

Bombardier launches new generation of MITRAC propulsion, controls and energy management solutions

- Fully renewed MITRAC portfolio adds significantly higher value for customers by increasing energy efficiency, reducing harmful CO₂ emissions and offering lower lifecycle costs.

Stockholm, June 11, 2019 – Today at the UITP summit in Stockholm, Bombardier Transportation introduced its new generation of *BOMBARDIER MITRAC* solutions, redesigned to minimize lifecycle costs, reducing both operational and investment expenses, lessen damaging environmental impact and increase overall energy efficiency. The new technologies have also already been proven on tracks. For example, the *MITRAC Pulse* traction battery was demonstrated in the new *BOMBARDIER TALENT 3* battery train, and the *MITRAC Power 1500* traction converter prototype with silicon carbide semiconductors (SiC) was demonstrated in a *BOMBARDIER MOVIA C20* metro vehicle in Stockholm in 2018.

Bart Vantorre, Head of COO Equipment at Bombardier Transportation said, “We are very proud that the extensive redesign of our *MITRAC* portfolio is delivering such impressive benefits to our customers, including 35% higher reliability. Our Bombardier engineers evaluated each *MITRAC* component in terms of reliability, availability, energy efficiency and maintainability, based on our experience and feedback from our customers and suppliers. The result is a fully renewed portfolio which provides outstanding performance and higher customer value.”

The new *BOMBARDIER MITRAC* portfolio consists of three segments: ***MITRAC Power***, ***MITRAC Pulse*** and ***MITRAC Control***.

The ***MITRAC Power*** portfolio encompasses the entire propulsion system and high voltage equipment, including future-proof air-cooled and water-cooled traction converters. As an example, the benefits of the *MITRAC Power 1500* traction converter’s new SiC technology were demonstrated in a [prototype in Stockholm last year](#). The converter achieves energy reductions of up to 35%, 19 dB lower noise emissions, 35% higher reliability and 25% lower lifecycle costs. Worldwide, more than 60,000 *MITRAC Power* converters and more than 100,000 *MITRAC Power* drives are in operation.

The ***MITRAC Pulse*** portfolio covers all energy management solutions, including on-board energy storage products, such as lithium-ion traction batteries and super capacitors. Bombardier’s onboard energy management systems offer solutions for increased energy efficiency, reduced CO₂ emissions and reduced noise. The *MITRAC Pulse* traction battery is used in Bombardier’s award-winning *TALENT*

3 battery electric multiple unit (BEMU) for catenary-free operations. According to an independent comparative study by Technische Universität Berlin (TU Berlin) and Technische Universität Dresden (TU Dresden), the battery train is the most cost-effective and CO₂-free alternative to diesel trains in terms of total cost of ownership over the train's entire 30-year service life.

The **MITRAC Control** portfolio includes our proven Train Control and Management System (TCMS). It coordinates the flow of information on the rail vehicles and between the train and wayside systems. With the standardized open interfaces and an integrated fleet management system, *MITRAC Control* reduces operational and maintenance costs significantly. *MITRAC Control* solutions have been around for over 20 years and are continuously updated. Recent upgrades for computer performance include the introduction of Gigabit Ethernet for rail applications (IEC61375, Ethernet Train Bus (ETB) and Train Real-Time Data Protocol (TRDP). On Singapore Downtown Line's rail network, *MITRAC Control* TCMS software was installed and is improving the travel experience and maximizing operational efficiency by monitoring vehicle passenger load. *MITRAC Control* solutions are installed in over 25,000 cars worldwide.

Bombardier Transportation is a global leader in delivering rail equipment and components. For over 120 years, the company has been continuously delivering solutions to customers that are built upon long-standing experience and ensure strong fleet performance. *MITRAC* solutions are installed in rail vehicles all around the world and the upgraded portfolio will ensure significant benefits for both customers and the environment.

About Bombardier Transportation

Bombardier Transportation is a global mobility solution provider leading the way with the rail industry's broadest portfolio. It covers the full spectrum of solutions, ranging from trains to sub-systems and signalling to complete turnkey transport systems, e-mobility technology and data-driven maintenance services. Combining technology and performance with empathy, Bombardier Transportation continuously breaks new ground in sustainable mobility by providing integrated solutions that create substantial benefits for operators, passengers and the environment. Headquartered in Berlin, Germany, Bombardier Transportation employs around 40,650 people and its products and services operate in over 60 countries.

About Bombardier

With over 68,000 employees, Bombardier is a global leader in the transportation industry, creating innovative and game-changing planes and trains. Our products and services provide world-class transportation experiences that set new standards in passenger comfort, energy efficiency, reliability and safety.

Headquartered in Montreal, Canada, Bombardier has production and engineering sites in 28 countries as well as a broad portfolio of products and services for the business aviation, commercial aviation and rail transportation markets. Bombardier shares are traded on the Toronto Stock Exchange (BBD). In the

fiscal year ended December 31, 2018, Bombardier posted revenues of \$16.2 billion US. The company is recognized on the 2019 Global 100 Most Sustainable Corporations in the World Index. News and information are available at bombardier.com or follow us on Twitter [@Bombardier](https://twitter.com/Bombardier)

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