

# Reference

Integrated charging for robots at the Toyota plant in Mjölby (Sweden)



© Toyota Material Handling Europe



## The project in brief

### Challenges:

- AGV and loading process automation of an island production of forklift components with previously manual movement of work tables between the individual assembly stations

### Solution:

- Work tables mounted on robots move autonomously from one workstation to the next
- Loading of the robot as part of the work process thanks to a contactless charging infrastructure

### Result:

- No separate loading zone area
- Successful implementation of in-process charging: no time and space lost thanks to WCPS in-floor charging infrastructure
- Highest level of work safety

In Mjölby, Sweden, Toyota Material Handling Manufacturing Sweden (TMHMS) produces forklifts of various sizes in a multi-stage assembly process at different stations. At the assembly station for the drive units, automated guided vehicles (AGVs) from the manufacturer EA Mobile Robotics were to be used to move the mobile assembly stations from one workstation

to the next. Until now, these work tables had to be moved by hand.

With the help of AGVs, the production line could be automated. In this way, the work processes could be made much more efficient in a very short time.

### The goal: no separate charging stations and extra charging times

The task now was to create a suitable charging infrastructure for the robots. A floor-mounted charging station was out of the question, mainly for occupational safety reasons due to the risk of tripping. In addition, there was no space available in the existing assembly environment for a floor-mounted or wall-mounted charging station. Separate charging stations were also to be avoided – above all to save time, which the robots would need both for the charging process itself and for the routes to and from the charging station.

The goal was therefore to charge the robot during its downtime, which is part of the work process anyway – i.e., whenever it has reached the next workstation and the employee is doing his work at the mobile work table. After the assembly work is done, the robot drives to the next station, where the next assembler is already waiting, and the vehicle can be recharged.

### The solution: WCPS charging infrastructure with etaLINK 3000 charging pad

The optimal solution was offered by the etaLINK 3000 charging pad from Wiferion, embedded in the charging protection housing system of the WCPS charging infrastructure from PohlCon. The advantages are obvious: As an in-ground solution, WCPS offers the highest level of occupational safety while at the same time providing full loading efficiency without losses. No separate loading zones, no extra loading times. The robot loads during the work process. At the same time, the charge level of the AGV remains at a constantly high level, which benefits the lifetime of the batteries. The charging cover is made of the specially manufactured PCX material, which has a very high resistance and safety against breakage, while at the same time providing excellent permeability for the magnetic field and the communication of the safety electronics.

Contactless energy supply and the integrated WCPS charging infrastructure from PohlCon ensure more efficient processes in interaction with automated guided vehicles.

## About

**EA Mobile Robotics** is a leading supplier of customer-specific AGV systems for production and production-close logistics. With a heritage from the automotive industry the key strength and focus is on safety, availability, and ergonomics. All AGVs are designed and manufactured in Sweden.

**Toyota Material Handling Europe** is part of Toyota Industries Corporation, the global number one in material handling since 2001. The Manufacturing plant in Mjölby (Sweden) is one of the largest warehouse truck manufacturing facilities in the world. The operation is organised into three divisions: Powered Warehouse Trucks, Hand Pallet Trucks and Spare Parts.

The **PohlCon brand PUK** has designed, developed and manufactured high-quality cable management solutions for over 50 years. Their latest innovation, a robust, efficient, reliable and unobtrusive in-ground wireless charging infrastructure supports the special requirements for contactless electrification and protects the charging equipment in modern production and logistics facilities utilizing autonomous robot fleets.

In collaboration with the expertise at **Wiferion** and utilizing their extremely efficient etaLINK 3000, PohlCon provides a comprehensive in-ground charging solution for fleet owners, AGV manufacturers and automation planners, where the process defines the charging location and not the other way around.