

C A B L E S F O R A M O V I N G W O R L D

TRATOS[®] RAILWAYS & MASS TRANSIT



March 2019
TBn05-Rev32



www.tratosgroup.com

STANDARDS AND QUALITY SYSTEM

QUALITY SYSTEM

Tratos aim to work closely with customers to find better, more environmentally friendly solutions to their challenges.

We are committed to our vision and strategy to serve all our internal and external customers by providing high quality services and products. Tratos is an established industry leader in the design, manufacture and supply of cables and products and to maintain this leading

position we are committed at every level to providing our customers with quality services and products at a competitive price. As a commercial enterprise we are aware of the importance of satisfying our customers and of the financial impact of which nonconformities may have on our profitability. For these reasons we are committed to complying with all customer requirements and specifications both legal and statutory requirements. Our Quality Management System has been audited and approved by two independent, Internationally recognized and accepted authorities: BSI and AENOR-IQNET (E), in accordance to BS EN ISO 9001:2015 covering the production, purchasing of raw materials design and final test including various document types. The Tratos Quality Management system is under frequent regular surveillance by inspectors working for the Certification Authorities.



ENVIRONMENTAL SYSTEM

Our Environmental Management System has been audited and approved by two independent, Internationally recognized and accepted authorities:

BSI and AENOR-IQNET (E), in accordance to BS EN ISO 14001:2015 covering the production, purchasing of raw materials design and final test including various document types. The Tratos Quality Management system is under frequent regular surveillance by inspectors working for the Certification Authorities.



ENERGY MANAGEMENT SYSTEMS

By complying with the BS EN ISO 50001:2018 Tratos follows a systematic approach in achieving continual improvement of energy performance and the Energy Management Systems (EnMS).

The BS EN ISO 50001:2018 is a standard issued by the International Standard Organization (ISO) which outlines the requirements for establishing, implementing, maintaining and improving an energy management system (EnMS).



CIRCULAR ECONOMY

The EU Eco-Management and Audit Scheme (EMAS) is a premium management instrument developed by the European Commission for companies and other organisations to evaluate, report, and improve their environmental performance. EMAS is open to every type of organisation eager to improve its environmental performance. It spans all economic and service sectors and is applicable worldwide.



AWARDS

Tratos cables are made with award winning Tratos-JBA® compound. Tratos UK Ltd has won a **Queen's Award for Enterprise - Innovation** for its technologically advanced Tratos-JBA® compound.



STANDARDS AND QUALITY SYSTEM

HEALTHY & SAFETY SYSTEM

Once its decision to create a board post dedicated to furthering best practice for Health and Safety, international cable manufacturer Tratos is celebrating receipt of ISO 45001.

ISO 45001 sets out the minimum requirements for occupational health and safety management best practice and helps companies achieve the maximum return for employees, operations and customers.



REACH, WEEE & ROHS



Tratos is fully compliant with the **REACH**. This is a European Union regulation concerning the **Registration, Evaluation, Authorisation and restriction of Chemicals**. It came into force on 1st June 2007 and replaced a number of European Directives and Regulations with a single system. REACH applies to substances manufactured or imported into the EU in quantities of 1 tonne or more per year. Generally, it applies to all individual chemical substances on their own, in preparations or in articles. To summarise, REACH makes the cable industry directly responsible for assessing and managing the risks posed by chemicals and providing safety information to their users.



Tratos fully subscribes to The **Waste Electrical and Electronic Equipment Directive (WEEE Directive)**, introduced into UK law in January 2007 by the Waste Electronic and Electrical Equipment Regulations 2006. The WEEE Directive aims to reduce the amount of electrical and electronic equipment being produced and to encourage everyone to reuse, recycle and recover it. The WEEE Directive also aims to improve the environmental performance of businesses that manufacture, supply, use, recycle and recover electrical and electronic equipment. TRATOS has enlisted the services of the UK's leading producer compliance scheme, Valpak, whom manage our recycling obligations and also ensure our compliance to the WEEE Regulations and the Waste Batteries and Accumulators Regulations.



Tratos is fully compliant with the **Restriction of Hazardous Substances (RoHS) Regulations**. These Regulations implement EU Directive 2011/65/EU which bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants. Tratos fully understands the requirements of the RoHS Directive and ensures that our products, and their components, comply.

CORPORATE SOCIAL RESPONSABILITY

Tratos adopts a Code of Ethics which adheres to the United Nations Global Compact on human rights, labour standards, protection of the environment and anti corruption measures.

Under this self regulatory code, Tratos will carry out initiatives in the environmental and social fields with special reference to environmental policies and social policies regarding child labour, compulsory labour, health and security, freedom of association and the right to collective bargaining, discrimination, disciplinary procedures, working hours and wages.

OUR MEMBERSHIPS IN THE RAILWAYS INDUSTRY



VENDOR APPROVALS



TRATOS® RAILWAYS & MASS TRANSIT

Tratos produces a varied cable range specifically for applications in the Railways and Mass Transit Markets:

- **Trackside power** cables including feeder cables
- **Trackside signalling** control and communication cables; including fire performance cables
- **Stations** and **premises** cabling including enhanced fire performance types
- **Railway rolling stock** cabling including pantograph cables
- Tratos is also a leading manufacturer of **flexible cables** for intermodal loading and unloading transfer cranes.

In the last 40 years Tratos has been key in helping to enhance and develop many of the existing **Fire Performance** standards required for cables within the Railways and Mass Transit applications, which in turn has developed new solutions for increased safety and performance.

Tratos has also produced a new generation of cables to improve **security** and to reduce the risk of **copper theft** on the railways.

Thanks to all these continued improvements Tratos is leader of the **Health** and **Safety** innovation in Railways and Mass transit applications.

*Tratos manufactures
high performance firesafe cables
for high speed railways*





Continued investment and development has ensured Tratos can create a wide spectrum of specialised railways cable solutions: from **Medium voltage & High voltage** cable for connection to substations and switchgear, **Data & Telecommunication** Cable (copper & fibre optic), **Signalling Power & Control** cables, **OLE** cable, **Track Feeder** cable, Station & Premises and **Pantograph & Rolling Stock** cable.

Tratos supplied **Frecciarossa**; the Italian Railways on the project “Alta Velocità”, and the ‘Rome-Naples’ **high-speed train** was inaugurated on schedule thanks to the **fire resistant fibre optic** cable from Tratos. Years of significant investment in equipment, materials and human resources have led to the development of this cable; which has passed the testing requirements of Italferr and IMQ.

The dynamism and multi-functional capabilities of the fibre optic department, in collaboration with in-house special-compound manufacturer Tramet; have produced a **low smoke, zero halogen optical cable of exceptionally high performance**.

All manufactured Tratos cables correspond to industry specifications and quality standards with bespoke solutions to customers’ specific application and approval requirements.

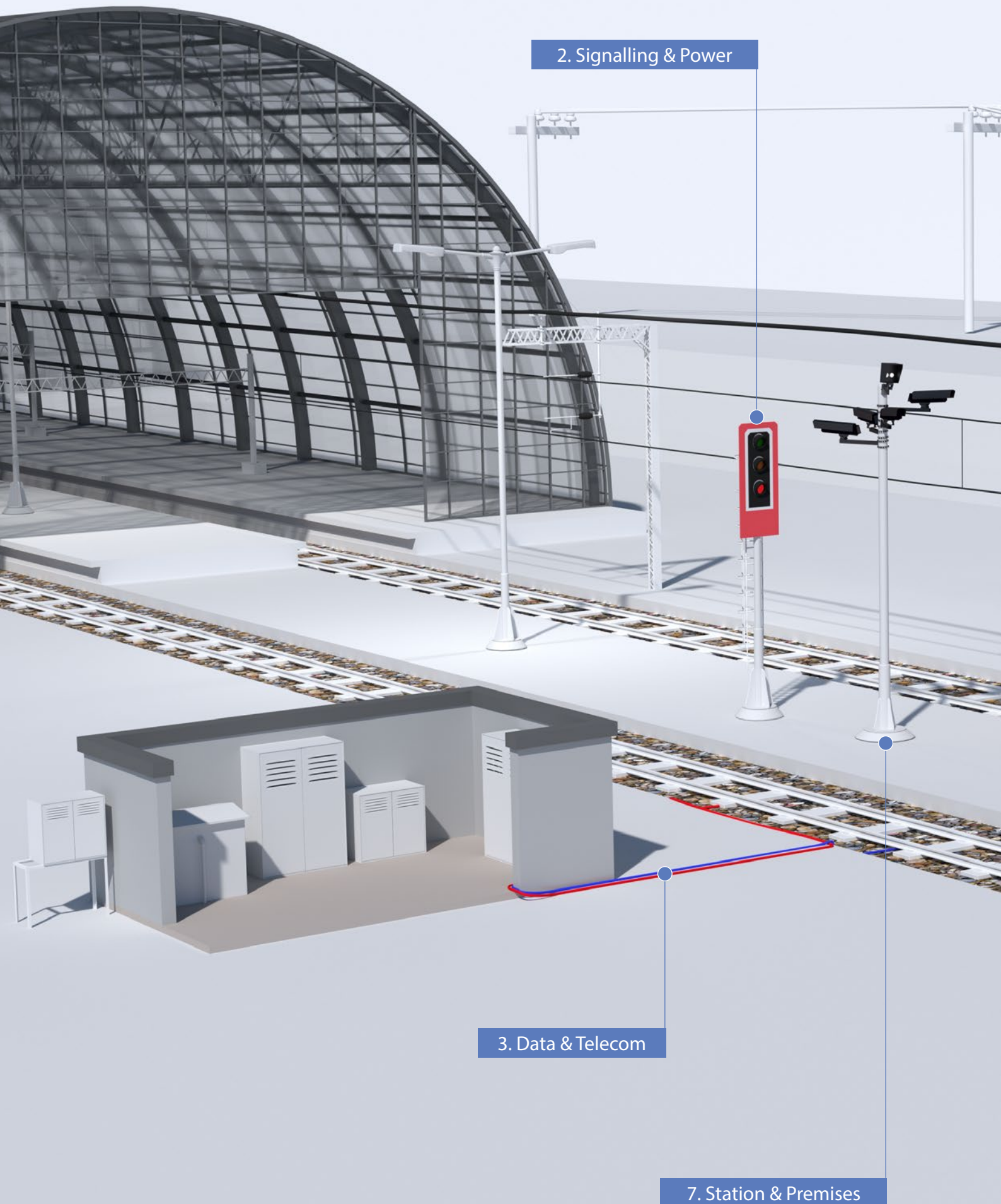
With five manufacturing facilities in Italy and the UK and worldwide sales offices, Tratos is a leading manufacturer of a new generation of **Enhanced Fire Performance** cables for high-speed rail applications. In 1981 Tratos established in the UK with Tratos Ltd, and in recent years has been investing significantly in new and improved manufacturing and distribution at its facility in North-West England.

OUR CUSTOMERS

Alstom Transport
 Ansaldo Breda
 Bombardier Transportation
 CAF Rail
 Ferrovie dello Stato Italiane
 Istanbul Metro
 London Docklands Light Railway (TfL)

London Underground (TfL)
 Madrid Metro
 Milan Metro
 Moscow Metro
 Renfe
 Rome Metro
 Thales Rail Signalling Solutions

TRATOS RAILWAYS & MASS TRANSIT CABLES



1. MV & HV

4. Pantograph

5. Overhead

8. Rolling Stock

6. Trackfeeder



1. MV AND HV CABLE

BENEFITS

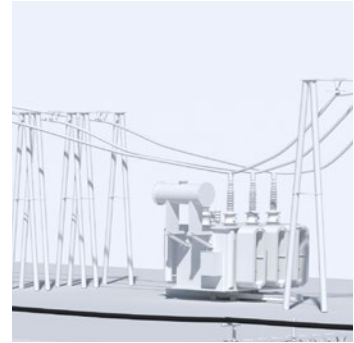
Tratos specialises in the Design, Development and Production of MV and HV cables up to 245 kV and has a great many years of experience supplying cables with proven reliability to Power Utility Companies worldwide. Tratos MV and HV cables are distinguished by the use of advanced technology to manufacture cables with increased pliability, decreased weight and increased strength. Tratos MV and HV cables are approved by BSI.

APPLICATIONS

Tratos MV and HV cables are used to connect railway substations to the Distribution Network Operator (DNO).

APPLICABLE STANDARDS

IEC 60502, IEC 60840, BS 6622, NR/PS/ELP/0008, LU S1931



2. SIGNALLING POWER & CONTROL CABLE

BENEFITS

Tratos is an Internationally recognised supplier of LV Power and Control cables for the European Rail Industry. As the manufacturer Tratos has the capability to both produce and control the conformity of the cable to the applicable standard.

APPLICATION

Tratos LV Power and Control cables form the vital link between the trackside power and signalling equipment to the signalling control centre of both high-speed Railway and Mass Transit systems. They are designed to guarantee the maximum level of reliability and security of data transmission. Typical applications include FGT Class II power cable, points heating cables, axle counter cables, data link cables in both Elastomeric (rubber) and Polymeric materials.

APPLICABLE STANDARDS

BR1932, NR/L2/SIG/30060, NR/PS/SIG/00005, NR/SP/ELP/40045, NR/L2/ELP/27408, LU G7250, LU SE1093, LU SE330, SE0875



3. DATA & TELECOMMUNICATION CABLE

BENEFITS

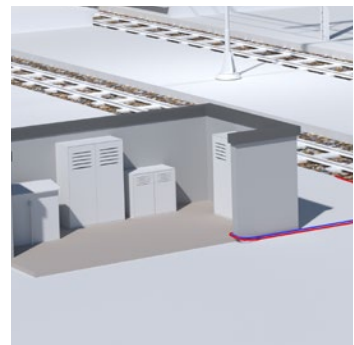
Tratos manufactures an extensive range of both copper and fibre communication & data cables which provide secure, reliable communication and data transfer. Designs are available to suit the most arduous and harshest environments encountered. As the manufacturer Tratos is ideally placed to advise on the benefits of each type to suit a particular application.

APPLICATION

Tratos Data Communication & Telecommunication Cables are used to link signalling and control centres to the railway communications network.

APPLICABLE STANDARDS

LU G7622, LU G7623, LU ST0014-A2, NR/PS/TEL/00014, NR/PS/TEL/00015



4. PANTOGRAPH POWER CABLE

BENEFITS

The standard range of pantograph cables manufactured by Tratos are rated at 26 kV and 45 kV. The multi-stranded flexible conductors and elastomeric compounds used in the manufacture of these cables ensure that the cables are pliable to ease installation in the reduced spaces commonly found on locomotives and power cars.

APPLICATION

Tratos pantograph cables form part of the essential high voltage connection between the pantograph and transformer on board electric railway locomotives and power cars, designed to have limited bending radii and be easy to handle. With resistance to UV and Ozone Tratos pantograph cables withstand the environmental conditions encountered in today's modern rolling stock.



5. OVERHEAD LINE EQUIPMENT CABLE

BENEFITS

In addition to conventional aluminium and copper conductor cables, Tratos in collaboration with European railway operators, has developed a range of cables for critical installations and to reinforced (TACSR) conductors. Tratos now provides a range of options to make cable theft less profitable for the thief and traceability of the stolen cable easier for the police, with the added bonus of deterring metal merchants from receiving what are effectively stolen goods.

APPLICATION

Overhead line equipment cables are a vitally important component in earth bonding systems, they act as the return screening conductor to protect communication and data cables from electrical interference.

APPLICABLE STANDARDS

NR/PS/TEL/31102, RFI TE086A, RFI TE087A, LU SE955



6. TRACK FEEDER CABLE

BENEFITS

Tratos has many years of experience supplying flexible cables to withstand the most physically demanding of environments. The range of rubber compounds developed by Tratos resist physical abuse, attacks by fluids and the weather, tough yet flexible, Tratos has used this knowledge and experience in the design and manufacture of its track feeder cables.

APPLICATION

Tratos track feeder cable form part of the essential link between traction substations and the third rail as well as being used to provide an effective earth path for the return current.

APPLICABLE STANDARDS

NR/PS/ELP/21101, LU S1108



7. STATION & PREMISES CABLE

BENEFITS

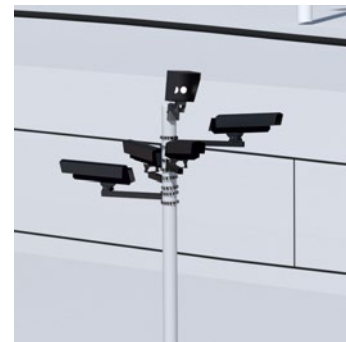
Tratos is able to supply a complete range of Fire Performance cables to meet the most stringent requirements for buildings and underground installations. From armoured power cables through to fibre optic Tratos has a cable to meet all applications. Manufactured using state of the art technology and materials Tratos Firesafe cables are designed for installations where a fire situation may pose a hazard.

APPLICATION

Tratos Firesafe cables are designed to be used for supplying critical power and signals to emergency evacuation systems, public address systems, CCTV security and customer information systems.

APPLICABLE STANDARDS

BS7211, BS7629, BS7846, BS6724 and when required LU 1-085



8. ROLLING STOCK CABLES

BENEFITS

Manufactured by Tratos to be fully compliant with the CENELEC European Standards for railway rolling stock cables, a complete range of cables is manufactured ensuring a "one stop" shop for both builders and operators alike.

APPLICATION

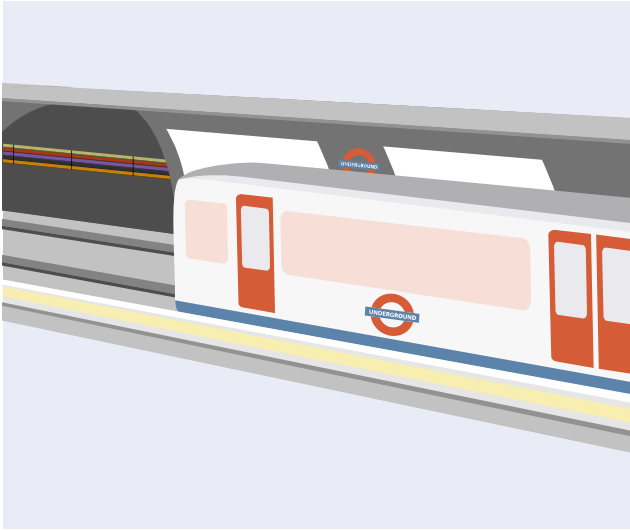
Tratos Rolling stock cables are used extensively to wire Power, Control and Communication circuits and systems in both railway and mass transit rolling stock. Locomotive, power car or passenger carriage in high speed intercity trains, commuter trains, diesel or electric motive power there is a Tratos Rolling Stock cable to suit every application.

APPLICABLE STANDARDS

Tested and compliant to EN 45545-2
EN 50264 (all parts), EN 50343, EN 50382, LU T0451 S11800



LUL / METRO



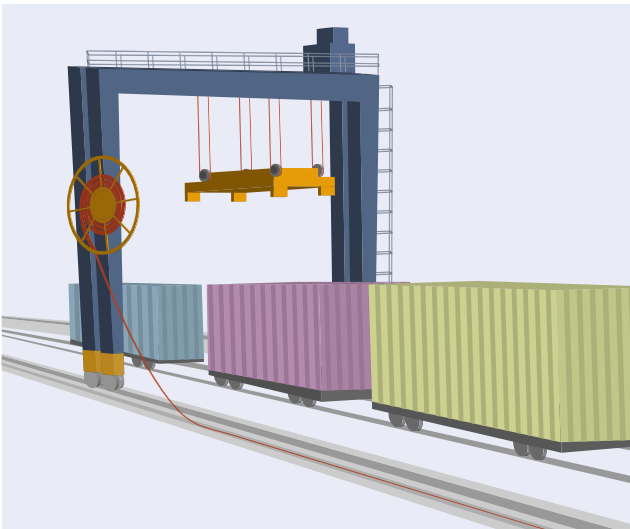
BENEFITS

Tratos has many years of experience supplying cables to light rail, large city metro and urban transit systems. Tratos manufactures an extensive range of cables with superior fire performance properties as used and installed by the Docklands Light Railway (TfL) and London Underground (TfL) and rail metro systems.

APPLICABLE STANDARDS

- London Underground engineering E4156 A3
- London Underground S1085A4 fire safety performance of materials
- London Underground S1180
- EN45545-2

INTERMODAL CABLES



BENEFITS

Tratos has gained Worldwide recognition for the quality, operating performance and reliability of the crane cables that they manufacture. Tratos intermodal cables like all of the crane cables it manufactures and supplies, enjoy unique design features and employ specially developed compounds to ensure a long and trouble free life.

APPLICATION

Tratos can supply round or flat crane cables to match the operating mode of every type of crane, reeling, festooning, coiling or pendant applications.

APPLICABLE STANDARDS

DIN VDE 0250 Part 813

*New generation
of enhanced fire resistant cables
for high speed rail applications
and for traditional railways.*



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