BRUSH
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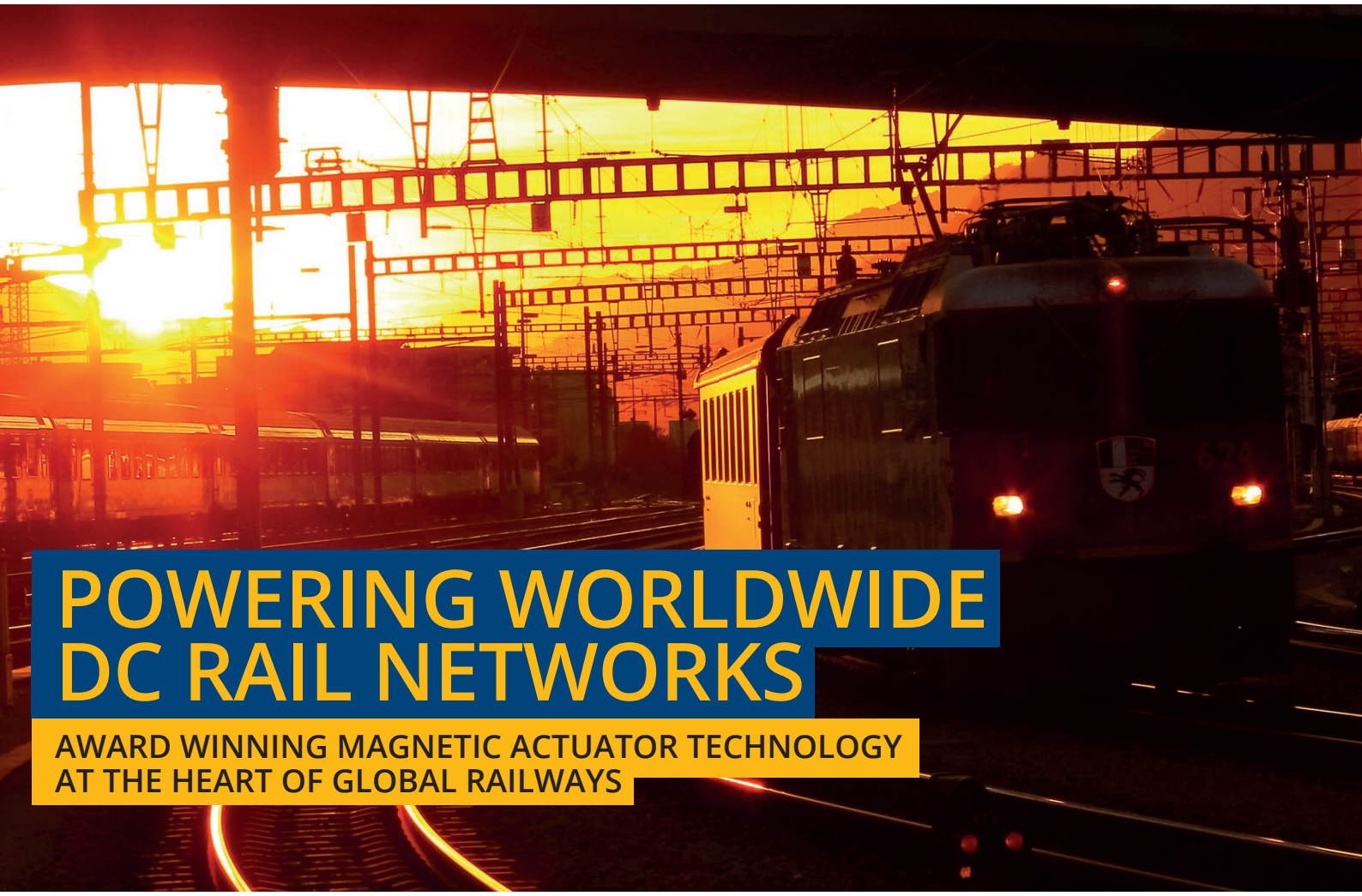

POWERING WORLDWIDE DC RAIL NETWORKS

AWARD WINNING MAGNETIC ACTUATOR TECHNOLOGY AT THE HEART OF GLOBAL RAILWAYS

BRUSH Switchgear at the heart of the UK's railway network.

A large proportion of global light rail networks use 750V DC electrification system. Where a third rail is used, power is distributed to the trains via an additional rail which is placed next to the track.

This type of network is serving some of the world's busiest commuter lines including London's Waterloo station, the busiest station on the UK rail network.

Main advantages of the BRUSH Switchgear

- Low cost of ownership
- Proven design
- Asset life extension
- Award winning magnetic actuator technology

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BRUSH have supported Network Rail by providing around 300 switchgear panels into the network since 2014 and our Lightning switchgear, incorporating the NDC circuit breaker, has found a significant role in keeping the railways of Britain running.

This equipment has given the UK railways reliable service since installation and ensured that Network Rail can meet their objective of "putting passengers first" by reliably maintaining the power supply to the trains.

Award winning technology trusted to keep British railways running smoothly

The NDC circuit breaker has been designed from the outset with a simplicity of maintenance in mind, through the use of the patented magnetic actuator and magnetic latch alongside robust contacts, arc chute and magnetic blow-out coils. The circuit breaker has achieved a good reputation amongst the maintenance teams as being a product that requires minimal maintenance intervention and is intuitive to maintain. This helps to reduce the whole-life-cost of the substation assets, showing that the NDC circuit breaker has been engineered to perform throughout its life. The high installed base worldwide is testament to the success of Lightning.

Substations are often placed in areas adjacent to the track with limited access or with environmental issues such as dust. Designs which are built to last are critical in these situations, and the NDC circuit breaker has been proven in this regard. Switchboards have been provided for installation in existing buildings or they can be installed inside a modular housing. These solutions have proven themselves in reducing the on-site installation time as they are pre-tested in the factory.

Out now: Ground-breaking new product: PowerBond – Offering improved operating safety with a smaller footprint and future-proof remote secure capabilities.

POWERBOND

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Close up

Reliability is critical at major stations such as Waterloo where, in 2013, BRUSH provided a large Lightning switchboard to power the platforms. This was composed of 34 switchgear panes in total with an overall length of more than 17 metres!

At the time, it was the largest single Lightning switchboard that was constructed at the Blackwood factory. An updated design of busbar was needed to cater for the power requirements at this busy station. BRUSH produced and tested a special design of Lightning panel for this site, incorporating the specified 16,000A busbars in place of the more typical 8,000A busbars.

34 switchgear panels in total with an overall length of more than 17 metres!

From the 24 platforms at Waterloo, journeys are made to towns and cities around the South and South West of England. Trains depart to destinations including Epsom, Reading, Salisbury, and Bournemouth, serving commuter belt communities as well as popular holiday destinations.

With figures showing that 94.2 million passengers were served in 2018-19, London Waterloo has established itself as the busiest station in the UK.

A power failure affecting just one platform would result in significant delays around a large part of the UK's rail network. BRUSH's Lightning switchgear has proven its worth on this part of the railway, by providing a reliable and low-maintenance solution for this major London terminus.

"We trust BRUSH to step up to difficult and complex engineering challenges and come back with reliable solutions that support critical rail infrastructure."

NetworkRail