



## Maglev for Urban Transit



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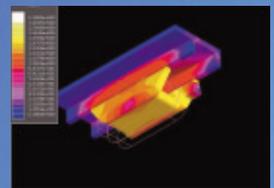
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## Chronology

- 1986 | Commencement of research
- 1988 | Development of analysis tool for levitation and propulsion equipment
- 1990 | Development of prototype HML-01, HML-02
- 1992 | Service operation for EXPO'93 with HML-03
  - max. design speed : 100 km/h
- 1994 |
  - track length : 600 m
- 1996 | Opening of the Maglev test track with UTM-01
  - max. design speed : 110 km/h
- 1998 |
  - track length : 1.3 km
  - min. curve radius : 60 m
  - max. gradient : 6 %
- 2000 |
  - running distance : 60,000 km (until December, 2003)
- 2002 | Commercial Model, Maglev
  - max. design speed : 110 km/h
- 2004 |
  - max. operating speed : 80 km/h
  - passenger capacity : 100 persons
  - operating systems : ATP/ATO
- 2006
- 2008 | Start of commercial operations



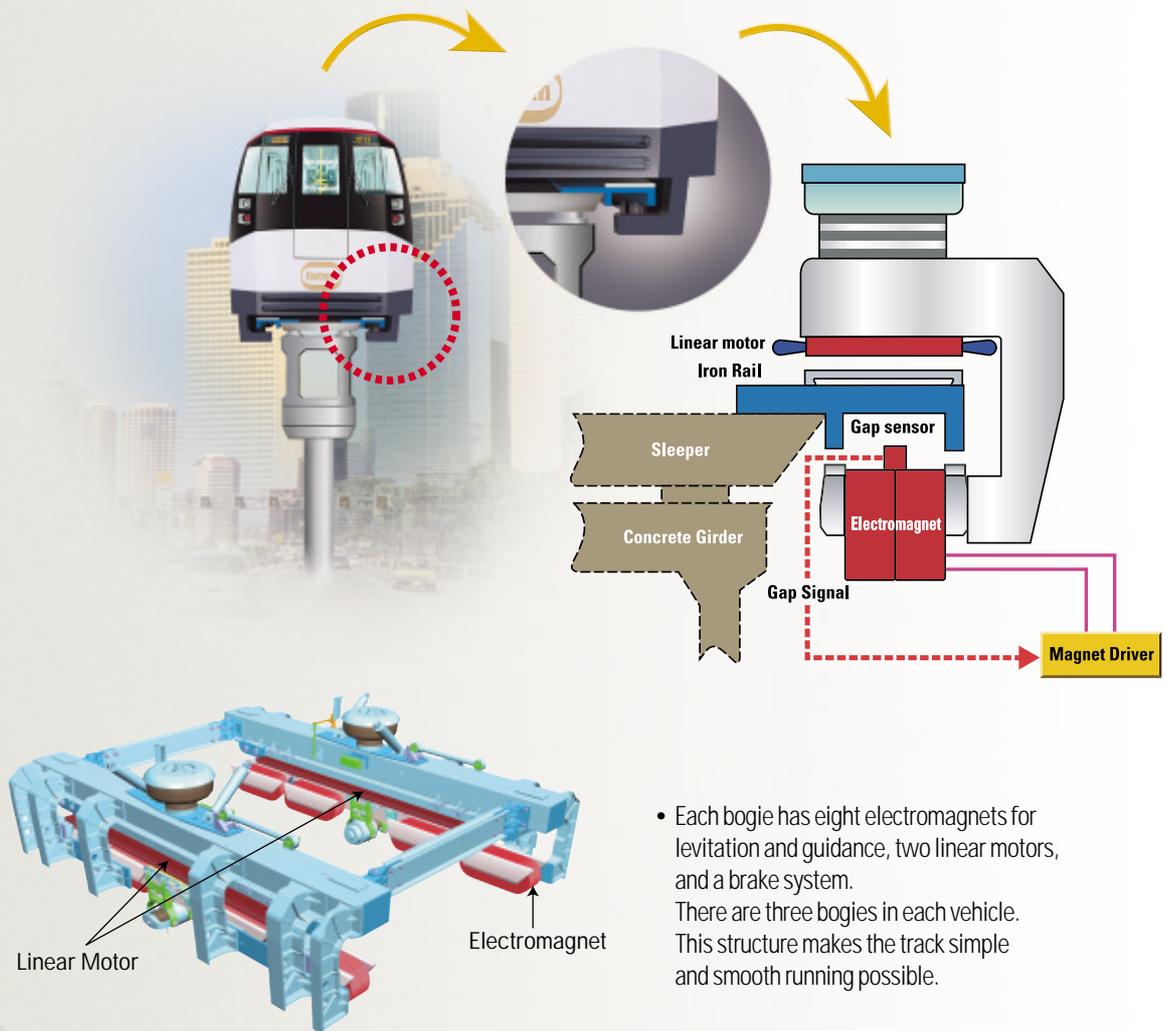
# Rotem Maglev

A model of an ideal transportation system, the Maglev is a soon to become reality in our everyday lives. As our societies become increasingly developed, the need for a quieter, more comfortable and more convenient transportation system grows.

With the arrival of the Maglev, the Rotem Company demonstrates a new birth in technology for a revolution in transportation.

## Principles

- Electromagnets are set on the bogie of the body, causing the vehicle to lift and stay properly aligned through attractive forces.
- Electromagnets do not touch or stick to the track since the electromagnets are controlled by a sensor that regulates the space between the track and vehicle.



- Maglev is propelled by a linear motor, which is made by splitting a rotary motor.
- The primary coil of the linear motor is mounted on the bogie, while the secondary reaction plate is installed on the rail.
- A voltage-fed inverter is used for the linear motor power control.





*driver's cab*



*facility for wheelchair area*



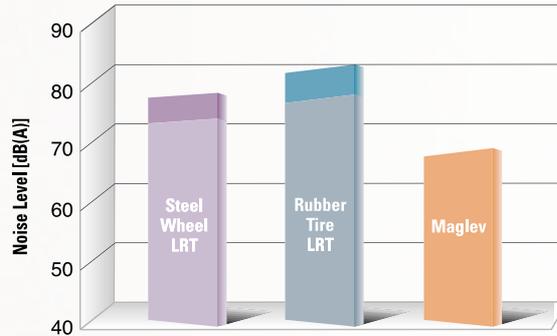
# General Characteristics



## Environmentally-friendly System

Due to no rail-wheel contact, the Rotem Maglev is a very advanced transportation system with a comfortable ride and minimum-pollution.

- lower noise [ less than 65dB(A) ]
- lower vibration [ less than 0.02g ]
- no source of dust such as rubber, iron, etc.



## Excellent Driving Capabilities

The Rotem Maglev is propelled by a linear-motor generating traction force directly to the rail.

- does not rely on adhesion ; no slip / no sliding
- can be operated on steep gradients easily (powerful climbing capability-max. 8%)



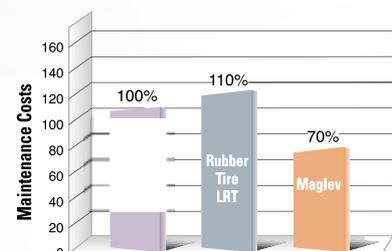
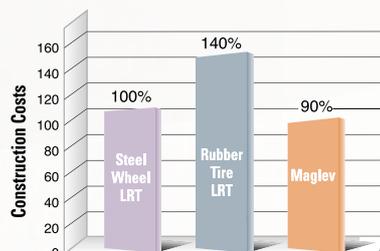
## Safety

The Rotem Maglev is safe from derailment and overturning due to the wrapping of the bogie frame around the track.



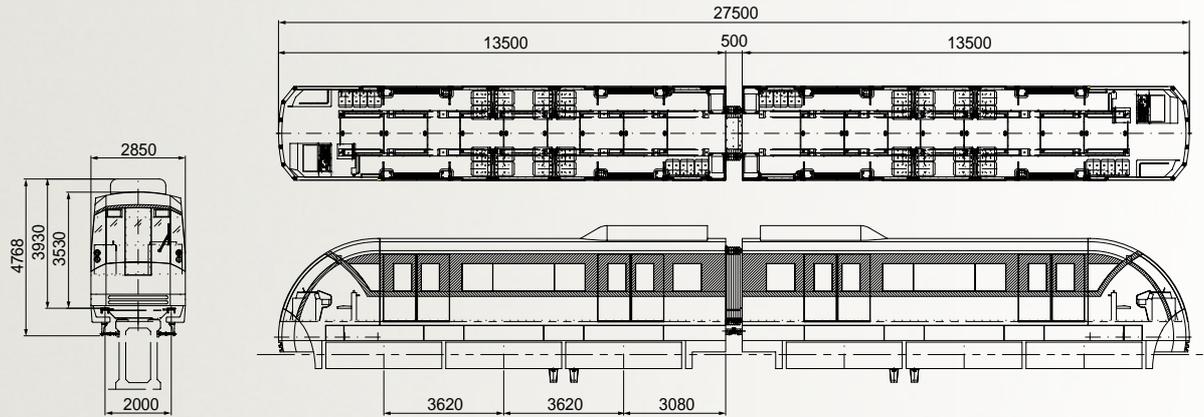
## Less Construction and Maintenance Costs

- evenly distributed load to the track makes for a light and flexible structure
- no need for noise protection barriers along the railways
- less spare parts and low maintenance/labor costs due to fewer parts which experience friction and wear



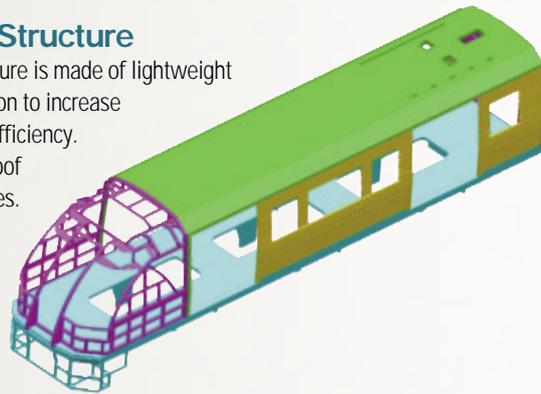
# Vehicle

## Train Formation



## Vehicle Body Structure

The vehicle body structure is made of lightweight aluminum alloy extrusion to increase energy and levitation efficiency. The floor has soundproof and heatproof capacities.

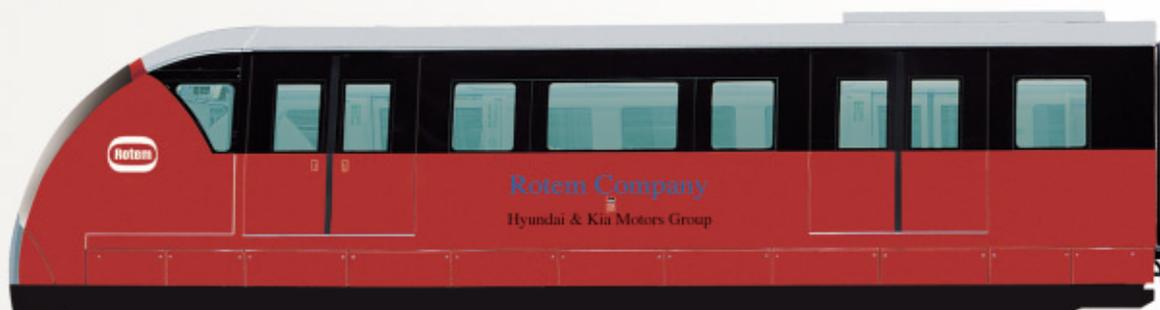


## Interior

The interior has been designed to give urban commuters convenience and safety. Whole interior fittings such as panel, floor and seats are made of incombustible material that comply with international fire and safety standards.

## Bogie

The bogie frames are made of aluminum extrusion and casting. It consists of main frames and ribs. The Linear Induction Motors and Levitation Magnets are mounted on the mainframe and ribs.



# Specifications

Vehicle Specifications	
Train Formation	2 vehicles (Mc1-Mc2)
Vehicle Dimensions	L 13.5 m x W 2.85 m x H 3.50 m
Vehicle Weight	Laden 30 tonnes
Passenger Capacity	100 persons/vehicle
Power Supply	1,500 VDC
Train Performance	
Max. design speed	110 km/h
Max. operating speed	80 km/h
Max. acceleration	3.6 km/h/s
Max. deceleration	3.6 km/h/s in service, 4.5 km/h/s in emergencies
Interior noise level	max. 65 dB(A)
Max. gradient	8 %
Min. curve radius	60 mR

