RailBusinessDaily

Improving safety for trackside installations on the UK's railways

February 14, 2020

A hidden network of cables keeps the railways running, but the installation and maintenance of cable ducting poses some real challenges for on-site engineers. Here, Ian Allwright – director at rail specialist Scott Parnell – discusses the unique products and training initiatives developed to help reduce risks for trackside workers.

Across the UK, the rail network supports over 4.6 million passenger journeys a day and over 20,000 miles of track. As numbers grow year-on-year, delivering a reliable and modern service for today's 'always online' passenger has placed great pressure on the industry.

Future success is dependent on the network's infrastructure to support growth and provide passengers with the online connectivity they crave. With an ambitious programme of railway upgrades underway, the focus is now on installing the latest technology and renewing out of date equipment. The construction workforce is critical to achieving this task, and ensuring they remain safe while on site has never been more important.

Power and communications – the backbone of the railway

Behind the scenes lies a hidden network of thousands of cables that carry power, data, communications, signals and other vital operating services from station to station, and on to the control room. This extensive and complex network of ‘veins’ and ‘arteries’ is the very lifeblood of the railway, running alongside the tracks, in a series of enclosed troughs and ducts.

Protecting these cables from severe weather, corrosion, damage, and wear and tear is absolutely crucial to keeping the railways running. However, the trackside location means carrying out repairs, upgrades and extensions presents a unique set of problems for the engineers who are responsible for looking after this vitally important network.

Installing a new troughing system was traditionally a time-intensive task. Bulky materials and numerous fixings made it arduous, with 140 metres of standard elevated troughing taking over 40 hours to complete when spaced at 1.5 metre centres, based on a four man team working an eight hour shift, consequently increasing the dangers to engineers working trackside.

Sadly, despite a decrease in the number of workforce related deaths and injuries in recent years, accidents are still a threat to trackside engineers. Refining products to create better and safer working conditions is paramount. Extensive research into product improvement by Scott Parnell resulted in the development of a range of improved troughing products that would significantly cut the time spent on site as well as reduce the need for lengthy maintenance procedures in the future. Made of corrosion-resistant GRP (glass-reinforced plastic), the ARCOSYSTEM is manufactured in complete ready-to-install sections and supplied in lengths of six metres. Each six metre piece will simply fit together, sliding into position without the need for hundreds of individual nuts and bolts.

This durable cable management system is elevated above the ground, supported on sigma posts stationed at six metre intervals. The connection plate is bolted to the post, forming a durable cable duct base, complete with a snap-in lid which can be opened easily with a specially developed tool.

This light-weight and pre-made troughing has significantly reduced construction times by half on average against standard ground trough as it is much more efficient to simply dig a hole every 6 metres than it is to dig a trench the length of the route and backfill to the trough shoulder thereafter. ArcoSystem has been measured by customers to be at least 5 times quicker to install than other elevated trough systems. For future maintenance, the cables are easily accessible, again reducing the amount of time spent on the trackside and limiting the danger for trackside workers.

Training for the future

Keen to develop further ideas aimed at safeguarding construction workers, Scott Parnell launched an initiative to support the training provision in this sector through permanent ‘training installations’ of its elevated cable troughing system at client premises. This, coupled with hands-on training from its experts, offers engineering teams the chance to practise and become familiar with the product in a safe and controlled environment well in advance of the installation phase of a project.

The opportunity to get to grips with products and tools free of charge has gone down well in the industry. A permanent client-site installation was used to support engineering teams who were working on the Weaver to Waverley Line (W2W) in Scotland. The principal contractor commented that, due to the product being a break from the traditional elevated route systems, the demonstrations helped to gain client acceptance and they were extremely pleased with the outcome.

The initiative aims to prepare clients and contractors to deal with the next generation of cable troughing by providing facilities that support their work and underpin their welfare. Companies have found the training facility delivers commercial benefits: familiarity with equipment speeds up the whole construction process – saving money and minimising service disruption.

The future success of the industry will depend on its ability to meet customer demands through faster, more connected services. Laying the foundations to support this system will fall to the engineers and construction professionals in the field. Product innovation and training have never been more important as the UK's railway network strives to meet the challenges of the digital age.

Scott Parnell Rail specialises in the supply of Network Rail-approved products for platform, trackside and signalling projects and maintenance. Scott Parnell prides itself on its innovative and pioneering approach to delivering high quality products from a variety of manufacturers – not just market leaders.
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