

Flexicon Connectabox™ cable protection system keeps London Underground trains clean as a whistle

UNDERGROUND

SCAN BELOW TO VIEW  
THE CONNECTABOX  
ANIMATION



## ABOUT

Transport for London (TfL) London Underground has improved performance and uptime on its automated train wash bay at the Northumberland depot, thanks to a robust cable protection system from Flexicon.

The flexible conduit manufacturer has supplied its unique Connectabox™ IP68/IP69, non-metallic circular connection box accessories and fittings, alongside extra-heavy weight, non-metallic FPAH conduit and FPAU Ultra™ fittings to protect vulnerable cabling & systems

TfL underground trains and carriages are cleaned thoroughly at the end of each shift in purpose-built train wash bays located at depots at the end of each tube line. The existing bay at the Northumberland depot was built in 1995 and required refurbishment and upgrade to meet the cleaning regimes of up to 47 trains, consisting of eight cars to a train.

## CHALLENGES

Within the train wash facility, lighting fixtures, panels and sensors are exposed constantly to moisture and harsh cleaning chemicals, so it was essential that a suitable cable protection system was specified. Key criteria for any solution was to withstand the harsh operating environment and meet high levels of ingress protection and corrosion resistance, while offering fire resistance performance.

The flexible conduit system selected incorporates the Flexicon Connectabox™, a weatherproof, IP68/IP69, non-metallic, circular connection box, specified by the TfL engineers to simplify cable management and save time in the interconnection of circuits and wiring assemblies.

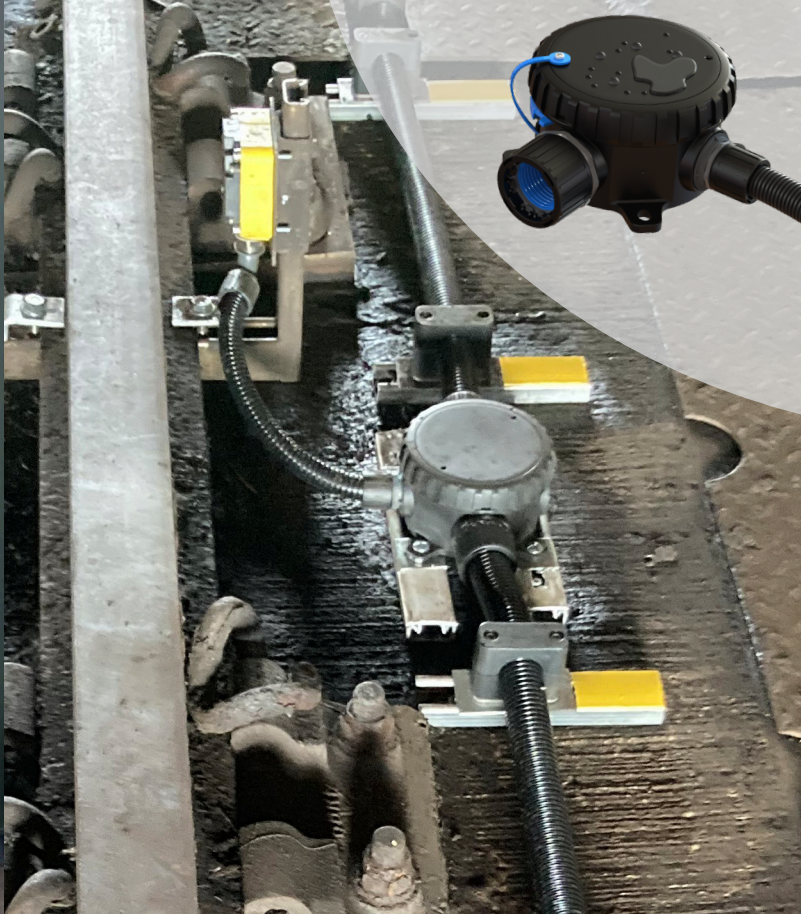
## Flexicon Connectabox™



Flexicon's Connectabox™ was designed to protect safety and performance-critical cabling. The 110mm, round junction box offers a wide range of features to make installation simpler and faster, with up to seven connection points, four predefined entry points and quick connect outlets, rugged mounting tabs and a lid locking mechanism. This gives the TfL installation team huge time savings compared to a conventional installation and the peace of mind that the critical circuits are protected by a robust, shock & vibration proof system.

Unlike standard enclosures, which utilise knockouts or require drilling, Flexicon's Connectabox™ features four easy-to-connect entry points as standard. These provide quick access and termination and were used in conjunction with Flexicon Ultra™ (FPAU) push fit connectors. Additionally, the entry points can be blanked off with the supplied blanking plugs in any orientation, as required by the installer, providing flexibility if new circuits need to be added in the future.

During the installation, the engineers were able to realise significant time savings thanks to the intelligent push, twist and lock connector system with integral seals. A reliable connection took just seconds, without having to remove knockouts, drill holes, fit locknuts or even torque tighten any components. This innovative connection method also maximises wiring space within the enclosure as there is no protrusion of any threads or requirements for locknuts to secure.



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Rod Tay, Regional Sales Manager for Flexicon added:

*“As with any rail-industry installation, safety is a pre-requisite alongside the requirement for equipment longevity, even in the harshest operating conditions. A non-metallic system offers the benefits of corrosion resistance thus extending the life of the installation when compared to metallic systems.*

*“The Flexicon system specified incorporates numerous features that have been independently-tested to meet these stringent demands, including high ingress protection (IP) ratings, resistance to corrosion and low fire hazard performance.*

*“For example, the FPAU Ultra™ conduit fittings selected offer low fire hazard performance in accordance with EN 45545-2 rating – a standard used throughout the rail industry – and are halogen, sulphur and phosphorus free. Purpose designed to withstand extremes of temperature and vibration, this provides a secure and effective barrier system against fire and smoke.*

*“Flexicon Ultra™ fittings are designed for high durability to suit the rigorous of the rail environment. The tamper-proof construction is ideal for the externally located train wash bay, offering long-life performance to protect the vulnerable cabling.*

*“The train wash bays are in constant use, so the TfL engineers needed the assurance of a proven and robust cable protection system, even when there is constant movement. The selection of Flexicon FPAH non-metallic, corrugated flexible conduit provides the high-compression strength required for the rigours of the train wash environment. With an IP rating of IP66, IP67, IP68 (2 Bar for two hours) & IP69, when used with Flexicon Ultra™ the conduit recovers if crushed to maintain complete cable protection and is self-extinguishing to minimise the spread of fire to ensure high levels of safety.”*

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