



Draka



With the implementation of a European wide train control system, new networks and infrastructure will be necessary. We have the cables.

For safety in rail traffic
Draka Signalling Cables

What do we stand for?

In a nutshell, we believe that connectivity helps make life at home, work and on the move better and more rewarding. That's why we are proud of the role we play in developing, manufacturing and building the networks that bring people, data and systems together. All over the world, we provide the backbone for today's communication solutions. And tomorrow's too.

How we do this? Not only do we combine market insight with technological knowhow, but we also build strong, long-lasting relationships with our customers. In this way, we can help you and your customers to stay ahead, enhancing connectivity with advanced broadband network solutions and services that are designed to last.



How we can help you to meet growing demands

The demand for energy, power and mobility continues to rise, along with expectations of safety, controlability and reliability. The ongoing implementation of ETCS in Europe increases the need for the modernization of existing cabling infrastructure and investment in new networks. This is where we can help.

A changing world

Since the beginning of railway transportation nearly two centuries ago, separate national networks grew that have little more in common than standard gauge. Differences in these national systems include different voltages, frequencies and signalling and control systems. To secure safe and fast train travel, train control systems are a necessity.

In the past, a variety of train control systems have been developed throughout Europe. Many of these were to be implemented near to each other in locomotives. This led in the past to expensive equipping of the engine and difficulties in travelling across borders.

The new European Train Control System (ETCS) is a signalling, control

and train protection system that is designed to replace these existing incompatible systems. The specification was written in 1996 and is now being put into place in more and more countries.

The world is changing but it is growing together.

Opportunities and challenges

The implementation of ETCS will certainly generate the need to update existing infrastructures. It will also lead to new infrastructure when it comes to expanding the railway network to more high-speed lines.

We support you in this challenging situation with cost-effective solutions and advanced cable designs.



What we do

Draka is both a supplier of copper and fibre-optic cables and a specialist in the development and engineering of special cable solutions. We work closely together with national and international railway operators. Our advice contributes to shaping their standards.

Many cable types have already been designed and are supplied to railway operators worldwide.



Draka Signalling Cables: Applications

Control of track switching devices or optical signalling systems are only a few of the limitless possible applications of Draka signalling cables.



Draka Signalling Cables: Applications

The possible applications are manifold. The choice of the correct cables therefore follows fixed principles: technology-related, related to electrical parameters and related to the line.

Choice of the correct cable

A variety of parameters must be taken into account for the choice of the correct cable. We differentiate between the following principles:

technology-related

What application is to be run over the cable? Is it, for instance, telephone or the control of track switches and optical signalling systems?

Must it be twisted into pairs or quads or may the cable contain single cores only?

related to electrical parameters

What distance needs to be covered with the cable? Mutual capacitance is the parameter to be taken into account. If there is a need to protect the cable from inductive influences, then the necessary reduction factor must be specified.

related to the line

Is there any danger of rodent attacks or other mechanical damage? In this case the cables must be equipped with an armouring.

In tunnels or subsurface stations, fire safety is an important issue. Our halogen free and flame retardant cables are the solution for this application.

Applications

Nearly all applications using railway cabling infrastructure can be operated with our cables.

This covers, amongst other functions, the control of track switches and optical signalling systems as well as the backhaul of actuators and control loops to conventional or electronic track control centers. Everything is possible, from telephonics to running much more complex applications like axle counter loops, linear or pointwise train information exchange and, of course, the use of the advanced ETCS.

Laying

Depending on local conditions and the requirements caused by the rail traffic, our cables are installed in compliance with their design.

Most often cables are laid directly into the ground or in ducts. Sometimes this kind of laying is not suitable. Our aerial cables can be mounted on poles in difficult terrain where digging trenches is impossible or extremely expensive. Even faster and cheaper is the installation of the signalling cable directly on the railfoot. These especially designed cables must withstand the enormous vibrations caused by passing trains. The installation of railfoot cables is therefore permitted only on non-electrified tracks.

We have the cable for your application or we will design it according to your request.

Please note our brochure "Laying of Cables and Installation of Sleeves", available upon request.



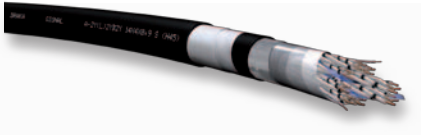
Draka Signalling Cables: the Manufacturing

Modern machinery and advanced manufacturing processes enable us to produce and provide competitive and reliable products in the best quality available.



Draka Signalling Cables: the Program

The Draka Signalling Solution is a multiple cable and multiple standard program. Draka not only manufactures railway cables according to national and international standards. We are in close relationship with major railway operators to provide support in defining standards and setting the course for the future.



Signalling Cable Range

Draka's range for signalling cables includes the following products:

- Balise cables
- Cables for ETCS
- Cables for GSM-R
- LZB- and PZB-cables
- Standard signalling cables in single core, pair or quad stranding
- Cables for telecommunication
- Aerial cables
- Cables for railfoot installation
- Cables with armouring
- Cable with reduction factor
- Cables with transversal and/or longitudinal water tightness
- Concentric or bundled cables
- copper conductor and/or fibre optic and more

Range of Standards

We produce according to the standards of major European railway operators, like:

- Deutsche Bahn AG, Germany
- CFR, Romania
- MÁV, Hungary
- RFI, Italy
- SBB, Switzerland
- ÖBB, Austria
- Irish Rail, Ireland
- British Rail, UK
- London Underground, UK
- RENFE, Spain
- SNCF, France

We supply our cables also to North Africa, Near and Middle East and in many more countries.

Certifications and Quality

Our customers judge us by the quality of our cables and services. Top quality is not achieved by chance. It is much more the consequence of an intensely felt demand for quality which permeates all sectors of the company and the quality management which results from this. The guiding principle of GMP (Good Manufacturing Practice) is that quality is built into a product, and not just tested into a finished product. Draka has been awarded the certificate of LGA Intercert for successful implementation of a Quality Management system according to DIN ISO 9001 as well as the suppliers' evaluation and certification as Q1-supplier of Deutsche Bahn AG. This is simply public confirmation of the complex quality process within the company. We employ regular audits, customer surveys, evaluation of test reports and comprehensive laboratory analysis and certification from other national and international companies and committees. As a result, we guarantee quality at the highest level.

