

# FLEXITY 2



Light Rail Vehicles

**BOMBARDIER**

◁ The Proven Parts are Ours,  
the Choice is Yours ▷








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# ◁ Our Fitting Response to Your Needs ▷

**We know where the future of urban transport lies – and will make tomorrow's world move with the *BOMBARDIER\* FLEXITY\* 2* tram. This synthesis of market-leading experience and visionary engineering marks the dawn of an exciting new era in urban transportation.**


What will the city of the future be like? How will urban society stay mobile in years to come? The answer is sustainable mobility – a principle Bombardier has been dedicated to for years. Sustainable mobility means tackling the existential issues of car-induced traffic congestion and an over-dependence on finite fossil fuels. Attractive urban transport solutions can turn car drivers into light rail passengers – and thus ensure the city of the future stays mobile.

The *FLEXITY* family has become the benchmark for urban mobility in many countries around the world – as the testimonials from satisfied customers prove. But as the market leader in light rail solutions, we are always striving to set even higher standards. And that is why we listened to our customers' needs and learned from their requests before setting out to make a great tram even better.

A portrait of Ian Brown, a middle-aged man with a beard and mustache, wearing a dark suit, white shirt, and red tie. He is smiling slightly. The background is blurred, showing what appears to be a tram or train.

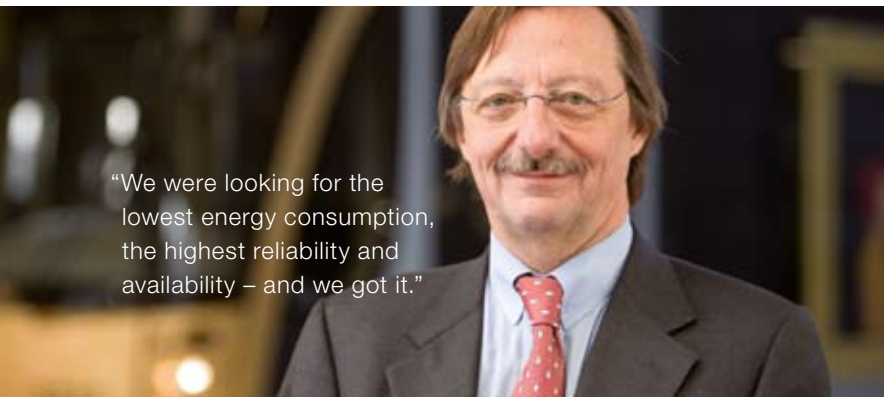
“Bombardier was on site with us,  
working together as one team ...  
that seamless approach has  
brought a lot of success.”

Ian Brown,  
Chairman, DLR, London

A portrait of Michael Budig, a middle-aged man with short brown hair, wearing a grey suit, white shirt, and blue tie. He is looking slightly to the side with a neutral expression. The background is blurred, showing a tram or train.


“The Bombardier vehicles have  
delivered a very high technical  
availability right from the start,  
require little maintenance and  
can be repaired very efficiently.”

Michael Budig,  
Managing Director, VGF, Frankfurt

A portrait of Alain Flausch, a middle-aged man with glasses and a mustache, wearing a dark suit, white shirt, and red tie. He is smiling. The background is blurred, showing a tram or train.

“We were looking for the  
lowest energy consumption,  
the highest reliability and  
availability – and we got it.”

Alain Flausch,  
Chief Executive Officer, STIB, Brussels

A portrait of Jean-Michel Kuntzer, an older man with glasses, wearing a dark suit, white shirt, and patterned tie. He is smiling. The background is blurred, showing a tram or train.

“The new *FLEXITY* tram  
made its way straight  
to the hearts of the  
people of Marseilles.”

Jean-Michel Kuntzer,  
Head of Metro-Tramway Mission, CUMPM, Marseilles

A portrait of Thierry Wagenknecht, a middle-aged man with glasses and a mustache, wearing a dark suit, white shirt, and dark tie. He is smiling. The background is blurred, showing a tram or train.

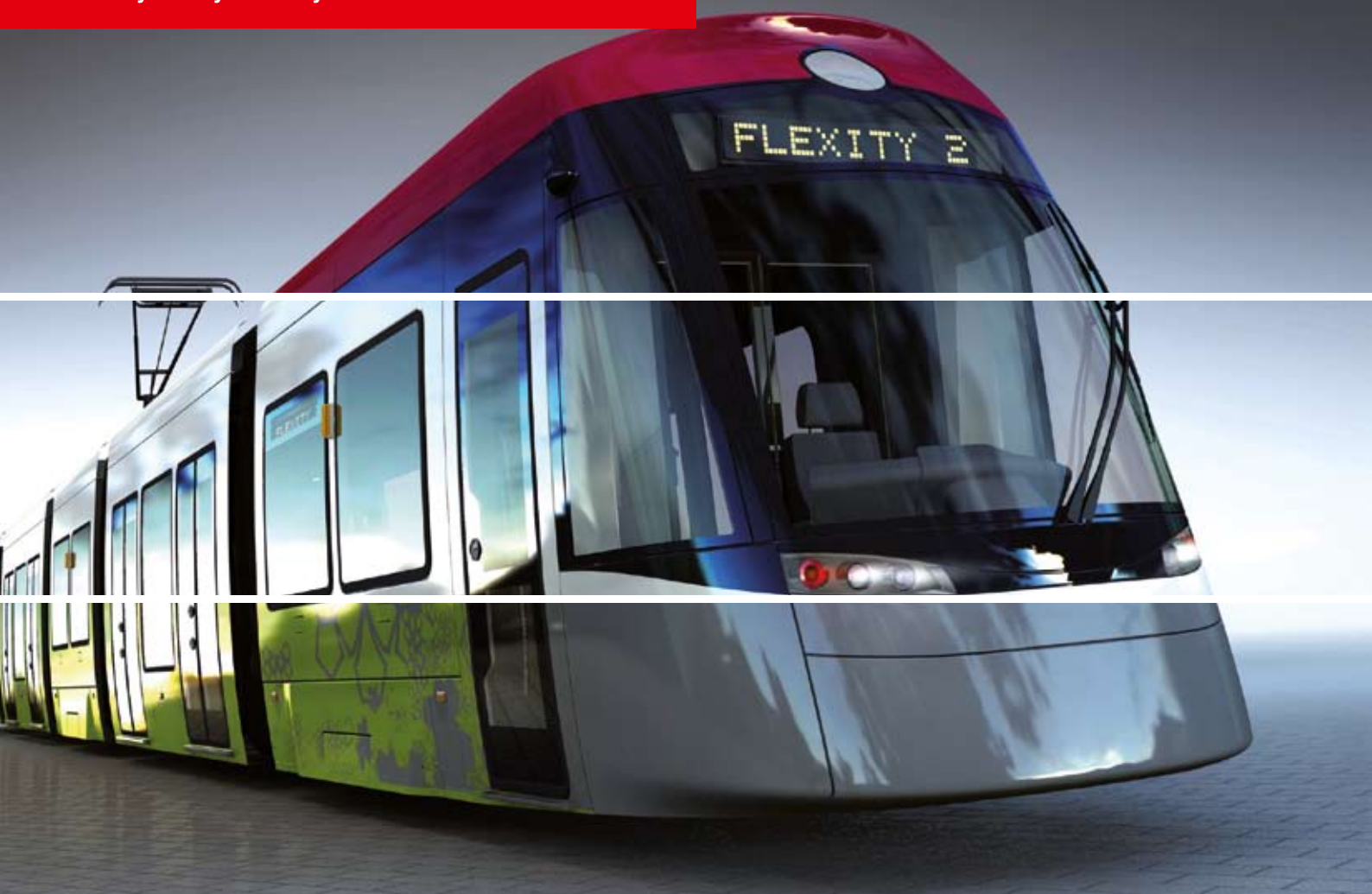
“Bombardier provided us with  
benefits for our passengers  
and for maintenance.”

Thierry Wagenknecht,  
Technical Director, TPG, Geneva

# ◁ Our Creative Spirit, Your Distinctive Look ▷

At Bombardier we have transformed the light rail experience through defining designs for urban environments. *FLEXITY 2* trams will help shape your city's identity.

This new tram's unique design concept – creative customization based on standardized components – allows you to choose a distinctive look that reflects the essential character of your city.



Helping to shape your city's identity



Endless possibilities for  
customized interior design

### Our Award-Winning Designs

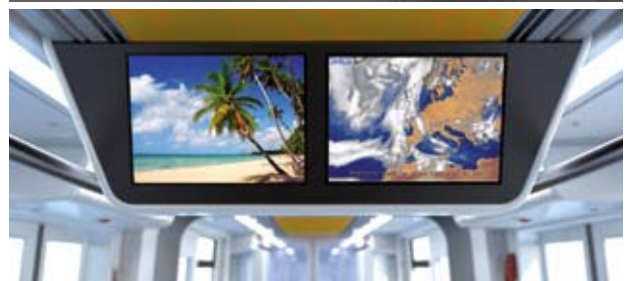
Art Nouveau expressionism in Brussels, maritime flair in Marseilles and Bauhaus design in Berlin: the defining designs of *FLEXITY* trams have brought us awards and made the vehicles hugely popular with passengers. You too can profit from such a successful symbiosis of form and function.

We offer you virtually unlimited possibilities in customizing the exterior design of the *FLEXITY 2* tram since the exterior colour scheme and shape of many components, including the driver's cab, windscreen, headlights and covers, can be tailored to your particular preferences. The potential for adding to the appeal of the light rail experience in your city is enormous.

### Your Freedom to Choose

The interior design of a *FLEXITY 2* tram is a balanced mix of simple, standardized solutions and individual features. You enjoy a virtually unlimited choice of colours, materials and seat-cover fabrics while individual lighting concepts or stanchion arrangements bring an added touch of distinction to your *FLEXITY 2* tram.

Seating is an area where form and function harmonize particularly well: a specially developed signature seat and a 2+2 seat arrangement in the bogie module that sets new standards in transport capacity. You can choose how many seats per vehicle you want, optimize the comfort ratio (i.e. the number of seats divided by the overall passenger transport capacity) and maximize the aisle width to suit your needs. All our creative efforts have just one goal: ensuring a most distinctive look for your *FLEXITY 2* tram.



# ◁ Our User Friendliness, Your Satisfied Customers ▷

**To make the light rail experience the most appealing transportation solution for tomorrow's urban environments, we have designed the *FLEXITY 2* tram with a clear focus on passengers.**

The *FLEXITY 2* tram combines high levels of passenger comfort and safety with enhanced facilities for impaired users. To ensure your customers stay satisfied, we have created a passenger-friendly tram.



An impressive comfort and safety profile



### First-Class Comfort

Passenger-friendliness is a standard feature of the *FLEXITY 2* tram. The highlights include a 100% low-floor design for easy access, wide double doors for fast passenger flow, maximized aisle width throughout, extra large windows, stop-request buttons accessible from every seat, an improved HVAC system for more comfortable conditions on board and a passenger infotainment system with highly visible large-screen displays. Add to that the ultra-smooth ride made possible by conventional wheel-set bogies and your passengers can look forward to first-class conditions in a *FLEXITY 2* tram.

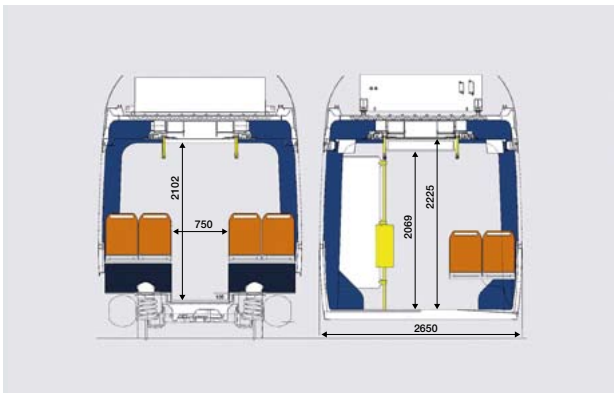
### Best-in-Class Safety

Setting best-in-class standards in the sensitive area of passenger safety is a priority at Bombardier. The safety-relevant features in the *FLEXITY 2* tram include almost any number of stanchions, handrails, grips, grab handles and stop buttons, acoustic and optical warning systems, emergency intercom facilities at each door, a CCTV video surveillance system and accessibility aids such as wheelchair ramps and sliding steps.

We improved the design of the sidewalls and articulation area to maximize the aisle width throughout the vehicle and thus optimize passenger flow. And we have included state-of-the-art video surveillance equipment to improve passenger safety in boarding and exiting and in emergencies.

### Special Needs

Since urban communities are generally ageing, we have designed the *FLEXITY 2* tram with the needs of the less mobile in mind. The low-floor entrance and entirely step-free interior are key features – not just for the elderly but also for passengers with pushchairs or heavy shopping bags. Other advantages include gap-bridging entrance elements, large-scale lettering on the big infotainment screens and audio-visual signals in the entrances. By making the *FLEXITY 2* tram an attractive means of transport for the less mobile, we ensure you have more satisfied customers – not least in tomorrow's urban society.



The benefits of an extra-wide car body - maximized aisle width



Designed to meet the needs of the less mobile



CCTV for improved security

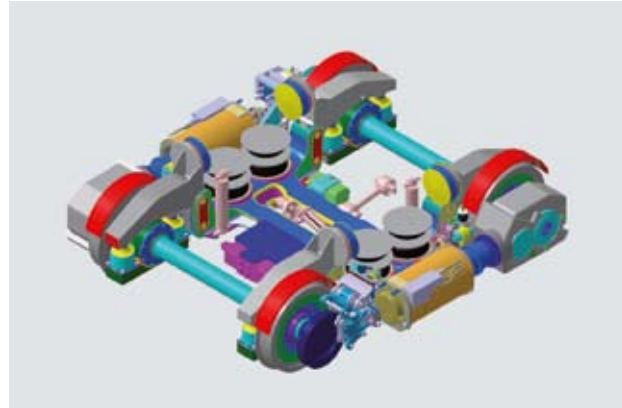
# ◁ Our Innovations, Your Future-Proof Operations ▷

**Our global leadership in the light rail sector is built on leading-edge technology. And because our technological breakthroughs have been tried and tested in numerous applications, the bottom-line benefit for you is best-in-class reliability.**

Innovations have always been the basis of our leading-edge technology. And you can rest assured that our innovations will continue to bring you benefits – now and in future.



The ergonomically designed driver's cab



Conventional wheel-set bogies bring clear benefit

### Smooth Ride

We were the first in the industry to combine 100 % low-floor technology with conventional wheel-set bogies. Besides making low-floor entrances and easier passenger access possible, this leading-edge technology gives the *FLEXITY 2* tram its ultra-smooth running qualities. Since ground-borne noise and vibration are reduced to a minimum, this tram not only ensures passengers a more comfortable ride but also runs much more quietly.

As an operator, you also benefit from smooth rides through reduced track maintenance costs. With more than 1,400 of these wheel-set bogies now installed in hundreds of vehicles all over Europe, we know all about giving you a smooth ride.

### Greater Safety

Safety first has always been one of our top priorities. With our extensive experience in active and passive safety technology reflected in the design of the *FLEXITY 2* tram, this vehicle sets new standards in non-deforming and deforming crash performance. It is just as future-proof in safety terms since it satisfies much stricter safety standards than those in force today. In the event of a crash, everybody is safer with a *FLEXITY 2* tram.

### Easier to Service

We have set another benchmark in the field of vehicle control. Our leading-edge TCP/IP-based diagnostic system enables component-related data to be fed directly into a maintenance engineer's PC for evaluation purposes. You benefit from straightforward access to maintenance and service data and easily accessible system parameters if changes need to be made.



Enhanced safety features characterize this vehicle



Clearly arranged instruments and excellent all-round visibility



# ◁ Our Contribution to Your Savings ▷

**You know full well how heavily operational efficiency impacts on lifecycle costs. That is why we have used as many proven parts as possible in the construction of the *FLEXITY 2* tram.**

Add energy-saving technologies and excellent maintainability to industry-leading reliability and the outcome is a vehicle that promises unparalleled levels of operational efficiency throughout its lifetime. That is our contribution to your savings.

## **Excellent Maintainability**

We tackled the maintainability issue at the design stage of the *FLEXITY 2* tram because ease of maintenance is crucial to operational efficiency. We started by minimizing the number and complexity of the components. We harmonized the regular maintenance intervals to facilitate fleet management and workshop planning. We reduced the number of non-safety-relevant visual inspections to shorten the time a vehicle has to spend in the workshop. And last but far from least, we improved the diagnostic system by reserving the event monitor on the driver's operating panel for data of relevance to the vehicle's operation and storing all other data in the event log file. At the end of a working day, all the vehicle's operational data can thus be easily evaluated to provide you with valuable information on how system components have behaved.

## **Energy-Saving Technologies**

Our commitment to sustainable mobility is reflected in the proactive implementation of technologies to save energy and reduce CO<sub>2</sub> emissions. The *FLEXITY 2* tram is living proof of Bombardier's global green awareness policy, as evidenced by the *BOMBARDIER\* ECO4\** program. Integration of the on-board *BOMBARDIER\* MITRAC\** Energy Saver cuts traction energy consumption by up to 30%.



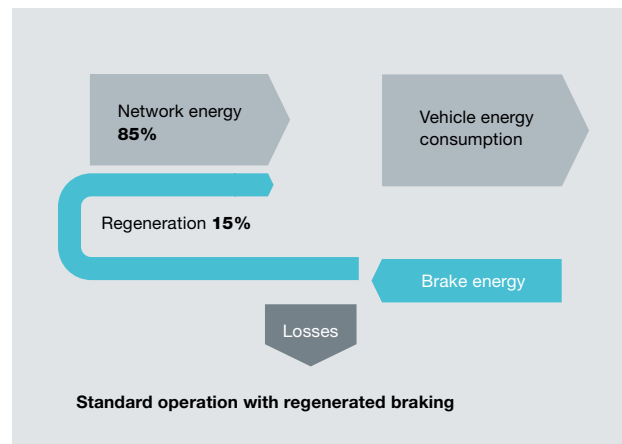
Other energy-saving features include the intelligent drive manager and propulsion control system, innovative LED lighting and an optimized heating, ventilation and air-conditioning (HVAC) system. But it was not just the environment we were thinking about with energy-saving measures such as these. For you, lower energy consumption means increased savings.

# eco<sup>4</sup>

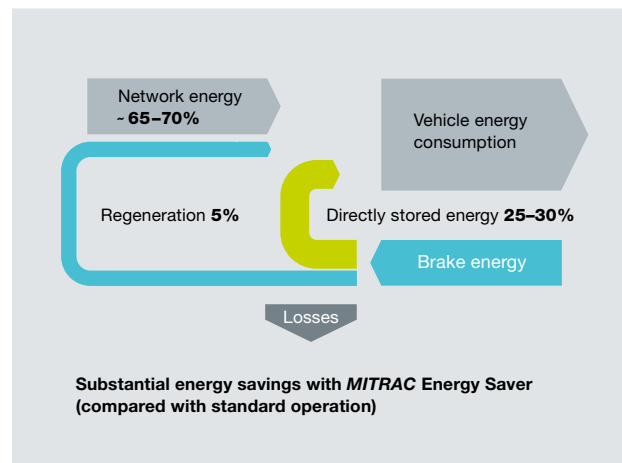
ECO4 is one of the major sustainability initiatives based on Bombardier's pioneering *The Climate is Right for Trains\** concept. MITRAC Energy Saver is one of the industry-leading technologies that make up ECO4.



LED lighting: Used whenever it makes sense to increase energy efficiency and a lamp's working life



Without Energy Saver



With Energy Saver

# ◁ Our Smart Concept, Your Peace of Mind ▷

**In designing the *FLEXITY 2* tram we took a critical look at numerous time- and labour-intensive repairability issues. The result was an intelligent repairability concept and various smart functions that make the tram easier to repair. For you that means significant savings.**



Always on call so you enjoy 24/7 support



Easy accessibility through an intelligent panel design

### **Saving You Time and Money**

In designing the *FLEXITY 2* tram, our priorities were direct access for inspection, maintenance and service work, easy assembly and disassembly, and minimal effort in the event of repairs. As a result, all system components have been designed with a view to simple accessibility.

For example, all the operational equipment that needs routinely checks is accessible from inside the tram – via inspection openings and covers that are almost invisibly integrated into the tram's interior fittings – and the sanding equipment and wheel lubrication are easy to access from the side panels. Intelligent thinking at the design stage saves time and money in your everyday operations.

### **Simplifying Material Supplies and Technical Support**

At the same time as launching the *FLEXITY 2* tram, we have also established a spare parts' stock management and technical support network. Sign a material supply agreement with Bombardier and you are guaranteed global provision of consumables and exchange parts as well as procurement of accident repair parts or parts damaged by vandalism at pre-determined fixed prices. Another benefit of centralized spare parts' stock management is that parts are purchased from open sub-supplier markets via general framework agreements. This covers consumables for preventive and corrective maintenance as well as parts for accident or vandalism repairs.

In addition, we can also provide fleet management assistance through a technical support agreement. This service package includes implementation of a Bombardier standard Global Maintenance Accord, reporting and analysis of failures using the *BOMBARDIER\* FRACAS\** system, integration of the analysis findings, optimization of your maintenance and fleet operation plans, on-going technical assistance for your operation management staff and technical assistance in the event of major damage caused by an accident or vandalism.





Good looks combined with excellent repairability

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Learn more about our commitment to sustainable mobility at:

**[www.theclimateisrightfortrains.com](http://www.theclimateisrightfortrains.com)**

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