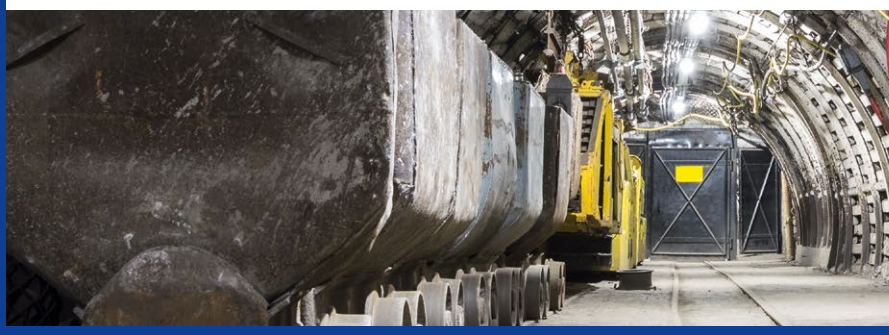
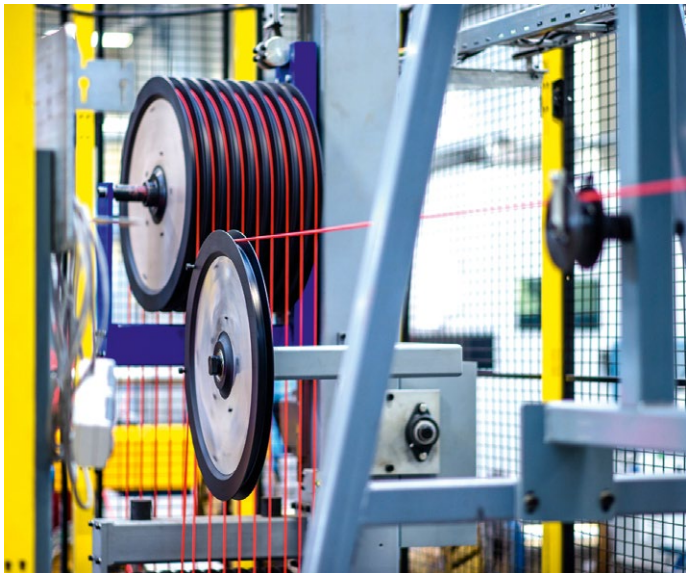
BITNER®

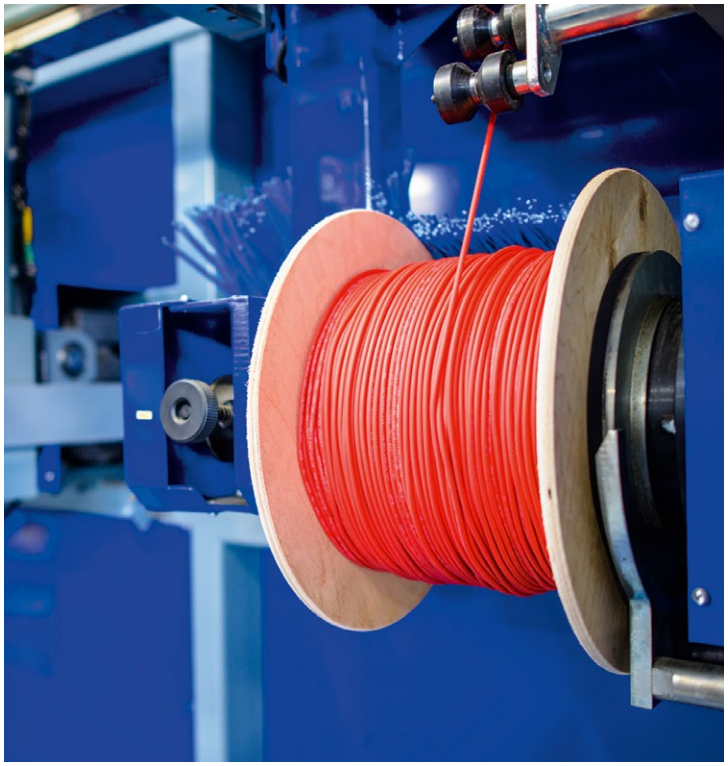
Connecting with passion

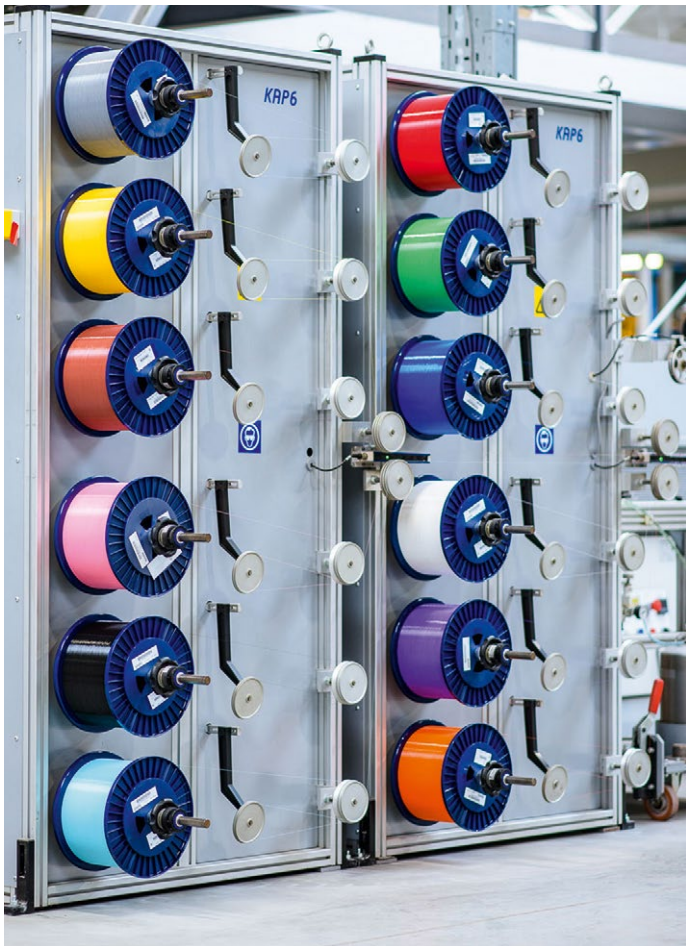
Cables for

Handling
Mining
Tunneling





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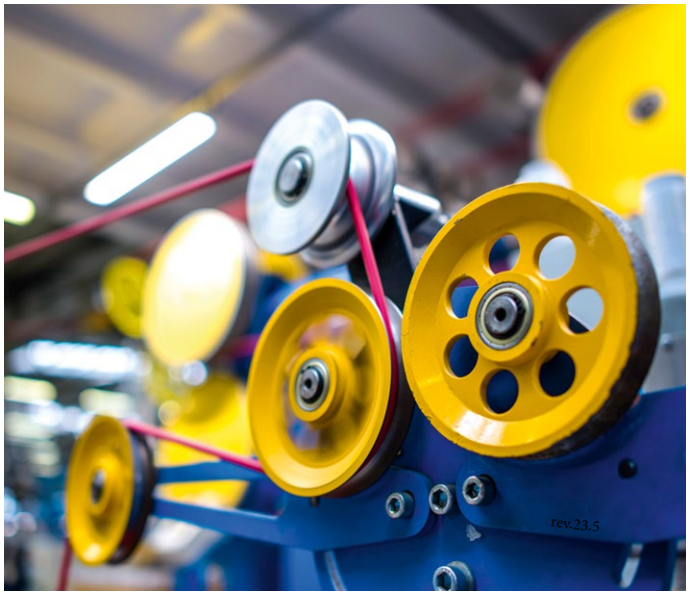

rev.23.5

About us

Member of PEMA PORT EQUIPMENT MANUFACTURERS ASSOCIATION

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.

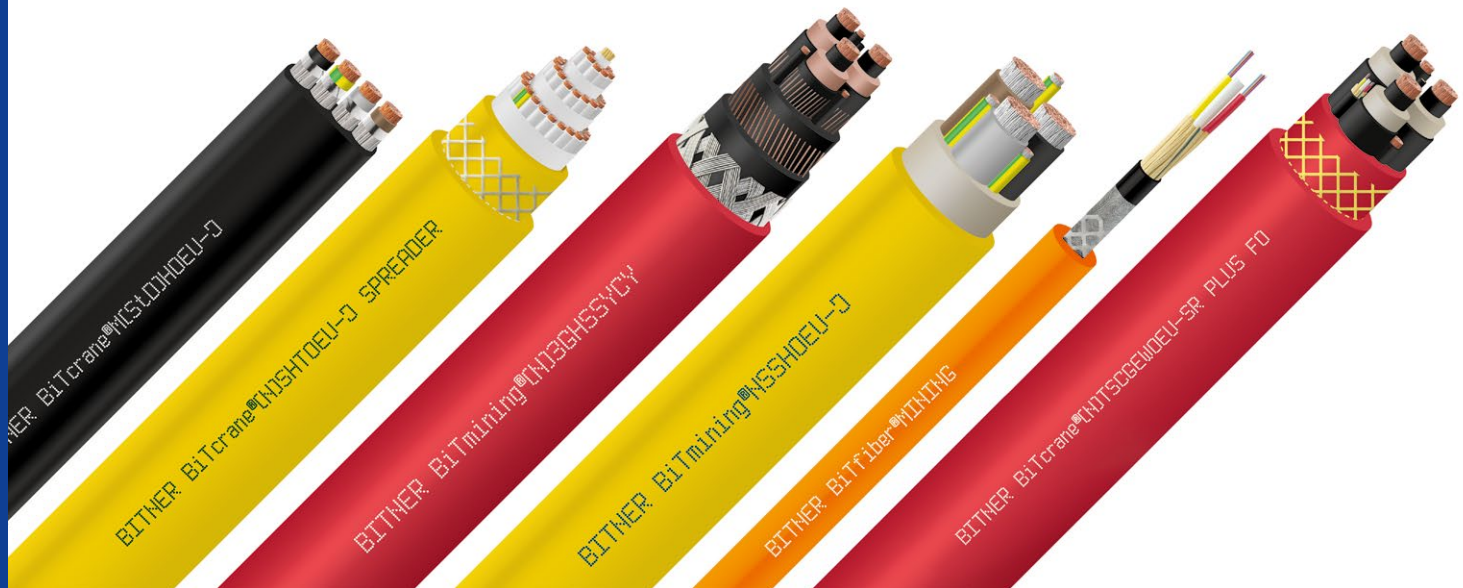


Table of contents

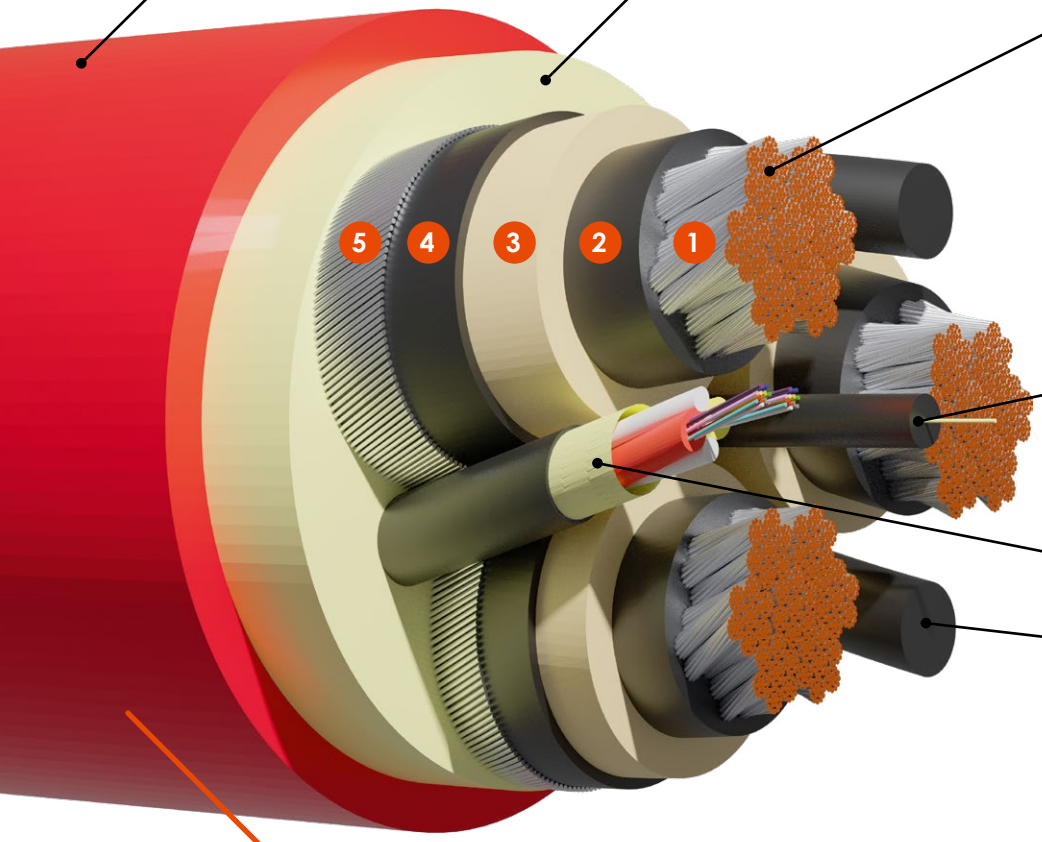
Working areas

BiTmining®

- Mining cables ≤ 30 kV (medium voltage)
- Mining cables ≤ 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.

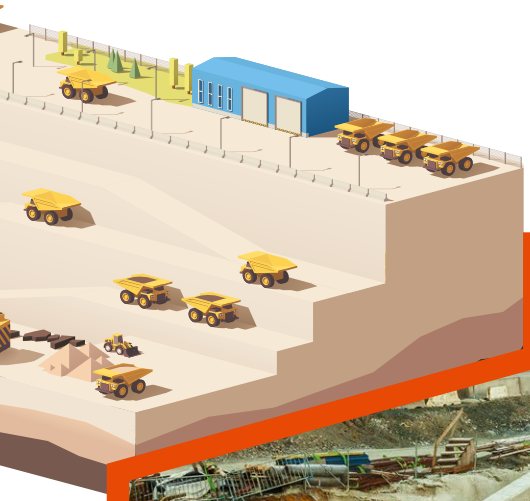
5. Earth conductor cross-section is evenly symmetrically split on each core made of tinned copper wires, design acc. to DIN VDE 0250-1

Central strain relief element
(optional with cradle separator)

Optical fiber element

Rubber filler

(N)TSCGEWOEU-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® cables are tailored to your needs!

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

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

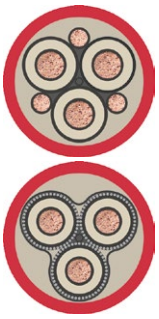
Trailing cable based on DIN VDE 0250-813, voltage range: 3.6/6 kV up to 18/30 kV, optionally with optical fiber elements

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

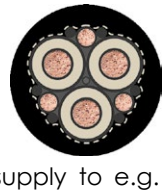


Application: Flexible cables used in electrical installations on stationary, semi flexible and flexible equipment in open-cast mines, quarries, power feeder cable for dredging operation and similar works.

BiTmining® N / (N)TSCGEWOEU-TR

3x…+3x…/3,
3x…+2x…+1x…

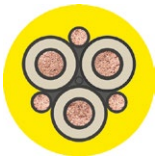
Trailing cable based on DIN VDE 0250-813, voltage range: 3.6/6 kV up to 18/30 kV



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.

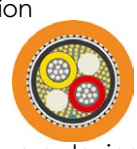
BiTmining® NSSHCOEU-J/O

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 occuring during operation.

BiTmining® (N)TSKCGECWOEU-FN

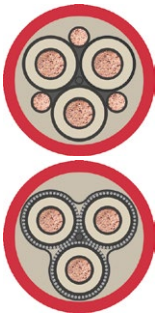
Medium voltage, flexible power supply cable for underground festoon systems, voltage range: 3.6/6 kV

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

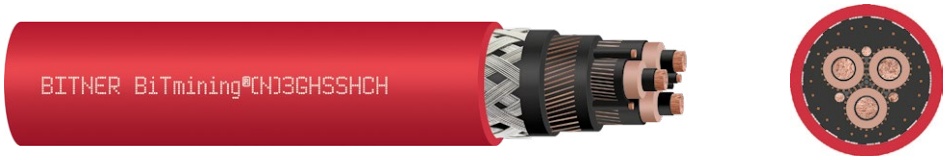
BiTmining® (N)3GHSSYCY

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

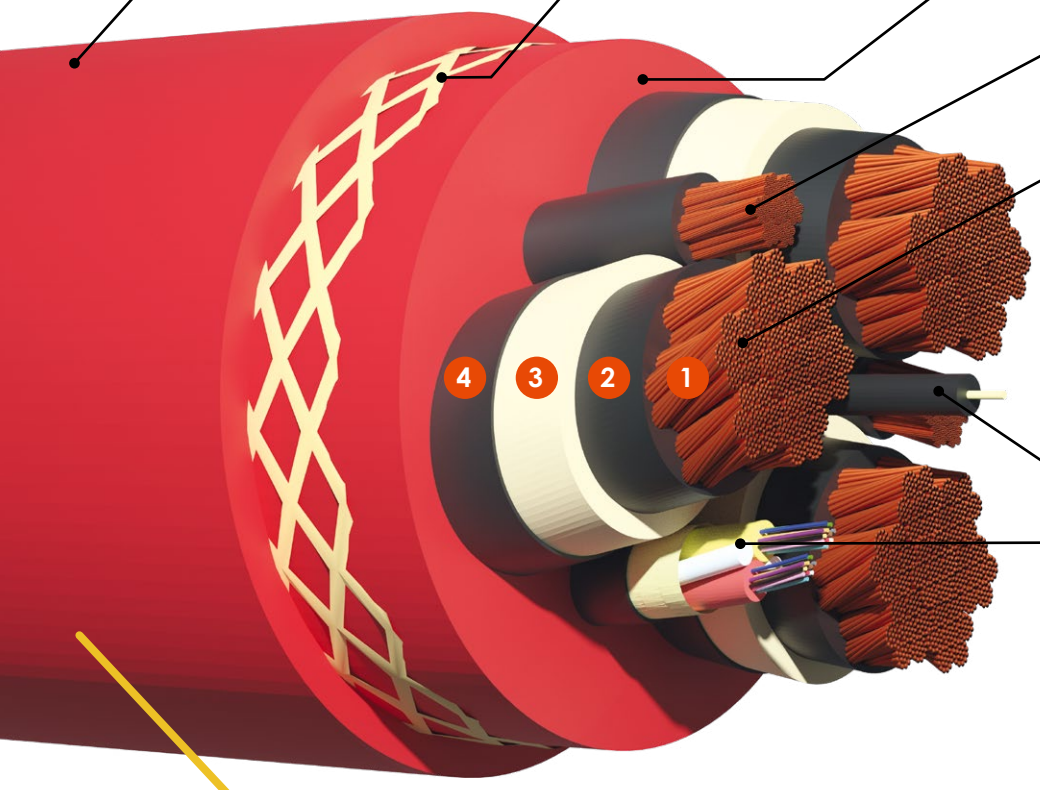
Application: Power supply cable in mining and rock technology equipment e.g. on drill rigs or concrete spraying equipment with:
– frequently changing dynamic loads
– high tensile load and abrasion resistant
– typical reeling speed up to 60 m/min

BiTmining® cables are tailored to your needs!

Working areas

BiTcrane®

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



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

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...

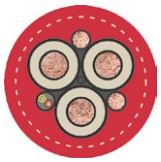
Reeling cable based on DIN VDE 0250-813, optional with optical fiber elements and/or screened control cores, voltage range: 6/10 kV up to 18/30 kV

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...

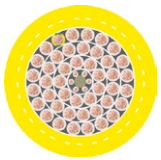
Reeling cable based on DIN VDE 0250-813, optional with optical fiber elements and/or screened control cores, voltage range: 6/10 kV up to 18/30 kV



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

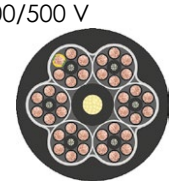
Control cable for vertical reeling, based on DIN VDE 0250-814, voltage range: 0.6/1 kV



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.

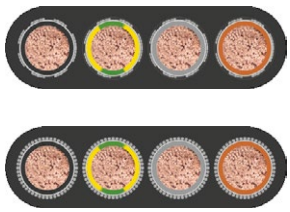
BiTcrane® FESTOON (N)3GRD(C)5G

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)GFLGOEU-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

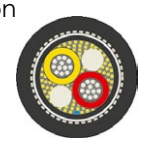
Flexible cables and cords for power installations, voltage range: 0.6/1 kV, (N)... with optimized cable dimensions, optional with optical fiber elements and/or control cores, based on DIN VDE 0250-814

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

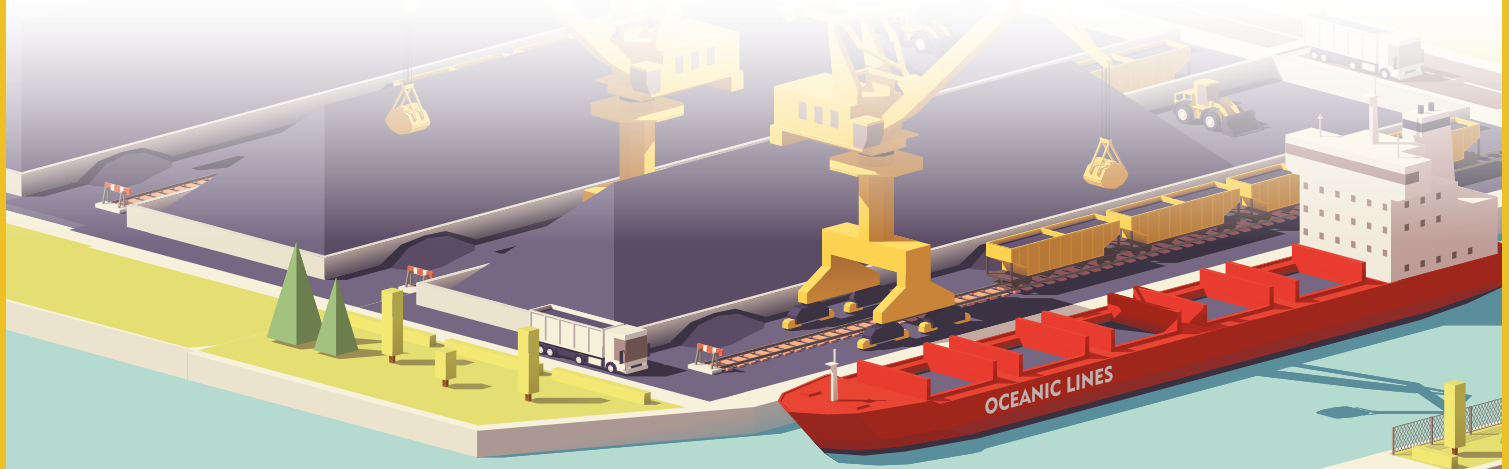
BiTfiber® CRANE FO 2x12...

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® cables are tailored to your needs!

BiTcrane® (N)TSFLCGCWOEU (FO)

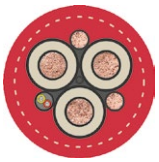
Flat, rubber reeling cable based on DIN VDE 0250-813, optional with optical fiber elements and/or control cores, voltage range: 3.6/6 kV up to 8.7/15 kV

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

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.

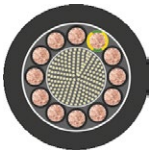
BiTservo® 3GSEGCH

Medium voltage feeding cable, voltage range: 3.6/6 kV

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 cantilevere 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

Special, halogen-free reeling cables for shore power connection based on IEC/ISO/IEEE 80005-1

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: 3.6/6kV 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 sheated, 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.

BiTcrane© cables are tailored to your needs!

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BITNER®
Connecting with passion