MITRAC
Pace-setting Drives

Propulsion & Controls
The Muscles of the Train

Whether for speed or heavy-haul traction, Bombardier drives are geared to boost the competitiveness of railway operators today and in the future. The world’s leading rail equipment supplier offers a range of highly reliable and sustainable products that exceed the expectations of customers all over the world.

A rail vehicle is a precision-engineered combination of converter, drive, and control and management system. All three components play a vital role in ensuring reliable and efficient operation, but it is the drive unit that gives the train the muscle and impressive performance figures integral to its prestige value.

Best-of-breed solutions for the railway industry
Bombardier Transportation specializes in pace-setting drives whose safety, reliability, energy efficiency and low life-cycle costs set the standard for the industry. The outcome of decades of experience and know-how, our drives are designed to make optimum use of energy and fit into the restricted space within a bogie. This translates directly into lower running costs, enhances the operator’s environmental credibility, and sharpens his competitive edge, creating a win-win situation for both him and his customers.

Equip your operations for future developments
If the impositions on railway operators are tough today, they are set to become even more demanding in the years ahead. To remain competitive, owners will have to meet more exacting energy and environmental requirements. Which means railway owners wishing to safeguard the future of their operations should seek out the advice of a company that knows more than anyone else about their needs and can offer the most advanced propulsion and control equipment available today. A company like Bombardier, with its BOMBARDIER® MITRAC® product portfolio.
The MITRAC portfolio embraces a full range of dual- and single-axle bogie drives for low-, medium- and high-power traction systems designed to meet the needs of any railway operator. We offer standalone products as well as integrated system solutions for propulsion and control equipment. When we approach a new assignment, we draw on the years of experience gathered from supplying railroad operators in every corner of the globe with all types of equipment. We aim to develop optimum solutions that exceed the expectations of both our customers and the industry.

At Bombardier, we have perfected the modular system architectures that enable us to develop customized solutions for any application. This unique combination of high modularity, efficiency, reliability and ease of service and maintenance means low life-cycle costs with a dependable revenue source. Backed by innovative, leading-edge design, modern simulation tools and intensive product testing, these systems ensure streamlined performance and reliable operation at all times, in any situation.

The MITRAC drive range

**Nose-suspended drives**
This robust, uncomplicated design is geared to meet demanding service and maintenance needs, generates high tractive output at low speeds, and is ideal for heavy-haul service.

**Partly suspended drives**
This design has a low unsprung mass, which enables high speeds with low track wear. The single reduction gear unit involves a lower upfront investment than any other system.

**Fully suspended drives**
This sophisticated concept features the lowest unsprung mass and facilitates high speeds and performance combined with low track wear.
When it comes to developing high performance, availability, compact design, lower weight, energy efficiency and reduced wear and tear, Bombardier has always led by example.

Sweden’s iron ore industry is centered on the LKAB mine at Kiruna in the far north of the country. To cut transport costs, the company purchased a double locomotive with a MITRAC DR 3700N drive that generates a massive 2 x 5.4 MW and a traction effort of 1,200 kN. Coupled with an increased axle load of 30 tons, this has increased the freight load to 8,000 tons and ramped up the capacity of the logistics system by an impressive 60%.

Whether your company specializes in freight or passenger transportation, we offer cost-saving, efficiency-boosting advantages that sharpen your competitive edge and enable you to provide stakeholders at every level of the rail operations business with more attractive conditions.

Compelling reasons for choosing Bombardier drives
Choose a drive by Bombardier and benefit from higher cost efficiency, enhanced performance, reduced energy consumption and the reliability that comes from the experience of supplying 62,000 drives for rail vehicles in every corner of the globe.

Leading the way in development and design
Apart from the quality integral to every product from Bombardier, another aspect of our approach to drive development places us firmly at the forefront of the industry: cutting-edge compact design. Permanent magnet (PM) motors not only save energy by increasing efficiency but also shrink drive size and so enable rolling stock manufacturers to offer traveler-friendly features like low floors.

Taking tough requirements in our stride
Drives are all about power. And boosting it calls for all the ingenuity and creativity at our disposal. We relish the challenge posed when customers approach us asking for more traction power or speed. Because it brings out the best in us and results in groundbreaking new vehicles.
At Bombardier, we aim to surprise: by delivering state-of-the-art systems that surpass industry standards and even our customers’ exacting demands.

Powered by the MITRAC DR 1800F drive, the BOMBARDIER* ZEFIRO* 380 very high speed trains ordered for China’s mainline operations are the fastest in the world. They have slashed journey time, made rail travel more competitive and revitalized the industry. Like the Chinese authorities, customers and industrial players world-wide choose Bombardier drives because they represent the best-possible solution for their needs.

But that’s not all. Bombardier Transportation holds IRIS, ISO 9001/14001 and EMAS certification, testifying to the solid, sustainable processes behind our outstanding quality and cutting-edge technologies: quality and technologies we continuously improve with the sole aim of giving our customers genuine revenue-generating solutions that improve their cost-efficiency and competitiveness.

The right drive for the job
With a range of drives geared to fit any requirement, and experience gathered over many years in the industry, Bombardier can offer the perfect combination of traction motor and gearbox for any form of rail-based transportation:
from streetcar or people mover all the way through to very high speed trains. Our systems are optimized to provide the perfect balance of space, axle load and speed. They guarantee a highly reliable solution with low maintenance cost throughout the product’s entire service life and bring benefits beyond our customers’ expectations.

Driven by Reliability

The traction unit in Bombardier’s Electrostar EMU, winner of rolling stock reliability awards in the UK, is the MITRAC DR 1500. The drive has sold over 26,000 times and powers some of the world’s most reliable fleets. Including those that continue to function smoothly at extremes of ambient temperature as low as -45 °C in the icy wastes of Siberia or as high as +50 °C in the Australian desert.

Bombardier drives combine the unequalled expertise and experience accumulated from many years in the business and from supplying no fewer than 62,000 drives from across the entire range to rolling stock producers all over the world.

**Tireless in our pursuit of perfection**

At Bombardier, our aim is to ensure perfection in every drive we deliver. This is the reason for our dedication to research and our uncompromising quest for quality. We want rail operators to have the peace of mind that goes hand in hand with high availability, low maintenance costs and minimum downtime. For passengers, it means trains that depart on time, comfortable and convenient travel, and punctual arrivals. And for freight operators, it means dependable, just-in-time logistics.
Global warming, pollution, urbanization, congestion and scarcity of raw materials: these are just some of the challenges that need to be surmounted as we look to the future. Against this backdrop, railway transportation makes sound ecological sense. Bombardier has therefore placed sustainable mobility firmly at the focus of all its operations and, in order to make it a reality, introduced the BOMBARDIER® ECO4® product suite.

**Energy-efficient motor technology**

With ECO4, Bombardier addresses the four key issues that face rail operators today: energy, efficiency, economy and ecology. The results of its efforts are to be found in a portfolio of “ecoactive” products and technologies that increase the sustainability of rail travel and transportation while meeting the needs of railway operators. They include the MITRAC Energy Saver, MITRAC Hybrid and MITRAC Permanent Magnet (PM) Motor, which saves energy directly by increasing motor efficiency, and indirectly by reducing volume or weight of the drive. Further environmental benefits are achieved when a larger portion of the braking is handled electronically, resulting in noise reduction and improved air quality in tunnels.
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Learn more about our commitment to sustainable mobility on: www.theclimateisrightfortrains.com

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