

Innovative, ruggedized blue-generation connectors keep Danish Railways (DSB) reliably running for decades.



Photography: Artemis Klonos

The cables between railcars deliver critical power signals enabling lighting, entertainment and more. They're exposed to harsh northern European winters and sweltering hot summers. Corrosion can be a real problem. Yet these trains are required to continuously run reliably and safely for years.

Danish Railways (DSB) serves millions of travelers each year. ITT Veam and ITT Cannon blue-generation connectors made it possible to maintain the well-established reliability of their railcars, ensuring safe transportation for passengers.

## Customer Problem

Racing along dirty, snow-covered tracks night after night at speeds up to 180km/h, the railcars of DSB endure immense wear. Electrical connectors between each car are constantly exposed to harsh elements and are easily susceptible to succumbing to corrosion, leading to damage and unplanned downtime of railcars. However, investing in new cars every decade wasn't an option. DSB was looking for robust, reliable and cost-effective connectors with an increased overall lifespan.

DSB operates railcars that cumulatively travel over 102,000,000 km of train track across Denmark every year. They required a comprehensive connector upgrade across their fleet that would not only keep their railcars running into the next decade, but also meet stringent key performance indicator (KPI) measurements. Furthermore, DSB procurement team expected high-quality, long-lasting parts with upgrades requiring little to no downtime.

## How We Solved It

New, blue-plated railcar connectors from ITT Veam and ITT Cannon provided the perfect combination of reliability and affordability to make the upgrade possible. The FRCIR series and CA Bayonet delivered the most versatile multi-pin connectors to withstand the hostile environments and high shock and vibrations of mass transit applications. Through a willingness to partner with DSB, ITT Veam and ITT Cannon were able to provide a customized and innovative solution with the assurance of a successful implementation. The step-by-step upgrade, which entailed replacing more than 5,000 connectors, was completed in only a few months.

ITT Veam and ITT Cannon blue-generation connectors were able to seamlessly marry with existing technology on each railcar, eliminating upgrade barriers and avoiding any unexpected costs. These connectors unite RoHS and REACH compliance and improved performance with a zinc nickel plating, offering heightened protection against the most severe environmental conditions, including resistance to 500 hours of salt spray and withstanding temperatures from  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  ( $-67^{\circ}\text{F}$  to  $+257^{\circ}\text{F}$ ). ITT Veam and ITT Cannon's innovative blue coating ensures 25 to 30 years of service.

Through a distribution partnership with AVNET, ITT Veam and ITT Cannon offered DSB a customized solution to meet their most challenging applications.

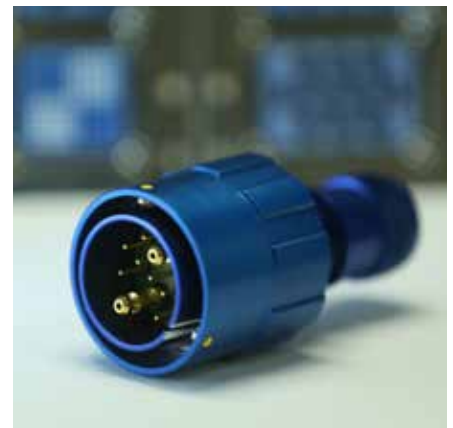
## Immediate Impact

Peace of mind came right away with the enhanced robustness and environmental friendliness of the new connectors, because a connector failure on a train is not only inconvenient, it's time consuming. Furthermore, the efficient upgrade process resulted in zero unscheduled maintenance.

## Looking Ahead

There are hundreds of types of connectors on a train, powering applications from entertainment to control signals. Because of the successful implementation of the FRCIR series and CA Bayonet, ITT Veam and ITT Cannon look forward to the possibility of future railcar upgrades for the other lines and connector types with DSB.

DSB was looking for a best-in-class solution that would upgrade more than 5,000 critical power connectors and provide decades of reliability in the harshest weather environments. They turned to ITT Veam and ITT Cannon to deliver the highest quality custom interconnect solutions to keep their railcars running.



### CONNECTING WITH DANISH RAILWAYS DSB

An ITT Veam customer for nearly a decade, DSB serves more than 195 million passengers every year in Denmark and neighboring countries. The staff of 8,000 might not give electrical connectors much thought. But they rely on us every day.