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## **Construction project:**

### **Installation of a car parking system**

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#### **Preliminary technical notes**

1. The principles underlying the execution of this project are:
    - 1.1 Garage regulations of the relevant federal states in the latest version.
    - 1.2 The EC Machinery Directive no. 2006/42/EC, Annex 1, and the DIN EN 14010
    - 1.3 The project execution drawings produced by the architects
  2. By submitting a bid, the tenderer confirms that the relative garage dimensions as well as the driving aisle widths are in full compliance with the Garage Regulations in force, with the project execution guidelines designated by the tenderer and with the system itself, as offered by the tenderer.
  3. The required load capacities compliant to the DIN 1991-1-1, page 3, amount to 2.0 t for each parking place
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#### **Technical specifications**

##### **General:**

- Car parking system with horizontal platforms for independent parking of cars above and next to each other. This is a car parking system with at least 2 parking places on the lower level and 2 parking places on the upper level. The parking places arranged on the entrance level always have one place less than the lower and upper parking places. This empty place is used to lift a lower parking place or lower an upper parking place to the entrance level.  
As a result, the smallest unit or grid arrangement is a 2-grid arrangement for 5 cars, with the largest reasonable arrangement possibility arising from the existing dimensions as well as the required number of parking places. For the clear arrangement of the system, we recommend a maximum of 10 grids per system. A driveway must be available over the entire width of the system.
- For the relative dimensions please consult the WÖHR Combilift 543 Data Sheet and the dimensions specified for the height, length and width.
- A wheel stop for vehicle positioning is included for each parking place.
- Monitoring of slack chain, mechanical placement device in the upper end positions.
- The entire system may only be operated with doors.

##### **Doors:**

The access area to the Combilift must be secured in accordance with the accident prevention regulations, due to the empty place. All movements of the platforms are always behind closed doors. The doors are locked electromechanically and can only be opened when the selected parking place has reached its parking position and all crash openings are secured.

By default, the delivery includes sliding doors with electric drives in front of each grid.

For preventive fire protection reasons, only doors with grid panels (mesh min. 12 x 12 mm), which must be able to be entered by the fire brigade in case of fire, are used in underground garages in Germany.

For above-ground garages, doors with closed sheet metal filling (sheet steel galvanized and powder-coated, RAL 7016 anthracite) are supplied as standard. Additional door panels are available as an option.

**Control system:**

Standard equipment:

The system is operated from a central control station (operation device).

Selection of parking places via RFID-chip (3 chips per parking place: 2 chips for the user, 1 chip to keep in the system for service purposes). The display is for user guidance. All movements of the system are automatic. After the selected parking place is made available, the sliding door unlocks and opens automatically. After entering or leaving the system, the door is closed by using a RFID chip on the operation device.

Special equipment:

1. Remote control  
Selection of the parking place via remote control. Door opens automatically as soon as the parking place is in its parking position. Close the door by holding the RFID chip in front of the operating device.
  - 1.1. Additional infrared receiver for "close door" function (requirement: remote control)  
Door can be closed via remote control. The hand-held transmitter must be directed towards the infrared receiver. The system must be visible when closing the door.  
Max. 4 grids per receiver due to the need for visibility.  
  
Attention: For above-ground garages the function may be impaired due to weather conditions such as sunlight, heavy rain, etc.
  2. Smart-Parking-App (operating system from IOS 9 / Android)  
Transmission via Bluetooth. Selection of the parking place via smartphone. Door opens automatically as soon as the parking place is in its parking position. Close the door by holding the RFID chip in front of the operating device.
  - 2.1. Display for Smart-Parking-App for "close door" function (requirement: Smart-Parking-App)  
Door can be closed via smartphone. For this the numeric code indicated on the display must be entered and confirmed via the smartphone.  
Max. 4 grids per display due to the need for visibility.
  3. Connection to the entrance door provided by the customer
    - a. Additional RFID operation device  
Door provided by the customer can be opened by means of RFID chip (common chip for customer-provided door and system). Supply line provided by customer required.
    - b. Additional radio receiver (prerequisite for this: remote control)  
The entrance door provided by the customer can be opened via the remote control hand-held transmitter. We provide a potential-free contact for this, but the connection must be made by the door supplier in its control.
    - c. Additional Bluetooth receiver (prerequisite for this: Smart-Parking-App)  
Door provided by the customer can be opened via app. Supply line provided by customer required.
- Note:** The above options are only for opening the customer-provided door, as the door closure must generally be provided by the customer (e.g. pull switch, etc.)

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**Corrosion protection:**

The classification of the parking systems to the DIN EN ISO 12944-2 reads:

Corrosivity category C3 medium (interior: production rooms with high humidity and some air pollution. Exterior: urban and industrial atmospheres, moderate pollution by sulphur dioxide. Coastal areas with low salinity).

**Note: C3 applies to structural elements located above drive-in levels.**

Corrosivity category C4 high (interior: chemical plants, swimming pools, coastal shipyards and boatyards. Exterior: industrial areas and coastal areas with moderate salinity).

**Note: C4 applies to structural elements located in parking system pits.**

Corrosivity category C2 low (interior: unheated buildings where condensation may occur, e.g. depots, sports halls). **C2 applies to all moving parts** such as cog wheels, racks, chains and bevel gears located either above or below the drive-in levels.

- Drive plates with a zinc-aluminum-magnesium alloy coating of approx. 16 µm on both sides (compliant to the DIN EN 10346)
- Contact plates, cover plates and any possible platform extension sections to be hot dip galvanised with a zinc coating of approx. 45 µm (compliant to the DIN EN ISO 1461)
- Side wall plates to be hot dip galvanised compliant to the DIN EN ISO 1461, with a zinc coating of approx. 55 µm
- Screws, nuts and flat washers of the drive plate mount: Fastening of the drive plate mount to the side and middle wall plates to be performed using zinc flake coated self-tapping screws with a zinc coating of approx. 12–15 µm, or an equivalent alternative; nuts and flat washers to be hot dip galvanised compliant to the DIN 50961, with a zinc coating of approx. 5–8 µm
- For further details see additional sheet Surface Protection

**Hydraulic power pack:**

A hydraulic power pack (3.0 kW) powers the upper and lower level platforms. The hydraulic power pack is positioned within the system.

**Preparation works to be performed by the customer:**

1. Mains power supply cabling up to the lockable main switch and connection to the main switch (electrical works to be compliant to the specifications on the WÖHR Combilift 543 Data Sheet).
2. In compliance with the DIN EN 60204, all systems are to be hooked up onsite to a grounding and potential equalisation lead-out connection, with grounding spaced at a maximum distance of every 10 m.
3. Acceptance certification performed by an expert, if not formally included in the offer.
4. Guard-rails, safety fences and barriers applicable to the structural frame, as required under the DIN EN ISO 13857.
5. Drainage channel in the middle pit area, which is to be connected to a gully or a drainage pit (50x50x20 cm). Lateral slope only within the gully possible, not in the remaining pit area. Longitudinal slope is determined by the specified dimensions available. When connecting to the sewer system, oil or gasoline separators must be considered according to the legal regulations. Painting of the pit floor is also recommended in the interest of environmental protection.
6. The quality of the concrete must be compliant to the static requirements of the building, with minimum grade C20/25 concrete for the dowel fastening sections.
7. Possible wall breakthrough works compliant to the WÖHR Combilift 543 Data Sheet.
8. Sufficient lighting of the driving aisle and of the parking places if necessary.



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**Scope of operations**

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**UP**

**TP**

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Item 1.00.

Car parking system for a total of \_\_\_\_\_ cars

Upper level: \_\_\_\_\_ parking spaces

Entrance level: \_\_\_\_\_ parking spaces + 1 empty space

Lower level: \_\_\_\_\_ parking spaces

*(Select the values or fill in any differing construction dimensions)*

Pit depth (A): \_\_\_\_\_ cm

Clear height to the lower  
edge of the ceiling (H): \_\_\_\_\_ cm

Vehicle height: upper level \_\_\_\_\_ cm

entrance level \_\_\_\_\_ cm

lower level \_\_\_\_\_ cm

Vehicle length: 500 cm

Parking space width: 250 cm

Platform load: 2,0 t

including sliding doors with electric drives

including installation and freight costs, free delivered to the installation site

including electrical installation from lockable main switch

including inspection certification by a technical expert

WÖHR Combilift 543- \_\_\_\_\_, \_\_\_\_\_ grids  
or its equivalent

\_\_\_\_\_ Piece(s)      € \_\_\_\_\_      € \_\_\_\_\_

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**Net total price**      € \_\_\_\_\_  
**plus 19 % VAT**

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Item 1.10. \*Contingency item\*

Surcharge for remote control  
(per system 1 x)

incl. \_\_\_\_ hand-held transmitter  
(1 per parking place)                      \_\_\_\_ Piece(s)                      € \_\_\_\_                      € \_\_\_\_

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Item 1.20. \*Contingency item\*

Surcharge for additional hand-held  
transmitter for remote control

\_\_\_\_ Piece(s)                      € \_\_\_\_                      € \_\_\_\_

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Item 1.30. \*Contingency item\*

Surcharge for infrared receiver for  
door closing via hand-held transmitter  
(max. 4 grids per receiver)

\_\_\_\_ Piece(s)                      € \_\_\_\_                      € \_\_\_\_

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Item 1.40. \*Contingency item\*

Surcharge for Smart-Parking-App  
to select the parking place  
(per system 1 x)

\_\_\_\_ Piece(s)                      € \_\_\_\_                      € \_\_\_\_

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Item 1.50. \*Contingency item\*

Surcharge for Smart-Parking-App display  
for door closing via smartphone  
(max. 4 grids per receiver)

\_\_\_\_ Piece(s)                      € \_\_\_\_                      € \_\_\_\_

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Item 1.60. \*Contingency item\*

Surcharge for a larger platform width

                    cm                      \_\_\_\_ Piece(s)                      € \_\_\_\_                      € \_\_\_\_

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Item 1.70. \*Contingency item\*

Surcharge for increase of the platform  
load to 2.6 t for each parking place

\_\_\_\_ Piece(s)                      € \_\_\_\_                      € \_\_\_\_

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Item 1.80. \*Contingency item\*

Surcharge for increase of the platform  
load to 3.0 t for each parking place

\_\_\_\_ Piece(s)                      € \_\_\_\_                      € \_\_\_\_

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**Technical specifications / Tender text**  
**WÖHR Autoparksysteme GmbH**  
**COMBILIFT 543**



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Item 1.90. \*Contingency item\*

Surcharge for measures aimed at the reduction of structure-borne sound insulation, compliant to the DIN 4109      \_\_\_ Piece(s)      € \_\_\_\_\_      € \_\_\_\_\_

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Item 1.100. \*Contingency item\*

Surcharge for increased sound insulation, sound insulation level 2 - 25 dB (A)      \_\_\_ Piece(s)      € \_\_\_\_\_      € \_\_\_\_\_

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Item 1.110. \*Contingency item\*

Surcharge for completion of a system maintenance contract, which includes 2x annual maintenance consisting of a main and secondary inspection, all spare and wear parts, as well as a cleaning of the platform upper side      4 years      € \_\_\_\_\_      € \_\_\_\_\_

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**Net total price, including contingency items plus 19 % VAT**      € \_\_\_\_\_

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