

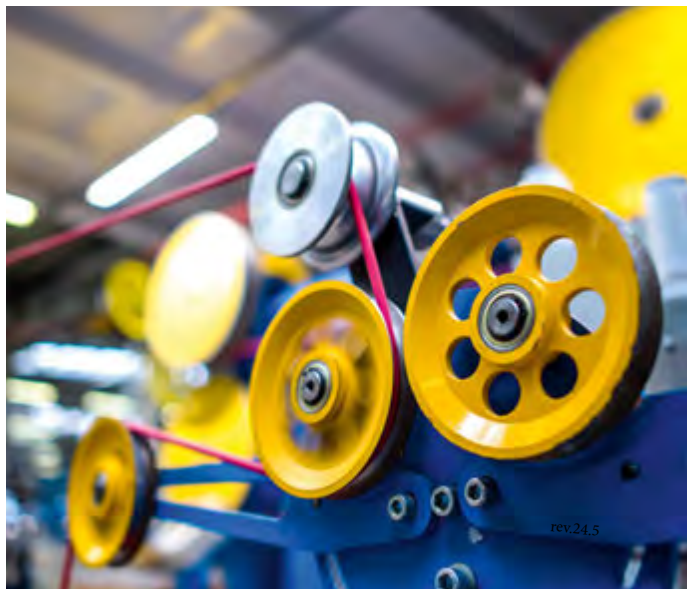
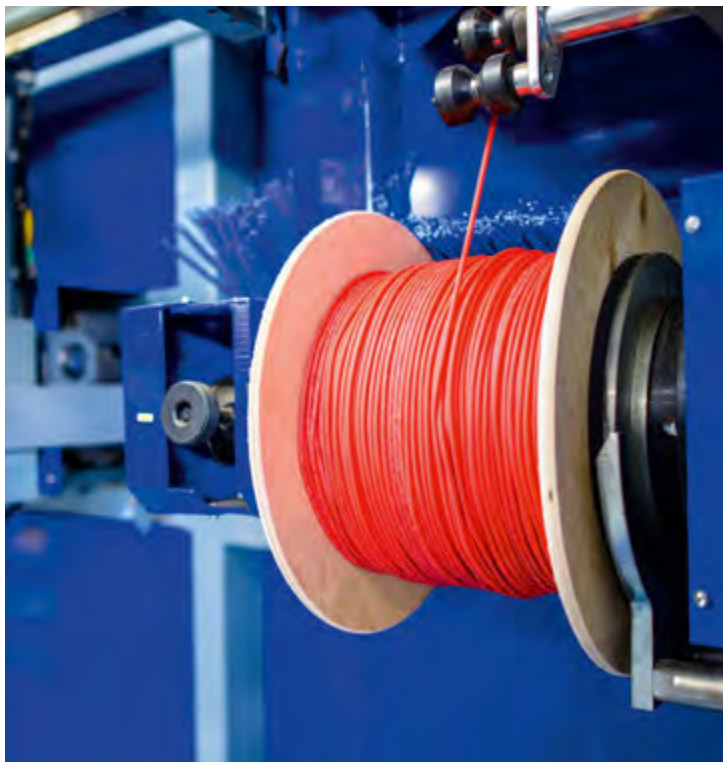


Cables  
for

Handling  
Mining  
Tunneling









# About us



Member of  
**PEMA**

Cable Factory BITNER has been operating on the cable and wire market since 1996. Nowadays we offer over 40,000 items divided into several cable groups and our extensive product portfolio enables us to handle a wide range of investments in a comprehensive way.

We have been improving production processes and developing warehouse premises concomitantly relying on solid knowledge, well-established practical experience and up-to-date technologies since Cable Factory BITNER was established. We are ISO 9001 and ISO 14001 certified and our cables comply with required national/international standards.

This brochure is a brief overview of mining and crane cable types that are an important part of our product portfolio. These special constructions require a specific design that would enable faultless operation in the most demanding conditions. Our dedicated cable ranges **BiTcrane®**, **BiTmining®**, **BiTfiber®** are the result of many years of experience in the cable industry, including our state-of-the-art machinery, technology and the high-tech materials.



# Our offer

## Mining cables

Power cables for connection of large equipment or mining machines in open-pit mines and places where cables are exposed to high mechanical stresses, abrasion or wear and tear in trailing applications.

## Reeling cables

Round and flat cables designed for use on cable drums as flexible power cables suitable for many types of mobile machinery e.g. cranes, harbour cranes, gantry cranes, conveyors and elevators.

## Festoon cables

Cable types used on festoon-systems for different crane types: from light cable trolleys up to heavy motor driven types on overhead- or gantry cranes.

## Special cables / tailor made

Customized cable types developed according to customer requirements.



# Table of contents

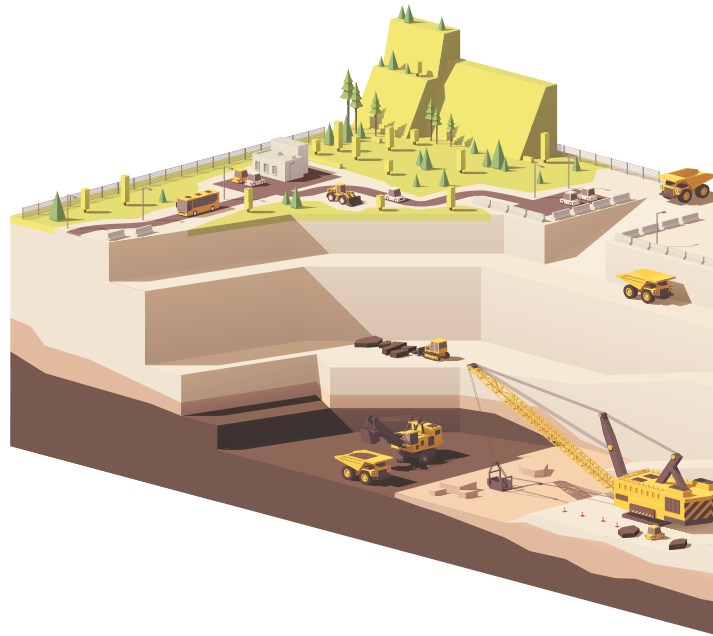
Page 5-6	<b>BiTmining®</b> cables - working areas	
Page 7	<b>01 Open-cast mining</b>	(N)TMCGCWOEU / (N)TMCGCW11Y (N)TSCGEWOEU-F N / (N)TSCGEWOEU-W (FO) N / (N)TSCGEWOEU-TR
Page 8		(N)TMCGEW11Y NSSHOEU-J/O NSSHCOEU-J/O BiTfiber®MINING FO 2x12... G50; G62.5; E9/125
Page 9	<b>02 Underground mining</b>	(N)TSKCGECWOEU-CH (N)TSKCGECWOEU-FN N / (N)TSCGEWOEU-W (FO) NSSHOEU-J/O
Page 10	<b>03 Tunneling</b>	(N)3GHSSYCY (N)3GHSSHCH NSSHOEU-J/O REELPUR-HF
Page 11-12	<b>BiTcrane®</b> cables - working areas	
Page 13	<b>01 Container Handling Systems</b>	(N)TSCGEWOEU-SR (FO) (N)TS(K)CGEWOEU-SR PLUS (FO) (N)SHTOEU-J SPREADER (N)SHTOEU-J BASKET SPREADER
Page 14		FESTOON (N)12YRD(C)11Y FESTOON (N)3GRD(C)5G FESTOON (N)GFL(C)GOEU-J / M(StD)HOEU-J BiTfiber®FESTOON FO 2x12... G50; G62.5; E9/125
Page 15		N / (N)SH(K)TOEU-J (FO) (N)SH(K)TOEU-J (FO) PLUS BiTfiber®CRANE FO 2x12... G50; G62.5; E9/125
Page 16	<b>02 Bulk Material Handling Systems</b>	(N)TSFLCGCWOEU (FO) (N)TSCGEWOEU-SR PLUS (FO) (N)SH(K)TOEU-J (FO) (N)SH(K)TOEU-J (FO) PLUS
Page 17	<b>03 Special Applications</b>	BiTservo®3GSEGCY BiTservo®3GSEGCH STN STCN
Page 18		SHORE POWER (N)TSCGEW11Y BiTflex®(N)TMCGCWOEU BiTflex®(N)TMCGCW11Y



# Working areas

## BiTmining®

- Mining cables  $\leq 30$  kV (medium voltage)
- Mining cables  $\leq 1$  kV (low voltage)
- Mining cables for reeling, trailing and dredging
- Cables for optical data transmission



### Outer sheath

Heavy duty rubber compound acc. to DIN VDE 0207-21, oil-resistant acc. to EN 60811-404, flame-retardant acc. to DIN EN 60332-1-2, tear resistant, with low abrasion

### Inner sheath

Extruded, water proofed synthetic rubber compound acc. to DIN VDE 0207-21, filling the interstices

### Main core

1. Copper conductor tinned, flexible stranded, acc. to IEC 60228 class 5

#### Triple extruded insulation:

2. Conductor screen: Semi-conductive layer  
3. EPR compound based on DIN VDE 0207-20  
4. Insulation screen: semi-conductive strippable layer.

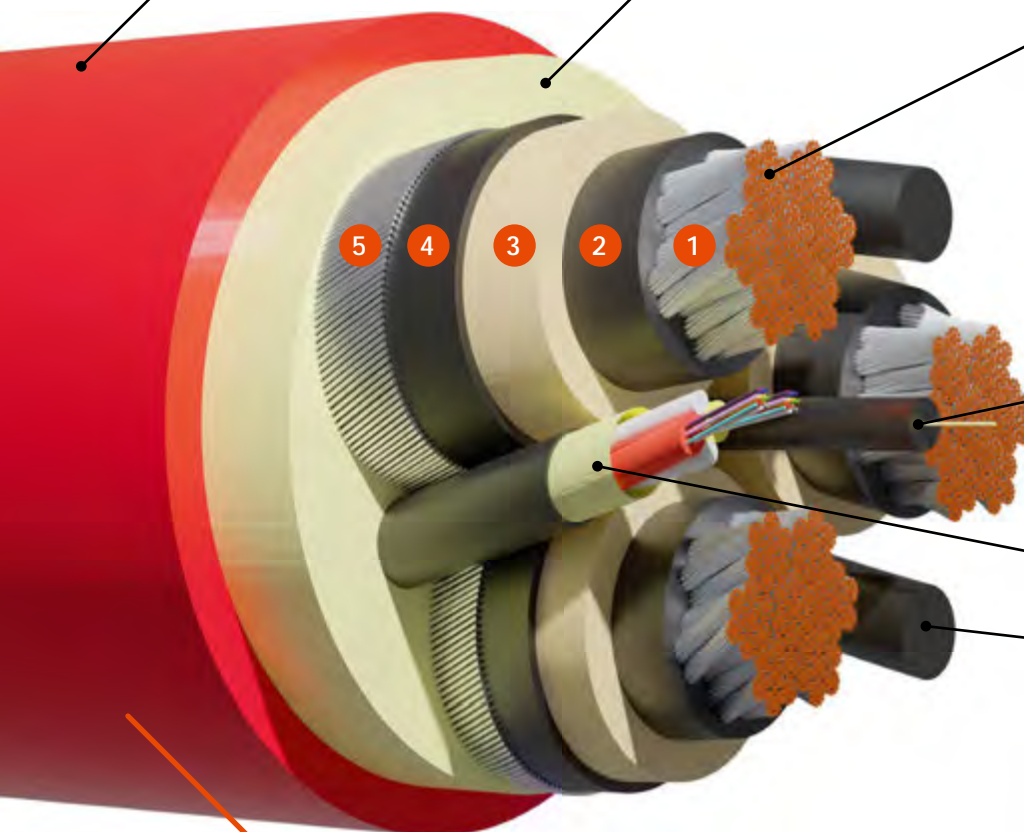
5. Earth conductor cross-section is evenly symmetrically split on each core made of tinned copper wires, design acc. to DIN VDE 0250-1

### Central strain relief element

(optional with cradle separator)

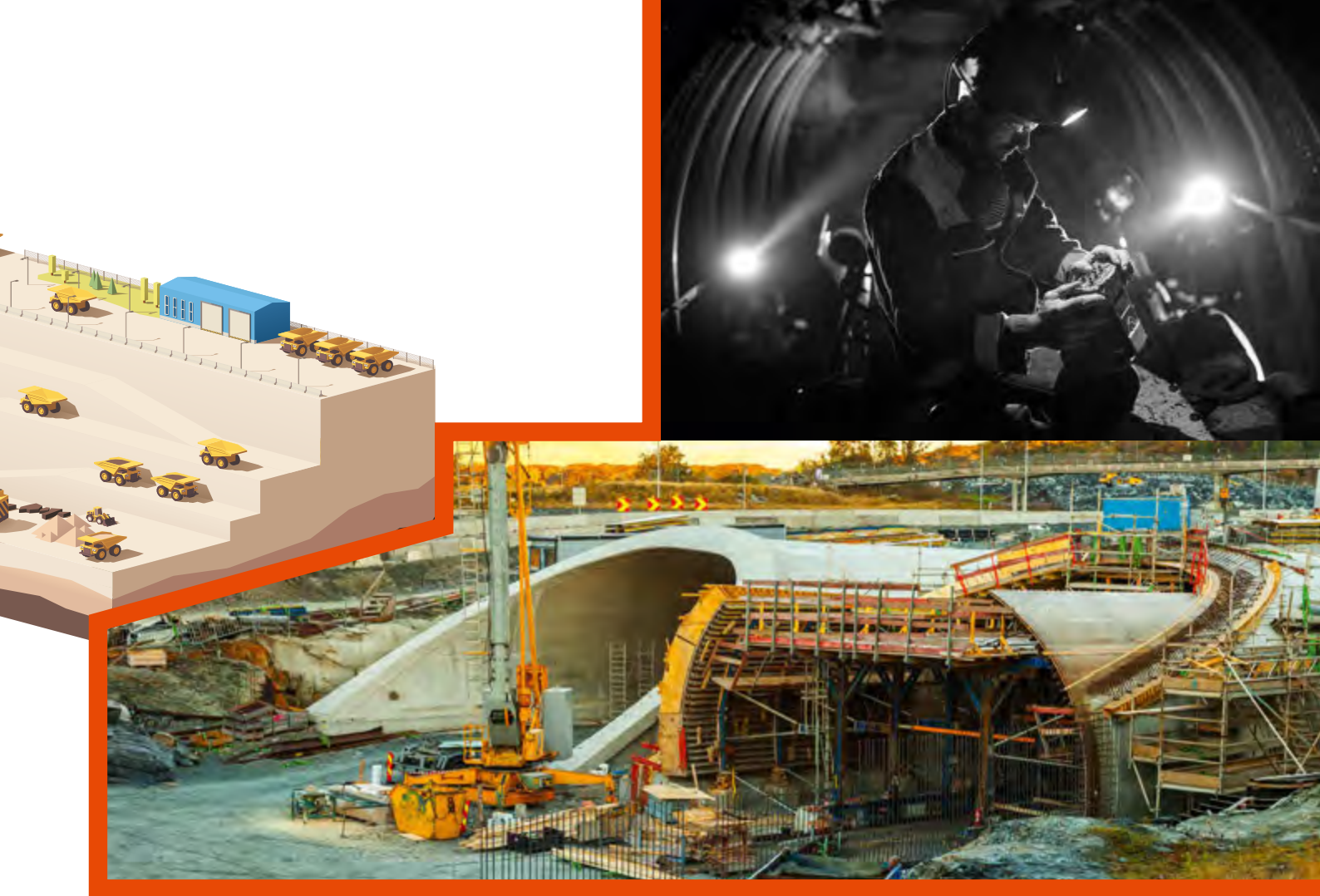
### Optical fiber element

### Rubber filler



(N)TSCGEW0EU-W FO





01

## Open-cast mining

### Equipment

- Conveyor belts
- Belt wagon
- Spreader
- Draglines/ shovels
- Continuous excavator

02

## Underground mining

### Equipment

- Coal cutter
- Power supply to mobile transformer

03

## Tunneling

### Equipment

Power supply to:

- TBMs
- Transformer
- Shiftable devices

## BiTmining® (N)TMCGCWOEU / (N)TMCGCW11Y

Screened single core cable based on DIN VDE 0250-813, voltage range: 3.6/6 kV up to 18/30 kV



**Application:** – Flexible cable used in short length, e.g. as connection in switch-gears or transformer houses where small bending radius is requested;  
– Power supply for motors on large devices

## BiTmining® (N)TSCGEWOEU-F

Trailing cable based on DIN VDE 0250-813, voltage range: 3.6/6 kV up to 18/30 kV, optionally with optical fiber elements



**Application:** Flexible cable used in open cast mines for power supply on e.g. conveyor belts or in semi-flexible applications on large mining equipment.

## BiTmining® N / (N)TSCGEWOEU-W (FO)

3x...+3x.../3,  
3x...+3x.../3E

Trailing cable based on DIN VDE 0250-813 / DIN VDE 0168, voltage range: 3.6/6 kV up to 18/30 kV, optionally with optical fiber elements



**Application:** Flexible cables used in electrical installations on stationary, semi flexible and flexible equipment in open-cast mines, quarries, power feeder cable for dredging operation and similar works.

## BiTmining® N / (N)TSCGEWOEU-TR

3x...+3x.../3,  
3x...+2x...+1x...

Trailing cable based on DIN VDE 0250-813, voltage range: 3.6/6 kV up to 18/30 kV



**Application:** Flexible cable used in open-cast mines for power supply to e.g. dragline/ shovel excavator or connection to transformers.



## BiTmining® (N)TMCGEW11Y 3x...+3x.../3

Extreme abrasion resistant flexible power supply cable, voltage range up to 15 kV



**Application:** For devices operating in rough ambient conditions like underground and/or open-cast mining.

## BiTmining® NSSHOEU-J/O

Heavy duty rubber cables for industrial and mining devices, acc. to DIN VDE 0250-812, voltage range: 0.6/1 kV



**Application:** These cables are suitable for use as stationary and moving power supply to motors, distribution boxes, e.g. in mining underground, for use in tunnelling, quarries and similar operations. Further use defined in DIN VDE 0298-3.

## BiTmining® N/(N)SSHCOEU-J/O

Heavy duty, screened rubber cables for industrial and mining devices, in conjunction with variable frequency converter, acc. to DIN VDE 0250-812, voltage range: 0.6/1 kV



**Application:** These cables are suitable for use as stationary and moving power supply to motors, distribution boxes, e.g. in mining underground, for use in tunnelling, quarries and similar operations. Further use defined in DIN VDE 0298-3.

## BiTfiber® MINING FO 2x12... G50; G62.5; E9/125

Heavy duty rubber / PUR mining cable for optical signal and data transmission



**Application:** Heavy duty rubber / PUR cable for optical data transmission e.g. laying alongside of conveyor belts or on large equipment in open-cast mining.



## BiTmining® (N)TSKCGECWOEU-CH

Medium voltage, flexible power supply coal cutter cable for chain operation, voltage range: 3.6/6 kV



**Application:** Flexible power supply cable for use in underground mining facilities for mobile machines like coal cutters etc. Designed for use in cable chains trailed behind the machines. Chains have protective function and absorb the tensile forces occurring during operation.

## BiTmining® (N)TSKCGECWOEU-FN

Medium voltage, flexible power supply cable for underground festoon systems, voltage range: 3.6/6 kV



**Application:** Flexible power supply cable for use in underground mining facilities especially for festoon systems.

## BiTmining® N / (N)TSCGEWOEU-W (FO)

3x...+3x.../3,  
3x...+3x.../3E

Trailing cable based on DIN VDE 0250-813 / DIN EN 50628, voltage range: 3.6/6 kV up to 8.7/15 kV, optionally with optical fiber elements



**Application:** Flexible cables used in electrical installations on stationary, semi flexible and flexible equipment, in all underground workings but not in mining operations and longwall

## BiTmining® NSSHOEU-J/O

Heavy duty rubber sheathed cables for underground application, acc. to DIN EN 50628, voltage range: 0.6/1 kV



**Application:** These cables are suitable in all mining workings with method of installation: stationary, semi flexible and flexible. Protective copper conductor can be designed as KON, /3E or /3



## BiTmining® (N)3GHSSYCY

Screened feeder cable based on DIN VDE 0250-605, voltage range: 3.6/6 kV up to 12/20 kV



**Application:** Mining cable with optimized insulation wall thickness and optimized outer diameter. For underground mines as well as in tunnels if monitoring of outer damages is required. Used for the connection of mobile operating equipment, in mines and underground excavations with hazardous environment, in stationary operation, e.g. high-voltage transformers in tunnelling. Cable type fulfils the requirements of DIN EN 50628/VDE 0118-10: Erection of electrical installations in underground mines.

## BiTmining® (N)3GHSSHCH

Screened feeder cable based on DIN VDE 0250-605, halogen-free jackets, voltage range: 3.6/6 kV up to 12/20 kV



**Application:** Mining cable with optimized insulation wall thickness and optimized outer diameter. For underground mines as well as in tunnels if monitoring of outer damages is required. Used for the connection of mobile operating equipment, in mines and underground excavations with hazardous environment, in stationary operation, e.g. high-voltage transformers in tunnelling. Cable type fulfils the requirements of DIN EN 50628/VDE 0118-10: Erection of electrical installations in underground mines.

## BiTmining® NSSHOEU-J/O

Heavy duty rubber sheathed cables for underground workings, acc. to DIN EN 50628, voltage range: 0.6/1 kV



**Application:** These cables are suitable in all mining workings with method of installation: stationary, semi flexible and flexible. Protective copper conductor can be designed as KON, /3E or /3.

## BiTmining® REELPUR-HF

Reeling cable with halogen-free, flame retardant jackets, voltage range: 0.6/1 kV



**Application:** Power supply cable in mining and rock technology equipment e.g. on drill rigs or concrete spraying equipment with:

- frequently changing dynamic loads
- high tensile load and abrasion resistant
- typical reeling speed up to 60 m/min

# Working areas



## BiTcrane®

- Reeling cables  $\leq 30$  kV (medium voltage)
- Reeling cables  $\leq 1$  kV (low voltage)
- Festoon cables
- BiTfiber® CRANE / FESTOON

### Outer sheath

Heavy duty rubber compound acc. to DIN VDE0207-21, oil-resistant acc. to EN 60811-404, flame-retardant acc. to DIN EN 60332-1-2, tear resistant, with low abrasion

### Reinforcement

Braid of synthetic threads in a vulcanized bond between inner and outer sheath

### Inner sheath

Heavy duty rubber compound

### Ground conductor

Conductor: Copper plain, flexible stranded acc. to DIN EN 60228 class 5, semi-conductive rubber compound

### Main core

1. Copper conductor plain, flexible stranded, acc. to IEC 60228 class 5

#### Triple extruded insulation:

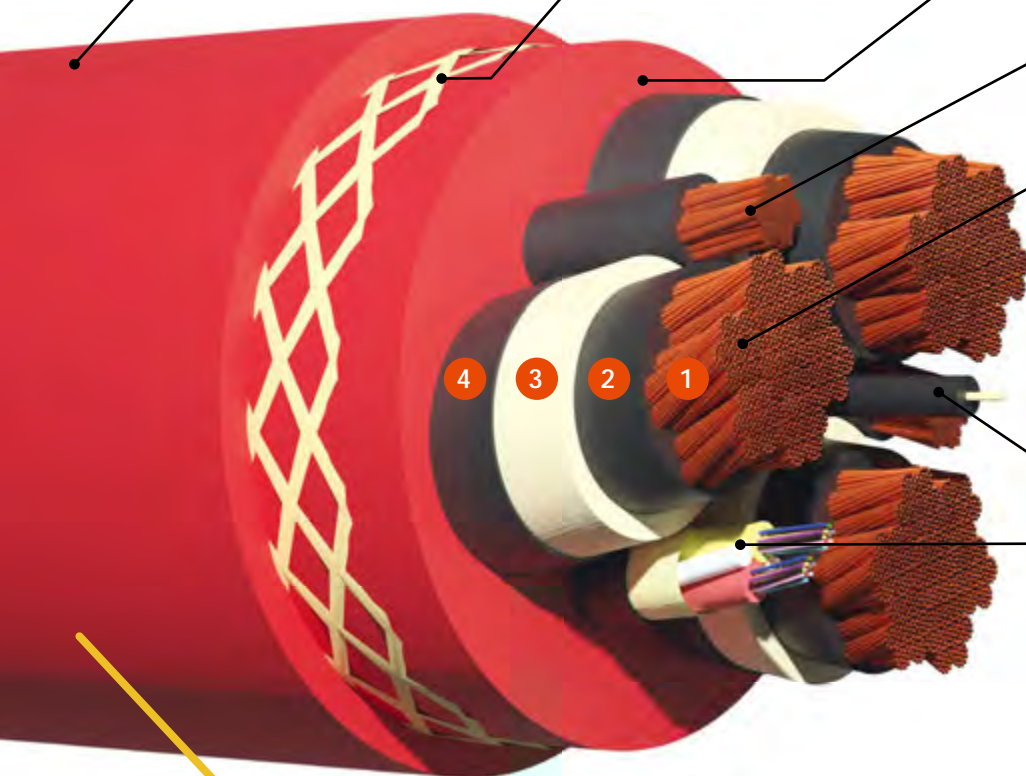
2. Conductor screen: Semi-conductive layer
3. EPR compound with improved electrical and mechanical characteristics based on DIN VDE 0207-20
4. Insulation screen: semi-conductive strippable layer

All three covers are applied and cross-linked in one process

### Central strain relief element

optional with cradle separator

### Optical fiber element



(N)TSCGEWOEU-SR PLUS FO







01

## Container Handling Systems

### Ports Intermodal

#### Equipment

- STS cranes
- ARMGs
- E-RTGs
- Portal cranes

02

## Bulk Material Handling Systems

### Ports Stockyards

#### Equipment

- Ship loader / unloader
- Stacker
- Reclaimer
- Scraper

03

## Other Areas

### Coking, power plants Steel mills Concrete plants

#### Equipment

- Coal transfer car (CTC)
- Internal slag ladle cars
- Casting devices

**BiTcrane® cables are tailored to your needs!**

Contact us for more information (see last page for contact details)

**BiTcrane® (N)TSCGEWOEU-SR (FO)** $3x...+3x.../3$  $3x...+2x.../2+FO...$  $3x...+1x...+(nx2.5)C+FO...$ 

Reeling cable based on DIN VDE 0250-813, optional with optical fiber elements and/or screened control cores, voltage range: 6/10 kV up to 18/30 kV



**Application:** Wide range of applications on monospiral or cylindrical drums:

- medium to high travel speed up to 180 m/min
- deflection into second plane
- reelable at ambient temperatures down to -30 °C
- special set-ups for spare cables with given outer diameter
- hybrid design with optical fiber elements and control cores

**BiTcrane® (N)TS(K)CGEWOEU-SR PLUS (FO)** $3x...+3x.../3$  $3x...+2x.../2+FO...$  $3x...+1x...+(nx2.5)C+FO...$ 

Reeling cable based on DIN VDE 0250-813, optional with optical fiber elements and/or screened control cores, voltage range: 6/10 kV up to 18/30 kV



**Application:** Wide range of applications on monospiral or cylindrical drums:

- high travel speed up to 240 m/min
- high tensile load on cable
- deflection into second plane
- reelable at ambient temperatures down to -35 °C
- special set-ups for spare cables with given outer diameter
- hybrid design with optical fiber elements and control cores

**BiTcrane® (N)SHTOEU-J SPREADER**

Control cable for vertical reeling, based on DIN VDE 0250-814, voltage range: 0.6/1 kV



**Application:** Reeling cable for vertical drum-spreader systems for energy and data transfer to "headblock" e.g. on Ship-to-Shore container cranes with high mechanical stress. Depending on installation situation monospiral or cylindrical reels are used. Typical hoisting speed on Super Panamax / Megamax STS gantry crane types: up to 180 m/min.

**BiTcrane® (N)SHTOEU-J BASKET SPREADER**

Control cable for gravity-fed collector in basket, voltage range: 300/500 V



**Application:** Special low voltage cable designed for use on lifting equipment, e.g. container cranes with gravity-fed basket collectors. Maximum hoisting travel speed 160 m/min.



## BiTcrane® FESTOON (N)12YRD(C)11Y

Screened / unscreened round PUR sheathed cables voltage range: 0.6/1 kV, based on DIN VDE 0250-812 / IEC 60502-1



**Application:** On festoon systems on gantry cranes in various industries, e.g. waste incineration plants indoor cranes, all gantry crane on e.g. outdoor storage areas or domestics ports.

## BiTcrane® FESTOON (N)3GRD(C)5G

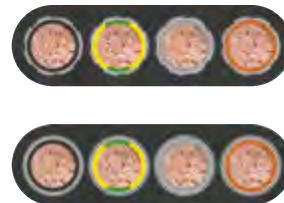
Screened / unscreened round rubber sheathed cables voltage range: 0.6/1 kV, based on DIN VDE 0250-812 / IEC 60502-1



**Application:** On festoon systems on gantry cranes in various industries, e.g. waste incineration plants indoor cranes, all gantry crane on e.g. outdoor storage areas or domestics ports.

## BiTcrane® FESTOON (N)GFL(C)GOEU-J / M(StD)HOEU-J

Screened / unscreened flat rubber cables up to 1 kV, based on DIN VDE 0250-809



**Application:** On festoon systems on gantry cranes in various industries, e.g. waste incineration plants, indoor cranes when the cables are subjected to bending in only one plane. In case of high mechanical stresses, e.g. in case of high dynamic tensile forces, the permissible load have to be determined on a case-by-case basis. On the basis of the used insulation compound the BiTcrane®(N)GFLCGOEU-J can be used with a rated voltage of 1000 V and be applied as directed in DIN VDE 0298-3.

- (N)GFLCGOEU-J with tinned copper wire braid
- M(StD)HOEU-J with tinned copper wire spinning/AL-foil

## BiTfiber® FESTOON FO 2x12... G50; G62.5; E9/125

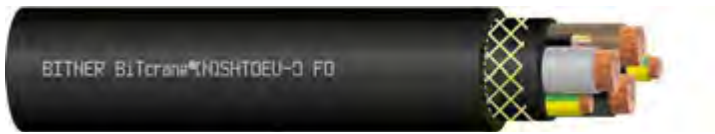
Heavy duty, rubber/PUR festoon cable for optical signal and data transmission



**Application:** On festoon systems with heavy duty trolleys carry flat and round cables for the transmission of electrical energy and optical signals, travel speed of motorized cable trolleys: ≤ 300 m/min.

## BiTcrane® N / (N)SH(K)TOEU-J (FO)

Flexible cables and cords for power installations, voltage range: 0.6/1 kV, (N)... with optimized cable dimensions, optional with optical fiber elements and/or control cores, acc. to/based on DIN VDE 0250-814



**Application:** These cables are suitable for use on hoists, transport and material handling devices, where:

- these cables are intended for frequent winding and unwinding
- simultaneous tensile stress
- torsional stress and/or forced guiding of the cable

In the case of high mechanical stresses, especially in the case of high dynamic tensile forces, e.g. as a result of high acceleration, the permissible stress can be determined in each individual case.

## BiTcrane® (N)SH(K)TOEU-J (FO) PLUS

Flexible cables and cords for power installations, voltage range: 0.6/1 kV, (N)... with optimized cable dimensions, optional with optical fiber elements and/or control cores, based on DIN VDE 0250-814



**Application:** These cables are suitable for use on hoists, transport and material handling devices, where:

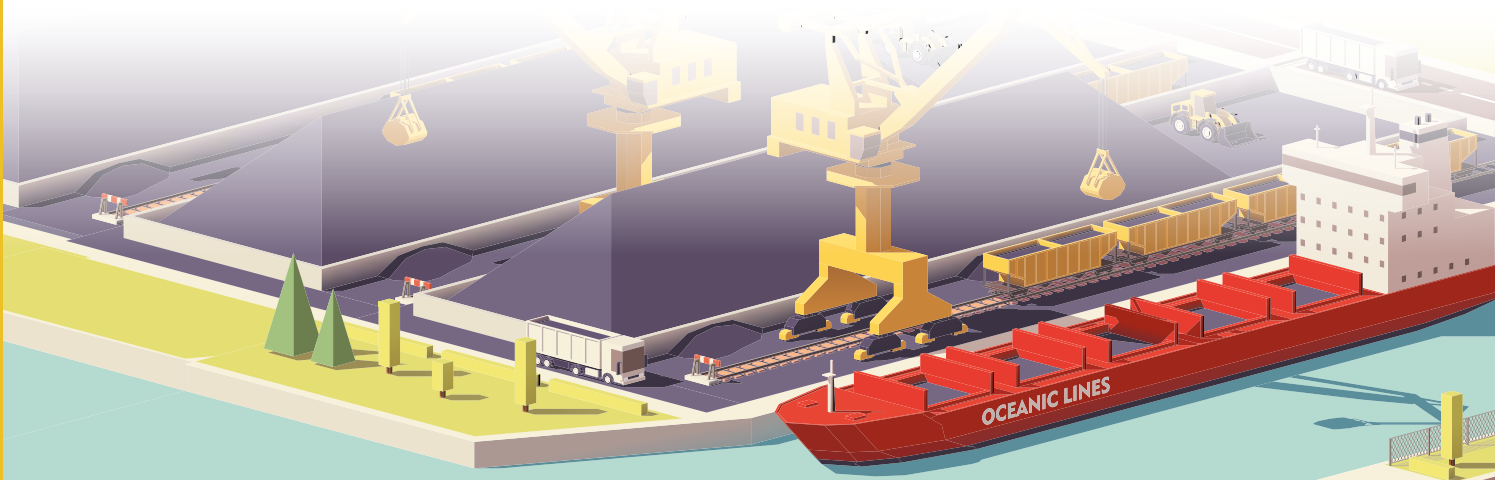
- high travel speed up to 240 m/min
- high tensile load on cable
- reelable at ambient temperatures down to -35 °C
- hybrid design with optical fiber elements and control cores

## BiTfiber® CRANE FO 2x12... G50; G62.5; E9/125

Heavy duty, rubber/PUR reeling cable for optical signal and data transmission



**Application:** On spring driven / motor driven cable reels, up to 120 m/min reeling speed.





## BiTcrane® (N)TSFLCGCWOEU (FO)

Flat, rubber reeling cable based on DIN VDE 0250-813, optional with optical fiber elements and/or control cores, voltage range: 3.6/6 kV up to 8.7/15 kV



**Application:** On slow moving monospiral reels with cable deflection into one plane, on stacker/reclaimer in power plants or dry bulk port terminals. Typical reeling speed up to 60 m/min.

## BiTcrane® (N)TSCGEWOEU-SR PLUS (FO)

3x...+3x.../3

3x...+2x.../2+FO...

3x...+1x...+(nx2.5)C+FO...

Reeling cable based on DIN VDE 0250-813, optional with optical fiber elements and/or screened control cores, voltage range: 6/10 kV up to 18/30 kV

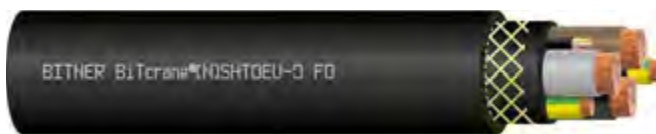


**Application:** Wide range of applications on monospiral or cylindrical drums:

- medium to high travel speed
- high tensile load on cable
- deflection into second plane
- reelable at ambient temperatures down to -35 °C
- special set-ups for spare cables with given outer diameter
- hybrid design with optical fiber elements and control cores

## BiTcrane® (N)SH(K)TOEU-J (FO)

Heavy duty reeling cable based on DIN VDE 0250-814, optional with optical fiber elements and/or control cores, with optimized cable dimensions.



**Application:** On all mono-spiral or cylindrical reels where „all-in-one“ cable types (power-control-optical data transfer with the smallest possible outer diameter) are required, such as on stackers/reclaimers or scrapers.

## BiTcrane® (N)SH(K)TOEU-J (FO) PLUS

Flexible cables and cords for power installations, voltage range: 0.6/1 kV, (N)... with optimized cable dimensions, optional with optical fiber elements and/or control cores, based on DIN VDE 0250-814



**Application:** These cables are suitable for use on hoists, transport and material handling devices, where:

- high travel speed up to 240 m/min
- high tensile load on cable
- reelable at ambient temperatures down to -35 °C
- hybrid design with optical fiber elements and control cores

**BiTservo® 3GSEGCY**

Medium voltage feeding cable, voltage range: 3.6/6 kV up to 6/10 kV



**Application:** Cables are designed for connection between frequency converters and medium voltage motors. They are suitable for installation inside buildings, in dry and moist rooms but also outdoors (resistance to UV and atmospheric conditions) or buried directly in ground.

**BiTservo® 3GSEGCH**

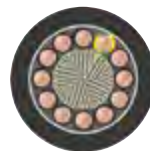
Medium voltage feeding cable, voltage range: 3.6/6 kV up to 6/10 kV



**Application:** Cables are designed for connection between frequency converters and medium voltage motors. They are suitable for installation inside buildings, in dry and moist rooms.

**BiTcrane® STN**

Rubber pendant cable



**Application:** Rubber cable with a central strength member used for control, measurement and signalling in the steel, mining and chemical industries. In addition as cantilevered control cable for cranes e.g. to remote control on overhead cranes with pushbutton boxes, wind turbines, conveyor and storage systems.

**BiTcrane® STCN**

Screened, rubber lift cable



**Application:** Lift cable, for trailing cable installation, drag chains and as control cable in conveyor facilities, machine-tools or as measure and signal transmission cable. Suitable for dry, humid and wet rooms and outdoor use.



## BiTcrane® SHORE POWER (N)TSCGEW11Y

Halogen-free reeling cables for shore power connection based on IEC/ISO/IEEE 80005-1, voltage range: 6/10 kV



**Application:** Cables on High Voltage Shore Connection (HVSC) Systems for all ship types at berth:

- cables for on-board systems on container vessels
- operation by single operator on cable cranes
- mobile carrier systems e.g. for cruise liner

## BiTflex® (N)TMCGCWOEU

Medium voltage, screened, rubber sheathed, single core cable, voltage range: 3.6/6 kV up to 18/30 kV



**Application:** In slow moving Offshore-Power-Systems: energy chains or reeling operation. Power supply for large electrical applications and drives via cable carrier systems.

## BiTflex® (N)TMCGCW11Y

Medium voltage, screened, polyurethane sheathed, single core cable, voltage range: 3.6/6 kV up to 18/30 kV



**Application:** In slow moving Offshore-Power-Systems: energy chains or reeling operation. Power supply for large electrical applications and drives via cable carrier systems.

# Our TEAM

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