

Technical Data

Length	11.20 m
Width	2.65 m or 2.80 m
Height	3.615 m
Possible train configurations	2 to 6 cars
Number of doors per car	2
Number of seats per car	up to 24
CBTC	✓
Automated shuttle mode (Airval)	✓

Performance Data

Maximum operating speed	80 km/h
Minimum horizontal curve radius	30 m / 22 m
Minimum vertical curve radius	200 m
Maximum gradient	12 %
Inclination	10 %
Acceleration, service braking	1.3 m/s ²
Power distribution system	750 V DC

Options

Inter-car gangways, air conditioning, dynamic information system, multimedia
On-board internet access, CCTV, services on demand
Front-end evacuation

Siemens is an international provider of rail vehicles and a global market leader in urban transportation automation.

As such, Siemens participates in metro line construction or renovation projects around the world. Its extensive experience in implementing turnkey projects and offering maintenance services provides the perfect finishing touch to its range of expertise.

Siemens France hosts the international center of competences for fully automated metro systems.

Read the QR code with the QR code reader in your mobile!



SIEMENS



Cityval and Airval

Automated transportation systems

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Printed in France
WS 01131.0
Dispo: 21720 c4bs 1424
Order No.: A19100-V520-B883-X-7600

www.siemens.com

Answers for infrastructure and cities

Offering a modular system that respects the environment

Cityval and Airval provide a complete range of solutions for fully automated transportation systems, for urban and airport applications, in full respect of the environment.

Turnkey solutions from Siemens

As demonstrated by the success of the Val system around the world, Siemens has set unrivaled records in terms of safety and availability.

Thanks to thirty years' experience in fully automated systems and a number of impressive urban and airport project references, Cityval and Airval systems guarantee both safety and efficiency. Since 1983, more than four billion passengers have been transported without any accidents caused by the system itself. The availability rate of the lines in operation is greater than 99.5%.

Modular design and configuration

Cityval and Airval have been developed using the same platform for rubber tire vehicles and for the Automatic Train Control. Different car widths are

available to adapt to specific line insertion requirements. Seating configuration is very flexible and can be adjusted to the actual needs of the Customer. From double car up to 6-car trains, with options for gangway between the cars, the system provides easy ability to cope with increasing traffic capacity.

With Cityval and Airval, line extensions can be carried out without interruption of the passenger service. This provides the capability of programming a system / network implementation in consecutive stages.

Safety and quality of service

Unequaled safety and reliability are achieved by the system specificities :

- a segregated right of way,
- a minimum degree of human intervention during operation,

Front-end evacuation



- fail safe and redundancy design principles in compliance with railway standards,
- a safe emergency evacuation principle.

The system provides the maximum security to the passengers through:

- automatic station platform doors,
- safe communication link between vehicles and control center (Public Address and intercom).

A high quality of service to the users is provided through a combination of attractive features such as:

- flexible operation adapted in real time to the demand,
- punctuality and high commercial speed,
- no waiting in stations during peak hours (one minute headway),
- minimum waiting time during off peak hours,
- easy interconnection with other modes of transportation,
- if exceptionally a train is stranded on the line during operation, it can be pushed by the following train, with minimum inconvenience to the passengers.

Reduced initial investment - Life cycle costs optimization

On Cityval and Airval, the Communication Based Train Control

(CBTC) sub-system, including train movement optimization can reduce energy consumption by up to 15%. The trains' innovative storage and energy recovery devices allow for even greater energy savings. In addition to this, the unique central rail guidance system («Siemens Guidance System») reduces both civil engineering and operation & maintenance costs.

- Compared to conventional Mass Transit Systems, the reduced size of the trains combined with short headways permits a reduction in the dimensions of the infrastructures and the associated costs.
- Due to the short vehicle length, the track alignment can accommodate tight curves and steep gradients, which facilitates the insertion into urban or airport environment.
- In addition to the normal operating mode, the system includes provisions for implementing alternate modes ensuring a continuous service. If some section of the track is temporary out of service and no longer can permit trains to operate normally, a partial train service can be set up for the duration of the repair.

Cityval – Fully integrated into the urban environment

Cityval allows operators to adjust transportation capacities automatically and in real-time to the demand, for instance during exceptionally busy periods, or unexpected events. The Cityval can run on viaducts, in tunnels or at street levels.

gangway between vehicles



In megacities, Cityval fulfills the requirements of a feeder line into high capacity metro systems; in medium-sized cities, those of the main transportation lines.

Airval – Maximum flexibility for airports

The system supports a number of different operating modes; for instance, it can be used as a demand/responsive transportation service or as a shuttle service running on a single track. This transportation service remains available 24 hours a day, 7 days a week, and is the solution to cope with fluctuating demand at airports.

The Airval is adapted to both landside and airside to transport different types of passengers, for example national and international travelers. Airval fulfills the needs to transport passengers between terminals and also between the airport and the remote urban rail network.



Example of Airval vehicle integrated into an airport environment



Modern interior design



Example of Cityval vehicle for the new line in the conurbation of Rennes, France