twisted together and wrapped with polyester tape. Pairs are twisted together and wrapped with polyester tape. The pairs are twisted with different lay length to reduce mutual interference. Pairs are identified by numbered tape. |
| **Lay up / Shielding** | | Collective shield by laminated aluminium backed PETP-tape with a multistranded tinned copper drainwire. |
| **Inner covering** | | No inner covering. (Additional tapes may be applied) |
| **Armour/screen** | | No armour |
| **Tape over armour/screen** | | Additional tape may be applied |
| **Outer sheath** | **I** | Flame retardant halogen-free thermoplastic compound, SHF1 |
| **Marking text** | | E.g. "meter" "år" DRAKA 01 BI(c) 250V 10 PAIR 0,75 mm2 IEC 60092-376 IEC 60331-21 IEC 60332-3-22 ShipLine |
| **Manufacturing unit** | | DRAKA 01 = Draka Norsk Kabel, DRAKA 02 = Draka Kabel BV Amsterdam, DRAKA 03 = Draka Kabel BV Emmen |
| **Outer sheath colour** | | Green |

**Core identification instrumentation cables**

| The pairs have the following number identification according to IEC 60092-376 | Core no. |
|---|---|
| Pair no.1 | 1 - 2 |
| Pair no. 2 | 3 - 4 |
| Pair no. 3 | 5 - 6 |
| Pair no. 4 | 7 - 8 |
| Pair no. 5 | etc - etc |
| The two pair cable may also be built up as a star quad | 1 - 3 - 2 - 4 |

## FLEXFLAME RFOU M 10KV P3/P10/P103 POWER CABLE

**Flame retardant halogen-free medium voltage (MV) cable. Mud resistant**

# RFOU M 6/10(12) kV

**EPR/EPR/TCWB/EVA**

**NEK TS 606 Code P3/P10/P103**

**Operating temperature : 90°C**
**Operating Voltage : 6/10(12) kV**

**Application**

Fixed installation for medium voltage (MV) power in both EX- and safe areas, general purposes.
For installation in areas exposed to MUD and drilling/cleaning fluids. Meets the Oil & Mud resistance requirement in NEK TS 606:2016

**Standards applied**

| | |
|---|---|
| IEC 60092-354 | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-360 | - Insulation |
| IEC 60092-360 | - Sheath |
| IEC 60332-1-2 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |

## Construction

| | Code Letter | |
|---|---|---|
| **Conductor** | | Tinned stranded and compressed copper (STCC), IEC 60228 class 2 |
| **Conductor screen semiconductive** | | Semiconductive layer (EP-rubber) |
| **Insulation** | **R** | EP-rubber, IEC 60092-360 (EPR) |
| **Insulation screen semicoductive** | | Semiconductive layer (EP-rubber) |
| **Metallic screen** | | Tinned copper wire braid |
| **Lay up** | | Cores are laid up together. Cores are identified by Brown, Black or Grey threads over the metallic screen on each conductor. |
| **Inner covering** | **F** | Flame retardant and halogen-free thermoset compound |
| **Tape over inner covering** | | PET tape |
| **Armour/screen** | **O** | Tinned annealed copper wire braid |
| **Tape over armour/screen** | | PET tape |
| **Outer sheath** | **U** | Flame retardant, halogen-free and mud resistant thermoset compound, SHF2 (IEC 60092-360) |
| **Marking text** | | E.g. "meter" "year/week" DRAKA 04 Part no. <SAP-code> RFOU M6/10(12)KV P3/P10/P103 3x 95/50 mm2 IEC 60332-3-22 Production no. <Production order number> |
| **Manufacturing unit** | | DRAKA 04 = Draka Industrial Cable, Germany |
| **Outer sheath colour** | | Red |



## FLEXFLAME RFOU(i) 250V S1/S5 ARCTIC GRADE

**Flame retardant halogen-free instrumentation cable. Oil & Mud resistant. Cold bend / Cold impact resistant**

# RFOU(i) 250V

**EPR/EPR/TCWB/EVA**

**NEK TS 606 CodeS1/S5 Arctic Grade**

**Operating temperature : 90°C**
**Operating Voltage : 250V**

**Standards applied**

| | |
|---|---|
| IEC 60092-376 (2003-05) | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-360 | - Insulation |
| IEC 60092-360 | - Sheath |
| IEC 60332-1-2 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |
| CSA 22.2 0.3-01 (-40°C/-35°C) / IEC 60092-350 Annex E (-40°C/-35°C) | - Cold Bend / Cold Impact |

**Application**

Fixed installation for instrumentation, communication, Control and alarm systems in both EX- and safe areas. For installation in areas exposed to MUD and drilling/cleaning fluids. Meets the OIL & MUD resistance requirement in NEK TS 606:2009. Meets the cold bend / cold impact requirement in CSA 22.2 0.3-01 and IEC 60092-350 Clause 8.10 & Annex E at -40°C / -35°C.

**Construction**

| | Code Letter | |
|---|---|---|
| **Conductor** | | Tinned annealed stranded circular copper (STCC), IEC 60228 class 2 |
| **Insulation** | **R** | EP-rubber, IEC 60092-360 (EPR) |
| **Pair / Triple / Quad twisting** | | Color coded cores twisted together. Pairs/Triples are screened by copper backed polyester tape with tinned copper drain wire. Each pair/triple is wrapped with polyester tape to prevent electrical contact with adjacent pairs/triples. Pairs/triples are identified by numbers printed directly on the insulated conductors. |
| **Lay up / Shielding** | | Individually shielded pairs/triples/quads are laid up in concentric layers and wrapped with a PETP tape. |
| **Inner covering** | **F** | Flame retardant and halogen-free thermoset compound |
| **Tape over inner covering** | | PET tape |
| **Armour/screen** | **O** | Tinned annealed copper wire braid |
| **Tape over armour/screen** | | Rubberized Polyamide tape |
| **Outer sheath** | **U** | Flame retardant, halogen-free, mud and cold bend / cold impact resistant thermoset compound, SHF2 (IEC 60092-360) |
| **Marking text** | | E.g. "meter" "year" DRAKA 01 RFOU(I) 250V S1/S5 4PAIR 0.75mm2 IEC 60092-376 IEC 60332-3-22 ARCTIC GRADE Cold bend (-40 deg. C) / Cold impact (-35 deg. C) |
| **Manufacturing unit** | | DRAKA 01 = Draka Norsk Kabel, |
| **Outer sheath colour** | | Grey or Blue |

**Core identification instrumentation cables**

Pair - Black - Light Blue
Triple - Black - Light Blue - Brown
Quad - Black - Light Blue - Brown - Grey





## FLEXFLAME RFOU(c) 250V S2/S6 ARCTIC GRADE

**Flame retardant halogen-free instrumentation cable. Oil & Mud resistant. Cold bend / Cold impact resistant**

# RFOU(c) 150/250(300)V

**EPR/EPR/TCWB/EVA**

**NEK TS 606 CodeS2/S6 Arctic Grade**

**Operating temperature : 90°C**
**Operating Voltage : 150/250(300)V**

**Standards applied**

| | |
|---|---|
| IEC 60092-376 (2003-05) | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-360 | - Insulation |
| IEC 60092-360 | - Sheath |
| IEC 60332-1-2 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |
| CSA 22.2 0.3-01 (-40°C/-35°C) / IEC 60092-350 Annex E (-40°C/-35°C) | - Cold Bend / Cold Impact |

**Application**

Fixed installation for instrumentation, communication, Control and alarm systems in both EX- and safe areas. For installation in areas exposed to MUD and drilling/cleaning fluids. Meets the OIL & MUD resistance requirement in NEK TS 606:2009. Meets the cold bend / cold impact requirement in CSA 22.2 0.3-01 and IEC 60092-350 Clause 8.10 & Annex E at -40°C / -35°C.

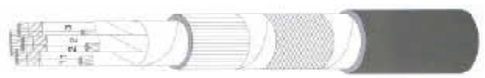
**Construction**

| | Code Letter | |
|---|---|---|
| **Conductor** | | Tinned annealed stranded circular copper (STCC), IEC 60228 class 2 |
| **Insulation** | **R** | EP-rubber, IEC 60092-360 (EPR) |
| **Pair / Triple / Quad twisting** | | Color coded cores twisted together and wrapped with polyester tape. Pairs/Triples are laid up collectively and screened by copper backed polyester tape with tinned copper drain wire. Pairs/triples are identified by numbers printed directly on the insulated conductors. |
| **Inner covering** | **F** | Flame retardant and halogen-free thermoset compound |
| **Tape over inner covering** | | PET tape |
| **Armour/screen** | **O** | Tinned annealed copper wire braid |
| **Tape over armour/screen** | | Rubberized Polyamide tape |
| **Outer sheath** | **U** | Flame retardant, halogen-free, mud and cold bend / cold impact resistant thermoset compound, SHF2 (IEC 60092-360) |
| **Marking text** | | E.g. "meter" "year" DRAKA 01 RFOU(C) 250V S2/S6 4PAIR 0.75mm2 IEC 60092-376 IEC 60332-3-22 ARCTIC GRADE Cold bend (-40 deg. C) / Cold impact (-35 deg. C) |
| **Manufacturing unit** | | DRAKA 01 = Draka Norsk Kabel, |
| **Outer sheath colour** | | Grey or Blue |

**Core identification instrumentation cables**

Pair - Black - Light Blue
Triple - Black - Light Blue - Brown
Quad - Black - Light Blue - Brown - Grey

## FLEXFLAME BFOU(i) 250V S3/S7 ARCTIC GRADE



**Fire resistant, flame retardant halogen-free instrumentation cable. Oil & Mud resistant. Cold bend / Cold impact resistant**

# BFOU(i) 150/250(300)V

**MGT/EPR/EPR/TCWB/EVA**

**NEK TS 606 CodeS3/S7 Arctic Grade**

**Operating temperature : 90°C**
**Operating Voltage : 150/250(300)V**

**Standards applied**

| | |
|---|---|
| IEC 60092-376 (2003-05) | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-351 | - Insulation |
| IEC 60092-359 | - Sheath |
| IEC 60332-1 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60331-1, -2, -21 | - Fire Resistant |
| IEC 60754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |
| CSA 22.2 0.3-01 (-40°C/-35°C) / IEC 60092-350 Annex E (-40°C/-35°C) | - Cold Bend / Cold Impact |

**Application**

Fixed installation for instrumentation, communication, control and alarm systems in both EX- and safe areas, emergency and critical systems where requirement for fire resistance exists. Meets the OIL & MUD resistance requirement in NEK TS 606:2009. Meets the cold bend / cold impact requirement in CSA 22.2 0.3-01 and IEC 60092-350 Clause 8.9 & Annex E at -40°C/-35°C.

## Construction

| | Code Letter | |
|---|---|---|
| **Conductor** | | Tinned annealed stranded circular copper (STCC), IEC 60228 class 2 |
| **Insulation** | **B** | Mica-tape + EP-rubber, IEC 60092-351 (EPR) |
| **Pair / Triple / Quad twisting** | | Color coded cores twisted together. Pairs/Triples are screened by copper backed polyester tape with tinned copper drain wire. Each pair/triple is wrapped with polyester tape to prevent electrical contact with adjacent pairs/triples. Pairs/triples are identified by numbered tape or by numbers printed directly on the insulated conductors. |
| **Lay up / Shielding** | | Individually shielded pairs/triples/quads are laid up in concentric layers and wrapped with a PETP tape. |
| **Inner covering** | **F** | Flame retardant and halogen-free thermoplastic compound |
| **Tape over inner covering** | | PET tape |
| **Armour/screen** | **O** | Tinned annealed copper wire braid |
| **Tape over armour/screen** | | PET tape |
| **Outer sheath** | **U** | Flame retardant, halogen-free, mud and cold bend / cold impact resistant thermoset compound, SHF2 (IEC 60092-359) |
| **Marking text** | | Eg. "meter" "year" DRAKA 01 BFOU(I) 250V S3/S7 4PAIR 0.75mm2 FLEX - FLAME IEC 60092-376 IEC 60331-1*) or IEC 60331-2*) IEC 60331-21 IEC 60332-3-22 ARCTIC GRADE Cold bend (-40 deg. C) / Cold impact (-35 deg. C) |
| **Manufacturing unit** | | DRAKA 01 = Draka Norsk Kabel |
| **Outer sheath colour** | | Grey or Blue |

*) IEC 60331-1 for cables with an overall diameter exceeding 20 mm and IEC 60331-2 for cables with an overall diameter not exceeding 20 mm

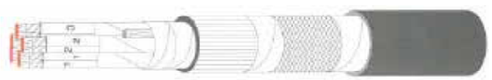
## Core identification instrumentation cables

Pair - Black - Light Blue
Triple - Black - Light Blue - Brown
Quad - Black - Light Blue - Brown - Grey





## FLEXFLAME BFOU(c) 250V S3/S7 ARCTIC GRADE



**Fire resistant, flame retardant halogen-free instrumentation cable. Oil & Mud resistant. Cold bend / Cold impact resistant**

# BFOU(c) 150/250(300)V

**MGT/EPR/EPR/TCWB/EVA**

**NEK TS 606 CodeS4/S8 Arctic Grade**

**Operating temperature : 90°C**
**Operating Voltage : 150/250(300)V**

**Standards applied**

| | |
|---|---|
| IEC 60092-376 (2003-05) | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-351 | - Insulation |
| IEC 60092-359 | - Sheath |
| IEC 60332-1 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60331-1, -2, -21 | - Fire Resistant |
| IEC 60754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |
| CSA 22.2 0.3-01 (-40°C/-35°C) / IEC 60092-350 Annex E (-40°C/-35°C) | - Cold Bend / Cold Impact |

**Application**

Fixed installation for instrumentation, communication, control and alarm systems in both EX- and safe areas, emergency and critical systems where requirement for fire resistance exists. Meets the OIL & MUD resistance requirement in NEK TS 606:2009. Meets the cold bend / cold impact requirement in CSA 22.2 0.3-01 and IEC 60092-350 Clause 8.9 & Annex E at -40°C/-35°C.

## Construction

| | Code Letter | |
|---|---|---|
| **Conductor** | | Tinned annealed stranded circular copper (STCC), IEC 60228 class 2 |
| **Insulation** | **B** | Mica-tape + EP-rubber, IEC 60092-351 (EPR) |
| **Pair / Triple / Quad twisting** | | Color coded cores twisted together and wrapped with polyester tape. Pairs/Triples are laid up collectively and screened by copper backed polyester tape with tinned copper drain wire.Pairs/triples are identified by numbered tape or by numbers printed directly on the insulated conductors. |
| **Inner covering** | **F** | Flame retardant and halogen-free thermoplastic compound |
| **Tape over inner covering** | | PET tape |
| **Armour/screen** | **O** | Tinned annealed copper wire braid |
| **Tape over armour/screen** | | PET tape |
| **Outer sheath** | **U** | Flame retardant, halogen-free, mud and cold bend / cold impact resistant thermoset compound, SHF2 (IEC 60092-359) |
| **Marking text** | | Eg. "meter" "year" DRAKA 01 BFOU(C) 250V S4/S8 4PAIR 0.75mm2 FLEX - FLAME IEC 60092-376 IEC 60331-1*) or IEC 60331-2*) IEC 60331-21 IEC 60332-3-22 ARCTIC GRADE Cold bend (-40 deg. C) / Cold impact (-35 deg. C) |
| **Manufacturing unit** | | DRAKA 01 = Draka Norsk Kabel |
| **Outer sheath colour** | | Grey or Blue |

*) IEC 60331-1 for cables with an overall diameter exceeding 20 mm and IEC 60331-2 for cables with an overall diameter not exceeding 20 mm

## Core identification instrumentation cables

Pair - Black - Light Blue
Triple - Black - Light Blue - Brown
Quad - Black - Light Blue - Brown - Grey

# Legrand Pop-Up box

CE

## Application

Legrands new pop-up workstation solution.  Perfect integration into office furniture or floor. Extra slim format and 5 finishes (aluminum, bronze, stainless steel, black or white) to blend discreetly into the office furniture or floor and a perfect match with interior decoration. Soft opening cover with damper and push and locking system. Available in 3, 2x3, 4 and 2x4 modules for custom configuration or ready assembled with low and high current functions.

## Available modules

| Description | Part no: |
|---|---|
| Outlet 1xRJ45 Cat6a STP,  1 module | 076561 |
| Outlet VGA, 1 module | 078777 |
| Outlet HDMI, 1 module | 078778 |
| Outlet 1xUSB charger, 1 module | 077591 |
| Outlet 2xUSB charger, 2 module | 077594 |
| Display port, 1 module | 078791 |
| Mini jack, 1 module | 078779 |
| Power outlet, 2 module | 077213 |






# BC Outlet 2xRJ45 Angled, Keystone w/S1091 PT power outlet PH

## Wall Outlets with DNV GL approved Cat6a keystone & S1091 PT power outlet PH

Wall outlet with Bergen Cabling Cat6A Keystone connector and S1091 power outlet is well suited for flush mount installation. All outlets are supplied with dust shutters and a big and easy to see field for label with protection for durable labelling. Also available in black and alu.

## Standards

Certified according to standard ISO11801 2. Ed / EN50173-1 and support application up to and including 10 Gigabit Ethernet (10GBase-T). All outlets are produce in halogen free and 100% recyclable material.

The cat6a connector is approved for use in Bergen Cabling 10 Gigabit Link solution, and DNV GL approved.

## Measurements (on products with RS DSO frame PW)

Frame outer dimensions:  BC-12-260 155 x 114 mm
Frame outer dimensions:  BC-12-261 228 x 114 mm
Frame outer dimensions:  BC-12-262 299 x 114 mm

## Ordering info

| Part No. | Part Name |
|---|---|
| **BC-12-260** | BC Outlet 2xRJ45 Angled, Keystone w/1xS1091 PT power outlet PH 2H |
| **BC-12-261** | BC Outlet 2xRJ45 Angled, Keystone w/2xS1091 PT power outlet PH 3H |
| **BC-12-262** | BC Outlet 2xRJ45 Angled, Keystone and 2xF/BNC Angled w/2xS1091 PT power outlet PH 4H |

## Bergen Cabling Slim Patchcords Cat6A STP 10 Gigabit

Bergen Cabling Cat6a STP slim patchcords are designed for high density environments such as data centers and telecommunication rooms. The outer diameter is 40% reduced compared to traditional patchcords thus saving space in e.g. a rack.

Part nr.: **BC-16-1xx (*)**

**(*) change xx with meter length, OBS! 1m shall be written "01"**

## Bergen Cabling Slim Patchcords Cat6A UTP 10 Gigabit

Bergen Cabling Cat6a UTP slim patchcords are designed for high density environments such as data centers and telecommunication rooms. The outer diameter is 40% reduced compared to traditional patchcords thus saving space in e.g. a rack.

Part nr.: **BC-15-1xx (*)**

**(*) change xx with meter length, OBS! 1m shall be written "01"**

## Bergen Cabling Screened Patchcords Cat6A 10 Gigabit

Bergen Cabling Screened Patchcords Cat6A 10 Gigabit for horizontal communication cable; for indoor installation.

Part nr.: **BC-16-00x**

## Bergen Cabling Unscreened Patchcords Cat6A 10 Gigabit

Bergen Cabling Uncreened Patchcords Cat6A 10 Gigabit for horizontal communication cable; for indoor installation.

Part nr.: **BC-15-00x**





## Bergen Cabling Maritime LAN Connector Cat6A STP, Keystone

Cat6a DNV GL certified connector for applications up to 10 Gbit. Can be used with Bergen Cabling Maritime LAN patchpanels and outlets. Also suitable for use with other vendors with keystone footprint.

Part nr.: **BC-11-004**

## BC Alu patchboks 4-12 port w/Cat6A Keystone

Patchbox in aluminium for use on e.g. shelfs, wall etc. 4, 8 and 12 ports available. Comes complete with BC Cat6a keystone connectors.

Part nr.: **BC-13-234-7**

**Kronprins Haakon - Research vessel**

## BC Outlet 1xJ45 STP Cat6A RS, Keystone

Flush mount outlet with 1xCat6a keystone connector and Elko RS16 frame.

Part nr.: **BC-12-201**

## BC Outlet 2xJ45 STP Cat6A RS, Keystone

Flush mount outlet with 2xCat6a keystone connectors and Elko RS16 frame.

Part nr.: **BC-12-202**

## BC Outlet 1xJ45 STP Cat6A RS Angled, Keystone

Angled outlet with 1xCat6a keystone connector and Elko RS16 frame. Center plate is mounted with screw to ensure that it is properly fastened. Especially for use in maritime environment.

Part nr.: **BC-12-203**

## BC Outlet 2xJ45 STP Cat6A RS Angled, Keystone

Angled outlet with 2xCat6a keystone connector and Elko RS16 frame. Center plate is mounted with screw to ensure that it is properly fastened. Especially for use in maritime environment.

Part nr.: **BC-12-204**





## BC Outlet 1xJ45 STP Cat6A TEK, Keystone

TEK outlet with 1xCat6a keystone connector. Boxless type for use with TEK/INKA trunking.

Part nr.: **BC-12-207**

## BC Outlet 2xJ45 STP Cat6A TEK, Keystone

TEK outlet with 2xCat6a keystone connectors. Boxless type for use with TEK/INKA trunking.

Part nr.: **BC-12-208**

## BC Outlet 1xJ45 STP Cat6A Optiline, Keystone

Optiline outlet with 1xCat6a keystone connector.

Part nr.: **BC-12-209**

## BC Outlet 2xJ45 STP Cat6A Optiline, Keystone

Optiline outlet with 2xCat6a keystone connectors.

Part nr.: **BC-12-210**

## BC Maritime Housing IP67 w/1x Cat6a

IP67 outlet for harsh environments.
For use with our IP67/IP20 patchcords.

Part nr.: **BC-12-021**

## BC Maritime Housing IP67 w/2xCat6a

IP67 outlet for harsh environments.
For use with our IP67/IP20 patchcords.

Part nr.: **BC-12-024**

## BC Maritime Patchcord IP67/IP20 Cat6a

BC Maritime Patchcords IP67 Cat6a IP67 and IP20. For use with BC-12-021/024. May be used with outdoor APs and CCTV.

Part nr.: **BC-17-xxx**

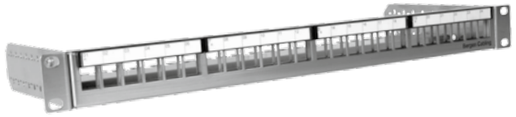
## Bergen Cabling Keystone Termination Tool

Termination tool for BC Cat6a keystone connectors.

Part nr.: **BC-14-201**



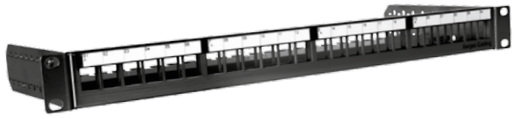




## Bergen Cabling Maritime LAN patchpanel 24p, Keystone, empty

Heavy duty acid free stainless steel Maritime LAN patchpanel for BC Cat6a keystone connectors. Also suitable for other keystone adapters (e.g. LC, HDMI, USB etc).

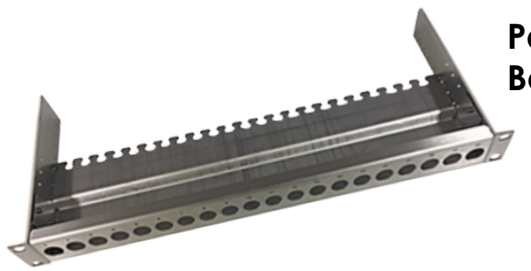
Part nr.: **BC-13-201**



## Bergen Cabling Maritime LAN patchpanel 24p black, Keystone, empty

Heavy duty stainless steel Maritime LAN black patchpanel for BC Cat6a keystone connectors. Also suitable for other keystone adapters (e.g. LC, HDMI, USB etc).

Part nr.: **BC-13-203**



## Patchpanel BNC 20p 75 ohm Bergen Cabling Maritime, empty

Heavy duty BNC solution for maritime and offshore installations. Suitable for BNC 75 ohm adapters with plastic rings for insulation (if needed).

Part nr.: **BC-13-010**

## Patchpanel XLR 16p Bergen Cabling Maritime, empty

Heavy duty XLR solution for maritime and offshore installations. Suitable for XLR adapters and other adapters with same form factor.

Part nr.: **BC-13-020**

## BC Patchpanel 1U 24p LC Duplex AISI 316L

Heavy duty fibre optic panel made of stainless steel. Loaded with LC SM duplex adapters.

Part nr.: **BC-13-071**

## Patchpanel 1U Cat3 25 ports LSA Optronics

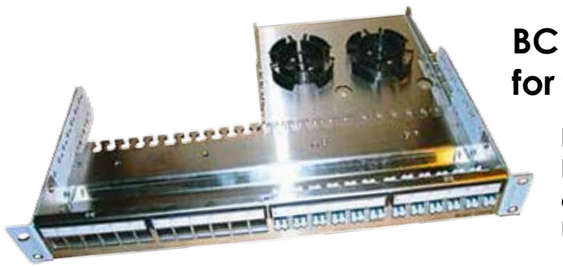
Patchpanel Cat3 for voice. 25 pairs.

Part nr.: **CAT3LSA25-C**

## Patchpanel 1U Cat3 50 ports LSA Optronics

Patchpanel Cat3 for voice. 50 pairs.

Part nr.: **CAT3LSA50-C**



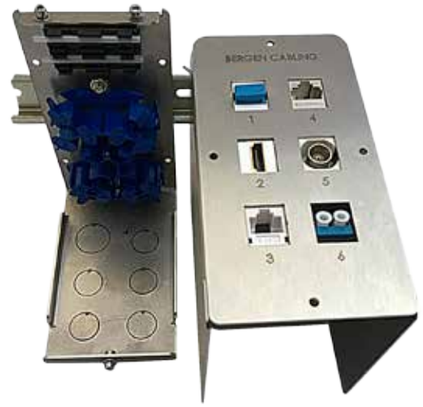
## BC Hybrid panel Stainless steel 1U for fiber field termination

BC Hybrid panel 1U comes with 12xCat6a BC-11-004 connectors and 12xLC SM duplex adaptors. This version is for field termination with Unicam connectors as an option.

Part nr.: **BC-13-205**







## Bergen Cabling DIN Panel

DIN-rail mount panel for 6 x keystone adaptor. Made of SS316 steel. Suitable for 12 core fiber optic cable or 6 x Cat6A cables or other interface adaptors like HDMI etc. Splice cassette and gland is included.

Part nr.: **BC-13-240**

## BC Wallbox Lockable LC SM for 36 DX adapters, SS316L, empty

Lockable wallbox made of acid free stainless steel. Suitable for up to 36 LC duplex or 36 SC simplex adapters.

Part nr.: **BC-13-101**

## BC Outlet 1xSTP Cat6A DIN, Keystone

DIN mount outlet with 1xCat6a keystone connector.
Complete with dust cap and side cover.

Part nr.: **BC-12-212**

## BC Outlet 1xRJ45 STP Cat6A + Duplex LC 9/125

Outlet for use with the hybrid cable. Comes with Cat6a connector and LC Duplex adapter.

Part nr.: **BC-12-236**

## BC Outlet 1xRJ45 STP Cat6A RS Angled, Keystone w/wallbox

Angled outlet with 1xCat6a keystone connector, Elko RS16 frame and 33mm backbox. Center plate is mounted with screw to ensure that it is properly fastened. Especially for use in maritime environment.

Part nr.: **BC-12-253**

## BC Outlet 2xRJ45 STP Cat6A RS Angled, Keystone w/wallbox

Angled outlet with 2xCat6a keystone connectors, Elko RS16 frame and 33mm backbox. Center plate is mounted with screw to ensure that it is properly fastened. Especially for use in maritime environment.

Part nr.: **BC-12-254**

# CONNECTORS & ADAPTORS **IDENTIFICATION**

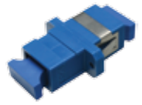
## LC/PC & LC/APC


- Connectors & Adaptors available in Simplex, Duplex & Quad
- 900µm boot size for terminating fibre
- 2mm/3mm boot size for patchcords

## MPO

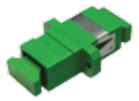

- Connectors & Adaptors allow up to 24 fibres

## SC/PC

- Connectors & Adaptors available in Simplex & Duplex
- 900µm boot size for terminating fibre
- 2mm/3mm boot size for patchcords

## SC/APC

- Connectors & Adaptors available in Simplex & Duplex
- 900µm boot size for terminating fibre
- 2mm/3mm boot size for patchcords

## FC/PC


- Connectors & Adaptors available in Simplex only
- 900µm boot size for terminating fibre
- 2mm/3mm boot size for patchcords

## FC/APC


- Connectors & Adaptors available in Simplex only
- 900µm boot size for terminating fibre
- 2mm/3mm boot size for patchcords

## ST/PC


- Connectors & Adaptors available in Simplex only
- 900µm boot size for terminating fibre
- 2mm/3mm boot size for patchcords

## MTRJ


Available as assemblies only

- Connectors & Adaptors available in Duplex only
- 900µm boot size for terminating fibre
- 2mm/3mm boot size for patchcords

## E2000/PC & E2000/APC


Available as assemblies only

- Connectors & Adaptors available in Simplex only
- 900µm boot size for terminating fibre
- 2mm/3mm boot size for patchcords

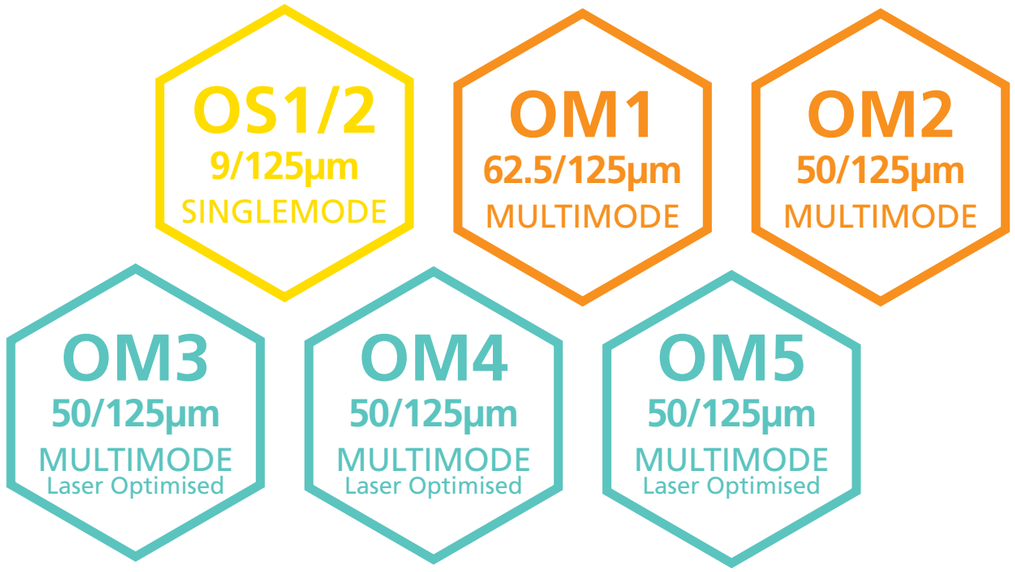
## MU/PC


Available as assemblies only

- Connectors & Adaptors available in Simplex & Duplex
- 900µm boot size for terminating fibre
- 2mm boot size for patchcords



# CABLED FIBRE **IDENTIFICATION**




# INDICATIVE **LINK LENGTHS**

| Wave Length | | 850nm OM1, OM2, 0M3, 0M4 | | | 850 to 953nm OM5** | | |
|---|---|---|---|---|---|---|---|
| Data Rate Source | | 1Gbs VCSEL 1 Pair | 10Gbs VCSEL 1 Pair | 25Gbs VCSEL 1 Pair | 40Gb/s Laser 4 pairs | 100Gbs VCSEL 10 Pair | 100Gb/s Laser 4 pairs |
| Distance | OM1 | 275m | 33m | n/a | n/a | n/a | n/a |
| | OM2 | 550m | 82m | n/a | n/a | n/a | n/a |
| | OM3 | 1000m | 300m | 70m | 100m | 100m | 70m |
| | OM4 | 1100m | 400m | 100m | 150m | 150m | 100m |
| | OM5** | n/a | 400m | 100m | 150m | 150m | 100m |

| Wave Length | | 1300nm OM1, OM2, OM3, OM4 | | 1310nm OS1, OS2 | |
|---|---|---|---|---|---|
| Data Rate Source | | 1Gb/s Laser | 10Gb/s Laser | 40Gb/s Laser CWDM | 100Gb/s Laser WDM |
| Distance | OM1 | 550m* | 300m | n/a | n/a |
| | OM2 | 550m* | 300m | n/a | n/a |
| | OM3 | 550m | 300m | n/a | n/a |
| | OM4 | 550m | 300m | n/a | n/a |
| | OS1/2 | 5km | 10km | 10/40km | 10/40km |

*Using mode conditioning patch cord
**Due for publication during 2017
Distances from IEEE 802.3 standards.
We also offer ITU-T G.657 reduced bend sensitivity optical fibres and ITU-T G.655 NZDS optical fibres.

Version 11.1

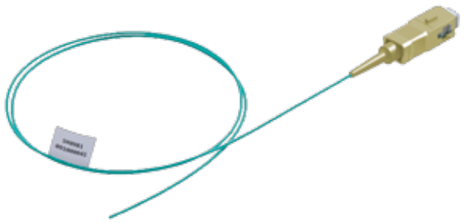
## Pigtail Multi Mode OM1

Multi Mode OM1 pigtails in 1m length, white. UPC connector LC/SC/ST/FC. Other colours and lengths on request.

## Pigtail Multi Mode OM2

Multi Mode OM2 pigtails in 1m length, white. UPC connector LC/SC/ST/FC. Other colours and lengths on request.

## Pigtail Multi Mode OM3



Multi Mode OM3 pigtails in 1m length, aqua. UPC connector LC/SC/ST/FC. Other colours and lengths on request.

## Pigtail Multi Mode OM4

Multi Mode OM4 pigtails in 1m length, aqua. UPC connector LC/SC/ST/FC. Other colours and lengths on request.

## Pigtail Single Mode OS1/OS2

Single Mode OS1/OS2 pigtails in 1m length, white. UPC connector LC/SC/ST/FC/E2000. APC, other colours and lengths on request.





## Patchpanel 1U 24ports FC

Fiber optic sliding patchpanel for up to 24 FC Single Mode or Multi Mode adaptors, black.

Part nr.: **S01FCxxx**

## Patchpanel 1U 24ports ST

Fiber optic sliding patchpanel for up to 24 ST Single Mode or Multi Mode adaptors, black.

Part nr.: **S01STxxx**

## Patchpanel 1U 24ports LC

Fiber optic sliding patchpanel for up to 24 LC duplex Single Mode or Multi Mode adaptors, black.

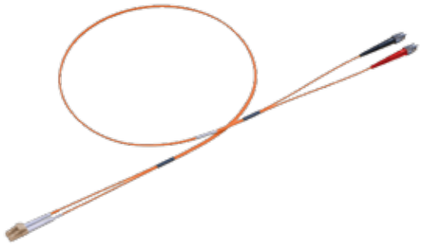
Part nr.: **S03LCxxx**

## Patchpanel 1U 24ports SC

Fiber optic sliding patchpanel for up to 24 SC duplex Single Mode or Multi Mode adaptors, black.

Part nr.: **S09SCxxx**

## Patchcords Multi Mode OM1

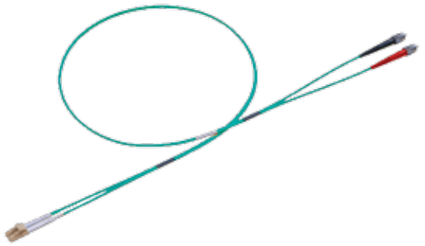


Multi Mode 62.5/125 OM1 patchcords, orange.
UPC connector LC/SC/ST/FC.

## Patchcords Multi Mode OM2

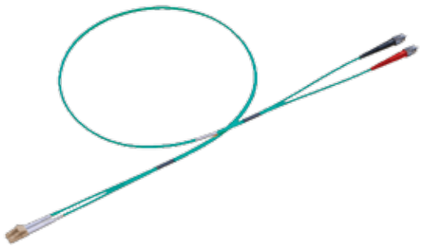
Multi Mode 50/125 OM2 patchcords, orange.
UPC connector LC/SC/ST/FC.

## Patchcords Multi Mode OM3



Multi Mode 50/125 OM3 patchcords, aqua.
UPC connector LC/SC/ST/FC.

## Patchcords Multi Mode OM4



Multi Mode 50/125 OM4 patchcords, aqua.
UPC connector LC/SC/ST/FC.

## Patchcords Single Mode OS1/OS2

Single Mode 9/125 OS1/OS2 patchcords, yellow.
UPC/APC connector LC/SC/ST/FC/E2000.

## 8MP WDR
## IR Dome Network Camera

- 1/2" 8Megapixel progressive CMOS
- H.265 & H.264 dual-stream encoding
- 25/30fps@8MP(3840×2160)
- WDR(120dB), Day/Night(ICR), 3DNR, AWB, AGC, BLC
- Multiple network monitoring: Web viewer, CMS(DSS/PSS) & DMSS
- Micro SD card slot, up to 128GB
- 3.7~11mm motorized lens
- Max IR LEDs Length 30m
- IP67, IK10, PoE

## 8MP WDR
## IR Mini Bullet Network Camera

- 1/2" 8Megapixel progressive scan CMOS
- H. 265&H.264 dual-stream encoding
- 25/30fps@8MP(3840×2160)
- WDR(120dB), Day/Night(ICR), 3DNR, AWB, AGC, BLC
- Multiple network monitoring: Web viewer, CMS(DSS/PSS) & DMSS
- 2.8mm fixed lens (4mm, 6mm optional)
- Max. IR LEDs Length 50m

## 4MP
## IR Indoor Mini-Dome Network Camera

- 1/3" 4Megapixel progressive CMOS
- H.265+ & H.265 dual-stream encoding
- 20fps@4MP(2688×1520)
- DWDR, Day/Night(ICR), 3DNR, AWB, AGC, BLC
- Multiple network monitoring: Web viewer, CMS(DSS/PSS) & DMSS
- 2.8 mm fixed lens (3.6 mm optional)
- Max IR LEDs Length 20m
- PoE

## 4MP
## IR Mini-Bullet Network Camera

- 1/3" 4Megapixel progressive CMOS
- H.265+ & H.265 dual-stream encoding
- 20fps@4MP(2688×1520)
- DWDR, Day/Night(ICR), 3DNR, AWB, AGC, BLC
- Multiple network monitoring: Web viewer, CMS(DSS/PSS) & DMSS
- 2.8 mm fixed lens (3.6mm optional)
- Max IR LEDs Length 30m





## IP PTZ 2MP
## Anti-Corrosion Camera

Anti-Corrosion series smart PTZ Dome Camera is able to effectively avoid acidic and neutral salt fog corrosion.IP67.

## IP Box 2MP
## Anti-Corrosion Camera

Anti-Corrosion series Box Camera is able to effectively avoid acidic and neutral salt fog corrosion. IP67.

## 2.0 MP Ultra-Low Light
## Smart Bullet Camera

- 1/1.8" Progressive Scan CMOS
- Auto-iris
- 1920 × 1080 @ 30fps
- Ultra-low light
- H.265, H.265+
- 6 behavior analyses, 1 exception detection, and 1 recognition
- 120dB WDR

## Embedded NVR

- Third-party network cameras supported
- Up to 6 Megapixels resolution recording
- HDMI and VGA output at up to 1920×1080P resolution
- 4/8/16-ch network cameras can be connected with 40M/80M/160M incoming bandwidth
- Up to 2 SATA interfaces
- Support network detection, including network delay, packet loss, etc.

## 2MP 30x Anti-corrosion IR Network Camera

- 1/2.8" 2Megapixel STARVIS™ CMOS
- Powerful 30x optical zoom
- Starlight technology
- H.265 Encoding
- Max. 50/60fps@1080P
- IVS
- IP68
- Material: 316L Stainless steel

## 2MP Starlight Anti-Corrosion IR Dome Network Camera

- 1/1.9" 2Megapixel progressive scan CMOS
- H.265&H.264 triple-stream encoding
- 50/60fps@1080P(1920×1080)
- WDR(120dB), Day/Night(ICR), 3DNR,AWB,AGC,BLC
- Multiple network monitoring: Web viewer, CMS(DSS/PSS) & DMSS
- 4.1mm ~16.4mm motorized lens
- Max. IR LEDs Length 50m
- Micro SD memory,IP67,IK10,POE

## 2MP 30x Anti-corrosion PTZ Network Camera

- 1/2.8" 2Megapixel STARVIS™ CMOS
- Powerful 30x optical zoom
- Starlight technology
- H.265 Encoding
- Max. 50/60fps@1080P
- Auto-tracking and IVS
- Support PoE+
- IP68, IK10, NEMA 4X
- Material: 316L Stainless steel

## 5MP 30x IR PTZ Network Camera

- 1/1.9" 6Megapixel STARVIS™ CMOS
- Powerful 30x optical zoom
- H.265 Encoding
- Max. 25/30fps@5M/3M, 25/30/50/60fps@1080P
- Auto-tracking and IVS
- Support Hi-PoE
- IR distance up to 200m
- IP67, IK10

## Hook-up junction box with Gisma 40

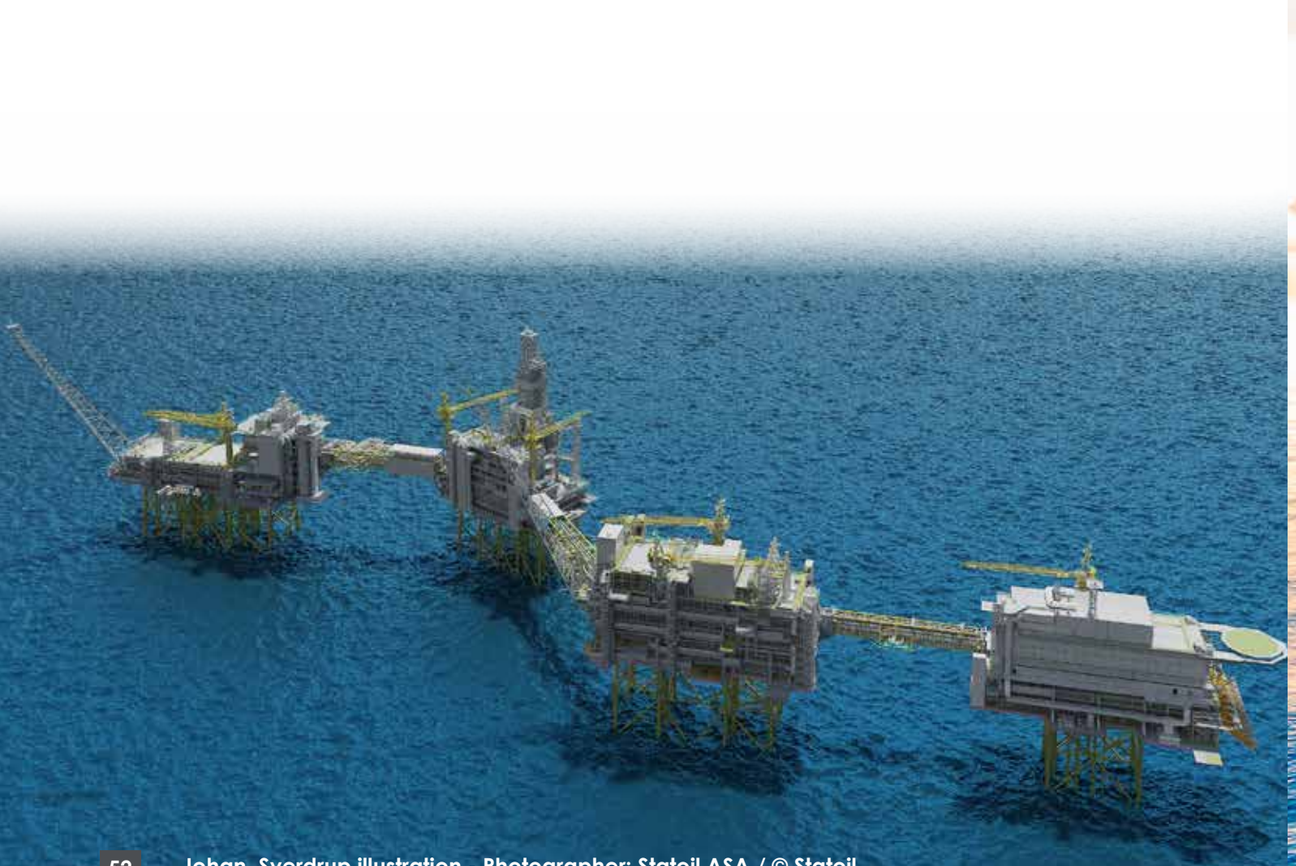
Hook-up junction box with Gisma 40 titanium receptacle, outdoor Exe approved for Zone 2.
Model 1: 38 x 38 x 15cm
Model 2: 57 x 57 x 15cm

Model 1.: **SO-HU40-383815-xx**
Model 2.: **SO-HU40-575715-xx**

## Hook-up cable with Gisma 40

Hook-up cable with Gisma 40 titanium plug for outdoor use.The cable used is a military tactical cable for extreme strengths.

Part nr.: **SO-HU40-xx**



Johan Sverdrup illustration - Photographer: Statoil ASA / © Statoil

## OTHER PRODUCTS AND SERVICES

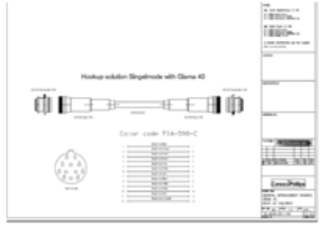
PRE-TERM FIBER CABLE

WATERPROOF CAT CABLE

ARMOURED FIBER PATCHCORD

RACK/CABINETS

OTDR



CAD / INVENTOR

UPS MARINE

FUJIKURA SPLICE MACHINE

LANTEK III


SECURITY

OFFSHORE SERVICES

SERVICES



## Basic fiber Optic Training Course

This course is for anyone involved in fiber optic communications from specifying and designing to actual installation. It has been designed to ensure that the student understands the emerging and ever increasing market for fiber optic communications, how fiber transmission 'works' and all the components involved.

Duration: 2 days

The goal for this course is that the participants will get the knowledge they need to select correct equipment and materials and get a basic knowledge of fiber optic cables both single and multimode and the different areas for these to be used. We will also focus on the testing and documentation needed after completing a job.

## Introduction to Nek 700 series

This course covers the contents of relevant standards, providing participants with the knowledge they need to select correct communication categories, equipment and materials, and to make qualitatively correct installations. The course also covers applicable requirements to documenting and testing communications networks.

Duration: 1 day

Target group:
Electrical fitters who work with electronic communications networks covered by the Norwegian Communications Authority (Nkom) authorization regulations. The course modules cover all types of installations including broadband networks, cabling in buildings and special applications on vessels and offshore.

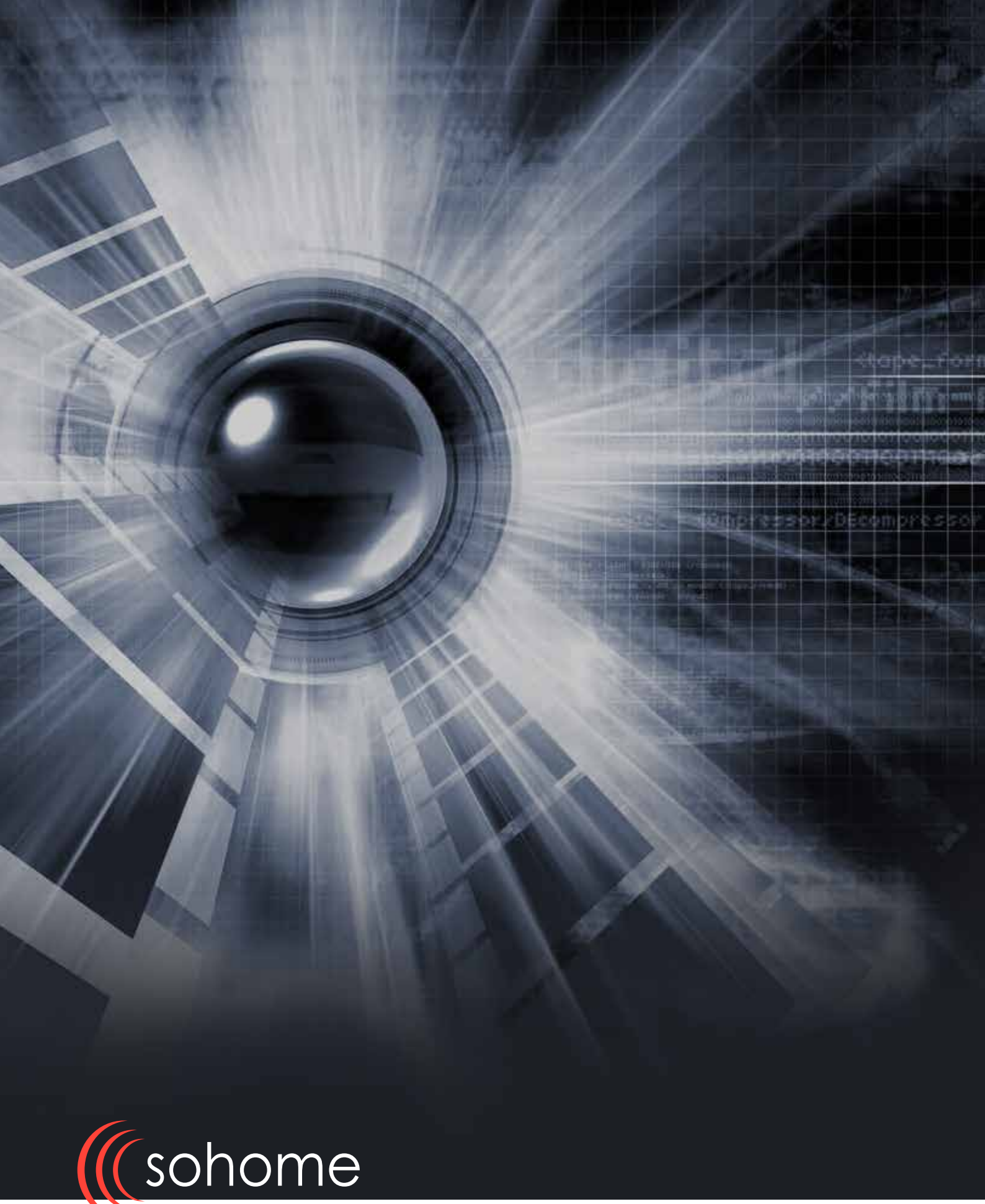
## Course in test equipments Fibre Optic

Fiber Optics Testing: Troubleshooting, Verification, and Certification Fiber optic testers include tools and equipment to perform basic inspection and cleaning, basic troubleshooting and verification testers, certification testers, and advanced OTDR testers for troubleshooting and analysis of existing fiber optic cabling.

Duration: 3-4 hours

We tailor the course according to customer needs within fiber and Category cable Cat6/6A - Cat7/7A.We can also look at specialization in testing instruments like Lantek, Fluke, Anritzu. Larger groups from the same company are welcome to contact us for a fixed price.

**Kontakt info: asbjorn@sohome.no**



sohome

**SOHOME AS**
Grimstadvegen 93
NO-5252 Søreldgrend
Norway

Tel.: +47 55 31 27 00
e-mail: salg@schome.no
website: www.sohome.no