

Southco

Southco Access Hardware Tackles the Challenges of Rail Modernisation



“Rail modernisation has delivered unprecedented benefits, yet these advances have simultaneously introduced safety and security challenges. Designers and manufacturers now face the critical task of addressing these emerging risks while maintaining the performance gains modern rail systems provide,” writes David Kelly, Applications Engineer at Southco.

The difference between ordinary and exceptional rail equipment often lies in the smallest details – the components passengers rarely see, but that determine whether systems function reliably day after day. Access hardware like hinges, latches and fasteners may seem unremarkable, yet they play a decisive role in operational safety, passenger comfort and system reliability. Here we explore how well-designed access

hardware addresses the unintended consequences of rail modernisation.

Safety at Speed

High-speed rail enables passengers to get to their destination quicker, but when travelling at speeds of over 300km/h an accident can have far more serious implications. This means it is more important than ever to ensure all external panels are safely secured to avoid any risk of them breaking loose during high-speed travel.

The solution is using latches that make safety visible, by providing clear and easy-to-see mechanical visual indicators when they are not secure. These reduce

the chance of leaving a panel open, error-proofing maintenance operations and improving application safety while lowering costs.

Southco's E3 VISE ACTION® compression latches are commonly used on train exterior and interior applications across covers, access panels and lights from skirts and underfloor containers through to rooftop units. Within their range of MAKE SAFETY VISIBLE BY SOUTHCO™ products, the access hardware manufacturer offers different types of compression latches. One features reflective wings which deploy when the latch is opened and only retract when fully secured; another features a bi-stable cover that will automatically stay open as long as the panel in question remains unlatched. This enables maintenance staff to quickly and easily check whether any panels have been left unsecured, both during the day and at night.

To simplify visual security, red – the universal colour for danger – is used as the standard indicator. However, this can be tailored to meet specific customer needs. For example, yellow or orange may be chosen if they provide better visibility on certain camera systems.

Passenger Comfort

Passengers know comfort when they experience it, or even more so, when they don't experience it. When you're paying for a train ticket – especially on those long journeys – you expect a certain level of quality, whether you're travelling for work or pleasure.

While we are seeing better designed seating, the use of low-cost components increases the risk of passenger injury. This is often down to tables and armrests that don't hold in position or coat hooks that stick out.

These issues are easy to resolve, however. Take Southco's AH-Bifold Constant Torque Hinge series. These use friction technology to ensure a table is held in position at any angle and prevent it from falling open. They also feature a flush mount design that occupies minimal space, allowing a table to be folded and stowed flat and out of the passenger's way.

Safety and security also don't have to detract from looks. Southco's all-metal ST series hinges are compact and can be bolted or moulded directly into a thin-profile product housing for a more pleasing aesthetic



design, while also delivering rugged, long-lasting, high-torque performance that eliminates the need for secondary mechanical supports.

Finally, hooks. Southco's push-to-close MP Point Latch features a retractable metal pull knob that pops up at the push of a button to provide a consistent grip and a solid feeling of quality in the latch's operation. It's really about that tactile experience. If something feels flimsy or cheap, that's the impression passengers will get. Not only do these touchpoints impact safety, they also shape a passenger's perception of the train's quality, so they are important to keep in mind.

Balancing Efficiency and Security

While the rise of the internet of things (IoT) and autonomous trains have made rail travel more efficient, these systems also provide more opportunities for cybercriminals and vandals to steal personal data or impact operations. Additionally, the rise in on-board electrical systems can pose a larger fire risk.

Any enclosure that holds an electrical system must be safe and secured, and Southco offers a wide range of solutions dependent on the system's need. Hidden latches can add an extra layer of security. For example, Southco's rotary latch system provides a robust method for securing panels with push-to-close convenience, offering concealed latching at one or more points of the application.

Many of Southco's latches also comply with the latest DIN EN45545-3 fire protection standard, with a large number of cam, compression and rotary latches meeting fire resistance ratings from E30 up to E60, indicating how many minutes a latch would still be in place and secure after the outbreak of a fire.

For further enhanced security, Southco's Connected Access solutions combine mechanical locks and latches with electronic actuation. This is becoming ever more important as 'standard' keys can be easily purchased online or in hardware stores, eliminating any level of security by common mechanical locks.

Southco's electromechanical solutions offer added protection by providing remote controlled and monitored access via RFID cards, PIN codes or Bluetooth® technology, and they can also work with operators to design keys with a head style unique to them, which can massively limit who has access to these panels.

Sustainability

The electrification of rail has added to its sustainability credentials, and modernisation of train interiors has further improved the inclusivity of this means of transport, with more spaces designed for wheelchairs and bikes.

Designers have been tasked with making the best use of carriage floorspace, which has, in some cases, led to the creation of adaptable carriages that can be reconfigured to suit passenger needs.

These require latching mechanisms to support the process of folding or moving seats, tables, and other elements to create a space for luggage,

wheelchairs and bikes. Southco has worked with rail seat manufacturers to develop unique accessibility solutions that are safe and secure, based around their rotary latching system and hinge offering.

This rotary latching system uses a simple square key as an actuator that triggers cables to release latches, allowing staff to move seating fixtures in a rail carriage. To reverse this process spring-loaded locking pins automatically engage in both positions for reliable hold, while friction hinges prevent the headrest and seat surface from dropping unexpectedly.

Such small components can often be overlooked in terms of sustainability but can have a big impact. For example, premium products will far outlast cheaper ones, which will not be as durable and may need to be replaced two or three times during the life of the vehicle. You might be able to save up to 20% on upfront costs, but the cost of ownership could skyrocket due to lower reputation and maintenance downtime.

It's also worth noting that Southco supports sustainability in-house. This includes using recycled plastics wherever possible, and reusing leftover injection moulding plastic with their regrind process.

Simplify, Secure, Sustain

With decades of experience and an extensive range of standardised products, Southco's already done the heavy lifting – the design work, testing and problem-solving – so you don't have to. From fast access panels to secure maintenance points, Southco's access hardware saves you time, reduces costs and supports smarter, more sustainable train design.

As rail systems become more complex, the smallest components often make the biggest difference, so why not talk to Southco about how their solutions can help you.

For more information visit our [website](#) or contact **Ulrike Sturman**.

Make Safety Visible™
by Southco



southco®