

METRO METROPOLIS

Continuously improved to serve cities

PRODUCT SHEET



Relying on an impressive track record in meeting customer expectations, Alstom is recognized worldwide as the provider of reliable and efficient metro trains.

MAJOR REFERENCES

Metropolis

- Amsterdam (The Netherlands)
- Barcelona (Spain)
- Budapest (Hungary)
- Buenos Aires (Argentina)
- Dubai (UAE)
- Chennai, Kochi, Lucknow (India)
- Guadalajara (Mexico)
- Hanoi (Vietnam)
- Istanbul (Turkey)
- Lima (Peru)
- Montreal (Canada)
- Mumbai (India)
- Nanjing, Shanghai (China)
- Panama City (Republic of Panama)
- Paris (France)
- Rio de Janeiro, São Paulo (Brazil)
- Riyadh (Saudi Arabia)
- Santiago (Chile)
- Santo Domingo (Dominican Republic)
- Singapore (Singapore)
- Sydney (Australia)
- Warsaw (Poland)

GENERAL DESCRIPTION

Metropolis covers a wide range of metro trains, all relying on Alstom's proven technologies from decades of experience: more than 17,000 Alstom metro cars are operated currently, in the world, by more than 55 customers.

Alstom has implemented some of the first driverless metros in the world, such as Lille Metro in the 80s and the first driverless heavy metro in Singapore in 2003.

CUSTOMER BENEFITS

High level of customization possible

- Broad range of **configuration** possibilities, e.g., length, width, shape, seating arrangement, passenger information, security equipment, ...
- Wide range of **design** possibilities: cab design, livery, filmed carbody, interior finishings from **Alstom's internal Design & Styling department**
- Driverless mode or driver mode

Efficient operations

- High level of **reliability and availability**
- Innovations to **reduce energy consumption**, e.g., full electrical braking to standstill, new silicon carbide technology for auxiliary converters, ...
- **Low lifecycle costs**: extended maintenance intervals, easy maintenance and cleaning, TrainTracer monitoring
- **Flexibility for operations**: multiple-units, constant door pitch all along the train, possible train expansion by insertion of additional cars

A wide range of experience

- More than 17,000 Alstom metro cars operated today in the world - out of which 5000+ Metropolis type
- More than **55 customers** worldwide
- More than **500 driverless trains** in operation

Enhanced experience for all passengers

- **Flow optimization** (large doors, large gangway, dedicated and visible areas for PRM, bogie levelling system, Optimet Real-time Train Occupancy, ...)
- High level of **passenger information system**
- **Innovative lighting** solutions
- Low interior **noise** level
- Several innovations in R&D

METROPOLIS

TECHNICAL RANGE

Width*	From 2.7 m to 3.2 m
Length*	From 18 m to 24 m
Number of doors per side	3 to 5
Passenger capacity (6p/m ²)	Up to over 300 passengers per car
Seating arrangements	Longitudinal, Transversal, Mixed
Bogies max. axle loads	14,5 t / 17 t
Maximum speed	80 km/h to 100 km/h
Supply voltage	750V _{DC} , 1,500V _{DC} , 3,000V _{DC} , 25kVac
Carbody material	Aluminium or Stainless steel
Power supply	By catenary or 3rd rail
HVAC	Roof integrated HVAC
Track gauge	1,435 mm, 1,600 mm

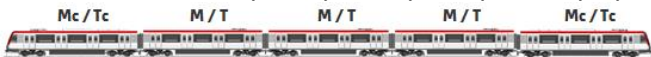
TRAIN CONFIGURATIONS



4 car trainset: 50% (2M-2T) / 75% (3M-1T) / 100% (4M)



5 car trainset: 60% (3M-2T) / 80% (4M-1T) / 100% (5M)



6 car trainset: 50% (3M-3T) / 66% (4M-2T) / up to 100%



EXTERIOR & INTERIOR DESIGN

Alstom's own Design & Styling department to assist operators in determining the ideal exterior: bodysheet shape, gauge, car dimensions, livery.

COMPONENTS

Metropolis fitted with Alstom's proven traction systems (Onix, Optonix), TCMS and bogies (B23, B20)

DRIVERLESS METRO

- Full driverless GoA4
- Driverless-ready solutions (removable driver cab)
- With Alstom Urbalis or other signalling systems

PASSENGER INFORMATION & SECURITY

- Line map display
- LCD display
- Speaker

DRIVER CAB

- Independent driver cab air conditioning
- Ergonomic driver's desk and seat
- Enlarged side window

ECODESIGN

Recyclability: up to 96%

Use of clean materials (water soluble paints, REACH compliance)

PREDICTIVE MAINTENANCE

TrainTracer on-line tool to continuously monitor train's main components and bring information on each train's condition in real-time to depot and OCC.

TURNKEY SYSTEM APPROACH

Complete system capability, including signalling, electrification, track-works, as well as maintenance services.

FOR MORE INFORMATION:

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