

SOLUTIONS IN ENERGY SYSTEMS AND MONITORING FOR MINES

Analysis, Design and Engineering

ekabel MINING

Industry Solutions



The mining industry is a challenge that includes complex production processes and dangerous environments. E'kabel has a complete line of high quality accessories cables and supplies that ensure efficiency in severe conditions while providing maximum safety for personnel.

At E'kabel we offer a wide portfolio that seeks to guarantee the integrity of the equipment, innovative solutions such as conveyor belt monitoring and special mining cables that allow an accurate visualization in risky environments and provide maximum security.

We have a high commitment to safety and quality; Knowing the importance of each process, we offer cutting-edge solutions that start from the support systems, terminals, connectors and pipes, as well as high, medium and low voltage cables; control drivers, communication and instrumentation, including fiber optic cables for data transmission and asset monitoring, always integrating each of the solutions to the needs of our customers.



WHO WE ARE?

We are a team of action oriented and forward looking professionals.

We are passionate about designing solutions that respond to the needs of customers.

WHERE WE ARE?

With offices in Latin America, the United States, Australia & Spain, E'kabel has consolidated its rapid expansion and has participated in numerous important projects.

WHAT WE DO?

Based on our expert knowledge, we design and integrate energy systems, telecommunication, and automation solutions to optimize results for our customers and protect their most value assets.

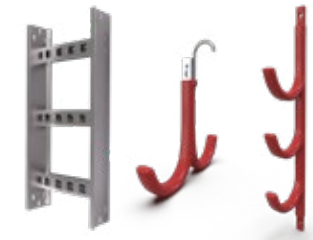
E'kabel offers you tailor-made solutions for the mining sector.
Let's talk.



Mining Solutions

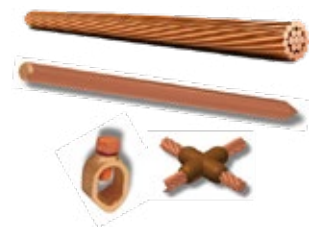
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CABLE SUPPORT SOLUTIONS



2

GROUND SYSTEM SOLUTIONS



3

MV TERMINATION & LUG MV JOINT & COMPRESSION SOLUTIONS



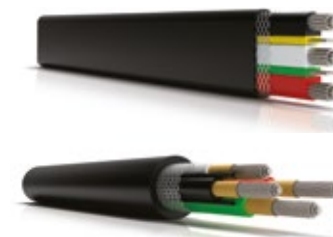
4

POWER AND VOLTAGE CABLE SOLUTIONS



5

CABLE SOLUTIONS FOR MINING



6

CABLE SOLUTIONS FOR OPTICAL FIBER

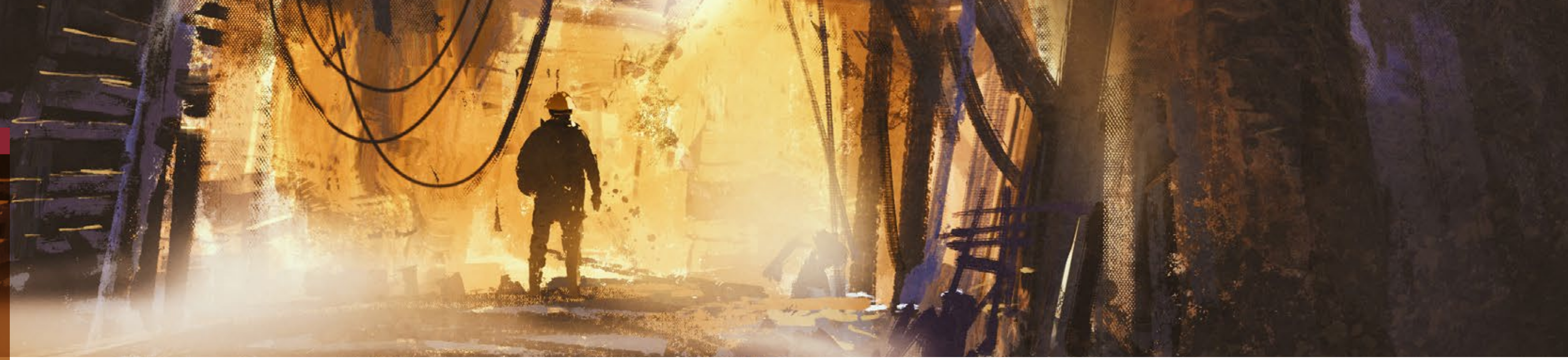


7

SOLUTIONS OF PLUGS AND COUPLERS FOR MINING APPLICATION



Mining Solutions



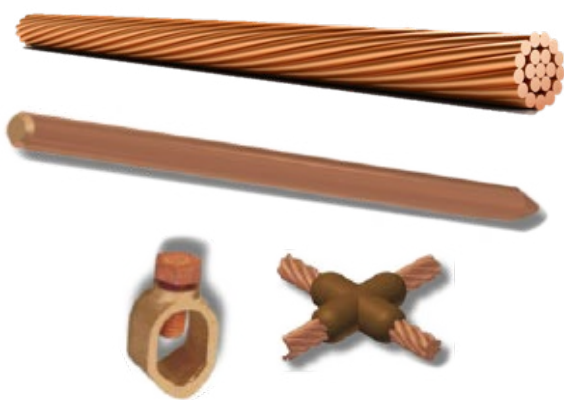
1 HEAVY DUTY HOOKS

Designed for application in mines, they are an ideal option for cable installation miners complying with the requirements of the mine.



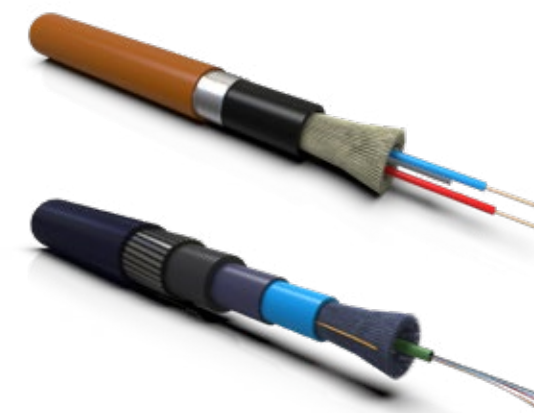
4 CABLE SOLUTIONS FOR COMMUNICATION AND INSTRUMENTATION

Suitable for mining installations where communication systems or connection of instruments are required for the operation of the mine.



2 RELEASE SYSTEM TO GROUND

The copper bars for grounding and the copper compression connectors or mechanics offer together, with the systems of exothermic welding, the best alternative for electrically grounding his system.



6 CONVEYOR BELT MONITORING SYSTEM

Distributed Fiber Optic Sensing Solutions is a unique technology suitable for monitoring of conveyor belts and mining facilities that allows early detection of high temperatures.

3 SPLICING AND TERMINATIONS COLD & HOT CONTRACTILE

Suitable for applications in open-pit mines or closed pit mines, for installation of medium or low voltage cables. Protection against moisture penetration. Resistant to UV rays, long-lasting, anti-tracking outer tube. Terminations with or without skirts. Slim profile for installation in confined spaces Includes compression connectors.



7 CABLE COUPLERS

They are suitable for 600V-15kV (500 Amp), each coupler includes copper contacts silver with a capacity of up to 500 amps. They are made of durable weather-resistant and anti-corrosion aluminum.





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CABLE TYPE W GRADE MINER



Application in mining where naked ground conductors are not required or wanted. Also used for mobile electrical equipment and laptops.

PORTABLE FLAT POWER CABLE TYPE W



Application in mining where there is no requirement or desire for naked ground conductors. Mining grade 2000 volts 900 grades.

FLAT CABLE 2c TYPE G



Designed for use in mining equipment mobile, continuous mining pumps, used by Roof Bolters where the equipment requires grounding.

CABLE TYPE SHD-GC 3c MINING DEGREE UP TO 25 Kv



Designed for use on mobile dredges (except winding), mining machines of continuous load, suitable for distribution of high voltage in underground mines where energy is required for easy installation.

POWER CABLE PORTABLE TYPE G 4C 900 INSULATION EPR



Portable power type G round is designed for use with mobile or fixed mining equipment. Also used where a ground verification conductor is required.

POWER CABLE TYPE MP-GC 900 C 15 Kv



Cable designed for use in high voltage distribution circuits for permanent installations, mines and tunnels.

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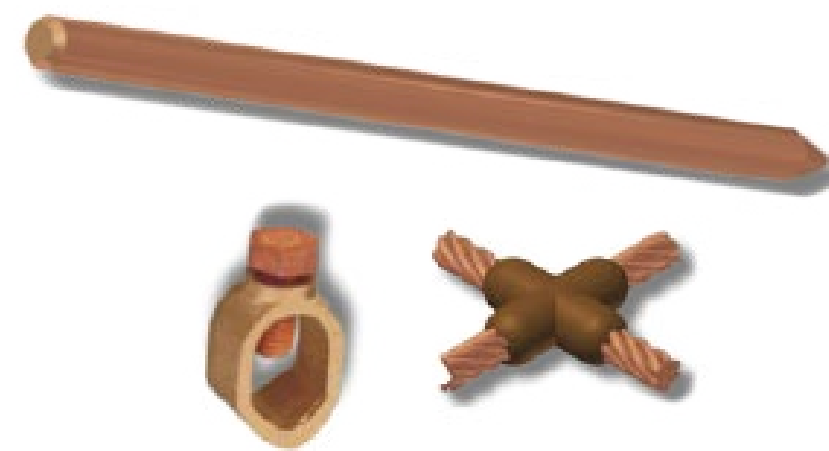
1 Cable assembly and installation

- Aluminum or fiberglass cable trays
- Flexible hook systems (hook)
- Variety of materials and terminations.
- Complies with international standards which are more demanding within the industry



2 Grounding systems

- Exothermic welding or mechanical fixation for grounding meshes
- Soft annealed copper coated steel copper coated steel bars type Copper clad
- Copper grounding rods, grounding copper conductors and copper compression connectors offer exothermic welding the best option to electrically ground your system for safe operation



3 MV TERMINATION & LUG AND MV JOINT & COMPRESSIONCONNECTOR

- Suitable for mining facilities
- Adapted to IEEE-48 (Class1)
- Zero risk to the safety of the mine and its workers during installation





Mining Solutions

4 POWER CABLES

We offer a large variety and many configurations of mining cables. The cable line for mines include Type W, Type G & G-GC, SHD-GC, MP-GC insulated in Ethylene Propylene Rubber and abrasion resistant thermosetting covers, in various operating voltages from 600 / 2000V up to 25kV / 30kV conforming to ICEA or IEC.



INSTRUMENTATION AND COMMUNICATION CABLES

They are designed for specific applications in mines complying with the most demanding UL, ICEA, VDE, IEC, BS standards. In this category of cables, E' kabel hcan develop special configurations that are adaptable to every need.



5 MINING CABLES

We offer a large variety and many configurations of mining cables. The cable line for mines include Type W, Type G & G-GC, SHD-GC, MP-GC insulated in Ethylene Propylene Rubber and abrasion resistant thermosetting covers, in various operating voltages from 600 / 2000V up to 25kV / 30kV conforming to ICEA or IEC.



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6 FOST(Fiber Optic Sensing Technology)

- Unique technology in the industry that uses a fiber optic cable as a sensor element.
- Requires one fiber wire to monitor up to a distance of 80 km.
- In the case of conveyor belts, the system can monitor the temperature of the pulleys and for any significant events where friction could lead to fire damage.

Features:

- Monitors all conveyor belt bearings.
- Monitors over long distances along the entire conveyor belt.
- Reduces corrective maintenance.
- Determines hot spots that can generate a possible failure.
- Alarms and system warnings can be set for both abnormally high and low temperature readings.



7 Couplings

Safe and ideal for portable cable applications

Type W, MP-GC, G-GC, SHD-GC in copper or aluminum, in voltages up to 15kV and 500 amps

- Connections for excavators and electric shovels
- Electric drilling equipment
- Power lines
- Extra heavy excavation machines
- Portable junction boxes

- Manufactured with a highly durable aluminum housing resistant to corrosion. The contacts are tin-plated copper to improve the connection with EPDM separator tubes.
- Made with moisture-blocking seals that improve performance in hostile environments.
- Available for in-line or surface mounting junction boxes.



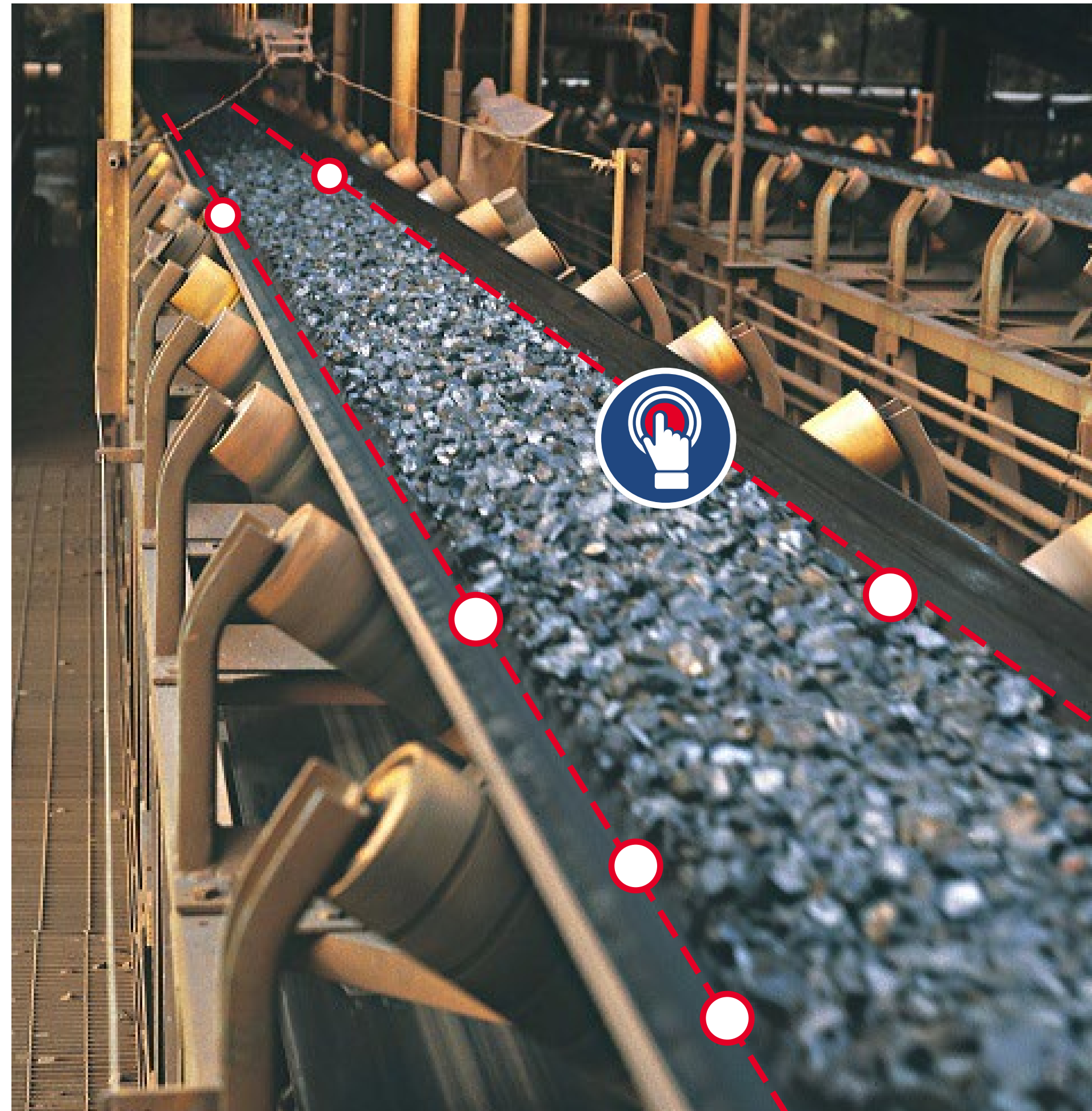
Mining Solutions

Conveyor Belt Monitoring Systems

Thanks to the advanced distributed sensor technology of fiber optics it is possible to detect any abnormal condition on the conveyor belts early. This technology, based on a single passive fiber optic sensor, allows you to safely monitor and anticipate possible failures in order to generate the appropriate action plans and to attend to the event.

System Benefits

- Temperature change detection due to rubbing or missing of lubrication in bearings
- Acoustic change detection due to deformations in the rollers
- Abnormal conditions on the conveyer belt
- Timely location of faults without monitoring dead zones
- Acquisition of data in real time 24/7
- Historical data that allows to adjust the plans of maintenance
- Precise fiber optic sensor immune to electromagnetic interference (EMI)



The Conveyor Belt Monitoring System with sensor technology distributed through a fiber optic cable replaces multiple point sensors traditionally used for a single fiber optic cable sensor.

It is a versatile monitoring system that uses the latest technology in the field of quantum physics to be able to detect through a beam of light changes in temperature, acoustics, or vibration at any point of on the conveyor belt.

- Measuring range up to 80km
- Remote monitoring and compatible with SCADA systems
- Intrinsically safe
- Reliable and accurate measurements
- UL, FM, NFPA approvals



FOST
(Fiber Optic Sensing Technology)

OUR PHILOSOPHY

360° Integration

When it comes to energy systems and connectivity networks, we've got you covered.

Our ability to integrate several products in a single proposal is the backbone of our service.

Flexibility

Our geographic expansion allows us to offer competitive advantages on both small and large projects.

Global reach with local support.

Brain Hub

Our team of top level engineers from around the world, with heavy expertise in the industries we serve, provides our clients expert advice on most challenging projects.

- **Global Service Team (GST)**
Experts devoted to help you

- **Technology Transfers**
Specific training sessions in latest topics

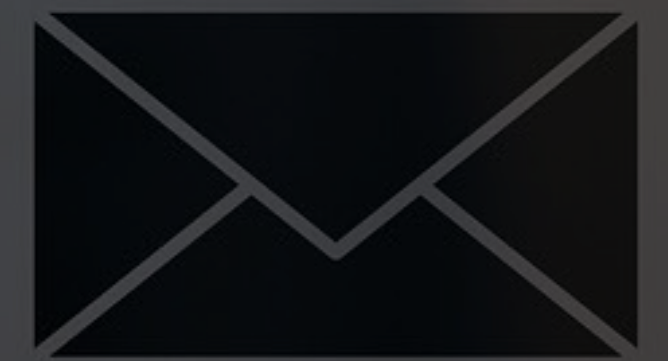
Borderless Logistics

Streamlined delivery is part of our signature service in order to meet client needs.



"We are passionate about the analysis, design and integration of innovative solutions that help us build a better tomorrow together"

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