

AUTOMATED PARKING SYSTEM RESPACE E-PUZZLE®

TECHNOLOGY IN MOTION



LÖDIGE INDUSTRIES

NEXT GENERATION OF PARKING

Lödige Industries is **one of the world's leading suppliers of logistics systems and lifting solutions** with more than 1,200 employees in more than 20 countries worldwide.

For more than 75 years, we have focused on **quality, innovation and partnership** and our car parking solutions have one thing in common: cars are transported in a safe, comfortable and space-saving manner.

Our automated car parking systems are user-friendly and highly reliable. Our specialists support you all the way from planning via installation through to operation and ensure you receive the best parking solution for your specific requirements.

TECHNOLOGY IN MOTION

Since 1992, we have installed over 60 pallet parking systems, ranging in size from three or four parking spaces to more than 100 spaces in larger multi-storey automated parking garages. The very first system installed in Amsterdam in 1992 is still in operation today. Over the years we have perfected the technology, to create what defines our E-PUZZLE automated parking solution today: a smart, reliable, high performance system for maximum space saving and layout flexibility.

RESPACE E-PUZZLE combines the knowledge and experience gained from building and installing automated parking systems for over 30 years.



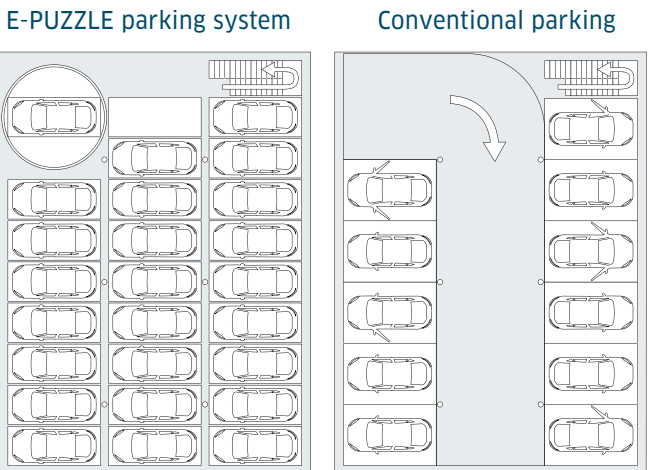
The footprint of this luxury residential complex could not accommodate a sufficient number of conventional parking spaces and street parking was not an option. At a depth of 6,5 m the RESPACE E-PUZZLE parking system now enables 47 parking spaces over two levels and is fully equipped with electric vehicle charging docks on every pallet.

MORE PARKING

IN LESS SPACE

In dense urban settings with high-rises, the creation of sufficient parking spaces is often a challenge that can affect building permit or financial project approval: The RESPACE E-PUZZLE **fully-automated parking system parks more, larger, heavier cars in a smaller footprint** than any other solution available on the market.

It uses a sliding pallet system, similar to a child's sliding puzzle toy. Pallets can be placed flexibly, thereby accommodating pillars or shear walls and the **most challenging of footprints**. Each pallet is individually controlled by the system but moved in conjunction with the surrounding pallets for higher performance and shorter waiting times.



Realisable parking spaces in comparison

E-PUZZLE PARKING

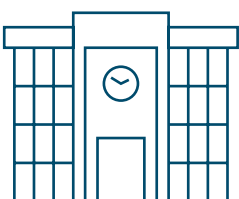
DENSE AND FLEXIBLE

RESPACE E-puzzle achieves one of the **highest parking space densities available** on the market. It maximises parking for even the most unusual building footprints. This is made possible by the grid of parking spaces at the heart of the technology. These can be installed with a minimal distance of just 100 mm between them, maximising the number of parking spaces.

The design can be adjusted to **accommodate pillars or sheer walls**. A recent upgrade to the RESPACE technology increases the number of parallel movements possible, whilst avoiding any single point of failure .

Your benefits:

- ✔ Drastic reduction in parking footprint
- ✔ Extremely flexible even in unusual layouts
- ✔ Up to 100% ev-charging possible
- ✔ Intuitive handling for a great user experience
- ✔ Protect cars from weather, theft & accidental damage
- ✔ Suitable for retrofitting and modernisation



Apartment buildings

Luxury parking for luxury living

RESPACE E-puzzle systems offer a high-end parking experience while ensuring each apartment has comfortable access to the required number of parking spaces, whatever the layout.

Offices/Mixed use

Flexible, optimum utilisation

RESPACE E-puzzle provides its own booking system with a rest interface for incorporation in external booking services. This enables the maxium utilisation of the system.

Hotels

Comfortable and safe parking experiences

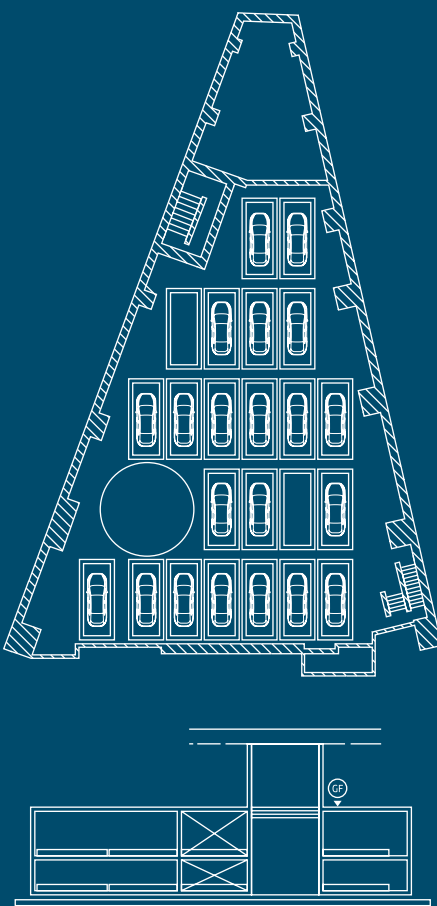
Guests will enjoy a comfortable parking experience, while the intuitive user group management makes the allocation of parking spaces to guest and employees simple and flexible.

Public buildings

Create open spaces

In dense metropolitan areas, where space is at a premium and restrictions are tight, RESPACE E-puzzle enables public parking and frees up space for more urban places of encounter.

RESIDENTIAL BUILDING, 2022

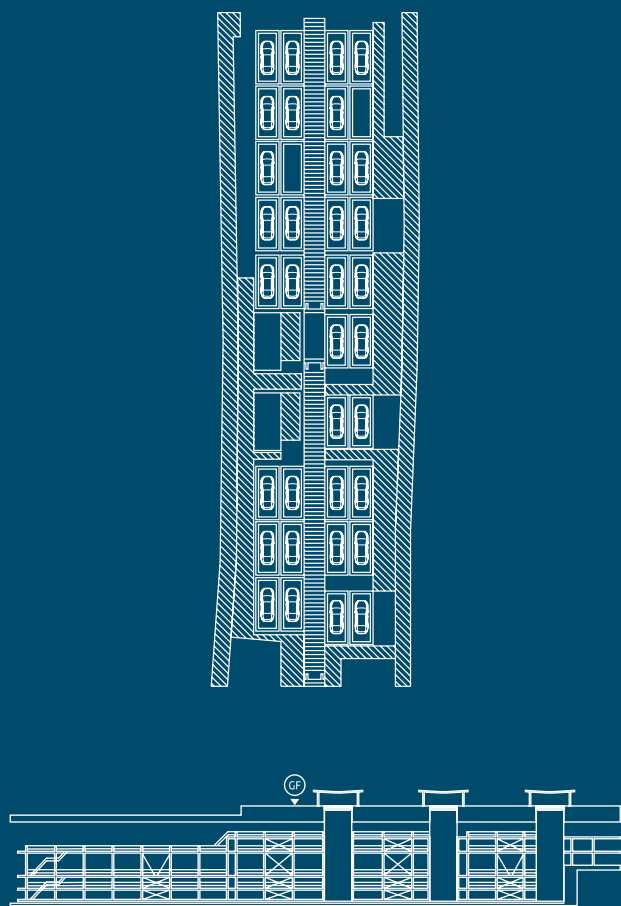


Customer Goal: Maximise spaces
Difficulty: Unusual building shape with internal structural pillars

RESPACE E-PUZZLE Solution:

- ✔ Minimal gaps, adjusted for pillars
- ✔ Turntable turns at mezzanine level
- ✔ Different ceiling heights to create spaces for higher vehicles

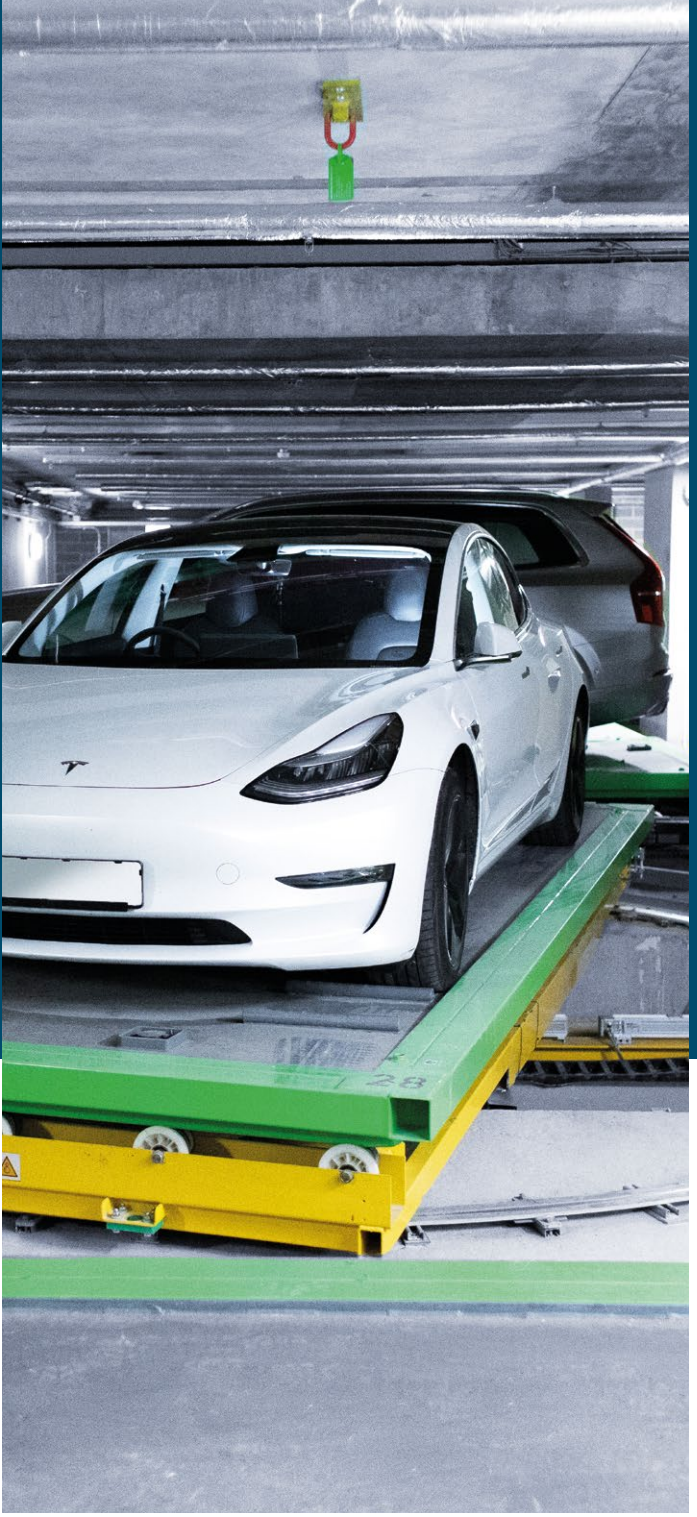
PUBLIC BUILDING, 2023



Customer Goals: Maximise spaces, high retrieval speed
Difficulty: Existing narrow structure between road surface and underground station

RESPACE E-PUZZLE Solution:

- ✔ Multi-level steel structures with central aisle
- ✔ Combination with hoist and transfer vehicles for increased speed



PARKING IN COMFORT MADE EASY



Access options



RFID



QR Code



number plate
recognition

Parking your car in a Lödige parking system feels like parking in your own garage – only better. Transfer cabins for the RESPACE system can be designed to match the building’s overall aesthetic and become **well-lit and safe spaces**. As the driver holds on to his or her key, the car and everything inside is safely locked away. The automated parking system protects the car from theft and damage.

Entry is provided through **RFID chip, QR code or number plate recognition**. Vehicles enter a modern transfer cabin., where an intuitive user guidance screen assists with directions if the car placement needs to be adjusted.

If EV-charging is needed, drivers just plug their EV-chargers into the EV-socket provided on the pallet. Once they leave the cabin, **users identify themselves at the near-by user interface panel** and after answering a few simple security questions, the driver is free to leave.

SMART & CONVENIENT

The **safety equipment scans the transfer cabin** to ensure nothing was accidentally left behind and to establish the size and in particular the height of the car. This allows the RESPACE algorithm to find the most **efficient parking position for each car**. Additional cameras can be installed inside the cabin to record the vehicle at the time of parking and retrieval.

Once the security checks are complete, the car on its pallet is moved by hoist to the parking levels and stored until retrieved.



Up to 100% of parking spaces in E-PUZZLE automated parking systems can be equipped with ev-charging.

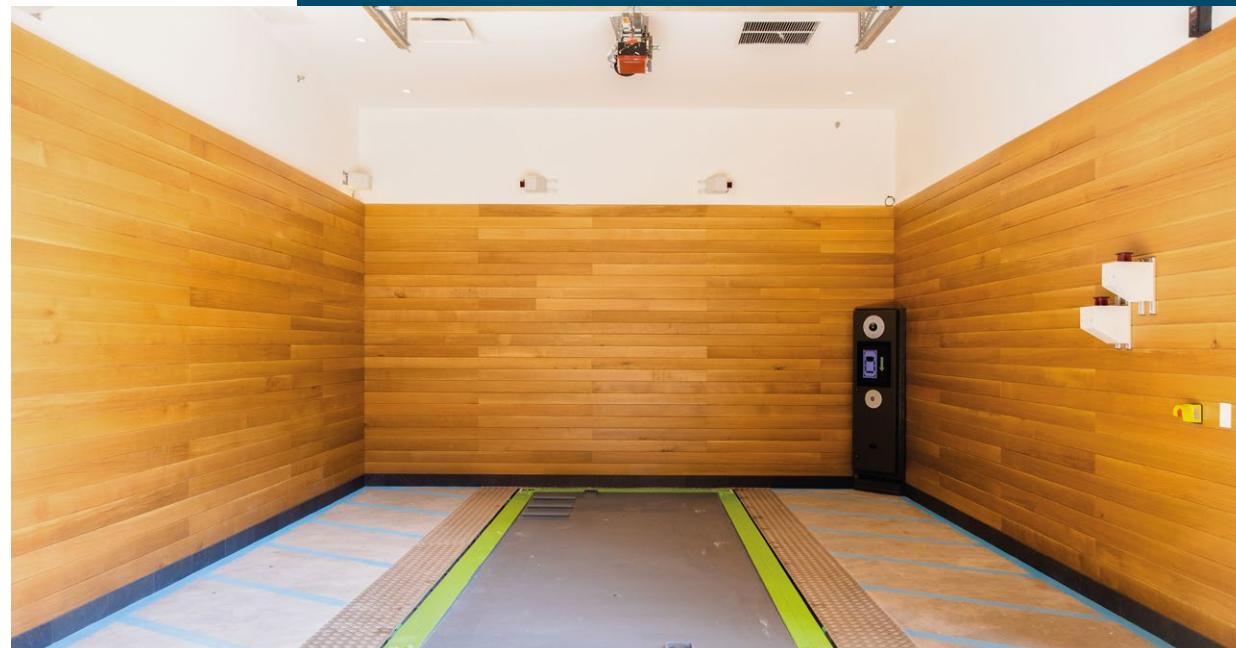
Every single pallet can be equipped with a (type 1 or 2) charging plug. An innovative load management system, developed specifically for the RESPACE E-PUZZLE technology, enables clients to reduce the number of loading stations required, by shuffling vehicles inside the system once they have been fully charged.

Depending on the layout of the system, dedicated parking spaces can be planned for ev-charging.

Drivers simply plug in their vehicle, using their own charging cable, at the time of parking and confirm they wish to charge during parking at the user terminal. The RESPACE E-PUZZLE technology takes care of the rest.

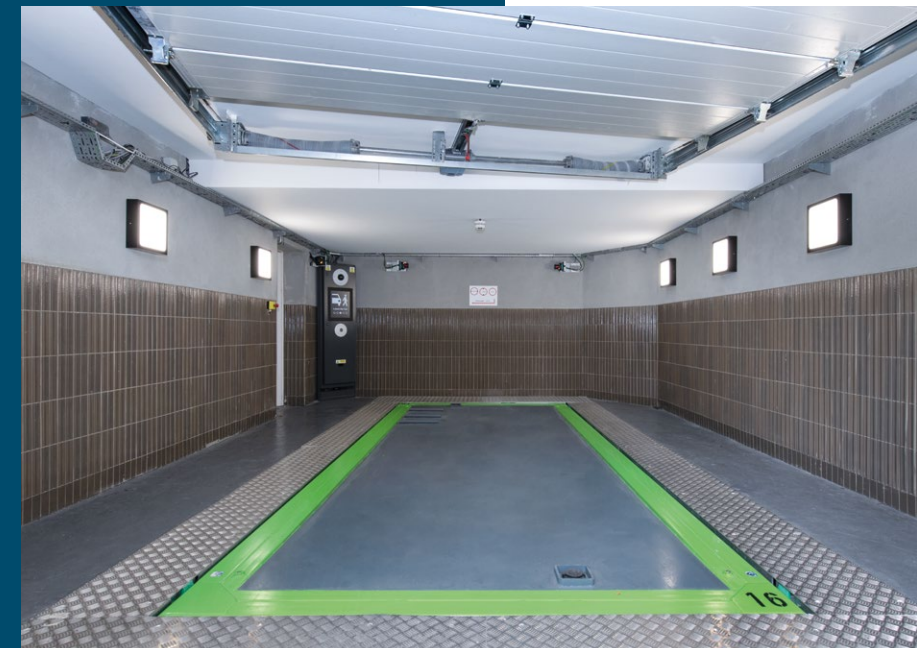
EV-CHARGING WITH E-PUZZLE





CABIN DESIGN WITHOUT COMPROMISES

The RESPACE technology converts parking into an enjoyable experience. Architects and developers can now **design the entrance and transfer cabin to match their building's architecture and internal design**. Lödige Industries has many years of experience in working closely with architects to ensure the parking area supports their overall vision. Our transfer cabins are always equipped with modern safety and security equipment, but doors, wall finishes, and fixtures can be designed by the building's architect, almost without limits. In past projects we have worked closely with designers to integrate glass walls, wooden or render finishes as well as a wide variety of doors and light fixtures.



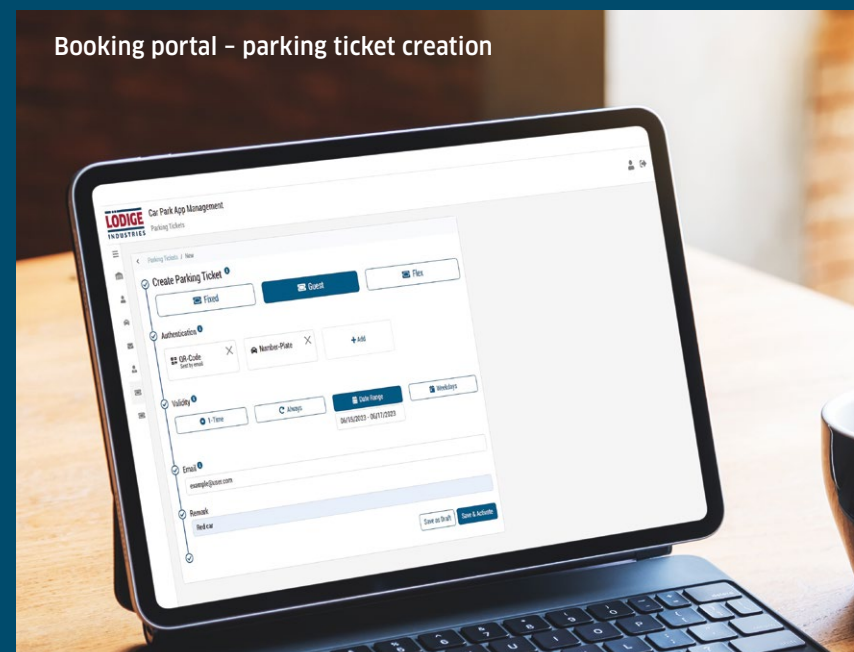
USER MANAGEMENT AT YOUR FINGERTIPS

The user management portal is easy to operate and enables property owners and managers to **create users or user groups and to schedule their access** to the automated parking system. It ensures reliable and convenient access control for both: systems with a fixed and or dynamic user group. This means, whether you want to limit access to office staff during the week, give time-restricted access to other user groups or manage a pool of visitor spaces, **the Lödige Booking Portal gives you real-time control**. It takes on the emailing of QR access codes and provides reports on the system usage, including EV-charging profiles.

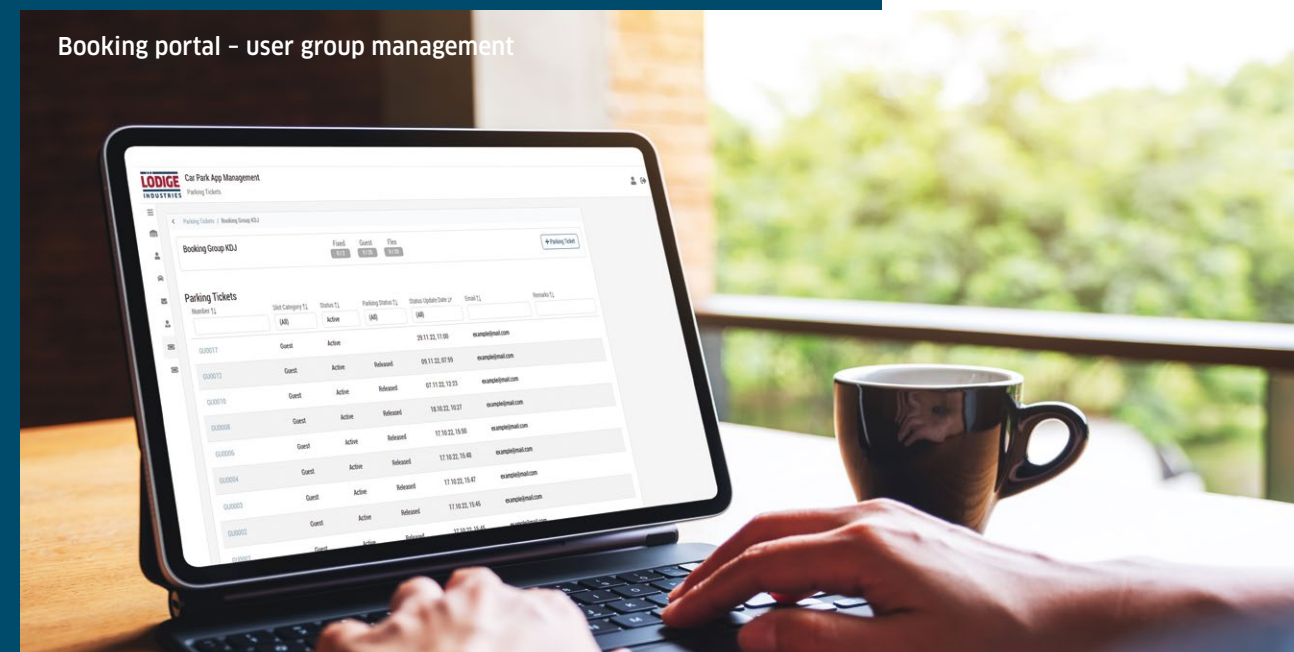
RESPACE E-PUZZLE user terminal



Booking portal – parking ticket creation

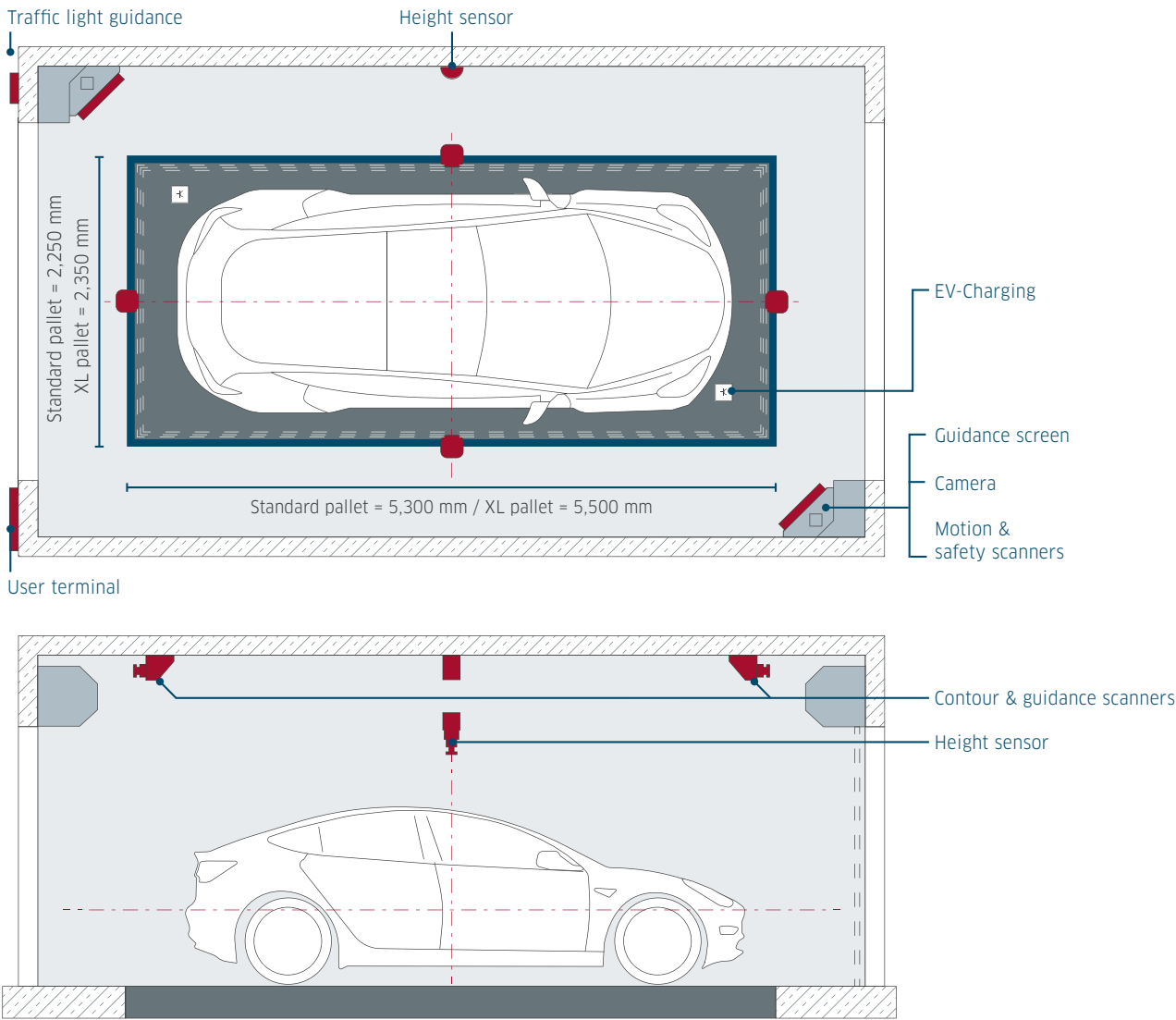


Booking portal – user group management



TECHNICAL DATA

FACTS & FIGURES



Cabin dimensions

	Recommended*	Recommended SP + turntable
Cabin width	3,800 mm	6,500 mm
Cabin length	6,500 mm	6,500 mm
Clear inner cabin height	2,700 mm*	2,500 mm**
Cabin door width	2,800 mm	2,800 mm
Clear inner cabin door height	2,100 mm*	2,100 mm**

*When using a standard pallet (SP) and a lifter without turntable.
For barrier-free design, this dimension must be adjusted.

**Depending on the vehicle height

Minimum distance

between system and wall of building	150 mm
between system and hoist	150 mm
between pallets	100 mm
between pallets and pillars	100 mm

Lifting height and pit depth

	Scissor lift	Double scissor lift	4-post lift
Lifting height	3,200 mm	6,200 mm	17,000 mm
Pit depth	900 mm	1,250 mm	750 mm

YOUR PARTNER

FROM PLANNING TO SERVICE

PLANNING GUIDE

Correct planning is a key ingredient in the successful installation of an automated parking system. **Our planning guide provides detailed information** on planning a layout, transfer cabins, energy supply and access and other useful information. Our team of engineers will support you throughout the planning process, installation and beyond.



Click or scan QR-code to explore the RESPACE E-PUZZLE Planning Guide.



PLANNING SUPPORT QUOTE

We help you to **plan the layout of your system**, taking into account **building constraints**, city requirements, traffic considerations and any other relevant aspects. Use this questionnaire to provide core information about your project. Our planning team will get in touch to discuss the next steps.

Click or scan QR-code to request a planning support quote.



MODERNISATION

We modernise almost every parking system with the latest hard- and software components that ensure the safe and smooth operation of the system in the future. We update the complete system from the cabin design, to the latest in system control and operation – at a fraction of the cost of a new one.

Click or scan QR-code for more information on modernisation.



Lödige Industries provides first class maintenance services for parking systems to guarantee your system operates reliably and at the required performance levels. We offer various levels of support to suit your needs, on-site and remotely. From basic periodic inspections, to full residential service contracts where a Lödige team is based in your facility 24/7 providing support to guaranteed service levels.

- ✓ 24-hour service hotline
- ✓ 24-hour remote connection and monitoring
- ✓ Fast fault response and clearance
- ✓ High spare parts availability
- ✓ Extensive regional service network
- ✓ Manufacturer independent maintenance
- ✓ Personal contact for all concerns



WELCOME

We will be happy to support you throughout the entire planning, installation and operating phase of your parking solution: Whether it is a new building, an existing building or a renovation - we look forward to hearing from you.

Let's start a new project together!



Discover your
direct contact:

www.lodge.com