



## SUPPLY AND MAINTENANCE OF DOUBLE DECK ELECTRICAL MULTIPLE UNITS

# Desiro HC Israel

State-owned Israel Railways (ISR) and Siemens Mobility have signed a contract for the delivery of 60 Desiro® HC regional trainsets over the next ten years. Upon signing the contract, Siemens Mobility received the first call for 24 trains – six in a four-car and 18 in a six-car configuration. The order includes the maintenance of the first 24 trains over a period of 15 years, the construction of a maintenance workshop in Ashkelon, and further options for maintenance.

Israel is a country that surprises with its innovative ideas. A country that combines tradition with most-modern technology. A country that is constantly growing and therefore needs innovative, efficient and reliable railway transportation systems.

Travelling from the buzz of Tel Aviv to the historic city of Jerusalem in just 27 minutes is a revolution for the Israeli rail transport. The newly erected and electrified fast line eases the travel between the two major cities already tremendously. And new electrified lines are about to be operated soon, thus giving the Desiro HC Israel a vast set of operational possibilities.

By introducing the new trains for Israel, Railway operation will not only be a fast but also a very comfortable one.

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# SIEMENS

The fewer steps, the better the passenger flow. The train design is outstanding in this respect. Passengers have excellent access, even with bulky baggage, bikes, or strollers, thanks to the same-level entrance and the flat lower deck in the intermediate car – and 50 per cent of the passenger space in the end cars has absolutely no steps or ramps. Passengers with restricted mobility benefit in particular from the absence of barriers in the train. The systematic relocation of engine compartments and switchgear cabinets also adds space. The arrangement of all this equipment underfloor or on the roof of the end cars makes the passenger compartments more spacious and airy.

### Interior

Bright, spacious compartments welcome passengers on board the Desiro HC Israel and immediately convey a sense of security. Wide visual axes and transparent separating walls facilitate the panoramic view. Thanks to wide inter-car passageways, passengers can access all parts of the train quickly and easily without any intermediate doors.

Once seated, passengers can enjoy plenty of legroom as most of the seating arrangement is done in a vis-à-vis layout. In order to ensure that this positive impression is not marred, the interior is designed to be extremely easy to clean so that people still enjoy travelling with the train even after years of service.

### Traction

The traction system is developed for the Israeli network with its 25 kV, 50 Hz AC catenary system. In normal operation the unit reaches a maximum operating speed of 160 km/h.

### Train Control Monitoring System

The central control unit (CCU) is the key element of the electronic control level and manages the train control. Superior-level control, regulation and monitoring functions are performed and coordinated directly. In the scope of the project, the Siemens railway automation system SIBAS PN based on PROFINET is used. PROFINET is based on Fast Ethernet with 100 Mbit/s, full duplex and switching properties. It is manufacturer-independent and can be seen as a standard in the industry.



### Technical data

Axle arrangement	Bo'Bo'+2'2'+2'2'+Bo'Bo' (4-car unit) Bo'Bo'+2'2'+2'2'+2'2'+Bo'Bo' (6-car unit)
Gauge	1,435 mm
Maximum speed	160 km/h
Maximum power at wheel rim	4,800 kW
Starting acceleration	Up to 1.1 m/s <sup>2</sup>
Catenary voltage input	25 kV / 50 Hz
Passenger capacity	405 seats (4-car) / 655 seats (6-car)
Floor height	800 mm end car / 730 mm middle car
Car body width / height	2,820 mm / 4,640 mm
Car body length	26,226 mm end car / 25,200 mm middle car
Vehicle weight	260 t / 388 t under normal payload
Temperature range	Temperature class T3 -25° C to +45° C

### Vehicle details

- Timeless, elegant and clean design with only one travel-class configuration
- Comfortable seats with folding tables and reading lights
- One power socket underneath each double seat
- Various standard and one universal toilet per train
- State-of-the-art CCTV and PIS in operation
- Multiple traction in different configurations possible, including combinations of four-car trains and six-car trains



### Local for local

Utilization of local suppliers for major components in the trains including

- Seats
- Windows
- Electrical cabinets
- Safety equipment
- Exterior parts



### Maintenance

Order was placed to Siemens for full service of 24 Desiro HC trains for 15 years including to build a depot workshop building.

### Depot

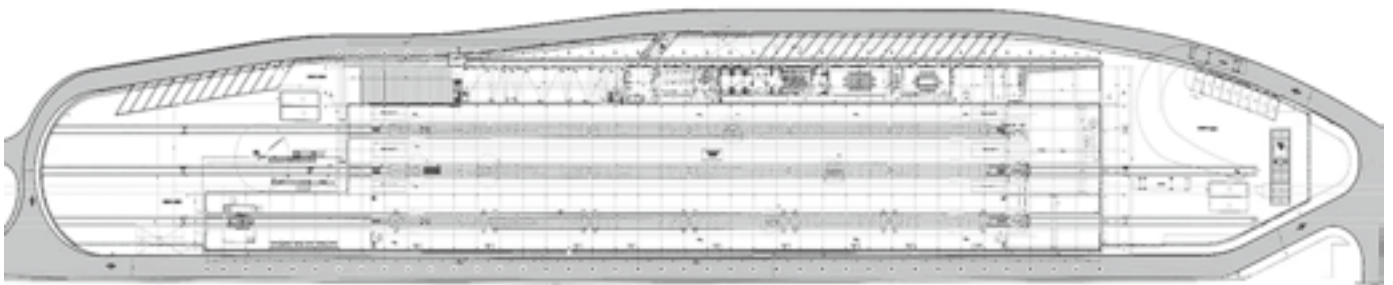
The customized depot is built in Ashkelon close to the main station.

Inside the main hall three elevated tracks are ready for our preventive and corrective maintenance works. All aspects of light, medium and heavy maintenance are considered.

An Underfloor Wheel Lathe reprofiles our wheels and Track bridges are integrated for fast wheelset changes. All tracks are equipped with movable roof working platforms and continuous catenary system.

A pre-cleaning pit in front of the hall enables us to clean the vehicles before they enter the hall.

A multifunctional service area at the south end of the main hall is covered with several cranes up to load capacity of 12.5 tons.





Special component workshops for toilets, electrical and mechanical maintenance activities and storage areas are arranged on the east side of the main hall.

Office areas and social rooms are available in the first floor.

Redundant server rooms and building management control rooms are integrated.

**Digital service**

The contractual agreement was for over 96.5 percent availability of the 24 Desiro HC trains. To ensure this, the trains are provided with a number of sensors that continuously transmit condition data to the depot via the Railigent application.

This makes it possible to plan measures in advance, including spare parts procurement and the provision of technicians, so that any faults can be corrected quickly and seamlessly as soon as the train arrives at the Depot Workshop in Ashkelon.

Additionally Siemens Mobility Customer Services has connected his, with the Clients CMMS System to share realated data and ensure a smooth and transparent handover of trains.

All that measures supports the client to gain a high availability of the fleet.



**Facts on the Siemens depot workshop building at Ashkelon, Israel**

Total surface area	7,900 m <sup>2</sup>
Total track length	820 m
Measurements of the building	230 m x 30 m x 12.5 m (length x width x height)
Number of tracks	3 tracks, elevated and special equipped
Employees	28 (by start of full operations)

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