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Green Cargo is testing digital automatic couplers for more efficient rail freight in a unique European collaboration

The equipped wagons will soon leave the maintenance depot in Eskilstuna and arrive in Luleå. That is where Green Cargo will test different automatic couplers options in Swedish winter conditions. Tests will also be conducted in parallel in Austria, Germany and Switzerland. Automatic couplers have many advantages for the industry when it comes to safer working conditions and increased production that enables larger volumes of rail freight for more sustainable logistics. This streamlining is an important part of transitioning more freight from road to rail.

Automatic couplers for trains were developed as early as the 1900s and is used on all new passenger trains. However, for freight trains wagons are still coupled and decoupled manually with screw couplers. Capacity, punctuality, working environment, efficiency and profitability for rail freight can be significantly improved through digital automatic couplers (DAC) and complementary digital solutions.

Several time-intensive and hazardous tasks can be automated using DAC, which also provides secure data communication and energy efficiency. It opens doors to new, modern logistics concepts and scores of digital applications.

“Introducing automatic couplers are necessary for reaching a cost efficiency that benefits the entire railway system,” explains Jan Bergstrand, coordinator for Shift2Rail’s freight program.

A standard has been developed by the European railway R&I collaboration Shift2Rail for a modular, multifunctional digital automatic coupling, which can subsequently be upgraded.

“Automation is essential for both increased competitiveness and production that enables more efficient freight transportation with longer and heavier trains. A modular solution, where the cost is split into stages, simplifies implementation. We’re pleased to have the opportunity to help develop a safer working environment and more efficient operations for the industry in Europe, not least when it comes to achieving climate goals,” says Annette Bernström, Wagon Manager at Green Cargo.

Winter tests in Sweden

The FR8RAIL project, which is a part of the freight program in Shift2Rail, is now preparing twelve wagons for testing, which have been equipped with three types of DACs. The tests are being conducted in Germany, Austria, Switzerland and here in Sweden, where the focus is on winter conditions. The project is hoping for cold weather and a lot of snow and wind in Luleå, where the tests will be carried out.

“Together with Green Cargo, several European industry operators and academia, we’ll test different levels of automation and evaluate their

function, effect, system compatibility, costs, and so on,” explains Anders Ekmark, Strategic Planner and Project Manager for FR8RAIL.

The demonstrations are being conducted with different types of DACs, developed by four suppliers.

Participants in the winter tests for DACs include the Swedish Transport Administration, the rail freight operator Green Cargo, the CLOSER platform at Lindholmen Science Park and the four suppliers behind the DACs: CAF MiiRA, Dellner, Voith and Wabtec-Faiveley. Additionally, SSAB is supplying tracks and premises and the Swedish national research institute RISE is carrying out the tests. The project is being conducted within the framework for the European railway R&I collaboration Shift2Rail, which is financed by Horizon2020, the EU’s framework program for research and innovation.

Green Cargo is a sustainable logistics partner and crucial for Scandinavia’s trade and industry. Electric trains make up over 95 percent of our ton kilometrage, meaning the climate impact is next to zero. Every 24 hours, some 400 freight trains depart, replacing around 9,000 truckloads on the road network. We serve close to 300 locations in Sweden, Norway and Denmark through our network, and with our partners we reach all of Europe. Green Cargo is owned by the Swedish State. We transport 22 million tonnes of freight, have 1,800 employees and annual sales of about SEK 4.1 billion (2019). www.greencargo.com

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