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Pfaff Verkehrstechnik

Pfaff Verkehrstechnik Enjoys Further International Success with Lucrative Major Projects



Pfaff Verkehrstechnik's international business is currently growing exceptionally well, as shown by various successfully completed major projects, such as the equipping of a new railway depot in Ashkelon, Israel.

This is where electric trains of the type Desiro HC (High Capacity) from the manufacturer Siemens

Mobility are maintained. They are considered state-of-the-art multiple unit trains that were first presented at InnoTrans 2014. In 2018, Pfaff Verkehrstechnik was awarded the major contract to equip the entire workshop of the depot. In addition to track systems, it also includes, among other things, an axle changing system, multiple lifting tables, mobile lifting jacks, hydraulic support jacks, turntables and roof working platforms ('flying carpets') for maintenance work on the train roofs.

New Multiple Units between Tel Aviv and Jerusalem

In 2017, the operator, the state railway company Israel Railways, decided to use a total of 60 double-decker Desiro HC multiple units with 330 carriages on the railway line between Tel Aviv and Jerusalem, which were to run in units of four and six-carriage trains. The six-carriage trains with a length of over

150m offer space for 655 seats.

The railway line from Tel Aviv to Jerusalem is a 56km new line and as such the first ever electrified line in Israel. The pairs of trains that have already been delivered and now run here every day can reach speeds of up to 160km/h.

As part of the new-build project, a depot was built in Ashkelon to maintain the Desiro HC multiple units already in service. Pfaff Verkehrstechnik delivered the material for the depot in 2020 and started the installation on site in December of that year. At that time strict restrictions on entry were in place – therefore the installation was mainly carried out by local subcontractors under the supervision and responsibility of Pfaff Verkehrstechnik. Recently, in spring 2022, it was possible to complete the final tests, acceptances and training.

High-Precision, Synchronised Lifting Jack System

Now 24 mobile lifting jacks – each with a load capacity of 15t – are used to completely lift the trains for maintenance and servicing work. The entire lifting jack system is controlled by frequency converters, whereby the synchronisation of the individual lifting jacks makes it possible to lift a train within a precision range of +/- 2.5mm. In addition, two manual turntables with a diameter of 4000mm were installed in the depot to move bogies between the different hall areas. The turntables are suitable for an axle load of 25t and can

therefore be driven on by the entire multiple unit without any problems.

Tracks for Measurement and Maintenance

A 60m track section for measuring vertical wheel and wheelset forces according to EN 15654-2 was designed with a height tolerance of less than 1mm over the entire measuring range. This allows the axle loads of individual bogies to be determined with the help of two integrated pairs of measuring beams located in the centre of the measuring track.

Three elevated tracks with a length of 150m are located 0.85m above the hall floor. The pit depth is 1.75m. A catwalk between the supports facilitates access to the vehicle during maintenance. An auxiliary rail system for hydraulic workbenches was installed in the pit itself. For example, a mobile lifting table in the pit area can be used to remove even very heavy components weighing up to one tonne. Stationary hydraulic lifting tables for loads of up to 2.25t then move these loads between the floor and the elevated track.

‘Flying Carpets’ for Ergonomic Work on the Roof

For maintenance and repair work in the roof area of the trains, all three maintenance tracks were equipped with so-called ‘flying carpets’. These cradles are suspended from crane runways on the hall ceiling and can be moved over a wide range of 175m along the entire length of

the hall and thus along the entire length of the train.

Each ‘flying carpet’ has two hydraulically lowerable gondolas that can be operated either as a pair or individually. The gondolas have electric extension modules to bridge the gap to the train and thus facilitate access to the roof. Telescopic guardrails can be used to secure the working area all around for safe working on the roof. To simplify the removal of components and their onward transport, vertically movable cranes were installed between the gondolas. These can also be controlled remotely via radio control.

Remove Axles and Inspect Wheels Ergonomically

In addition to the elevated tracks, ground-level tracks were also laid. In the area of the elevated tracks, there are mobile axle-changing systems, consisting of two pairs of track bridges, four support jacks and a mobile hydraulic lifting table with a load capacity of 25t. With this system, axles can be removed at two positions and stored and retrieved on special axle pallets with an electric pallet truck.

In addition, Pfaff Verkehrstechnik has supplied six hydraulic support jacks with a load capacity of 11t to lift bogies in pairs at the axle bearings. This allows the wheels to be turned and inspected for defects. A specially supplied service lift for 2t loads transports the components from the ground floor to the warehouse on the first floor.



Versatile Solutions for All Maintenance and Repair Work

In conjunction with state-of-the-art control systems, the Pfaff-silberblau lifting jack systems guarantee maximum system safety and optimum operator ergonomics for maintenance personnel.

In addition to mobile lifting jacks, the Pfaff Verkehrstechnik product range also includes all types of lifting platforms for rail vehicles, maintenance systems and roof working platforms. This enables Pfaff Verkehrstechnik to offer suitable solutions for all maintenance and repair work on bogies, wheelsets and vehicle frames.

Further information about Pfaff Verkehrstechnik is available at:

www.columbusmckinnon.com/en-de/pfaff-silberblau

The company is presenting its comprehensive product range in Berlin at InnoTrans 2022 (20–23 September 2022, Hall 1.2, Booth 440).

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