

ELAND[®]
CABLES

RAIL & METRO

COMPLETE CABLE SOLUTIONS
FOR DEMANDING INDUSTRIES



CONNECTING RAIL NETWORKS

Rail networks transport billions of passengers and tonnes of freight every day, all over the world. Whether surface, sub-surface or underground, for trains, metro, or trams, each railway relies on a network of robust cables for consistent performance and safe operation.

We perform | We connect | We deliver



It starts with the cable but there's so much more to it. We take into consideration the type of network, the installation environment, as well as the country and network-specific regulatory requirements.

One size does not fit all.

Our portfolio covers overhead line wire, trackside power, signalling, telecommunications, rolling stock, and station building cables to provide a comprehensive service for all applications.

We can support your project with cables that are:



UV RESISTANT

Specifying certain sheathing materials and ensuring a level of carbon black content can provide protection from the sun's UV radiation for cables used externally.



LOW SMOKE ZERO HALOGEN

In the event of fire, LSZH insulation and sheathing compounds emit low levels of light-obscuring smoke and none of the harmful halogen gases, offering valuable protection to people in high traffic and public areas, and sensitive equipment. Particularly for use in tunnels and enclosed spaces.



PROTECTED FROM VERMIN

Additional layers of protection can be added to the cable construction to prevent cable failure through rodent attack. This can include armours, braids, and metallic or fibre glass tapes.



PLUG AND PLAY

Cables can be terminated prior to installation with appropriate cable glands, lugs or terminals to save time and onsite labour.



NETWORK RAIL APPROVED

Specifically approved for use on Network Rail tracks, in trackside installations and station buildings, and holding PADS numbers.



LONDON UNDERGROUND APPROVED

Low Smoke Zero Halogen (LSZH) and Limited Fire Hazard (LFH) cables listed in the Approved Products Register.

THE RAIL CABLE NETWORK

Our solutions cover the breadth of rail applications

Trackside power

Delivering power to the rails and powering on-track systems such as Points Heating pads. Includes Medium Voltage cables of 19/33kV and 25/44kV graphite coated cables for power supply to Traction Substations and Track Feeder cables for 650/750V DC supply from Substations and Track Paralleling Huts to rails.

Signalling

Train control system cables for signalling between fixed points or moving blocks. Designed to ensure the transmission of signals and a continuous power supply across all trackside signalling applications.

Station Buildings

Building services for 'head house' passenger terminals, staff and driver areas, and platform / concourse information systems. Includes armoured LV power and fixed wiring, fire alarm and suppression system cables, HVAC system connections, and cables for lifts and escalators.

Telecoms

Transmitting data through copper and fibre networks to provide control & monitoring on safety-critical systems including trackside fibre, SCADA Pilot systems cable, SSI system datalink cables, and cables for AzLM axle counter systems.

Rolling Stock

Couplings and connections for both passengers and freight cars, providing power, control, communications, heating and ventilation. Single core, multi-core and multi-pair cables with standard, reduced and enhanced insulation wall thickness as appropriate.

Overhead line wire

Supporting the electrification of the rail network, providing power to the pantograph through flexible stranded conductors, catenary wire, contact wire, feeder cable, bonding cable and return screening conductors.





TRUSTED TO PERFORM

Quality and Compliance are at the heart of mitigating the risk of unplanned maintenance and downtime.

Our commitment to supplying high quality, high performance cables sees us work with quality-conscious organisations around the world.

Commissioning and delivering any project sees you juggling a myriad of responsibilities. Due diligence means when appointing supply partners you want to identify companies that will make the job easier and that you can trust to deliver a product that meets all your expectations.

The strictest quality assurance processes are backed by cable testing in a world-class UK laboratory. We take our responsibilities as cable experts seriously and do all we can to ensure only quality, compliant products are available in the marketplace, including offering compliance testing on third-party cables. It means you can have total trust that your cables and accessories meet the highest standards.



INDUSTRY-LEADING QUALITY ASSURANCE

Rigorous quality checks ensure our cables are in optimum condition to be despatched to you. From factory audits to post-packaging checks, we tightly control the cables and accessories we supply.



BSI KITEMARK™ TESTING

Described by BSI as 'a new benchmark in cable compliance' this in-depth testing certifies the performance safety standards of the cable. Where relevant, it can provide a valuable independent mark of quality.



"The expert technical staff and high-end facilities at The Cable Lab® were excellent and very impressive. The cable-testing process itself was exhaustive and provided us with the independent assessment report we needed. The level of expertise and service in their UKAS accredited facility puts them at the forefront of the UK cable testing and inspection services."

NetworkRail



RAIL TECHNICAL EXPERTS

Sometimes you need knowledge and expertise specific to the rail industry.

Our technical and industry experts are relied upon to share their knowledge in support of major UK and international rail projects from initial tender stage through to onsite installation guidance.



RAIL CABLE TESTING BY THE CABLE LAB®

Network Rail mandates certain tests be carried out prior to installation, including sheath integrity testing on Graphite coated MDPE 33kV and 45kV Medium Voltage NR/PS/ELP/00008 cable. These tests are undertaken by the experts in The Cable Lab, our UKAS accredited test facility under strict parameters.



CPD-CERTIFIED NETWORK RAIL CABLE TRAINING

Cable training on the different cable types used across Network Rail, providing an understanding of the types of applications and their installation environments. Designed to provide confidence for cable buyers and specifiers.



RAIL SPECIFICATION SUPPORT

From identifying the correct cable to determining the number of cable cleats and the spacing between them to support installation of the cable - sometimes you want a second opinion to validate your calculations or simply someone to point you in the right direction!

“

Eland Cables' training programme provided an essential understanding of the processes and best practices covering cable manufacturing, supply logistics and specific live applications. The information was presented in a clear and engaging way by their cable experts, with demonstrations and opportunities for hands-on experience to really reinforce what we were learning. Everyone came away from this valuable training session confident and eager to apply this newly acquired knowledge.”

UNIPART
RAIL

TRUSTED TO CONNECT

Please see our website for the wider portfolio and technical specifications, or speak to one of our team about the cables needed for your specific project and application.

Overhead Electrification



19/2.1mm PADS: 0091/012330
19/3.2mm PADS: 0091/010269

CATENARY WIRE

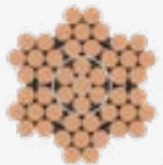
For power transmission alongside overhead line systems. Available as 19/2.1mm Bronze II stranded (Cu Mg) and 19/3.2mm hard drawn stranded (Cu ETP).



107mm² Cu PADS: 0091/010274
107mm² Cu Ag PADS: 0091/012685
107mm² Cu Sn PADS: 0091/012326
120mm² Cu Ag PADS: 0091/012329

CONTACT WIRE

Designed to pass current directly to the pantograph in OHL systems. Available as Hard drawn copper (Cu), Copper Silver (Cu Ag) and Copper Tin (Cu Sn).



7/7/0.51mm 500m PADS: 0091/030331 5000m PADS: 0091/030331
19/7/0.71mm PADS: 0091/010271
37/2.25mm PADS: 0091/070209
189/0.7mm PADS: 0091/045931

FLEXIBLE & STRANDED CONDUCTORS

Also known as dropper wire and designed to provide flexible support for the contact wire by connecting it to the catenary wire at regular intervals.



Bare PADS: 0091/010268
PVC PADS: 0091/010319

COCKROACH BARE / PVC

All-aluminium conductor (AAC) 19 stranded wire with a cross-sectional area size of 250mm². Available bare or with PVC insulation, used as bonding cable in OHL systems.

Bare PADS: 0091/010267

PVC PADS: 0091/010318 (black) 0091/030336 (red) 0091/030337 (yellow)

HORNET BARE / PVC

AAC conductor of 150mm² and 19-strands designed as a bonding cable for overhead line systems. Provides a route to earth and ensures electrical continuity as part of the system fail-safe. Available with and without PVC insulation.

PADS 0091/030481

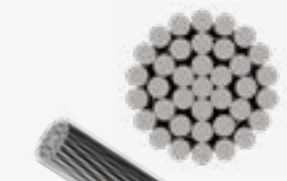
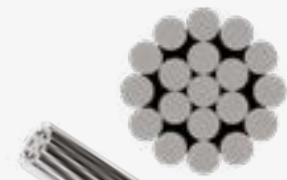
CENTIPEDE ATF

400m² AAC wire used as Auto Transformer Feeder (ATF) cable within overhead line systems. 'Along track' conductors to help equally distribute power.

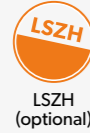
PADS: 0091/070207 (19/3.35) 0091/070208 (19/4.20)

AL7-167 / AL7-263 AAAC

19/3.35mm and 19/4.20mm stranded All-Aluminium Alloy Conductors (AAAC) for OHL electrification projects where improved sag and strength-to-weight ratio is required.



Trackside Power



NR/PS/ELP/00008 – MV POWER

Provides power (19/33kV) to lineside rectifier huts for DC Traction power and power (25/44kV) to OHL as an insulated ATF feeder. LSZH sheathed cable is suitable for installation into tunnels. MDPE is graphite coated.
For PADS numbers please refer to technical datasheet.



NR/PS/ELP/21101 - TRACKFEEDER

Available with LSZH or Chlorosulphonated Polyethylene (CSP) sheathing and transmitting the 650/750V DC power supply from the traction substations and track paralleling huts to conductor rails. Also used to provide the negative connections.
For PADS numbers please refer to technical datasheet.



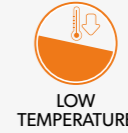
NR/L2/ELP/27408 – CLASS 2 SIGNALLING CABLE

Aluminium power supply cable for Class 2 signalling systems available with PVC or LSZH sheath. Fibre glass tape offers enhanced resistance to rodent attack.
For PADS numbers please refer to technical datasheet.



BR880 TRACKSIDE POWER

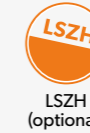
Lightweight power supply distribution cable for signalling equipment. Voltage rating of 0.6/1kV. Available with PVC or XLPE insulation and robust PVC outer sheath.
For PADS numbers please refer to technical datasheet.



NR/PS/ELP/40045 – POINTS HEATING CABLE

Power cable for electric point heating systems to maintain operation during cold weather and extreme low temperatures.
For PADS numbers please refer to technical datasheet.

Network Telecoms



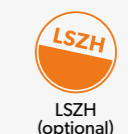
NR/PS/TEL/00014 TRACKSIDE FIBRE

High traffic, high data transmission rate cable for FTN applications running alongside the track. Available with PE or LSZH sheath and optional additional armoured protection from corrugated steel tape.
For PADS numbers please see technical datasheet.



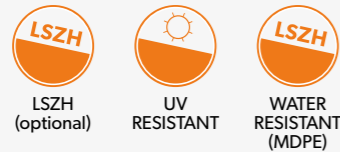
NR/PS/TEL/00015 TRACKSIDE COMMS

FTN copper trackside cable for installation into trackside concrete cable troughs or buried duct routes. Available with PE or LSZH sheathing and with or without corrugated steel tape armour.
For PADS numbers please see technical datasheet.



NR/PS/TEL/31102- SCREENING CONDUCTOR

RSC aluminium cable for screening telecommunications cables from electrical interference from proximate power sources. Available with PVC sheath or LSZH sheath where situated in tunnels or underground.
For PADS numbers please see technical datasheet.



NR/PS/ELP/27220 SCADA PILOT CABLE

Twisted multicore, compound-filled telecoms cable for Supervisory Control and Data Acquisition (SCADA) applications operating on a variable frequency range of 300Hz to 3000Hz. Water blocking tape and MDPE sheath provide water resistance or LSZH sheath for use in tunnels and underground. Can be laid directly in ducts. UV resistant. For PADS numbers please see technical datasheet.



NR/PS/SIG/30060 – AXLE COUNTER CABLE

Connection for AzLM Axle Counter system and suitable for installation in trackside cable troughs, buried ducts and in open air when attached to ballast or clipped to sleepers. For PADS numbers please see technical datasheet.



BR1932 TWIN DATALINK

Interconnection with Solid State Interlocking (SSI) systems for the trackside transmission of data between MPMs and TFM's through the data link modules. Class 1 solid copper conductors available with PE or LSZH sheathing. For PADS numbers please see technical datasheet



Network Signalling



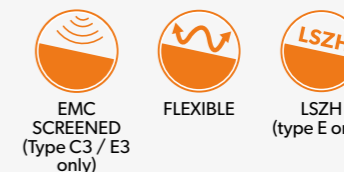
NR/PS/SIG/00005 TYPE A1, A2, A3, A4

Type A are Class 2 stranded LSZH for light duty internal use. Suitable for free wiring installations in ducting, including in relay rooms, signal boxes, REBs and location cases. For PADS number please see technical datasheet.



NR/PS/SIG/00005 TYPE B1 & B2 / TYPE D1 & D2

Type B are Class 2 stranded heavy duty EPR insulated HDPCP (Heavy-duty Polychloroprene) sheathed. Protected against mechanical impact, oils, greases and abrasions. For use between equipment boxes, signal boxes, relay rooms and location cases. Type D are LSZH sheathed, for Type B1 & B2 applications when located in tunnels and underground. For PADS numbers please see technical datasheet.



NR/PS/SIG/00005 TYPE C1, C2, C3 / TYPE E1, E2, E3

Type C are Class 5 flexible heavy duty and suitable for tails. Type C3 is for TPWS applications and has both Drain Wire and Aluminium Tape screening. Type E cables are for C-Type applications when used underground. For PADS numbers please see technical datasheet.

WESTPAC CO-POLYMER SIGNALLING

Manufactured to Westinghouse Brake & Signal Company specification DSCE 1010 for Invensys signalling system applications.

LUL Approved



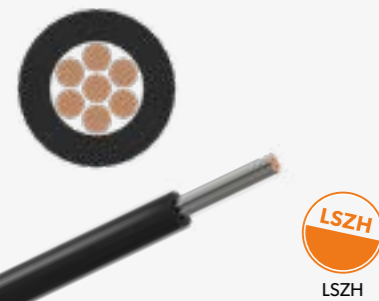
LUL TRACKFEEDER - S1108

LUL approved cables for connecting the traction conductor rail. Negative track feeder cable also available.



LUL POWER - G4727, SE0895, SE0774

Limited Fire Hazard (LFH) power cables for earthing equipment, powering track circuit systems, and for use in non-safety critical low voltage AC current systems.



LUL SIGNALLING – G7250, SE0875, SE1093, SE0527, SE1047, SE0260, SE0330, T0504

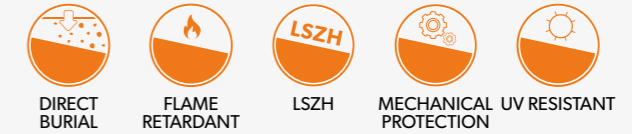
LUL-approved LSZH signalling cable, concentric signalling cable, pigtail connections, screened track crossing, and LFH connection cables.



WORTH NOTING

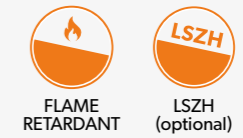
For more information on our Network Rail and LUL specification cables, or for support with applications not listed above, please speak to our specialist Rail team.

Station Buildings and Passenger Concourse



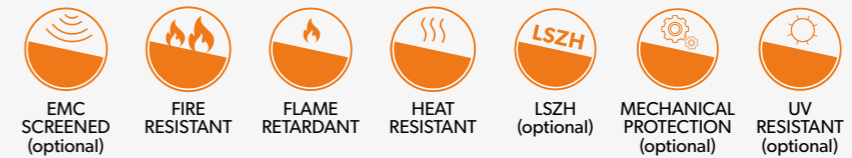
LOW VOLTAGE ARMoured POWER

Single core aluminium wire armoured and multi-core steel wire armoured cables with PVC or LSZH sheathing with rated voltages up to 0.6/1kV. BASEC approved cables available. PADS registered and LUL approved sizes available.



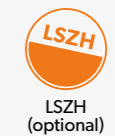
FIXED WIRING

Power supply cables for sockets, switches and light fittings, designed for fixed position installation (not mobile/static equipment). Variants include cables suitable for installation into concrete. BASEC approved cables available. PADS registered and LUL approved sizes available.



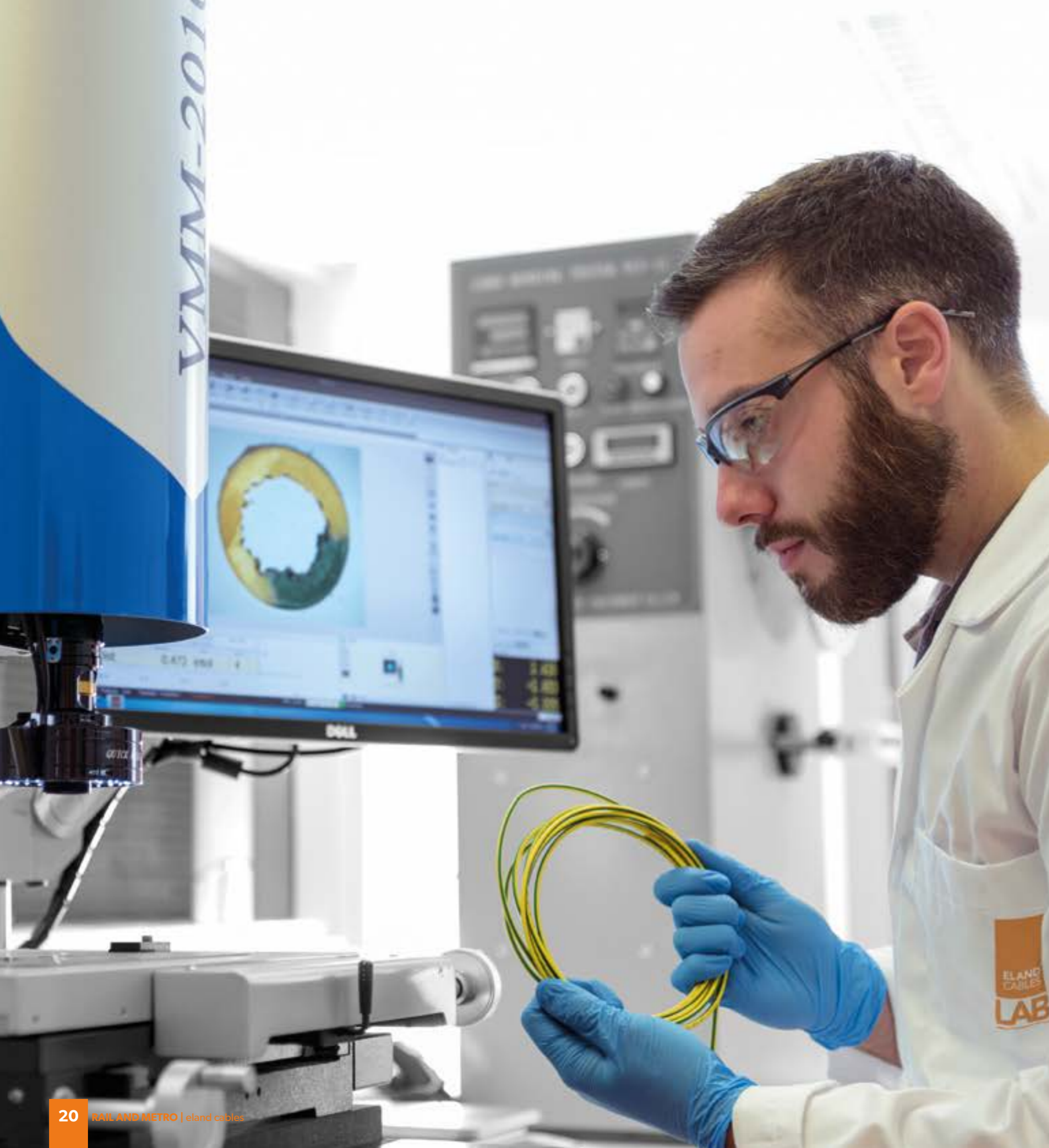
FIRE PERFORMANCE

Standard grade, Enhanced grade, Impact resistant, and mineral insulated variations to deliver circuit integrity for a prescribed period of time in the event of fire. PADS registered and LUL approved sizes available. LPCB certified cables available. PADS registered and LUL approved sizes available.



INTEGRATED EQUIPMENT POWER

From HVAC services to escalators and lift equipment, a station building can require a wide range of specialist cables to support essential equipment.



CUSTOMISED CABLES

For when you need something different

Sometimes an off-the-shelf cable isn't right. We can design, manufacture and test a cable that works for your installation.

Whether it's adapting an existing cable or designing from scratch to your unique specification, we can provide the cable that works for you. Designed by our technical experts to relevant standards, it is manufactured then tested in The Cable Lab®.

It might be you need additional water-blocking properties, and extra layer of screening, or mechanical protection from armour; re-sheathing or over-sheathing can adapt a cable to the installation environment; or you may need to design a composite cable running power to fit the installation space available.

We've got proven experience in developing cable for Network Rail and its international counterparts achieving relevant approvals for use on their railways.

Whatever the requirements, we'll supply the new cable meeting your precise needs with speed and efficiency.



END-TO-END QUALITY

Seamless installation with accessories

It's essential that your cable accessories are sized correctly - it can have a significant impact on the time and ability to terminate the installation. We calibrate the cables to precise dimensions so that accompanying accessories are matched accordingly.

Quality matters with cable accessories too so our portfolio is subject to the same rigorous QA procedures as our cables. Our premium brand accessories deliver the assurance of electrical integrity from start to finish.



CABLE GLANDS

Our nylon, brass and nickel-plated glands provide high quality connections to equipment. Includes braided, armoured and EMC screened cables. Rated IP68 and IP69K.



CABLE CLEATS

Support your infrastructure with our premium range of cleats, available in stainless steel or LSZH for public or enclosed spaces. Trefoil and Quad formation cleats also supplied.



CABLE LUGS

Create secure terminations with our bi-metallic and copper lugs. Long palm and dual hole fixings available to suit the installation needs. Cable terminations (cord end terminals) also supplied.



PLUG AND PLAY HARNESSING

Designed against specific installation plans, pre-cut lengths of cable complete with chosen connector or termination can be supplied when large quantities of the same construction are required.



CABLE MANAGEMENT

Robust cable basket, tray and ladder (heavy-duty options also available) to support and route your cables around the installation space.



Other cable accessories also available. Accessories can be tailored to meet specific installation demands. Please speak to the team for more information.

TRUSTED TO DELIVER

You know the railway. We know railway cables. Together our expertise can deliver a solution that works for you.

Our project support services are focused on adding value to your project, delivered by an experienced team.

We work in partnership with consultants and electrical contractors to carry out a build run against agreed project milestones.

You need to work with a team who takes responsibility; that can be flexible, and who understand that getting the right cable to the right place at the right time is paramount to success. You need to work with experts in their field so that you have access to the information you need to keep the project on-track.



TECHNICAL SUPPORT

Our technical experts are on hand at every stage, from specification to completion to provide answers to your cable questions. With strong manufacturing backgrounds they sit on standards bodies and committees and can advise on the suitability of a cable across matters of construction, electrical design and compliance.



PROACTIVE PROJECT MANAGEMENT

Our rail industry specialists use all their experience so your project runs smoothly, providing the support, flexibility and reactive approach that makes us the partner of choice on large-scale projects.



RESPECTFUL OF TRACK POSSESSION

We'll deliver your cables where and when you need them. Phased and planned just-in-time deliveries can be supplemented by ad-hoc requirements. We commit to your track possession timelines and deliver to trackside with hi-ab vehicles for offloading where appropriate.



PROJECT DISTRIBUTION HUBS

To aid accessibility for large-scale builds we establish dedicated distribution hubs where cables can be stored ready for local delivery when site requires. It minimises on-site storage and space demands, reduces security risks associated with cable theft, and can provide a buffer for unforeseen demands.





CASE STUDY

NETWORK RAIL UK

GREAT WESTERN MODERNISATION PROGRAMME

PROJECT SCOPE:

The Great Western Route Modernisation Programme is a c.£5bn project covering electrification, resignalling, new rolling stock and station upgrades. It is the largest rail infrastructure project of its kind in the United Kingdom in over 20 years.

REQUIREMENT:

During the design phase, Network Rail's engineers turned to Eland Cables for technical support to address issues with the AAC (all-aluminium conductor) commonly in use on the UK rail network. Open to innovative solutions, and with our proven track record in developing new cable solutions for them, the result was a AAAC cable alongside other cables as part of a £12 million order.

TECHNICAL SOLUTION:

Our research identified an AAAC (all-aluminium alloy conductor) solution used in other countries. Whilst more expensive on acquisition, AAAC offered much greater mechanical strength with minimal loss of conductivity (typically <2%), resulting in lower maintenance costs. Following a detailed technical and commercial review, Network Rail decided to adopt the AAAC solution put forward by Eland Cables.

PRODUCT DEVELOPMENT:

After agreeing specification to cover electrical and mechanical parameters, we supplied a 200m sample of two types of AAAC for third-party destructive mechanical testing and extreme destructive fault testing. Both samples exceeded requirements by over 20%. Product approval was secured within weeks, in part due to our experience of the approval process and quality of our documentation (this can take months or years).

PROJECT MANAGEMENT:

In addition to AAAC, large quantities of catenary and contact wire were also required. We put in place commercial agreements covering production schedules and metals bookings at fixed rates for the duration of the project. We aided the design and supply of new metal drums to fit onto new rolling stock designed to install the overhead lines. Additionally, we provided comprehensive drum management and batch traceability, drum inspection, storage, handling, cable cutting, trackside delivery on a just-in-time basis, and recycling of excess lengths. We were also responsible for maintaining contingency plans to prevent fines of up to £50k per day due to lost track possession time by contractors. These include buffer stock and having vehicles on standby to meet urgent and unforeseen requirements.

ADDITIONAL CHALLENGES:

Due to Network Rail logistical challenges, the project fell 9 months behind the agreed delivery schedule. We resolved the issue for Network Rail, through a combination of delayed production, utilising pre-booked metals on other projects, and storing c.£3m of overhead line under a vesting agreement.



CASE STUDY

“My experience with Eland Cables was extremely good. From enquiry through to delivery I found that their service was second to none. I was treated very courteously and the delivery was early. A very professional company that I would have no hesitation in recommending to anyone.”



EUROTUNNEL FRANCE

PROJECT SCOPE:

A system for isolation of live cable. Improved operational safety for freight users in a high-risk environment. Haulage drivers had made contact with live exposed overhead contact wires when securing their loads causing serious risk to lives.

ELAND CABLES SOLUTION:

Our technical engineers visited the site to assess first-hand the project requirements. We then worked to design and develop a bespoke cable for a 22kV bypass circuit, providing full technical documentation

The cable was manufactured against short-lead times, maintaining project schedules.

Onsite training for Eurotunnel’s French contractors was provided by our industry experts, ensuring adherence to installation protocols

Final pre-installation testing was undertaken before sign-off and full-scale installation



CASE STUDY

MELBOURNE METRO AUSTRALIA

PROJECT SCOPE:

Urgent supply of Australian standard axle counter cable. Due to the failure of its existing cable supplier, Melbourne Metro urgently required axle counter cable complying with its specifications for an installation scheduled during a short network shut-down over the Christmas holiday period.

It needed to be nylon-sheathed for additional rodent-protection.

ELAND CABLES SOLUTION:

As part of the team who designed the cable and developed the standard for the Network Rail approved axle counter cable, we were able to quickly understand the specific requirements.

Whilst Network Rail’s cable uses fibre-glass tape as rodent protection, we were able to work quickly to adapt our designs to match the nylon-sheathed design specifications.

This was promptly manufactured and airfreighted to Melbourne in time to ensure successful completion of the work.



CASE STUDY

MANCHESTER METRO UK

PROJECT SCOPE:

Reduce failure rates and maintenance costs by halting the high corrosion rates on overhead lines across the network. Seeking expert advice on how to protect the cable from corroding with applied sheathing materials.

ELAND CABLES SOLUTION:

Our technical engineers team provided comprehensive advice on the water resistant properties of various sheathing materials for overhead lines.

An alternate solution of a stainless steel catenary wire was also proposed and, based on technical performance and associated cost-efficiencies, selected by the customer.

As the sole holder of Network Rail product approval for stainless steel catenary wire, we were able to arrange a manufacturing run for the required bespoke lengths in time for installation against project deadlines.



CASE STUDY

MTR HONG KONG

PROJECT SCOPE:

Approved signalling cable urgently required to satisfy scheduled maintenance requirements.

ELAND CABLES SOLUTION:

Eland Cables was in a position to immediately ship Network Rail-approved signalling cables that met all Hong Kong MTR specifications.

The airfreighted cables arrived on time to meet the project team’s deadline.

TRUSTED FOR COMPLETE CABLE SOLUTIONS

We're the cable supply partner the major projects work with.

The 'Eland Experience' is a combination of quality products, expert technical support, and services that add value without adding to your workload.

Our solutions for rail operations are built around a collaborative approach with a team that's always available, whenever you need them. We've delivered projects and continue to support operations around the world, for national and municipal railways and industry-specific transport networks alike. For each project we've ensured quality, compliance and full traceability, meeting strict development time-lines to bring systems online.

We're the cable supplier the industry trusts.

Project references available upon request.

“

When industry-specific standards apply in addition to national and international compliance requirements, it's important that quality and high performance is assured. Our unparalleled technical expertise in the rail industry can be a key resource in delivering your project on-time.”

Ivan Cleere, Head of Technical/QA



**ELAND[®]
CABLES**



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ISO
9001
Quality
Management

FS 672069

ISO
14001
Environmental
Management

EMS 672067

OHSAS
18001
Occupational
Health and Safety
Management

OHS 672066



bsi.
Cable Testing
Verification
KITEMARK™

KM 662609



bsi.
RoHS Trusted
KITEMARK™

KM 634267

