

5L next –
next generation of
freight wagons.

Light Weight Brake Caliper and
Freight Car Brake Disc

Knorr-Bremse AG

Light Weight Brake Caliper and Freight Car Brake Disc.



Light Weight Brake Caliper.

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Market changes, such as the fast-paced innovation on the roads or rising customer demands, are posing major challenges for European rail freight companies. But opportunities opened up by new technology offer great potential for developing the efficiency of freight services.

Innovative freight wagons are key to being able to take full advantage of the Internet of Things (IoT) and automation. As part of the 5L initiative, SBB Cargo, Hupac, VTG and the Federal Office for the Environment (FOEN) as well as many suppliers are developing the next generation of freight wagons.

The next generation is being completely redesigned. The chassis, for example, is considerably lighter than that of a conventional standard flat wagon. The middle segment is not welded but riveted and bolted – just like the light-weight production methods from the lorry sector. SBB Cargo's extensive modernisation steps offer major benefits for customers, wagon keepers, railway undertakings and infrastructure. Find out more at www.sbbcargo.com/innovation

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Weight optimized combination of newly designed conventional brake caliper unit and brake disc especially developed for freight cars.

New light weight brake caliper unit with improved functionality and significantly reduced weight and installation space, but with identical interfaces to the bogie and service proven robust design principles (e.g. suspension, bushing design, etc.). Combination with different parking brake solutions is possible. Based on the flat seat axle-mounted brake disc system, both the friction disc and cooling fin geometry and the flat seat interface were optimized using FEM, CFD and casting solidification simulation techniques. This allows a slimmer, lighter, more robust and vibration-optimized brake disc with a standard width of 110 mm. This disc has the same cooling capacity as the 170 mm wide brake discs currently used in freight cars.

Company.

Knorr-Bremse is the global market leader for braking systems and a leading supplier of other safety-critical rail and commercial vehicle subsystems. Knorr-Bremse's products make a decisive contribution to greater safety and energy efficiency on rail tracks and roads around the world. Approximately 29,000 employees at over 100 sites in more than 30 countries use their competence and motivation to satisfy customers worldwide with products and services. In 2018, Knorr-Bremse's two divisions together generated revenues of EUR 6.6 billion (IFRS).

For more than 110 years the company has been the industry innovator, driving innovation in mobility and transportation technologies with an edge in connected system solutions. Knorr-Bremse is one of Germany's most successful industrial companies and profits from the key global megatrends: urbanization, eco-efficiency, digitization and automated driving.

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