

INNOVIA Monorail 300 Technology

Automated Monorail System



Bombardier Transportation, the world's leading supplier of fully automated, driverless monorail systems, is now offering the latest evolution in medium capacity monorail technology – the *BOMBARDIER* INNOVIA* Monorail 300* system.

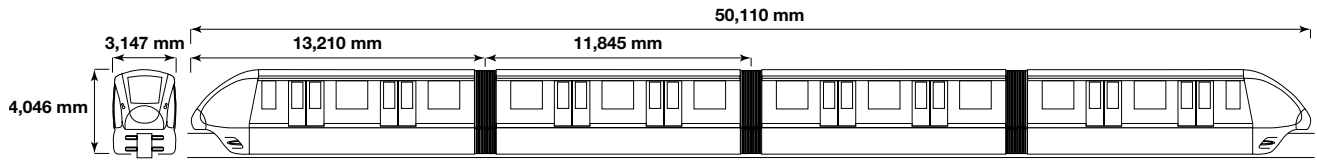
INNOVIA Monorail 300 brings futuristic aesthetics, spacious interiors and a smooth ride experience for passengers. An inter-car walk through provides free passenger flow and enhances passenger safety. Flexible seating arrangements permit optimization of the system to suit customer specific requirements.

Fully automated driverless operation allows frequent, safe and reliable service, attracting more passengers and generating more revenue. Combined with the *BOMBARDIER* CITYFLO* 650* automatic train control (ATC) system, the *INNOVIA Monorail 300* system achieves shorter headways and excellent operational efficiency.

The *INNOVIA Monorail 300* design incorporates high levels of equipment reliability and redundancy that permits confident operation of the system without the need for on-board attendants thus allowing the operator flexibility in staff utilization.

This urban transit technology uses slender guidebeams, which both guide the vehicle and provide its structural support. The *INNOVIA Monorail 300* trains permit smaller, less obtrusive and easier-to-construct aerial guideway structures. The pre-cast, post-tensioned elevated guideway structure is constructed off-site to permit exceptionally rapid assembly on location.

The *INNOVIA Monorail 300* technology incorporates the design and operational features required for rigorous urban line-haul service, including full automation, emergency evacuation walkways, high-speed guideway switching, bi-directional operation and compliance with urban transit safety standards.



Vehicle Data

Type of vehicle	INNOVIA Monorail 300
Maximum train consist	2- to 8-car trains

Dimensions and Weight

Length (end car overall)	13,210 mm
Length (end car over coupler)	13,032 mm
Length (mid car)	11,845 mm
Width (overall)	3,147 mm
Rooftop to top of running surface	3,019 mm
Floor to top of running surface	450 mm
Doorway width (clear opening)	1,600 mm
Doorway height (at threshold)	1,930 mm
Wheelbase (centreline to centreline)	9,200 mm
Vehicle weight empty (average)	14,000 kg

Technical Characteristics

Power distribution	750 Vdc
Propulsion system	permanent magnet bogie mounted
Vehicle guidance	straddle beam monorail
Vehicle operation	bi-directional
Braking	regenerative/friction
Suspension	pneumatic spring
Bogies	2 single axle dual tire per car

Carbody	aluminum carbody, steel underframe, composite end cap
Windows	tinted, single glazed
Doors	2 bi-parting doors per side per car
Air-conditioning	roof-mounted module containing twin HVAC units
Fire safety design	floor rating meets ASTM E-119, NFPA 130 compliant

Performance and Capacity

Maximum design speed	80 km/h
Acceleration rate (service)	1.0 m/s ²
Brake rate	1.0 m/s ²
Minimum horizontal curve radius	46 m
Maximum sustained gradient	10%
Recommended maximum gradient	6% (based on ride quality)
Wheelchair locations	1 per car (flexible)
Passenger seats per car	16 (flexible)
Design capacity**	
• 2-car trains at 75 sec headways	11,300 pphpd
• 4-car trains at 75 sec headways	24,100 pphpd
• 8-car trains at 75 sec headways	49,600 pphpd
Vehicle capacity (standees + seated) per 4-car train (flexible)	
@ 4 pass./m ²	292 + 64 = 356
@ 6 pass./m ²	438 + 64 = 502

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