



ITK Engineering and DB Cargo Develop Fully Automated Shunting Locomotive for Series Production

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Digitalization and automation are two critical levers for increasing the efficiency of rail freight transport. One prime example of this is the fully automated shunting of locomotives.

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In collaboration with DB Cargo AG, Europe's largest rail freight company, ITK Engineering is systematically driving the digitalization and automation of rail freight transport. One important step in this direction is the automation of shunting operations at marshalling yards. This is where freight trains are broken-up, wagons are sorted and put together to form new trains. Until now, this has largely been done manually. In future, fully automatic hump locomotives will take over this task.

Increased train formation efficiency

Experts from ITK Engineering are now working with DB Cargo AG and Bosch Engineering GmbH to develop their automation technology for series maturity. The technology will enable more efficient train formation in the future for onward transport. This strengthens the competitiveness of single-wagon transport and is a decisive advantage in shifting more traffic to environmentally friendly rail.

Dr.-Ing. Frank Schmidt, Managing Director of ITK Engineering GmbH and Bosch Engineering GmbH: "This project marks a major milestone in the journey toward automated train operations, as it involves the first series development of a fully automated rail vehicle for mainline use. Intelligent software is a core component of

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this automation step. We look forward to contributing our expertise in software and system development for rail vehicles."

Dr. Sigrid Nikutta, member of the Management Board for Freight Transport at Deutsche Bahn AG and Chair of the Management Board of DB Cargo AG: "With the development of the fully automated hump locomotive, we are opening another chapter in the digitalization and automation of rail freight transport. This creates more profitability for DB Cargo and more operational quality, thus fully contributes to the DB Group's S3 turnaround program. Our customers will benefit from faster and more flexible handling of their consignments."

Strategic partnership until 2027

Initial steps toward introducing the fully automated locomotive have already been successfully carried out, with a prototype at the Munich North marshalling yard. The fully automated hump locomotive is expected to receive regulatory approval from the German Federal Railway Authority at the end of 2027, with deployment at DB Cargo's most important marshalling yards in single freight car transport from 2028.

DB Cargo has commissioned ITK Engineering GmbH and Bosch Engineering GmbH, both wholly owned subsidiaries of Robert Bosch GmbH, to develop the fully automated hump locomotive for series production. ITK Engineering is responsible for developing the infrastructure-side operator workstation, which handles the input and management of movement commands and transmits this to the hump locomotive. Bosch Engineering is developing an automation unit for fully autonomous shunting operations, including sensor systems and algorithms for environmental perception. The partnership is set to continue until October 2027.

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About ITK Engineering

ITK Engineering GmbH, founded in 1994 as an "engineering firm for technical cybernetics," is an internationally operating technology company in the software and systems engineering field. Thanks to its strong methodological expertise, ITK covers the entire spectrum – from embedded systems to cloud computing. With around 1,300 employees, the company is an innovative force in digital engineering. Customers in sectors ranging from automotive, industrial, and railway engineering to medical systems, agricultural/ construction machinery, and motorsports count on ITK



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to instill intelligence in highly complex systems. Some 1,300 employees currently work for ITK worldwide, at the company headquarters in Ruelzheim in Germany's Rhine valley, at nine additional branches located across Germany and in Austria, China, Japan, Spain and USA. The company has been a wholly owned subsidiary of Robert Bosch GmbH since 2017.

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