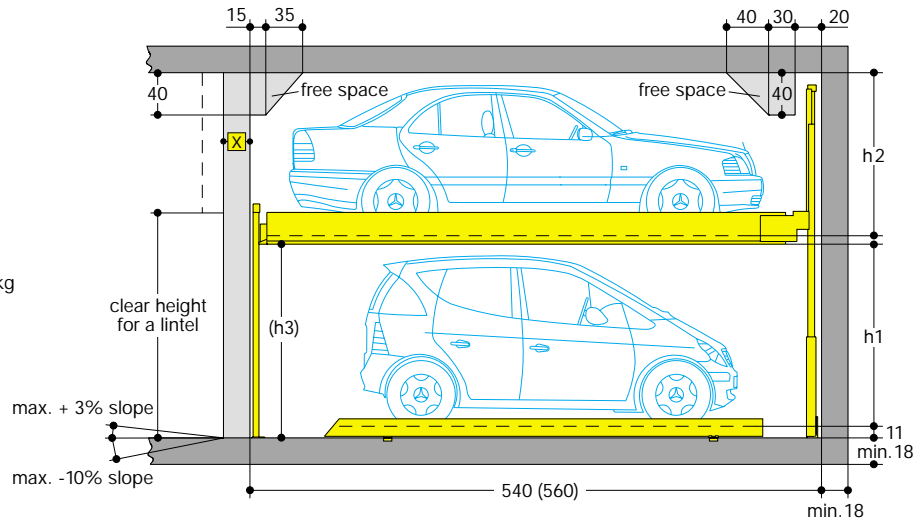


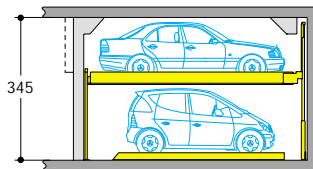
X = to be clarified with door supplier

Platforms are in horizontal position to drive on.
Load per platform max. 2000 kg
(load per wheel max. 500 kg)

Dimensions in cm

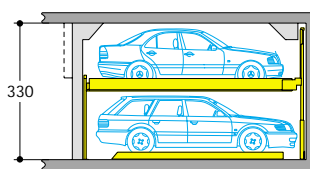


Standard type



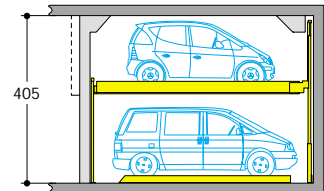
- Lower level:** saloon and estate cars up to a height of 165 cm (e.g. MB A-class, Fiat Temptra, VW New Beetle, Smart etc.). Platform distance $h_1 = 170$ cm.
- Upper level:** saloon and estate cars up to a height of 150 cm (e.g. Audi A3 to A8; BMW-Touring; Opel Caravan; VW-Variant, always without roof rails). Platform distance $h_2 = 153$ cm (with the greater h_2 height, higher cars can be parked).
- Access height $h_3 = 181$ cm.

Economic type

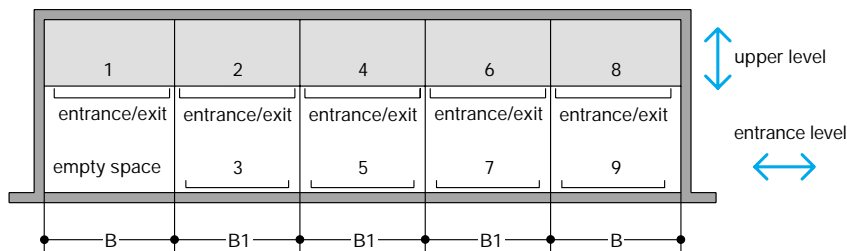


- Lower level and upper level:** saloon and estate cars up to a height of 150 cm (e.g. Audi A3 to A8; BMW-Touring; Opel Caravan; VW-Variant, always without roof rails).
- Platform distance $h_1 = 155$ cm. Platform distance $h_2 = 153$ cm. (with the greater h_2 height, higher cars can be parked).
- Access height $h_3 = 166$ cm.

Comfort type



- Lower level:** saloon cars and vans up to a height of 200 cm, max. 2000 kg (e.g. Ford Galaxy; Opel Sintra; Renault Espace; VW Sharan, Caravelle etc.). Platform distance $h_1 = 205$ cm.
- Upper level:** saloon and estate cars up to a height of 175 cm (e.g. MB A-class, Fiat Temptra, VW New Beetle, Smart etc.). Platform distance $h_2 = 178$ cm (with the greater h_2 height, higher cars can be parked).
- Access height $h_3 = 216$ cm.



In each grid a entrance/exit is necessary.

Space required		Gives clear platform width	Gives clear platform width
B	B1	upper level	entrance level
260	250	230	197*
270	260	240	207*
280	270	250	207*

* the space to get in and out of the car for platforms in entrance level is increased by 35 cm driver side.

Notes:

- For standard version no doors are necessary. Doors can be installed either for manual or automatic opening.
- Arrangements start with 2 grids for 3 cars, 3 grids for 5 cars, up to 10 grids for 19 cars in one system.
- Car length max. 500 cm with an installation length of 540 cm, car width 190 cm.
- For very large cars an installation length of 560 cm is recommended. This length offers larger safety distances for potential future developments or projects with short term parkers such as hotels or similar.
- The manufacturer reserves the right of modify or alter above specifications.

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Evenness tolerances

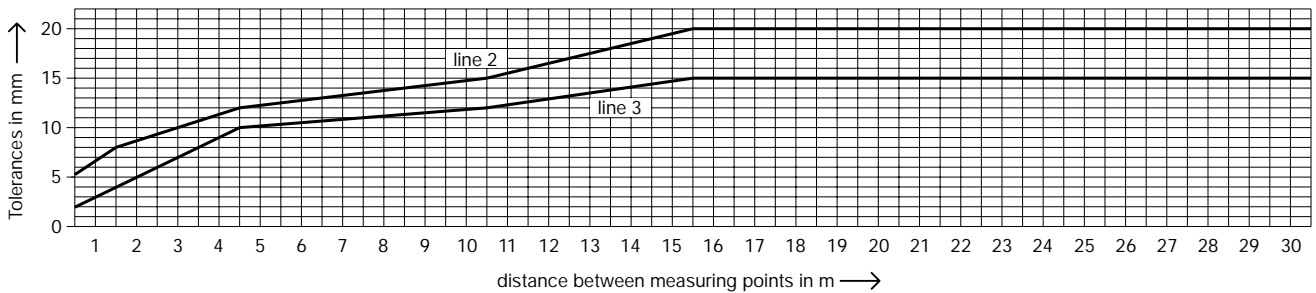
According to safety regulations and VdTÜV/CEOC recommendations the danger of trapping between nonparallel platforms edges and the ground has to be prevented. The distance between the lower flange of the platforms and the garage ground must therefore not exceed 2 cm.

To adhere to the safety regulations and VdTÜV/CEOC recommendations and to get the necessary even ground, the tolerances of evenness to DIN 18202, table 3, line 3, must not be exceeded. Therefore exact levelling of the ground by the client is essential.

Abstract from DIN 18202, table 3

column	1	2	3	4	5	6
line	reference	Vertical measurements as limits in mm with measuring points distances in m to*				
		0,1	1	4	10	15
2	Unfinished to surface of covers, subconcrete and subsoils for higher demands, e.g. as foundation for cast plaster floor, industrial soils, paving tiles and slabstone paving, compound floor paving. Finished surfaces for minor purposes, e.g. warehouses, cellars	5	8	12	15	20
3	Finished grounds, e.g. floor pavement serving as foundation for coverings. Coverings, tile coverings, PVC flooring and glued coverings.	2	4	10	12	15

* Intermediate values are to be taken out the diagram and must be rounded-off to mm.



Check points

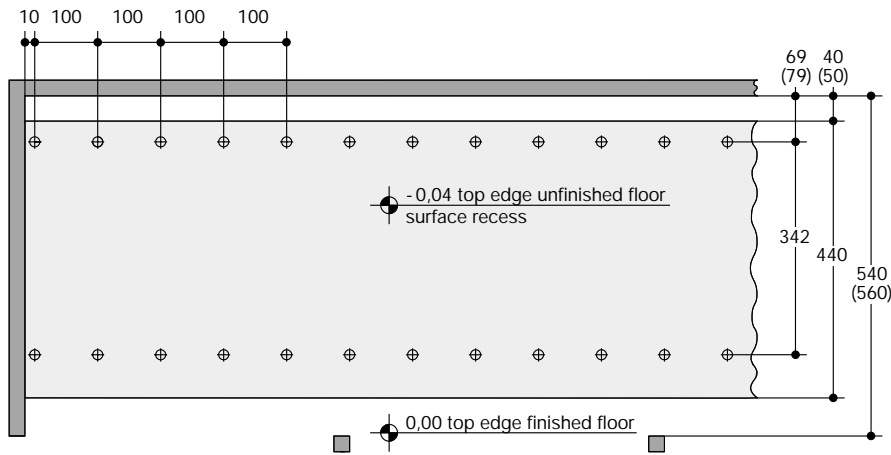
The evenness of a surface is checked independently of its position and slope by bore hole gauges between two check points on the surface.

WÖHR normally make a random test using single measurements in case of obviously inaccurate surfaces.

For uniform examination of the evenness of the ground surface the following points are defined as measuring and check points:

- a) for surface recess
- b) for finished floor.

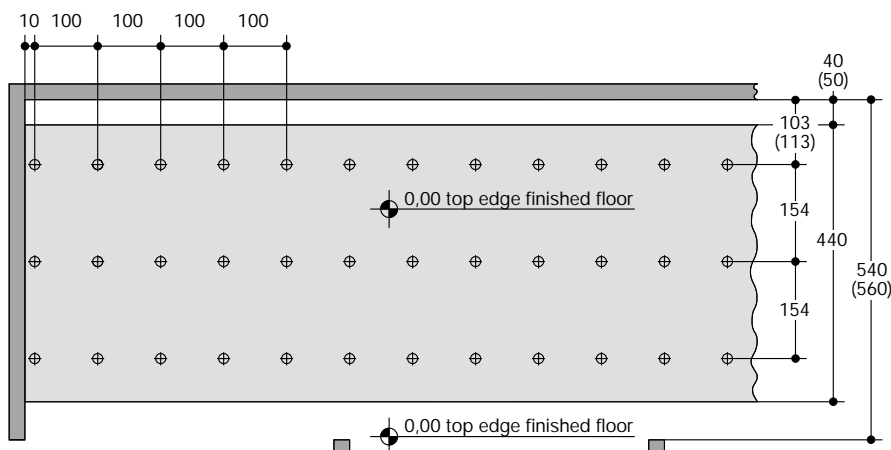
a) Layout for surface recess width 4 m



⊕ Measuring points at 100 cm points for checking the unevenness acc. to DIN 18202, table 3, line 2, or acc. diagram

() dimensions in brackets for increased length

b) Layout for finished floor after placing floor pavement



⊕ Measuring points at 100 cm points for checking the unevenness acc. to DIN 18202, table 3, line 3, or acc. diagram

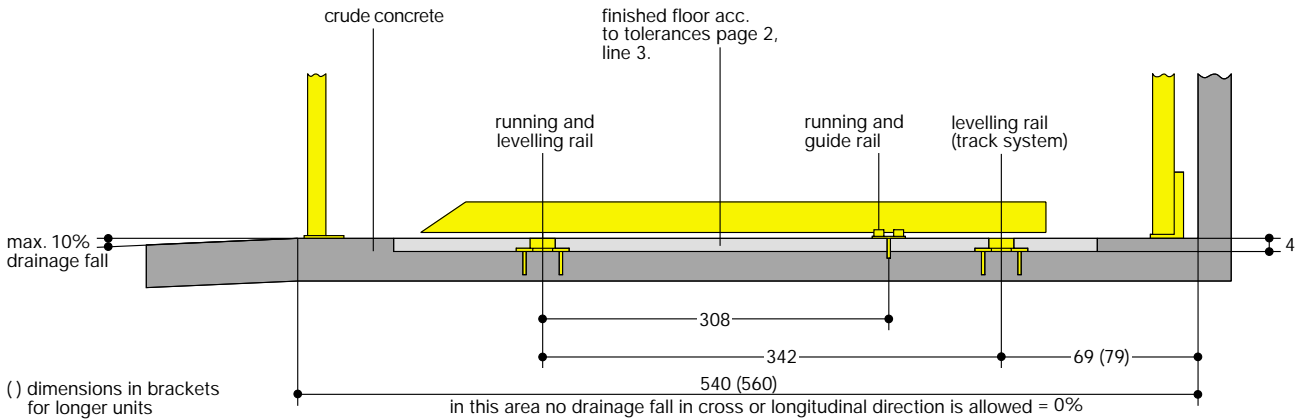
() dimensions in brackets for increased length

Track Installation · Flooring works · Drainage

The track has a dynamic loading of max. 600 kg per running wheel (4 running wheels per platform). Evenness of crude concrete floor is required to the tolerances shown on page 2. After checking the crude concrete floor, the track system will be installed from the highest point. Packing pieces for the track system are provided by Wöhr in the case of unevenness compared to the tolerances on page 2.

The floor pavement must be tampered between levelling rails. The rails are fixed to the ground by plug after the floor pavement has been placed (evenness acc. to tolerances on page 2, line 3). Mastic asphalt may not be used.

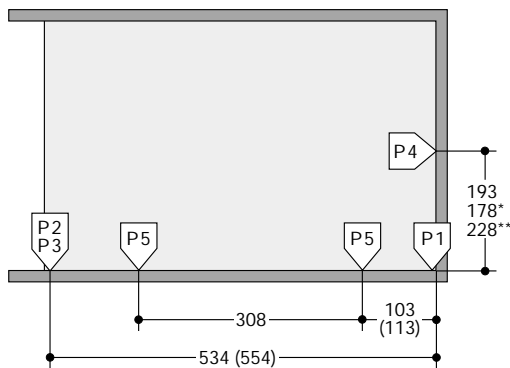
Due to the technical requirements there is no drainage fall allowed in the area of the system .



Width dimensions and statics

All dimensions shown are minimum. Constructional tolerances must be taken into consideration. All dimensions in cm.

Section



() dimensions in brackets for longer units

* dimensions for economic type
** dimensions for comfort type

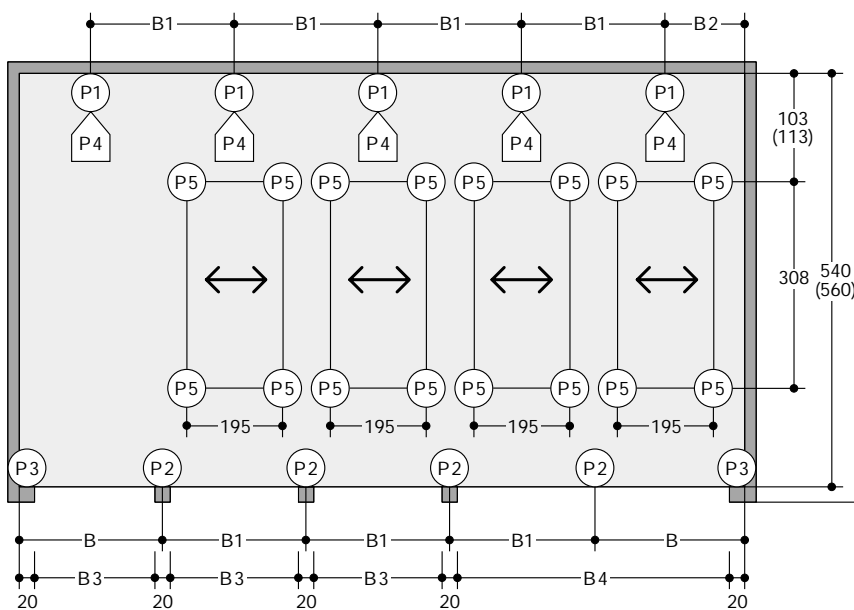
P1 = +30,0kN¹⁾
P2 = +21,0kN
P3 = +10,5kN
P4 = ± 1,0kN
P5 = + 6,0kN

¹⁾ all static loadings include the weight of the car

Bearing loads are transmitted by wall plates with min. 30 cm² surface and to the floor by base plates with min. 350 cm² surface. Wall and base plates will be fixed by heavy duty anchor bolts to a drilling depth of 10 -12 cm. When fixing to the waterproof concrete floors chemical anchors are employed (to be advised by Wöhr).

Base plate thickness min. 18 cm. Rear wall and base plate must be formed of concrete (recommended quality B 25) and must have a flat surface without protrusions.

Plan



The specified lengths to the support points are mean values. Please contact Wöhr Agent for exact positions for any variations on the standard units.

Please contact Wöhr Agent for clarify the door widths/widths of columns. Grid width of 250/260/270 cm must be observed.

↑
driveway width acc. to local requirements
650, 600, 550 cm
650, 625, 600 cm

Space required					gives clear platform width
B	B1	B2	B3	B4	
260	250	135	230	480	230
270	260	140	240	500	240
280	270	145	250	520	250

Hydraulic power packs

For the accommodation of the hydraulic power packs an additional space is required which will be determined during the verifications of the drawings, e.g. in a wall recess.

Dimensions:
length = 100 cm
height = 140 cm
depth = 35 cm

Electrical data

Main electrical supply 230/400 V, 50 Hz, 3 phase. Power consumption 1,5 kW. Main supply line 5 x 2,5 mm² to the switch cabinet, provided by client. Grounding of the steel structure is necessary, provided by client (distance between grounding max. 10 m).

Switch cabinet

1. The main power switch is installed in the door for the switch cabinet to be operated from outside acc. to the technical safety requirements.
2. For the switch cabinet a space has to be provided by the client from which the installation can be viewed. The size of the switch cabinet is 100 x 100 x 21 cm.
3. The wall opening of 15 cm diameter is required between the switch cabinet and the system itself. Please contact Wöhr Agent to clarify.
4. The computer control is designed for a temperature of 0°– 40° C (with a relative humidity of 50% /40° C). If necessary, the switch cabinet has to be provided with a heating.
5. If the system is installed outside the switch cabinet needs to be inside a water-/wind proof box. In front of the switch cabinet an area of 100 cm is required to work.

General product information

The combilift Type 551 consists of 2 platform rows, one above the other. In front (to the full width) of the installations is a drive way which is situated on the lower platform row (access level). The lower platform row consists of one platform less than the upper level. In order to access a platform on the upper level, the lower level

platforms (access level) shift laterally into the free space. The selected upper platform is now lowered vertically into the free space provided in the access level. The lowering of the platform is by means of push button control (hold-to-run-device), the hoisting of the platform is fully automatic.

Noise protection

The basis is the German DIN 4109 »Noise insulation in buildings«. According to DIN 4109 equipment, machinery and plant used in joint technical facilities in buildings must be provided with adequate protection against air-borne and solid-borne sound. The sound level must not exceed 30 dB (A) at night.

Insulation against air-borne sound

Measurements in buildings showed that 30 dB (A) is not exceeded in rooms above underground garages if the sound insulation figure between underground garage and the room above it is at least $R'_{w} = 55$ dB.

Insulation against impact sound

a) The 30 dB (A) level will not be exceeded provided recommended Wöhr accessoires are fitted and, in addition, the insulation figure of $R'_{w} = 55$ dB is achieved.

b) If the measures proposed by Wöhr are not acceptable to the client, a structural solution may be required, e.g. by »isolating« the car park from the main body of the building.

c) In special circumstances a combination of a) and b) above may be necessary in which case specialist advice should be sought from qualified engineers.

Numbering of the parking spaces

1. The empty space of the Combilift is always on the left in the entrance level.
2. The numbering is as follows:

1	2	4	6	8	upper level
	3	5	7	9	entrance level

3. The numbering for each system starts with 1 as above.
4. Different numbering of parking spaces is possible at extra cost (software changes are necessary)

Conformity test

All our systems are checked according to EC machinery directive 98/37/EG and the VdTÜV-recommendation Conveyor technology 1505.

Free spaces

Special drawings for free spaces to accommodate air ducts or other pipes can be requested at Wöhr Agent.

Railings

If walkways are arranged directly to the side or behind the systems, railings have to be provided by client acc. to local requirements, height min. 200 cm – this is applicable during the construction phase too.

Illumination

Illumination has to be considered acc. to local requirements by client.

Maintenance

Regular maintenance by qualified personnel can be provided by means of an Annual Service Contract. If this option is not selected we do advise that the following are undertaken on a regular basis to protect against corrosion;

- re-coat damaged areas of paintwork.
- clean the galvanised parts and metal sheets to prevent the building-up of dirt, oil deposits, winter salts, etc.

Dimensions

All dimensions are in cm.

Notes

If doors are planned we recommend installing an empty pipe for cabling to the control panel from the rear. This empty pipe should be 120 cm above ground level in the centre of a column.

Combilift 551 · 01.2002 · C027-5176