



CASE STUDY



1 | Challenge : **Remove the need to change batteries in a 24-hour application with less than 3 hours charging time available per day**

An international automobile manufacturer approached HOPPECKE with a challenging and complex task. In the future, the intralogistics area was to be equipped with a 3-shift operation without battery changing, using conventional lead-acid battery technology.

Constant new challenges such as tight timelines, order peaks which are difficult to estimate, or increasing cost pressures, are changing the demands on modern intralogistics in the automotive industry. Forklift trucks and energy systems must be constantly available, reliable and flexible.

Previously, forklift trucks would drive to a charging station a few hundred meters away for a battery change. This resulted in serious problems and challenges for the daily operations of internal logistics..

In addition to reduced availability of the forklift trucks in the production areas, frequent damage to the battery trays due to improper battery replacement, poor road conditions outdoors and humidification of floors in working areas during bad weather, proved to be the most serious problems.

These problems were to be solved by a flexible, decentralized relocation of the charging station, directly into the production areas with small battery charging units, located in close proximity to the working area of the forklift truck.

Vehicle availability reduced due to long distances to charging station

Fluctuating capacity utilization in newly introduced 3-shift operation

Frequent damage to battery trays during the battery changing process

High investment costs for spare batteries to facilitate battery changing



"By analysing the given conditions and providing competent advice, we were able to massively increase the efficiency of the plants internal logistics. This saves our customer a lot of money through optimized and safe operating procedures."

Sebastian Hoffmann
HOPPECKE Motive Power

Increase in productivity through time saving and forklift truck availability

Flexible, decentralized charging directly in the production area

Cost advantages through savings of investment and operating costs

Reduced environmental impact through optimal use of energy

2 | Solution : HOPPECKE trak | systemizer rapid

In response to these requirements, HOPPECKE recommended to the automobile manufacturer its flexible rapid charging system trak | systemizer rapid, which adapts precisely to the needs of the operating processes and therefore enables more flexible working. The fast chargers were distributed over the entire production area, so that the use of the forklifts could be guaranteed at any time, directly at their place of use. Thanks to the special charging technology, the constant availability of energy over 24 hours could be ensured and therefore significantly higher productivity gains could be generated through time and cost savings.

After completion of the complete deployment analysis, which determined the exact energy requirements, HOPPECKE showed that it was possible to carry out the entire deployment with just one battery in the forklift. However, this was only possible because HOPPECKE, as a complete solution provider, was able to provide a tailor-made energy system consisting of lead-acid batteries trak | uplift optimised for the application, state-of-the-art high-frequency charging technology and intelligent battery controllers trak | collect.

Battery voltage, temperature and the state of charge of the battery during charging can be monitored and the charger controlled accordingly.

This made it possible to charge the lead-acid battery to 95% of its capacity in just 2.5 hours. In addition, by using a HOPPECKE electrolyte circulation trak | air, intermediate charges are possible at any time and even short pauses in work can be used as effective charging time. A temperature sensor in the battery controls the charger. As much energy as possible is charged into the battery at any time. Reactive power through battery heating is avoided.

The lead-acid battery receives exactly the amount of energy needed at all times, which is then available as usable capacity. By avoiding unnecessary heating of the battery, the life expectancy is massively increased. During a free shift at the weekend, the battery receives an equalization charge, which is also automatically controlled by the programmed chargers. Errors and problems with the battery, such as excessive heating or lack of electrolyte, are immediately detected by the system and displayed to the user as a warning.

Thanks to state-of-the-art, microprocessor-controlled HOPPECKE high-frequency chargers trak | charger HF premium, energy consumption was reduced by up to 30% and water consumption by up to 70% per charge.

Key Benefits

- Optimum battery usability through rapid charging
- Charge the batteries to 95% of their original state of charge within 2.5 hours.
- Precise adaptation to the needs of the operational processes
- Increased productivity through optimised processes: No time lost due to travelling to a central charging station
- High investment and operating cost savings, due to removing the need for spare batteries
- The forklifts remain directly in the production area and are available at any time
- Reduction of energy consumption by up to 30 % thanks to microprocessor-controlled high-frequency technology

3 | Products :

- ▶ **Batteries:** trak | uplift air
- ▶ **Chargers:** trak | systemizer rapid, trak | charger HF premium
- ▶ **Battery controller:** trak | collect



HOPPECKE

POWER FROM INNOVATION

Bontkirchener Straße 1, 59929 Brilon-Hoppecke, Germany



CASE STUDY